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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OPP OFFICIAL RECORD
HEALTH EFFECTS DIVISION
SCIENTIFIC DATA REVIEWS
EPA SERIES 361

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

November 8, 2002

MEMORANDUM

SUBJECT: Malathion: Updated Revised Occupational Exposure and Risk Assessment for the Interim Reregistration Eligibility Decision (IRED) Document. (DP Barcode: D286796; Chemical Number: 057701; EPA MRID Nos.: 45005910, 45491901, 45138202, 45491902, 45138201, 45469501)

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The occupational exposure and risk assessment for the HED IRED Chapter for Malathion is attached. The previous version of this assessment appeared in the HED Revised Occupational and Residential Exposure and Risk Assessment for the Reregistration Eligibility Decision (RED) document, dated September 14, 2000. In a meeting on May 20, 2002, the HED's Hazard Identification Assessment Review Committee (HIARC) recommended new toxicity endpoints and uncertainty factors for Malathion. This current document has been updated to reflect those HIARC changes. An exposure assessment for malathion residential uses has been prepared as a separate document (ref.: D283741). Substantial assistance was rendered on this document by Seyed Tadayon (HED).

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1.0 Executive Summary

In this document, which is for use in EPA's development of the Malathion Interim Reregistration Eligibility Decision (IRED) Document, HED presents its review of the potential human health risks from occupational exposure to malathion. Occupational exposure may result from malathion agricultural uses (i.e., multiple food-use crops) and non-agricultural uses (i.e., outdoor residential vegetable gardens, home orchards, ornamentals and perimeter house treatments, and wide-area mosquito treatment). Exposure may occur to both handlers and postapplication workers who enter and conduct activities in treated use sites. A non-occupational risk assessment for residential malathion use sites is presented in a separate HED document[5]. Risks to residential handlers did not exceed HED's level of concern for short- and intermediate-term exposures. Because occupational exposures are not expected exceed those of residential handlers, (i.e., occupational risks from residential applications are not expected to exceed HED's level of concern) they are not assessed in this document.

The HIARC selected cholinesterase inhibition as the toxicity endpoint for dermal exposure (Target MOE = 100), and histopathologic lesions as the toxicity endpoint for inhalation exposure (Target MOE = 1000). Even though dermal and inhalation exposures have separate endpoints, it is believed that the contribution of inhalation exposure to the cholinesterase endpoint should be accounted for. Therefore, in calculating the risks for cholinesterase inhibition, dermal and inhalation exposure estimates were combined, and the resulting Total MOEs compared to the Target MOE of 100. The following is a brief overview of the results of this occupational risk assessment:

Occupational Handlers

Most **mixer/loader scenarios** do not reach the target MOE of 100 at baseline clothing (i.e., long pants, long sleeved shirt, shoes & socks). With the addition of gloves, most mixer/loader scenarios reach the target MOE, except for those that involve high application rates, large area of treatment, or wettable powder formulations. For these latter exceptions (approximately 17 scenarios), most require additional clothing, a respirator, or engineering controls such as a closed mixing/loading system, in order to reach the target MOE.

All **applicator scenarios** (*except airblast application of EC to apricots, cherries, nectarines, peaches, avocados, figs, chestnuts, pecans, walnuts, citrus fruits and ornamentals, and applying sprays for mosquitoes with a non-thermal fogger)*, reach the target MOE with handlers wearing baseline clothing, and are not of concern to HED. Of the scenarios for which more than baseline protection is necessary, several require engineering controls (i.e., enclosed cab tractors).

All **flagger scenarios** for all formulations and crops reach the target Total MOE of 100 with handlers wearing baseline clothing, and are not of concern to HED.

Occupational Postapplication Workers

All crops and application rates were assessed for postapplication activities ranging from very low to very high contact. Resulting "days after treatment" at which the target MOE of 100 was reached varied from 0 to 6 days. Most activities reach the target MOE on day 0. An REI of 12 hours is established for malathion under the Worker Protection Standard (WPS).

1.1 Purpose

This document is for use in EPA's development of the Malathion Interim Reregistration Eligibility Decision (IRED) Document. In this document, HED presents its assessment of the potential human health risks from occupational exposure to malathion. This document includes only those product formulations and agricultural use sites supported by the basic producer (Cheminova) and IR-4 (listed in a 2/17/98 Agency Memorandum)[1] and reflected by a subsequent communications deleting the residential uses of malathion for broadcast turf treatment and residential dust formulations (Cheminova letters dated March 10, and March 18, 2002)[2,3].

1.2 Criteria for Conducting Exposure Assessments

An occupational exposure assessment is required for an active ingredient if (1) certain toxicological criteria are triggered and (2) there is potential exposure to handlers (mixers, loaders, applicators, etc.) during use or to persons entering treated sites after application is complete. For malathion, both criteria are met.

1.3 Summary of Toxicity Concerns Relating to Occupational Exposures

1.3.1 Acute Toxicity Categories

The toxicological data base for malathion [S-1,2-bis (ethoxycarbonyl)ethyl O,O-dimethyl phosphorodithioate] is adequate and will support reregistration. Table 1 summarizes the acute toxicity values and categories for technical (97%) malathion.

Table 1: Acute Toxicity Categories for Technical Malathion

Test	Results	Toxicity Category
Acute Oral - Rat	LD_{50} = 5400 mg/kg/day ♂ 5700 mg/kg/day ♀	IV
Acute Dermal - Rat	LD_{50} = >2000 mg/kg/day ♀♂	III
Acute Inhalation - Rat	LC_{50} = >5.2 mg/L ♀♂	IV
Primary Eye Irritation - Rabbit	Slight conjunctival irritation; cleared by 7 days	III
Primary Dermal Skin Irritation - Rabbit	Slight dermal irritation (PIS = 1.1)	IV
Dermal Sensitization - Guinea Pig	Not dermally sensitizing	–

1.3.2 Other Endpoints of Concern

The HIARC report (Malathion. Report of the Hazard Identification Review Committee. Makris and Dementi, June 13, 2002; TXR0050804), indicates that there are toxicological endpoints of concern for malathion. See Table 2.

Table 2. Summary of Toxicology Endpoint Selection for Malathion (PC Code 057701)

Exposure Scenario	Dose (mg/kg/day) UF /MOE	Hazard and Exposure Based Special FQPA Safety Factor	Endpoint for Risk Assessment	Study
Dietary Risk Assessments				
Acute Dietary general population including infants and children	LOAEL = 5 mg/kg/day UP = 300[1] Acute RFD = 0.02 mg/kg/day	FQPA SF 3X aPAD. = acute RFD/FQPA SF = 0.007 mg/kg/day	LOAEL = 5 mg/kg/day based on RBC ChE. in offspring	Comparative cholinesterase single dose oral study in the rat
Chronic Dietary all populations	NOAEL = 2.4 (Regulatory dose = 2.0 mg/kg/day) UP = 100 Chronic RFD = 0.02 mg/kg/day	FQPA SF 3X cPAD = chronic RFD/FQPA SF = 0.007 mg/kg/day	LOAEL = 26 mg/kg/day based on plasma chE.	Chronic/carcinogenicity oral study in the rat
Non-Dietary Risk Assessments				
Incidental Oral Short- and Intermediate- Term (1 - 30 Days and 1 - 6 Months) Residential Only	LOAEL = 5 mg/kg/day MOE = 1000[1]	10X	LOAEL = 5 mg/kg/day based on RBC Che. in offspring	Comparative cholinesterase single and multiple dose oral study in the rat

Exposure Scenario	Dose (mg/kg/day) UF /MOE	Hazard and Exposure Based Special FQPA Safety Factor	Endpoint for Risk Assessment	Study
Dermal (Short- and Intermediate-Term)				
Residential (children)[2]	Oral LOAEL = 5 mg/kg/day MOE = 1000[1]	10X	LOAEL = 5 mg/kg/day based on RBC Che. in offspring	Comparative cholinesterase single and multiple dose oral study in the rat
Residential (adults)	Dermal NOAEL = 50 mg/kg/day MOE = 100	1X	LOAEL = 300 mg/kg/day based on plasma and RBC Che. (♂, ♀) and brain Che. (♀)	21-day dermal study in rabbits
Occupational (adults)	Dermal NOAEL = 50 mg/kg/day MOE = 100	N/A	LOAEL = 300 mg/kg/day based on plasma and RBC Che. (♂, ♀) and brain Che. (♀)	21-day dermal study in rabbits
Dermal (Long-Term)[2]				
Residential (children)	Oral NOAEL = 2.4 mg/kg/day (Regulatory dose = 2.0 mg/kg/day) MOE = 300	3X	NOAEL = 26 mg/kg/day based on plasma Che.	Chronic/carcinogenicity oral study in the rat
Occupational and Residential (adults)	Oral NOAEL = 2.4 mg/kg/day (Regulatory dose = 2.0 mg/kg/day) MOE = 100	1X	NOAEL = 26 mg/kg/day based on plasma Che.	Chronic/carcinogenicity oral study in the rat
Inhalation (All Durations)[3]				
Occupational and Residential (all populations)	Inhalation LOAEL= 0.1 mg/L (25.8 mg/kg/day) MOE =1000[4]	1X	LOAEL= 0.1 mg/L (25.8 mg/kg/day) based on histopathology in respiratory epithelium	90-day inhalation study in rats
Residential (children)[5]	Inhalation NOAEL= 0.1 mg/L (25.8 mg/kg/day) MOE = 300 (chE.)	3X	LOAEL = 0.45 mg/L (115.1 mg/kg/day) based on plasma and RBC Che.	90-day inhalation study in rats
Occupational and Residential (adults)[5]	Inhalation NOAEL= 0.1 mg/L (25.8 mg/kg/day) MOE = 100 (chE.)	1X	LOAEL = 0.45 mg/L (115.1 mg/kg/day) based on plasma and RBC Che.	90-day inhalation study in rats
Cancer	Classification: Suggestive evidence of carcinogenicity			

[1] UP = 1000 [10x for interspecies extrapolation and 10x for intraspecies variations and 10x for Total FQPA Safety Factor; 3x uncertainty factor for a LOAEL to NOAEL ($_{UFA}$) and 3x for Hazard-Based Special uncertainty factor.]
[2] Since an oral LOAEL/NOAEL was selected, a dermal absorption factor of 10% should be used in route-to-route extrapolation.
[3] Absorption via the inhalation route is assumed to be equivalent to oral absorption.
[4] MOE = 1000 [10x for interspecies extrapolation and 10x for intraspecies variations and 10x for a LOAEL to NOAEL ($_{UFA}$) and for the severity of the effect.]
[5] Use for aggregate assessment only.

1.4 Incidents Reports (see J. Blondell and M. Spann, 08/18/98, D247492)

1.5 Summary of Use Patterns and Formulations

1.5.1 Occupational-Use Products

Products containing the insecticide, malathion, are intended for both occupational and residential uses. Malathion occupational-use products assessed by HED include those for agricultural uses (i.e., multiple food-use crops) and non-agricultural uses (i.e., outdoor residential vegetable gardens, home orchards, ornamentals and perimeter house treatments, and wide-area mosquito treatment). Exposure may occur to both handlers and postapplication workers who enter and conduct activities in treated use sites. A non-occupational risk assessment for residential malathion use sites is presented in a separate HED document[5]. In that assessment, risks to residential handlers did not exceed HED's level of concern for short- and intermediate-term exposures. Because occupational exposures are not expected to exceed those of residential handlers, occupational risks from treating residential sites also are not expected to exceed HED's level of concern, and therefore, are not assessed in this document.

1.5.2 Formulation types and percent active ingredient

Based on a July 2002 review of OPP Reference Files System (REFS), there are active registrations for 213 products containing malathion. Malathion, [S-1,2-bis (ethoxycarbonyl)ethyl O,O-dimethyl phosphorodithioate] is an organophosphate insecticide, formulated as a technical (91-95% ai), a dust (1-10% ai), an emulsifiable concentrate (3-82% ai), a ready-to-use (1.5-95% ai), a pressurized liquid (0.5-3% ai), and a wettable powder (6-50% ai). Several of the 95% liquids are intended for Ultra-Low-Volume (ULV) applications.

1.5.3 Registered Occupational Use sites

At this time, malathion is registered for occupational use on terrestrial food and feed crops, indoor food crops, aquatic food crops, terrestrial non-food crops, forestry, indoor non-food, and indoor and outdoor residential. However, the Agency has been informed by the producer (Cheminova) and IR4 that the following occupational use sites will not be supported for reregistration:

All pet uses for all formulations;
All livestock uses with all formulations;
All indoor uses (except stored commodities and storage facilities);
All greenhouse uses (except that mushroom use is presumed to be in mushroom houses for purposes of this assessment);
All open-forest uses;
All seed treatments with all formulations;
All formulations for the following uses:
- Almonds (including hulls and shells)

- Cranberries
- Filberts
- Peanuts (including forage, hay, storage and storage facilities)
- Peavines (including hay)
- Safflower seed
- Soybeans (including hay and forage)
- Sugar beets
- Sunflower seed
- Treated raisin trays

All pressurized can formulations.
All broadcast turf uses
Dust formulations for residential use sites

Consequently, most of these use sites, while they may be included in the list of currently registered uses, have not been specifically included in the occupational exposure/risk assessment in this IRED document. This assessment excludes the above uses, based on the presumption that their reregistration will be prohibited in the mitigation phase of the reregistration process.

The specific occupational use sites in this IRED are summarized below (Table 3).

Table 3. Summary of Occupational Use Sites

Crop Group	Formulation	Use Site	Rate (lb ai/acre, unless otherwise stated)	Application Equipment
Non-grass animal feed	EC	alfalfa, clover, lespedeza, lupin, vetch	1.25	Groundboom, Aerial, Chemigation
	ULV	alfalfa, clover, lespedeza, lupin, vetch	0.61	
Pome fruits	EC	apples, pear, quince	1.25	Airblast, Aerial
Stone fruits	EC	apricots, cherries (sweet and tart),nectarine, peach	3.75	Airblast, Aerial
	ULV	cherries (sweet and tart)	1.22	
Stalk and stem vegetables	EC	asparagus	1.25	Groundboom, Aerial
Tropical and subtropical fruits	EC	avocado,	4.7	Groundboom, Airblast, Aerial
		figs	2.5	
		guava, mango, papaya, passionfruit	1.25	
		pineapples	5	
Cereal grains	EC	barley, corn, oats, rice, rye, sorghum, wheat, wild rice	1.25	Groundboom, Aerial, Chemigation
	ULV	barley, corn, oats, rice, rye, sorghum, wheat, wild rice	0.61	

Root and tuber vegetables	EC	garden beets, carrot, horseradish, parsnip, radish, rutabaga, salsify, turnip	1.25	Groundboom, Aerial
		potatoes, sweet potatoes,chayote root and yams	1.56	
Berries	WP	blackberry, boysenberry, dewberry, loganberry, raspberry	2	Groundboom, Aerial
		blueberries	1.25	
	ULV	blueberries	0.76	
Brassica leafy vegetables	EC	broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green	1.25	Groundboom, Aerial
Cucurbit vegetables	EC	cantaloupe, melon, pumpkin, winter squash, watermelon	1	Groundboom, Aerial
		cucumber and summer squash, Chayote fruit	1.88	
Leafy vegetables	EC	celery	1.25	Groundboom, Aerial
		dandelion, parsley, spinach, Swiss chard,	2	
		endive and lettuce	1.88	
		watercress	1.25	
Tree nuts	EC	chestnuts	5	Airblast, Aerial
		macadamia nuts	0.94	
		pecans, walnuts	2.5	
Oilseed	EC	cotton	2.5	Groundboom, Aerial
	ULV	cotton	1.22	
	EC	flax	0.5	
Fruiting vegetables	EC	eggplant, tomato	3.43	Groundboom
		okra	1.5	
Bulb vegetables	EC	garlic, leeks, onion, shallots,	1.56	Groundboom
Citrus fruits	EC	grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines	6.25	Airblast, Aerial
	ULV	grapefruits, lemon, lime, orange, tangelo, tangerines	0.175	
	ULV	kumquat	0.92	
Small fruits	EC	grape	1.88	Airblast
	EC, WP	strawberry	2	Groundboom, Chemigation

Forage grass	EC	grass	1.25	Aerial
	ULV	hay grass	0.92	
Herbs and spices	EC	mint	0.94	Groundboom, Chemigation (Airblast for hops)
		hops	0.63	
		pepper	1.56	
Edible fungi	EC	mushroom	1.7	Low-Pressure Handgun
Legume vegetable	EC	peas	2.5	Groundboom, Aerial, Chemigation
Ornamentals	EC	flowers, shrubs, flowering plants, nursery stock, and woody plants	2.5	Groundboom, Low-Pressure Handwand, Backpack Sprayer
Pine Trees	EC	pine seed orchards, Christmas tree plantations, slash pine plantations, shrubs, shade trees, and forest trees	2.5	Aerial, Chemigation
Grape Root	EC	grape roots	1.9 lb ai per 100 gallons.	Hand or Basket Dipping
Storage Grain Facility	EC	stored commodities such as corn, wheat, barley, oats, and rye	5 lb ai per 20 gallons.	Low-Pressure Handwand, Backpack Sprayer
	Dust		0.3 lbs ai per 1,000 square feet	Power Duster
Agricultural Premises	EC	outside barns, applied as a bait only	0.27 lbai per gal	Low-Pressure Handwand, Backpack Sprayer
Dates	Dust	dates	4.25	Power Duster
Mosquitoes	ULV	mosquitoes	0.23	Aerial
	EC		9.9 lb ai per gal	Non-thermal Truck Fogger
			0.51 lb ai per gal	Thermal Truck Fogger
	EC		0.1 lb ai per gal	Paint brush

2.0 Occupational Exposures and Risks

EPA has determined that there are potential occupational exposures to handlers (i.e., mixers, loaders, applicators), as well as to postapplication workers from the use of malathion. In subsequent sections of this document, occupational exposure and risks are presented in summary tables in two groupings according to formulation; with emulsifiable concentrate (EC), wettable powder (WP) and ready-to-use (RTU) formulations in one group, and ultra-low volume (ULV) formulation in another. Application rates, and consequent risks for ULV formulations are sufficiently lower than EC, WP and RTU formulations, to be presented separately.

2.1 Occupational Handler Exposures and Risks

The anticipated use patterns indicate a number of exposure scenarios, based on the types of equipment and activities used to make malathion applications. These scenarios include:

mixing/loading liquids for groundboom application;
mixing/loading liquids for aerial and chemigation application;
mixing/loading liquids for airblast sprayer;
mixing/loading liquids for dipping;
mixing/loading liquids for a fogger;
loading dusts for power duster;
mixing/loading wettable powders for groundboom application;
mixing/loading wettable powders for aerial and chemigation application;
applying sprays with an airblast sprayer;
applying sprays with a groundboom sprayer;
applying sprays with a fixed-wing aircraft (also covers use of helicopter application);
applying sprays with a truck-mounted fogger;
applying dusts with a power duster;
dipping plants;
mixing/loading/applying liquid with a low pressure handwand;
mixing/ loading/applying with a backpack sprayer;
mixing/ loading/applying with a low-pressure handgun;
mixing/loading/applying with a paintbrush; and
flagging for aerial spray application.

2.1.1 Occupational Handler Exposure Scenarios -- Data and Assumptions

No chemical-specific handler exposure data were submitted in support of the reregistration of malathion. Therefore, an exposure assessment for each scenario was developed, where appropriate data are available, using the Pesticide Handlers Exposure Database (PHED) Version 1.1.[4] PHED was designed by a task force consisting of representatives from the U.S. EPA, Health Canada, the California Department of Pesticide Regulation, and member companies of the American Crop Protection Association. PHED is a generic database containing measured exposure data for workers involved in the handling or application of pesticides in the field (i.e., currently contains data for over 2,000 monitored exposure events). The basic assumption underlying the system is that exposure to pesticide handlers can be calculated using the monitored data as exposure is primarily a function of the physical parameters of the handling and application process (e.g., packaging type, application method, and clothing scenario). PHED also contains algorithms that allow the user to complete surrogate task-based exposure assessments beginning with one of the four main data files contained in the system (i.e., mixer/loader, applicator, flagger, and mixer/loader/applicator).

Users can select data from each major PHED file and construct exposure scenarios that are representative of the use of the chemical. However, to add consistency to the risk assessment process, the EPA in conjunction with the PHED task force has evaluated all data within the system and developed surrogate exposure tables that contain a series of standard unit exposure values for various exposure scenarios. These standard unit exposure values are based on the "best fit" values calculated by PHED. PHED calculates "best fit" exposure values by assessing the distributions of exposures for each body part included in datasets selected for the assessment (e.g., chest or forearm) and then calculating a composite exposure value representing the entire body. PHED categorizes distributions as normal, lognormal, or in any "other" category. Generally, most data contained in PHED are lognormally distributed or fall into the PHED "other" distribution category. If the distribution is lognormal, the geometric mean for the distribution is used in the "best fit" exposure value. If the data are an "other" distribution, the median value of the dataset is used in the calculation of the "best fit" exposure value. As a result, the surrogate unit exposure values that serve as the basis for this assessment generally range from the geometric mean to the median of the selected dataset.[4]

The following assumptions and factors were used to complete this exposure assessment:

- Average body weight of an adult handler is 70 kg. This body weight is used in both the short- and intermediate-term assessment, since the endpoint of concern is not sex-specific (i.e., the cholinesterase inhibition could be assumed to occur in males or females).

- Average work day interval represents an 8 hour workday (e.g., the acres treated or volume of spray solution prepared in a typical day).

- For fogging mosquitoes with a truck-mounted fogger, no PHED data were available; thus, as a surrogate, the PHED baseline unit exposure data for an airblast sprayer (0.36 mg/lb ai for dermal and 4.5 µg/lb for inhalation) were used to calculate dermal and inhalation exposure. In addition, the gallons handled were taken from information provided on the label (EPA Reg. 4787-8) which indicated that a thermal fogger sprays at a rate of 40 gal/hr and a non-thermal fogger sprays at a rate of 4 gal/hr. EPA assumed the fogger was used 4 hrs per day.

- For loading dusts for a power duster, no PHED data were available; thus, as a surrogate, the PHED baseline unit exposure data for wettable powders (3.7 mg/lb ai for dermal and 43 µg/lb for inhalation) were used to calculate dermal and inhalation exposure. Applicator exposure from using power dusters is a data gap.

- It is assumed that mushroom houses are treated with malathion to control flies as often as twice per week during an approximately 9-month period when pest pressure is at its greatest (April - December). The average area treated per day is assumed to be 16,000 ft^2. (Personal communication with Dr. Clifford Keil,

Associate Professor, Univ. of Delaware, Oct. 16, 2002). Unit exposure values for a low-pressure handgun (mixer/loader/applicator, liquid flowable) from a study conducted by the Outdoor Residential Exposure Taskforce (ORETF) were used as the closest surrogate for the application equipment employed in mushroom houses.

- For agricultural uses, exposure calculations were based on the maximum application rates used in residue field trial studies in support of food tolerances and supported by the primary producer, Cheminova. For non-agricultural uses, maximum application rates were identified, as listed on the available malathion labels and LUIS reports.

- When scenario-specific data are not available, HED calculates unit exposure values using generic protection factors that are applied to represent the use of personal protective equipment (PPE) and engineering controls.

2.1.2 Occupational Handler Exposure and Risk Estimates

Both short- and intermediate-term exposures are expected to occur to handlers from registered malathion use patterns. Chronic exposure is not expected for handlers, and therefore is not assessed. Handler's calculated daily dermal and inhalation exposures to malathion were used to calculate the daily doses, and consequent risks to those handlers. Potential daily dermal exposure was calculated using the following formula:

$$\textit{Daily Dermal Exposure}\left(\frac{mg\ ai}{day}\right) = \textit{Unit Exposure}\left(\frac{mg\ ai}{lb\ ai}\right) \times \textit{Use Rate}\left(\frac{lb\ ai}{A}\right) \times \textit{Daily Acres Treated}\left(\frac{A}{day}\right)$$

A dermal absorption value was not needed for short-/intermediate-term adult dermal exposure because the dermal NOAEL was based on a 21-day dermal study.

Potential daily inhalation exposure was calculated using the following formula:

$$\textit{Daily Inhalation Exposure}\left(\frac{mg\ ai}{day}\right) =$$
$$\textit{Unit Exposure}\left(\frac{\mu g\ ai}{lb\ ai}\right) \times \textit{Conversion Factor}\left(\frac{1mg}{1{,}000\ \mu g}\right) \times \textit{Use Rate}\left(\frac{lb\ ai}{A}\right) \times \textit{Daily Acres Treated}\left(\frac{A}{day}\right)$$

Inhalation absorption is assumed to be equivalent to oral absorption (i.e., 100%).

The handler's daily dermal and inhalation dose was calculated using a 70 kg body weight for all toxicity endpoints as follows:

$$\text{Daily Inhalation Dose}\left(\frac{\text{mg ai}}{\text{kg/day}}\right) = \text{Daily Inhalation Exposure}\left(\frac{\text{mg ai}}{\text{day}}\right) x \left(\frac{1}{\text{Body Weight (kg)}}\right)$$

$$\text{Daily Dermal Dose}\left(\frac{\text{mg ai}}{\text{Kg/Day}}\right) = \text{Daily Dermal Exposure}\left(\frac{\text{mg ai}}{\text{Day}}\right) x \left(\frac{1}{\text{Body Weight (Kg)}}\right)$$

The calculations of both the daily dermal dose and the daily inhalation dose of malathion received by handlers were used to calculate the short-/intermediate-term dermal and inhalation margins of exposure (MOEs), or risk. The dermal MOE was calculated using a NOAEL of 50 mg/kg/day, and the inhalation MOE was calculated using a NOAEL of 25.8 mg/kg/day. The following formula describes the calculation of a dermal MOE:

$$\text{Dermal MOE} = \frac{\text{NOAEL (mg/kg/day)}}{\text{Dermal Daily Dose (mg/kg/day)}}$$

The following formula describes the calculation of an inhalation MOE:

$$\text{Inhalation MOE} = \frac{\text{NOAEL (mg/kg/day)}}{\text{Inhalation Daily Dose (mg/kg/day)}}$$

The HIARC selected cholinesterase inhibition as the toxicity endpoint for dermal exposure (Target MOE = 100), and histopathologic lesions as the toxicity endpoint for inhalation exposure (Target MOE = 1000). Even though dermal and inhalation exposures have separate endpoints, it is believed that the contribution of inhalation exposure to the cholinesterase endpoint should be accounted for. Therefore, in calculating the short- and intermediate-term risks for cholinesterase inhibition, dermal and inhalation exposure estimates were combined, and the resulting Total MOEs compared to the Target MOE of 100. However, the NOAELs are different for dermal (50 mg/kg/day) and inhalation (25.8 mg/kg/day). In order to calculate a Total MOE, the reciprocals of the dermal and inhalation MOEs are combined and divided into 1. The above operations are represented as follows:

MOE_{dermal} = calculated dermal MOE

$MOE_{inhalation}$ = calculated inhalation MOE

$$\text{Total MOE} = \frac{1}{\dfrac{1}{MOE_{dermal}} + \dfrac{1}{MOE_{inhalation}}}$$

A total MOE ≥ 100 does not present a concern for handler exposure (based on the cholinesterase inhibition endpoint). An MOE ≥ 1000 for inhalation alone, does not present a concern for handler exposure (based on the histopathologic lesion endpoint).

Total MOEs (developed using PHED Version 1.1 surrogate data) for occupational handlers wearing baseline protective clothing, and for various other combinations of PPE are summarized in Tables 4 - 9. Tables 4 and 5 cover application rates and formulations used on agricultural crops. For Tables 4 and 5, estimated MOEs in shaded areas do not reach the Target MOEs at the level of PPE indicated. Attachment 1 of this document provides more detailed information on exposure doses and risks. Tables 6 - 9 cover application rates and formulations for nonfood use sites (plus malathion use on dates, grape roots and stored grain). For Tables 6 - 9, estimated MOEs in shaded areas reach or exceed the Target MOEs at the level of PPE indicated, and are not of concern to HED.

Table 4. Summary of Short- and Intermediate-Term Handler Risk for Malathion at Various Levels of PPE (EC, WP and RTU Application Rates)

Exposure Scenario (Scenario #)	Crop groups (crops)	Application Rate lb ai / acre	Daily Area Treated Acres/ day	Total MOE Baseline	Total MOE PPE1	Total MOE PPE2	Total MOE PPE3	Total MOE PPE4	Total MOE PPE5	Total MOE PPE6	Total MOE Eng. Control
Mixer/Loader											
Mixing/Loading Liquids for Groundboom application (1)	Non-grass animal feed(alfalfa)	1.25	200	4.8	550	600	600	720	800	810	1600
Mixing/Loading Liquids for Groundboom application (2)	Non-grass animal feed(clover, lespedeza, lupin, vetch)	1.25	80	12	1400	1500	1500	1800	2000	2000	4000
Mixing/Loading Liquids for Groundboom application (3)	Stalk and stem vegetables (asparagus)	1.25	80	12	1400	1500	1500	1800	2000	2000	4000
Mixing/Loading Liquids for Groundboom application (4)	Cereal grains (corn, wheat, rice)	1.25	200	4.8	550	600	600	720	800	810	1600
Mixing/Loading Liquids for Groundboom application (5)	Cereal grains (barley, oats, rye ,sorghum, wild rice)	1.25	80	12	1400	1500	1500	1800	2000	2000	4000
Mixing/Loading Liquids for Groundboom application (6)	Roots and tuber vegetables(garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	80	12	1400	1500	1500	1800	2000	2000	4000
Mixing/Loading Liquids for Groundboom application (7)	Root and tuber vegetables(chayote root, potatoes, sweet potato, yams)	1.56	80	9.7	1100	1200	1200	1500	1600	1600	3200
Mixing/Loading Liquids for Groundboom application (8)	Berries(blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	7.5	860	930	940	1100	1300	1300	2500
Mixing/Loading Liquids for Groundboom application (9)	Berries(blueberries)	1.25	80	12	1400	1500	1500	1800	2000	2000	4000
Mixing/Loading Liquids for Groundboom application (10)	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	80	12	1400	1500	1500	1800	2000	2000	4000
Mixing/Loading Liquids for Groundboom application (11)	Cucurbit vegetables (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	80	15	1700	1900	1900	2300	2500	2500	5000
Mixing/Loading Liquids for Groundboom application (12)	Cucurbit vegetables (cucumber, summer squash, chayote fruit)	1.88	80	8	920	990	1000	1200	1300	1400	2700
Mixing/Loading Liquids for Groundboom application (13)	Leafy vegetables (celery, watercress)	1.25	80	12	1400	1500	1500	1800	2000	2000	4000
Mixing/Loading Liquids for Groundboom application (14)	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	80	7.5	860	930	940	1100	1300	1300	2500
Mixing/Loading Liquids for Groundboom application (15)	Leafy vegetables (endive, lettuce)	1.88	80	8	920	990	1000	1200	1300	1400	2700

Exposure Scenario (Scenario #)	Crop groups (crops)	Application Rate lb ai / acre	Daily Area Treated Acres/ day	Total MOE Baseline	Total MOE PPE1	Total MOE PPE2	Total MOE PPE3	Total MOE PPE4	Total MOE PPE5	Total MOE PPE6	Total MOE Eng. Control
Mixing/Loading Liquids for Groundboom application (16)	Oilseed (cotton)	1.15	200	5.2	600	650	660	790	870	880	1700
Mixing/Loading Liquids for Groundboom application (17)	Oilseed (cotton)	2.50	200	2.4	280	300	300	360	400	410	800
Mixing/Loading Liquids for Groundboom application (18)	Oilseed (flax)	0.50	80	30	3500	3700	3800	4500	5000	5100	1000
Mixing/Loading Liquids for Groundboom application (19)	Fruiting vegetables (eggplant, tomatoes)	3.43	80	4.4	500	540	550	660	730	740	1500
Mixing/Loading Liquids for Groundboom application (20)	Fruiting vegetables (okra)	1.50	80	10	1200	1200	1300	1500	1700	1700	3300
Mixing/Loading Liquids for Groundboom application (21)	Bulb vegetables (garlic, leeks, onion, shallots)	1.56	80	9.7	1100	1200	1200	1500	1600	1600	3200
Mixing/Loading Liquids for Groundboom application (22)	Small fruits (strawberry)	2	80	7.5	860	930	940	1100	1300	1300	2500
Mixing/Loading Liquids for Groundboom application (23)	Forage grass (grass)	1.25	80	12	1400	1500	1500	1800	2000	2000	4000
Mixing/Loading Liquids for Groundboom application (24)	Herbs and spices (mint)	0.94	80	16	1800	2000	2000	2400	2700	2700	5300
Mixing/Loading Liquids for Groundboom application (25)	Herbs and spices (pepper)	1.56	80	9.7	1100	1200	1200	1500	1600	1600	3200
Mixing/Loading Liquids for Groundboom application (26)	Legume vegetables (peas)	2.50	80	6	690	750	750	910	1000	1000	2000
Mixing/Loading Liquids for Airblast application (27)	Pome fruits (apples, pear, quince)	1.25	40	24	2800	3000	3000	3600	4000	4100	8000
Mixing/Loading Liquids for Airblast application (28)	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	40	8	920	990	1000	1200	1300	1400	2700
Mixing/Loading Liquids for Airblast application (29)	Tropical and subtropical fruits (avocado)	4.70	40	6.4	740	790	800	960	1100	1100	2100
Mixing/Loading Liquids for Airblast application (30)	Tropical and subtropical fruits (fig)	2.50	40	12	1400	1500	1500	1800	2000	2000	4000
Mixing/Loading Liquids for Airblast application (31)	Tropical and subtropical fruits (guava, mango ,passion fruit)	1.25	40	24	2800	3000	3000	3600	4000	4100	8000
Mixing/Loading Liquids for Groundboom application (32)	Tropical and subtropical fruits (pineapples)	5	80	3	350	370	380	450	500	510	1000

Exposure Scenario (Scenario #)	Crop groups (crops)	Application Rate lb ai / acre	Daily Area Treated Acres/ day	Total MOE Baseline	Total MOE PPE1	Total MOE PPE2	Total MOE PPE3	Total MOE PPE4	Total MOE PPE5	Total MOE PPE6	Total MOE Eng. Control
Mixing/Loading Liquids for Airblast application (33)	Tree nuts (chestnuts)	5	40	6	690	750	750	910	1000	1000	2000
Mixing/Loading Liquids for Airblast application (34)	Tree nuts (macadamia nuts)	0.94	40	32	3700	4000	4000	4800	5300	5400	11000
Mixing/Loading Liquids for Airblast application (35)	Tree nuts (pecans, walnuts)	2.50	40	12	1400	1500	1500	1800	2000	2000	4000
Mixing/Loading Liquids for Airblast application (36)	Citrus (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	40	4.8	550	600	600	720	800	810	1600
Mixing/Loading Liquids for Airblast application (37)	Small fruits (grapes)	1.88	40	16	1800	2000	2000	2400	2700	2700	5300
Mixing/Loading Liquids for Airblast application (38)	Herbs and spices (hops)	0.63	40	48	5500	5900	6000	7200	8000	8100	16000
Mixing/Loading Liquids for Aerial application (39)	Non-grass animal feed (alfalfa)	1.25	1200	0.80	92	99	100	120	130	140	270
Mixing/Loading Liquids for Aerial application (40)	Non-grass animal feed (clover, lespedeza, lupin, vetch)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Aerial application (41)	Pome fruits (apples, pear, quince)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Aerial application (42)	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	350	0.92	110	110	110	140	150	150	300
Mixing/Loading Liquids for Aerial application (43)	Stalk and stem vegetables (asparagus)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Aerial application (44)	Tropical and subtropical fruits (avocado)	4.70	350	0.73*	84*	91*	91*	110*	120	120	240
Mixing/Loading Liquids for Aerial application (45)	Tropical and subtropical fruits (fig)	2.50	350	1.4	160	170	170	210	230	230	460
Mixing/Loading Liquids for Aerial application (46)	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Aerial application (47)	Tropical and subtropical fruits (pineapples)	5	350	0.69*	79*	85	86	100*	110	120	230
Mixing/Loading Liquids for Aerial application (48)	Cereal grains (corn rice, wheat)	1.25	1200	0.80	92	99	100	120	130	140	270
Mixing/Loading Liquids for Aerial application (49)	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	350	2.8	320	340	340	410	460	460	910

Exposure Scenario (Scenario #)	Crop groups (crops)	Application Rate lb ai / acre	Daily Area Treated Acres/ day	Total MOE Baseline	Total MOE PPE1	Total MOE PPE2	Total MOE PPE3	Total MOE PPE4	Total MOE PPE5	Total MOE PPE6	Total MOE Eng. Control
Mixing/Loading Liquids for Aerial application (50)	Root and tuber vegetables (garden beets, carrot, root, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Aerial application (51)	Root and tuber vegetables (chayote root, potatoes, sweet potatoes, yams)	1.56	350	2.2	250	270	280	330	370	370	730
Mixing/Loading Liquids for Aerial application (52)	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry,)	2	350	1.7	200	210	220	260	290	290	570
Mixing/Loading Liquids for Aerial application (53)	Berries (blueberries)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Aerial application (54)	Brassica and leafy vegetables (broccoli, broccoli rash, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Aerial application (55)	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon,	1	350	3.4	390	430	430	520	570	580	1100
Mixing/Loading Liquids for Aerial application (56)	Cucurbit (Cucumber, summer squash, chayote fruit)	1.88	350	1.8	210	230	230	280	300	310	610
Mixing/Loading Liquids for Aerial application (57)	Leafy vegetables (celery, watercress)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Aerial application (58)	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	1.7	200	210	220	260	290	290	570
Mixing/Loading Liquids for Aerial application (59)	Leafy vegetables (endive, lettuce)	1.88	350	1.8	210	230	230	280	300	310	610
Mixing/Loading Liquids for Aerial application (60)	Tree nuts (chestnuts)	5	350	0.69*	80*	85	90	100	110	120	230
Mixing/Loading Liquids for Aerial application (61)	Tree nuts (macadamia nuts)	0.94	350	3.7	420	450	460	550	610	620	1200
Mixing/Loading Liquids for Aerial application (62)	Tree nuts (pecans, walnuts)	2.50	350	1.4	160	170	170	210	230	230	460
Mixing/Loading Liquids for Aerial application (63)	Oilseed (cotton)	1.15	1200	0.87	100	110	110	130	150	150	290
Mixing/Loading Liquids for Aerial application (64)	Oilseed (cotton)	2.50	1200	0.40*	46*	50	50	60	67	70	130
Mixing/Loading Liquids for Aerial application (65)	Oilseed (flax)	0.50	350	6.9	790	850	860	1000	1100	1200	2300

Exposure Scenario (Scenario #)	Crop groups (crops)	Application Rate lb ai / acre	Daily Area Treated Acres/ day	Total MOE Baseline	Total MOE PPE1	Total MOE PPE2	Total MOE PPE3	Total MOE PPE4	Total MOE PPE5	Total MOE PPE6	Total MOE Eng. Control
Mixing/Loading Liquids for Aerial application (66)	Citrus Fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	0.53*	63*	68	69	82	92	96	180
Mixing/Loading Liquids for Aerial application (67)	Forage grass (grass)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Aerial application (68)	Legume vegetables (peas)	2.50	350	1.4	160	170	170	210	230	230	460
Mixing/Loading Liquids for Chemigation application (69)	Non-grass animal feed (alfalfa, clover, lespedeza, lupin, vetch)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Chemigation application (70)	Cereal grains (barley, corn, oats, rice, rye, sorghum, wheat, wild rice)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Chemigation application (71)	Small fruits (strawberry)	2	350	1.7	200	210	220	260	290	290	570
Mixing/Loading Liquids for Chemigation application (72)	Herbs and spices (mint)	0.94	350	3.7	420	450	460	550	610	620	1200
Mixing/Loading Liquids for Chemigation application (73)	Herbs and spices (pepper)	1.56	350	2.2	250	270	280	330	370	370	730
Mixing/Loading Liquids for Chemigation application (74)	Legume vegetables (peas)	2.50	350	1.4	160	170	170	210	230	230	460
Wettable Powders for Aerial application (75)	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	1.3*	20*	27*	28*	23*	34*	10*	490
Wettable Powders for Groundboom application (76)	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	4.9*	86*	120	120	100*	150	160	2100
Wettable Powders for Groundboom application (77)	Small fruits (strawberry)	2	80	5.8*	86*	120	120	100*	150	160	2100
Wettable Powders for Chemigation application (78)	Small fruits (strawberry)	2	350	1.3*	20*	27*	28*	23*	34*	10*	490
Applicator											
Sprays for Groundboom application (79)	Non-grass animal feed(alfalfa)	1.25	200	910	910	980	990	1100	1200	1300	2800
Sprays for Groundboom application (80)	Non-grass animal feed(clover, lespedeza, lupin, vetch)	1.25	80	2300	2300	2400	2500	2800	3100	3100	6900
Sprays for Groundboom application (81)	Stalk and stem vegetables (asparagus)	1.25	80	2300	2300	2400	2500	2800	3100	3100	6900

Exposure Scenario (Scenario #)	Crop groups (crops)	Application Rate lb ai / acre	Daily Area Treated Acres/ day	Total MOE Baseline	Total MOE PPE1	Total MOE PPE2	Total MOE PPE3	Total MOE PPE4	Total MOE PPE5	Total MOE PPE6	Total MOE Eng. Control
Sprays for Groundboom application (82)	Cereal grains (corn, wheat, rice)	1.25	200	910	910	980	990	1100	1200	1300	2800
Sprays for Groundboom application (83)	Cereal grains (barley, oats ,rye, sorghum, wild rice)	1.25	80	2300	2300	2400	2500	2800	3100	3100	6900
Sprays for Groundboom application (84)	Roots and tuber vegetables(garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	80	2300	2300	2400	2500	2800	3100	3100	6900
Sprays for Groundboom application (85)	Root and tuber vegetables(chayote root, potatoes, sweet potato, yams)	1.56	80	1800	1800	2000	2000	2300	2500	2500	5500
Sprays for Groundboom application (86)	Berries(blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	1400	1400	1500	1500	1800	1900	2000	4300
Sprays for Groundboom application (87)	Berries(blueberries)	1.25	80	2300	2300	2400	2500	2800	3100	3100	6900
Sprays for Groundboom application (88)	Brassica leafy vegetables (broccoli, broccoli rasb, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	80	2300	2300	2400	2500	2800	3100	3100	6900
Sprays for Groundboom application (89)	Cucurbit vegetables (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	80	2800	2800	3100	3100	3500	3900	3900	8600
Sprays for Groundboom application (90)	Cucurbit vegetables (cucumber, summer squash, chayote fruit)	1.88	80	1500	1500	1600	1600	1900	2100	2100	4600
Sprays for Groundboom application (91)	Leafy vegetables (celery, watercress)	1.25	80	2300	2300	2400	2500	2800	3100	3100	6900
Sprays for Groundboom application (92)	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	80	1400	1400	1500	1500	1800	1900	2000	4300
Sprays for Groundboom application (93)	Leafy vegetables (endive, lettuce)	1.88	80	1500	1500	1600	1600	1900	2100	2100	4600
Sprays for Groundboom application (94)	Oilseed (cotton)	1.15	200	990	990	1100	1100	1200	1300	1400	3000
Sprays for Groundboom application (95)	Oilseed (cotton)	2.50	200	450	450	490	490	560	620	630	1400
Sprays for Groundboom application (96)	Oilseed (flax)	0.50	80	5700	5700	6100	6200	7000	7700	7900	17000
Sprays for Groundboom application (97)	Fruiting vegetables (eggplant, tomatoes)	3.43	80	830	830	890	900	1000	1100	1100	2500

Exposure Scenario (Scenario #)	Crop groups (crops)	Application Rate lb ai / acre	Daily Area Treated Acres/ day	Total MOE Baseline	Total MOE PPE1	Total MOE PPE2	Total MOE PPE3	Total MOE PPE4	Total MOE PPE5	Total MOE PPE6	Total MOE Eng. Control
Sprays for Groundboom application (98)	Fruiting vegetables (okra)	1.50	80	1900	1900	2000	2100	2300	2600	2600	5700
Sprays for Groundboom application (99)	Bulb vegetables (garlic, leeks, onion, shallots)	1.56	80	1800	1800	2000	2000	2300	2500	2500	5500
Sprays for Groundboom application (100)	Small fruits (strawberry)	2	80	1400	1400	1500	1500	1800	1900	2000	4300
Sprays for Groundboom application (101)	Forage grass (grass)	1.25	80	2300	2300	2400	2500	2800	3100	3100	6900
Sprays for Groundboom application (102)	Herbs and spices (mint)	0.94	80	3000	3000	3300	3300	3700	4100	4200	9200
Sprays for Groundboom application (103)	Herbs and spices (pepper)	1.56	80	1800	1800	2000	2000	2300	2500	2500	5500
Sprays for Groundboom application (104)	Legume vegetables (peas)	2.50	80	1100	1100	1200	1200	1400	1500	1600	3400
Sprays for Airblast application (105)	Pome fruits (apples, pear, quince)	1.25	40	190	280	290	290	310	320	320	3500
Sprays for Airblast application (106)	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	40	63	94	97	97	100	110	110	1200
Sprays for Airblast application (107)	Tropical and subtropical fruits (avocado)	4.70	40	50	75	77	[illegible]	81	84	[illegible]	940
Sprays for Airblast application (108)	Tropical and subtropical fruits (fig)	2.50	40	95	140	140	150	150	160	160	1800
Sprays for Airblast application (109)	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	40	190	280	290	290	310	320	320	3500
Sprays for Groundboom application (110)	Tropical and subtropical fruits (pineapples)	5	80	570	570	610	620	700	770	790	1700
Sprays for Airblast application (111)	Tree nuts (chestnuts)	5	40	47	70	72	73	77	[illegible]	[illegible]	880
Sprays for Airblast application (112)	Tree nuts (macadamia nuts)	0.94	40	250	370	390	390	410	420	420	4700
Sprays for Airblast application (113)	Tree nuts (pecans, walnuts)	2.50	40	95	140	140	150	150	160	160	1800
Sprays for Airblast application (114)	Citrus (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	40	38	56	58	58	[illegible]	63	[illegible]	700

Exposure Scenario (Scenario #)	Crop groups (crops)	Application Rate lb ai / acre	Daily Area Treated Acres/ day	Total MOE Baseline	Total MOE PPE1	Total MOE PPE2	Total MOE PPE3	Total MOE PPE4	Total MOE PPE5	Total MOE PPE6	Total MOE Eng. Control
Sprays for Airblast application (115)	Small fruits (grapes)	1.88	40	130	190	190	190	200	210	210	2300
Sprays for Airblast application (116)	Herbs and spices (hops)	0.63	40	380	560	570	580	610	630	630	7000
Sprays for Aerial application (117)	Non-grass animal feed (alfalfa)	1.25	1200	No Data	No Data	No Data	No Data	No Data	No Data	No Data	450
Sprays for Aerial application (118)	Non-grass animal feed (clover, lespedeza, lupin, vetch)	1.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1600
Sprays for Aerial application (119)	Pome fruits (apples, pear, quince)	1.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1600
Sprays for Aerial application (120)	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach,)	3.75	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	520
Sprays for Aerial application (121)	Stalk and stem vegetables (asparagus)	1.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1600
Sprays for Aerial application (122)	Tropical and subtropical fruits (avocado)	4.70	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	410
Sprays for Aerial application (123)	Tropical and subtropical fruits (fig)	2.50	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	780
Sprays for Aerial application (124)	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1600
Sprays for Aerial application (125)	Tropical and subtropical fruits (pineapples)	5	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	390
Sprays for Aerial application (126)	Cereal grains (corn rice, wheat)	1.25	1200	No Data	No Data	No Data	No Data	No Data	No Data	No Data	450
Sprays for Aerial application (127)	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1600
Sprays for Aerial application (128)	Root and tuber vegetables (garden beets, carrot, root, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1600
Sprays for Aerial application (129)	Root and tuber vegetables (chayote root, potatoes, sweet potatoes, yams)	1.56	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1200
Sprays for Aerial application (130)	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry,)	2	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	970
Sprays for Aerial application (131)	Berries (blueberries)	1.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1600
Sprays for Aerial application (132)	Brassica and leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1600

Exposure Scenario (Scenario #)	Crop groups (crops)	Application Rate lb ai / acre	Daily Area Treated Acres/ day	Total MOE Baseline	Total MOE PPE1	Total MOE PPE2	Total MOE PPE3	Total MOE PPE4	Total MOE PPE5	Total MOE PPE6	Total MOE Eng. Control
Sprays for Aerial application (133)	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1900
Sprays for Aerial application (134)	Cucurbit (Cucumber, summer squash, chayote fruit)	1.88	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1000
Sprays for Aerial application (135)	Leafy vegetables (celery, watercress)	1.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1600
Sprays for Aerial application (136)	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	970
Sprays for Aerial application (137)	Leafy vegetables (endive, lettuce)	1.88	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1000
Sprays for Aerial application (138)	Tree nuts (chestnuts)	5	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	390
Sprays for Aerial application (139)	Tree nuts (macadamia nuts)	0.94	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	2100
Sprays for Aerial application (140)	Tree nuts (pecans, walnuts)	2.50	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	780
Sprays for Aerial application (141)	Oilseed (cotton)	1.15	1200	No Data	No Data	No Data	No Data	No Data	No Data	No Data	490
Sprays for Aerial application (142)	Oilseed (cotton)	2.50	1200	No Data	No Data	No Data	No Data	No Data	No Data	No Data	230
Sprays for Aerial application (143)	Oilseed (flax)	0.50	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	3900
Sprays for Aerial application (144)	Citrus Fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	310
Sprays for Aerial application (145)	Forage grass (grass)	1.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1600
Sprays for Aerial application (146)	Legume vegetables (peas)	2.50	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	780
Sprays for Aerial application (147)	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	970
				Flagger							
Flagging for Sprays application (148)	Non-grass animal feed (alfalfa, clover, lespedeza, lupin, vetch)	1.25	350	690	750	790	790	750	790	790	34000
Flagging for Sprays application (149)	Pome fruits (apples, pear, quince)	1.25	350	690	750	790	790	750	790	790	34000
Flagging for Sprays application (150)	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	350	230	250	260	260	250	260	260	11000
Flagging for Sprays application (151)	Tropical and subtropical fruits (avocado)	4.70	350	180	200	210	210	200	210	210	9100

Exposure Scenario (Scenario #)	Crop groups (crops)	Application Rate lb ai / acre	Daily Area Treated Acres/ day	Total MOE Baseline	Total MOE PPE1	Total MOE PPE2	Total MOE PPE3	Total MOE PPE4	Total MOE PPE5	Total MOE PPE6	Total MOE Eng. Control
Flagging for Sprays application (152)	Tropical and subtropical fruits (fig)	2.50	350	340	370	390	400	370	390	400	17000
Flagging for Sprays application (153)	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	690	750	790	790	750	790	790	34000
Flagging for Sprays application (154)	Tropical and subtropical fruits (pineapples)	5	350	170	190	200	200	190	200	200	8600
Flagging for Sprays application (155)	Cereal grains (barley, corn, oats, rice, rye, sorghum, wheat, wild rice)	1.25	350	690	750	790	790	750	790	790	34000
Flagging for Sprays application (156)	Root and tuber vegetables (garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	690	750	790	790	750	790	790	34000
Flagging for Sprays application (157)	Root and tuber vegetables (potatoes, sweet potatoes, chayote root, yams)	1.56	350	550	600	630	640	600	630	640	27000
Flagging for Sprays application (158)	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	430	470	490	500	470	490	500	21000
Flagging for Sprays application (159)	Berries (blueberries)	1.25	350	690	750	790	790	750	790	790	34000
Flagging for Sprays application (160)	Brassica leafy vegetables (broccoli, broccoli rasb, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	690	750	790	790	750	790	790	34000
Flagging for Sprays application (161)	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	350	860	940	990	990	940	990	990	43000
Flagging for Sprays application (162)	Cucurbit (cucumber, summer squash, chayote fruit)	1.88	350	460	500	520	530	500	520	530	23000
Flagging for Sprays application (163)	Leafy vegetables (celery, watercress)	1.25	350	690	750	790	790	750	790	790	34000
Flagging for Sprays application (164)	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	430	470	490	500	470	490	500	21000
Flagging for Sprays application (165)	Leafy vegetables (endive, lettuce)	1.88	350	460	500	520	530	500	520	530	23000
Flagging for Sprays application (166)	Tree nuts (chestnuts)	5	350	170	190	200	200	190	200	200	8600
Flagging for Sprays application (167)	Tree nuts (macadamia nuts)	0.94	350	910	100	1000	1100	100	1000	1100	46000

Exposure Scenario (Scenario #)	Crop groups (crops)	Application Rate lb ai / acre	Daily Area Treated Acres/ day	Total MOE Baseline	Total MOE PPE1	Total MOE PPE2	Total MOE PPE3	Total MOE PPE4	Total MOE PPE5	Total MOE PPE6	Total MOE Eng. Control
Flagging for Sprays application (168)	Tree nuts (pecans, walnuts)	2.50	350	340	370	390	400	370	390	400	17000
Flagging for Sprays application (169)	Oilseed (cotton)	2.50	350	340	370	390	400	370	390	400	17000
Flagging for Sprays application (170)	Oilseed (cotton)	1.15	350	740	810	860	860	810	860	860	37000
Flagging for Sprays application (171)	Oilseed (flax)	0.50	350	1700	1900	2000	2000	1900	2000	2000	86000
Flagging for Sprays application (172)	Citrus fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	140	150	160	160	150	160	160	6900
Flagging for Sprays application (173)	Forage grass (grass)	1.25	350	690	750	790	790	750	790	790	34000
Flagging for Sprays application (174)	Legume vegetables (peas)	2.50	350	340	370	390	400	370	390	400	17000

Baseline dermal unit exposures represent long pants, long sleeved shirts, shoes, and socks
[1]PPE1 unit exposures represent long pants, long sleeved shirts, and chemical-resistant gloves and no respirator
[1]PPE2 unit exposures represent long pants and long sleeved shirts plus chemical-resistant gloves and dust mist respirator
[1]PPE3 unit exposures represent long pants and long sleeved shirts plus chemical-resistant gloves and o/v respirator
[1]PPE4 unit exposures represent coveralls worn over long pants and long sleeved shirts plus chemical-resistant gloves and no respirator
[1]PPE5 unit exposures represent coveralls worn over long pants and long sleeved shirts plus chemical-resistant gloves and dust mist respirator
[1]PPE6 unit exposures represent coveralls worn over long pants and long sleeved shirts plus chemical-resistant gloves and o/v respirator
[1]Engineering controls dermal unit exposures represent long pants and long sleeved shirts. For mixers and loaders
* MOE for inhalation alone does not reach target of 1000 for histopathologic lesion endpoint. (see Attachment 1 for details)
Note: Total MOEs (from combined dermal and inhalation exposure) in shaded areas do not reach target of 100 for cholinesterase inhibition endpoint.

Table 5. Summary of Short- and Intermediate-Term Handler Risks for Malathion at Various Levels of PPE (ULV Application Rates)

Exposure Scenario (Scenario #)	Crop	Application Rate	Daily Area Treated	Total Baseline MOE	Total PPE1 MOE	Total PPE2 MOE	Total PPE3 MOE	Total PPE4 MOE	Total PPE5 MOE	Total PPE6 MOE	Eng.Control MOE
Mixer/Loader											
Mixing/Loading Liquids for Aerial application (1)	None grass animal feed (alfalfa)	0.61	1200	1.6	190	200	210	250	270	280	550
Mixing/Loading Liquids for Aerial application (2)	None- grass animal feed (clover, lespedeza, lupin, vetch)	0.61	350	5.6	650	700	710	850	940	950	1900
Mixing/Loading Liquids for Aerial application (3)	Stone fruits (sweet and tart cherries)	1.22	350	2.8	320	350	350	420	470	480	940
Mixing/Loading Liquids for Aerial application (4)	Cereal grains (corn, rice, wheat)	0.61	1200	1.6	190	200	210	250	270	280	550
Mixing/Loading Liquids for Aerial application (5)	Cereal grains (barley, oats, rye, sorghum, wild rice)	0.61	350	5.6	650	700	710	850	940	950	1900
Mixing/Loading Liquids for Aerial application (6)	Oilseed (cotton)	1.22	1200	0.82	94	100	100	120	140	140	270
Mixing/Loading Liquids for Aerial application (7)	Citrus fruits (grapefruits, lemon, lime, orange, tangelo, tangerines)	0.18	350	20	2300	2400	2500	3000	3300	3300	6500
Mixing/Loading Liquids for Aerial application (8)	Grasses (hey grass)	0.92	350	3.7	430	460	470	560	620	630	1200
Mixing/Loading Liquids for Groundboom application (9)	Non- grass animal feed (alfalfa)	0.61	200	9.9	1100	1200	1200	1500	1600	1700	3300
Mixing/Loading Liquids for Groundboom application (10)	Non- grass animal feed (clover, lespedeza, lupin, vetch)	0.61	80	25	2800	3100	3100	3700	4100	4200	8200
Mixing/Loading Liquids for Groundboom application (11)	Cereal grains (corn, rice, wheat)	0.61	200	9.9	1100	1200	1200	1500	1600	1700	3300
Mixing/Loading Liquids for Groundboom application (12)	Cereal grains (barley, oats, rye, sorghum, wild rice)	0.61	80	25	2800	3100	3100	3700	4100	4200	8200
Mixing/Loading Liquids for Groundboom application (13)	Berries (blueberries)	0.76	80	20	2300	2500	2500	3000	3300	3300	6600
Mixing/Loading Liquids for Groundboom application (14)	Grasses (hey grass)	0.92	80	16	1900	2000	2000	2500	2700	2800	5400
Mixing/Loading Liquids for Airblast application (15)	Stone fruits (sweet and tart cherries)	1.22	40	25	2800	3100	3100	3700	4100	4200	8200
Mixing/Loading Liquids for Airblast application (16)	Citrus fruits (kumquat)	0.92	40	33	3800	4100	4100	4900	5400	5500	11000
Mixing/Loading Liquids for Airblast application (17)	Citrus fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	0.18	40	170	20000	21000	22000	26000	29000	29000	57000
Applicator											
Sprays for Aerial application (18)	None grass animal feed (alfalfa)	0.61	1200	No Data	No Data	No Data	No Data	No Data	No Data	No Data	930
Sprays for Aerial application (19)	None- grass animal feed (clover, lespedeza, lupin, vetch)	0.61	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	3200

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Exposure Scenario (Scenario #)	Crop	Application Rate	Daily Area Treated	Total Baseline MOE	Total PPE1 MOE	Total PPE2 MOE	Total PPE3 MOE	Total PPE4 MOE	Total PPE5 MOE	Total PPE6 MOE	Eng.Control MOE
Sprays for Aerial application (20)	Stone fruits (sweet and tart cherries)	1.22	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1600
Sprays for Aerial application (21)	Cereal grains (corn, rice, wheat)	0.61	1200	No Data	No Data	No Data	No Data	No Data	No Data	No Data	930
Sprays for Aerial application (22)	Cereal grains (barley, oats, rye, sorghum, wild rice)	0.61	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	3200
Sprays for Aerial application (23)	oilseed (cotton)	1.22	1200	No Data	No Data	No Data	No Data	No Data	No Data	No Data	470
Sprays for Aerial application (24)	Citrus fruits (grapefruits, lemon, lime, orange, tangelo, tangerines)	0.18	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	11000
Sprays for Aerial application (25)	Grasses (hey grass)	0.92	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	2100
Sprays for Groundboom application (26)	Non- grass animal feed (alfalfa)	0.61	200	1900	1900	2000	2000	2300	2500	2600	5600
Sprays for Groundboom application (27)	Non- grass animal feed (clover, lespedeza, lupin, vetch)	0.61	80	4600	4600	5000	5100	5800	6400	6400	14000
Sprays for Groundboom application (28)	Cereal grains (corn, rice, wheat)	0.61	200	1900	1900	2000	2000	2300	2500	2600	5600
Sprays for Groundboom application (29)	Cereal grains (barley, oats, rye, sorghum, wild rice)	0.61	80	4600	4600	5000	5100	5800	6400	6400	14000
Sprays for Groundboom application (30)	Berries (blueberries)	0.76	80	3700	3700	4000	4100	4600	5100	5200	11000
Sprays for Groundboom application (31)	Grasses (hey grass)	0.92	80	3100	3100	3300	3400	3800	4200	4300	9400
Sprays for Airblast application (32)	Stone fruits (sweet and tart cherries)	1.22	40	190	290	300	300	310	320	320	3600
Sprays for Airblast application (33)	Citrus fruits (kumquat)	0.92	40	260	380	390	390	420	430	430	4800
Sprays for Airblast application (34)	Citrus fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	0.18	40	1400	2000	2100	2100	2200	2300	2300	25000
				Flagger							
Flagging for Sprays application (35)	None- grass animal feed (alfalfa, clover, lespedeza, lupin, vetch)	0.61	350	1400	1500	1600	1600	1500	1600	1600	70000
Flagging for Sprays application (36)	Stone fruits (sweet and tart cherries)	1.22	350	700	770	810	810	770	810	810	35000
Flagging for Sprays application (37)	Cereal grains (barley, corn, oats, rice, rye, sorghum, wheat, wild rice)	0.61	350	1400	1500	1600	1600	1500	1600	1600	70000
Flagging for Sprays application (38)	Oilseed (cotton)	1.22	350	700	770	810	810	770	810	810	35000
Flagging for Sprays application (39)	Citrus fruits (grapefruits, lemon, lime, orange, tangelo, tangerines)	0.18	350	4900	5400	5600	5700	5400	5600	5700	240000
Flagging for Sprays application (40)	Grasses (hey grass)	0.92	350	930	1000	1100	1100	1000	1100	1100	47000

Baseline dermal unit exposures represent long pants, long sleeved shirts, shoes, and socks
[1]PPE1 unit exposures represent long pants, long sleeved shirts, and chemical-resistant gloves and no respirator
[1]PPE2 unit exposures represent long pants and long sleeved shirts plus chemical-resistant gloves and dust mist respirator
[1]PPE3 unit exposures represent long pants and long sleeved shirts plus chemical-resistant gloves and o/v respirator
[1]PPE4 unit exposures represent coveralls worn over long pants and long sleeved shirts plus chemical-resistant gloves and no respirator
[1]PPE5 unit exposures represent coveralls worn over long pants and long sleeved shirts plus chemical-resistant gloves and dust mist respirator
[1]PPE6 unit exposures represent coveralls worn over long pants and long sleeved shirts plus chemical-resistant gloves and o/v respirator
[1]Engineering controls dermal unit exposures represent long pants and long sleeved shirts. For mixers and loaders
Note: Total MOEs (from combined dermal and inhalation exposure) in shaded areas do not reach target of 100 for cholinesterase inhibition endpoint.

Table 6. Occupational Exposure Estimates for Handlers Using Malathion for Unique or Nonfood Uses

Exposure Scenario (Scen. #)	Baseline Dermal Unit Exposure[a] (mg/lb ai)	Baseline Inhalation Unit Exposure[b] (μg/lb ai)	Range of Application Rates (lb ai/acre)	Crop Type or Target[c]	Amount Handled per Day[d]	Daily Dermal Exposure[e] (mg/day)	Daily Inhalation Exposure[f] (mg/day)
Mixer/Loader Exposure							
Mixing/Loading Liquids for Groundboom Application (1)	2.9	1.2	2.5	ornamentals[1]	10 acres	72.5	0.03
Mixing/Loading Liquids for Aerial and Chemigation Application (2)	2.9	1.2	2.5	pine trees[1]	350 acres	2538	1.1
			0.23	ULV mosquitoes[3]	7,500 acres	5,003	2.1
Mixing/Loading Liquids for Airblast Sprayer (3)	2.9	1.2	2.5	ornamentals[1]	40 acres	290	0.12
Mixing/Loading Liquids for Dipping (4)	2.9	1.2	1.9 lb ai/100 gal.	grape root dip[4]	100 gal	5.5	0.0023
Mixing/Loading Liquids for a Fogger (truck) (5)	2.9	1.2	9.9 lb ai/gal	non-thermal fogger[3]	16 gal	460	0.19
			0.51 lb ai/gal	thermal fogger[3]	160 gal	237	0.098
Loading Dusts for Power Duster (6)	3.7[g]	43[g]	0.3 lbs ai/1,000 sq. ft.	stored grain[5]	6,000 sq. ft.	6.7	0.077
			4.25	dates	5 acres	78	0.91
Applicator Exposure							
Applying Sprays with an Airblast Sprayer (7)	0.36	4.5	2.5	ornamentals[1]	40 acres	36	0.45
Applying Sprays with a Groundboom Sprayer (8)	0.014	0.74	2.6	ornamentals[1]	10 acres	0.35	0.019
Applying Sprays with a Fixed-Wing Aircraft (9)	See Engineering Controls	See Engineering Controls	2.5	pine trees[1]	350 acres	See Engineering Controls	See Engineering Controls
			0.23	ULV mosquitoes[3]	7,500 acres		
Applying Sprays with a Fogger (10)	0.36[h]	4.5[h]	9.9 lb ai/gal	non-thermal fogger[3]	16 gal	57	0.71
			0.51 lb ai/gal	thermal fogger[3]	160 gal	29	0.38
Applying Dusts with a Power Duster (11)	No Data	No Data	0.3 lb ai/1,000 sq. ft.	stored grains[5]	6,000 sq. ft.	No Data	No Data
			4.25	dates	5 acres		
Dipping Plants (12)	No Data	No Data	1.9 lb ai/100 gal	grape root dip[4]	100 gal	No Data	No Data

Exposure Scenario (Scen. #)	Baseline Dermal Unit Exposure[a] (mg/lb ai)	Baseline Inhalation Unit Exposure[b] (μg/lb ai)	Range of Application Rates (lb ai/acre)	Crop Type or Target[c]	Amount Handled per Day[d]	Daily Dermal Exposure[e] (mg/day)	Daily Inhalation Exposure[f] (mg/day)
Mixer/Loader/Applicator Exposure							
Mixing/Loading/Applying Liquid with a Low Pressure Handwand (13)	100	30	5 lb ai/20 gallons	stored grain facility[5]	40 gal	1,000	0.3
			0.27 lb/gal	agricultural premises[6]		1,080	0.32
			0.026 lb/gal	ornamentals[1]		104	0.38
Mixing/Loading/Applying liquids with a Backpack Sprayer (14)	See PPE.[i]	See PPE.[i]	5 lb ai/20 gallons	stored grain facility[5]	40 gal	See PPE.[i]	See PPE.[i]
			0.27 lb ai/gal	agricultural premises[6]			
			0.026 lb ai/gal	ornamentals[1]			
Mixing/Loading/Applying with a Low Pressure Handgun (15)	See PPE.[i]	See PPE.[i]	0.039 lb ai/1,000 sq. ft.	mushrooms[7]	16,000 sq. ft.	See PPE.[i]	See PPE.[i]
Mixing/Loading/Applying with a Paintbrush (16)	180	280	0.1 lb ai/gal	mosquitoes[2]	5 gal	90	0.14
Flagger Exposure							
Flagging for Aerial Spray Applications (17)	0.011	0.35	2.5	pine trees[1]	350 acres	9.6	0.31
			0.23	ULV mosquitoes[3]	7,500 acres	19	0.60

Footnotes:

a Baseline dermal unit exposure represents long pants, long sleeved shirt, no gloves, and open mixing/loading. PHED Surrogate Exposure Guide - Draft. August 1998.
b Baseline inhalation unit exposure represents no respirator. PHED Surrogate Exposure Guide - Draft. August 1998.
c Crop types or targets are selected as follows:
  1 Based on labeled maximum rates for ornamentals and pine trees (EPA Reg. 655-777 and 67760-1).
  2 Based on labeled maximum rates for mosquitoes including standing water (based on residue field trials) and terrestrial uses (EPA Reg. 34704-108).
  3 Based on labeled maximum rates for mosquitoes applications for ULV-type (EPA Reg. 4787-8).
  4 Based on maximum application rates for grape root dip.
  5 Based on maximum application rates for stored grain (surface treatments to corn, wheat, barley, oats, rye with dust formulations and treatment of grain storage facilities with EC formulations.
  6 Based on maximum application rates for poultry premises and agricultural premises used as a bait spray.
  7 Based on maximum application rates from residue field trials in support of food tolerances for mushrooms.
d Amount handled per day are from EPA estimates of acres treated, gallons applied, or square feet treated.
e Daily Dermal Exposure (mg/day) = Dermal Unit Exposure (mg/lb ai) x Application Rates (lb ai/acre; lb/gal; and ai/sq ft) x Amount Handled per day (acres, gallons, sq. ft.).
f Daily Inhalation Exposure (mg/day) = Inhalation Unit Exposure (μg/lb ai) x (1 mg/1,000 μg) Conversion x Application rate (lb ai/acre; lb/gal; and ai/sq ft) x Amount Handled per day (acres, gallons, sq. ft.)
g PHED data for mixing/loading wettable powders is used as a "surrogate" for mixing/loading dusts.
h PHED data for applying sprays with an airblast sprayer is used as a "surrogate" for applying with a fogger.
i Because the dermal unit exposure in PHED includes protection from use of gloves, dermal risk is assessed in Table 8, and not under "Baseline" scenarios in Table 7.
NF Not Feasible.

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Table 7. Occupational Risk Estimates for Handlers Using Malathion for Unique or Nonfood Uses Wearing Baseline Clothing

Exposure Scenario (Scenario #)	Crop Type or Target	Baseline Dermal		Baseline Inhalation		Baseline Total
		Daily Dose (mg/kg/day)[a]	MOE[b]	Daily Dose (mg/kg/day)[c]	MOE[d]	Total MOE
Mixer/Loader Exposure						
Mixing/Loading Liquids for Groundboom Application (1)	ornamentals	1.0	50	0.00043	60,000	50
Mixing/Loading Liquids for Aerial and Chemigation Application (2)	pine trees	36	1.4	0.015	1,700	1.4
	ULV mosquitoes	72	0.70	0.03	870	0.7
Mixing/Loading Liquids for Airblast Sprayer (3)	ornamentals	4.1	12	0.0017	15,000	12
Mixing/Loading Liquids for Dipping (4)	grape root dip	0.079	640	0.000033	790,000	640
Mixing/Loading Liquids for a Fogger (5)	non-thermal fogger	6.6	7.6	0.0027	9,500	8
	thermal fogger	3.4	15	0.0014	18,000	15
Mixing/Loading Dusts for Power Duster or Direct Application (6)	stored grain facility	0.095	530	0.0011	23,000	520
	dates	1.11	45	0.013	2,000	1.1
Applicator Exposure						
Applying Sprays with an Airblast Sprayer (7)	ornamentals	0.51	97	0.0064	4000	95
Applying Sprays with a Groundboom Sprayer (8)	ornamentals	0.005	10,000	0.00026	98,000	9,100
Applying Sprays with a Fixed-Wing Aircraft (liquid formulations) (9)	pine trees, ULV mosquitoes	See Eng. Controls	See Eng. Controls	See Eng. Controls	See Eng. Controls	See Eng. Controls
Applying Sprays with a Fogger (10)	non-thermal fogger	0.81	61	0.010	2,500	60
	thermal fogger	0.42	120	0.0052	4,900	120
Applying Dusts with a Power Duster (11)	stored grain facility	No Data	No Data	No Data	No Data	No Data
	dates					
Dipping Plants (12)	grape root dip	No Data	No Data	No Data	No Data	No Data
Mixer/Loader Applicator Exposure						
Mixing/Loading/Applying with a Low Pressure Handwand (13)	stored grain facility	14	3.5	0.0043	6,000	3.5
	agricultural premises	15	3.2	0.0046	5,600	3.2
	ornamentals	1.5	34	0.00045	58,000	34

Exposure Scenario (Scenario #)	Crop Type or Target	Baseline Dermal		Baseline Inhalation		Baseline Total
		Daily Dose (mg/kg/day)[a]	MOE[b]	Daily Dose (mg/kg/day)[c]	MOE[d]	Total MOE
Mixing/Loading/Applying with a Backpack Sprayer (14)	stored grain facility	See PPE.	See PPE.	See PPE.	See PPE.	See PPE.
	agricultural premises					
	ornamentals					
Mixing/Loading/Applying with a Low Pressure Handgun (15)	mushrooms	See PPE.	See PPE.	See PPE.	See PPE.	See PPE.
Mixing/Loading/Applying with a Paintbrush(16)	mosquitoes	1.3	39	0.002	13,000	39
Flagger Exposure						
Flagging for Aerial Spray Applications (17)	pine trees	0.14	360	0.0044	5,900	240
	ULV mosquitoes	0.27	185	0.009	3,000	140

a Daily Dermal Dose (mg/kg/day) = Daily Dermal Exposure (mg/day)/ Body weight (70 kg).
b Dermal MOE (short- and intermediate-term) = NOAEL (50 mg/kg/day)/ Daily Dermal Dose (mg/kg/day).
c Daily Inhalation Dose (mg/kg/day) = Daily Inhalation Exposure (mg/day)/ Body weight (70 kg).
d Inhalation MOE (short- and intermediate-term) = NOAEL (25.8 mg/kg/day)/ Daily Inhalation Dose (mg/kg/day).
e Total MOE (short- and intermediate-term) = 1 / ((1/Calculated Dermal MOE) + (1 /Calculated Inhalation MOE)).
f While Total MOE does not exceed HED's level of concern, it should be noted that human flagging for the large acreage involved with ULV mosquito treatment is not expected to occur. Mechanical or GPS flagging systems would be expected.

Note: Estimated values in shaded areas reach or exceed the Target MOE, and are not of concern to HED.
NF Not Feasible.

Table 8: Occupational Handler Short-term and Intermediate-term Risks from Using Malathion for Unique or Nonfood Uses with Additional PPE

Exposure Scenario (Scenario #)	Crop Type or Target	Dermal - Additional PPE.			Inhalation - Additional PPE.			Total - Additional PPE.
		Unit Exposure (mg/lb ai)[a]	Daily Dose (mg/kg/day)[b]	MOE[c]	Unit Exposure (µg/lb ai)[d]	Daily Dose (mg/kg/day)[d]	MOE[e]	Total MOE[f]
Mixer/Loader Exposure								
Mixing/Loading Liquids for Groundboom Application (1)	ornamentals	0.023 (Gloves only)	0.0082	6,100	1.2 (No respirator)	0.00043	60,000	[illegible]
Mixing/Loading Liquids for Aerial and Chemigation Application (2)	pine trees	0.017	0.21	240	1.2 (No respirator)	0.015	1700	[illegible]
	ULV mosquitoes		0.42	120	0.24	0.006	4400	[illegible]
Mixing/Loading Liquids for Airblast Sprayer (3)	ornamentals	0.023 (Gloves only)	0.033	1500	1.2 (No respirator)	0.0017	15,000	[illegible]
Mixing/Loading Liquids for Dipping (4)	grape root dip	No Data	No Data	No Data	No Data	No Data	No Data	No Data
Mixing/Loading Liquids for a Fogger (5)	thermal fogger (mosquitoes)	0.023 (Gloves only)	0.027	1,900	1.2 (No respirator)	0.0014	18,000	[illegible]
	non-thermal fogger (mosquitoes)		0.052	960		0.0027	9,500	[illegible]
Loading Dusts for Power Duster or Direct Application (6)	stored grain facility	NA	NA	NA	NA	NA	NA	NA
	dates	0.17 (Gloves only)	0.051	980	43 (No respirator)	0.013	2000	[illegible]
Applicator Exposure								
Applying Sprays with an Airblast Sprayer (7)	ornamentals	0.22	0.31	160	4.5 (No respirator)	0.0064	4000	[illegible]
Applying Sprays with a Groundboom Sprayer (8)	ornamentals	NA	NA	NA	NA	NA	NA	NA
Applying Sprays with a Fixed-Wing Aircraft (liquid formulations) (9)	See Eng. Controls	See Eng. Controls	See Eng. Controls	See Eng. Controls	See Eng. Controls	See Eng. Controls	See Eng. Controls	See Eng. Controls
Applying Sprays with a Fogger (10)	thermal fogger (mosquitoes)	NA	NA	NA	NA	NA	NA	NA
	non-termal fogger (mosquitoes)	0.22	0.50	100	0.9	0.0020	13,000	[illegible]
Applying Dusts with a Power Duster (11)	stored grain facility	No Data	No Data	No Data	No Data	No Data	No Data	No Data
	dates							
Dipping Plants (12)	grape root dip	No Data	No Data	No Data	No Data	No Data	No Data	No Data

Exposure Scenario (Scenario #)	Crop Type or Target	Dermal - Additional PPE.			Inhalation - Additional PPE.			Total - Additional PPE.
		Unit Exposure (mg/lb ai)[a]	Daily Dose (mg/kg/day)[b]	MOE[c]	Unit Exposure (µg/lb ai)[a]	Daily Dose (mg/kg/day)[d]	MOE[e]	Total MOE[f]
Mixer/Loader/Applicator Exposure								
Mixing/Loading/Applying with a Low Pressure Handwand (13)	stored grain facility	0.43 (Gloves only)	0.06	810	30 (No respirator)	0.0043	6000	[illegible]
	agricultural premises		0.07	750		0.0046	5600	[illegible]
	ornamentals		0.0064	7800		0.00045	58,000	[illegible]
Mixing/Loading/Applying with a Backpack Sprayer (14)	stored grain facility	2.5 (Gloves only)	0.36	140	30 (No respirator)	0.0043	6000	[illegible]
	agricultural premises		0.39	130		0.0046	5600	[illegible]
	ornamentals		0.037	1400		0.00045	58,000	[illegible]
	turf		0.07	700		0.00084	31,000	[illegible]
Mixing/Loading/Applying with a Low Pressure Handgun[g] (15)	mushrooms	0.5 (Gloves only)	0.0045	11,000	1.9 (No respirator)	0.000017	1.5 E+6	[illegible]
Mixing/Loading/Applying with a Paintbrush (16)	mosquitoes	24 (Gloves only)	0.17	290	280 (No respirator)	0.002	13,000	[illegible]
Flagger Exposure								
Flagging for Aerial Spray Applications (17)	pine trees	NA	NA	NA	NA	NA	NA	NA
	ULV mosquitoes	NA	NA	NA	NA	NA	NA	NA

[a] Except where indicated in the Table, additional PPE. for all scenarios includes DOUBLE layer of clothing, chemical resistant gloves, and dust/mist respirator (5-fold PF).
[b] Daily Dermal Dose (mg/kg/day)
[c] Dermal MOE = NOAEL (50 mg/kg/day)/ Daily Dermal Dose (mg/kg/day).
[d] Daily Inhalation Dose (mg/kg/day)
[e] Inhalation MOE = NOAEL (25.8 mg/kg/day) / (Daily Inhalation Dose (mg/kg/day).
[f] Total MOE (short- and intermediate-term) = 1 / ((1/Dermal MOE) + (1 /Inhalation MOE)).
[g] Unit exposure values for dermal and inhalation are from ORETF study, "LCO Handgun Spray Mixer/Loader Applicator OMA002 Liquid Flowable," as found in HED memo from G. Bangs to D. Fuller (SRRD), entitled, "Summary of HED's Reviews of Outdoor Residential Exposure Task Force (ORETF) Chemical Handler Exposure Studies," April 30, 2001.

Note: Estimated values in shaded areas reach or exceed the Target MOE, and are not of concern to HED.
NF Not Feasible
NA Not Applicable - Because previous level of mitigation resulted in total MOE ≥100.

Table 9: Occupational Handler Short-term and Intermediate-term Risks from Using Malathion for Unique or Nonfood Uses with Engineering Controls

Exposure Scenario (Scenario #)	Crop Type or Target	Dermal - Engineering Controls			Inhalation - Engineering Controls			Total - Eng. Controls
		Unit Exposure (mg/lb ai)	Daily Dose (mg/kg/day)[b]	MOE[c]	Unit Exposure (µg/lb ai)[a]	Daily Dose (mg/kg/day)[d]	MOE[e]	Total MOE[f]
Mixer/Loader Exposure								
Mixing/Loading Liquids for Groundboom Application (1)	ornamentals	NA	NA	NA	NA	NA	NA	NA
Mixing/Loading Liquids for Aerial and Chemigation Application (2)	pine trees, mosquitoes and ULV mosquitoes	NA	NA	NA	NA	NA	NA	NA
Mixing/Loading Liquids for Airblast Sprayer (3)	ornamentals	NA	NA	NA	NA	NA	NA	NA
Mixing/Loading Liquids for Dipping (4)	grape root dip	NA	NA	NA	NA	NA	NA	NA
Mixing/Loading Liquids for a Fogger (truck) (5)	thermal fogger (mosquitoes)	NA	NA	NA	NA	NA	NA	NA
	non-thermal fogger (mosquitoes)							
Loading Dusts for Power Duster or Direct Application (6)	stored grain facility	NA	NA	NA	NA	NA	NA	NA
	dates							
Applicator Exposure								
Applying Sprays with an Airblast Sprayer (7)	ornamentals	NA	NA	NA	NA	NA	NA	NA
Applying Sprays with a Groundboom Sprayer (8)	ornamentals	NA	NA	NA	NA	NA	NA	NA
Applying Sprays with a Fixed-Wing Aircraft (liquid formulations) (9)	pine trees	0.0050 [a]	0.063	800	0.068 [a]	0.00085	30,000	[illegible]
	ULV mosquitoes		0.12	410		0.0017	15,000	[illegible]
Applying Sprays with a Fogger (10)	thermal fogger (mosquitoes)	NA	NA	NA	NA	NA	NA	NA
	non-thermal fogger (mosquitoes)		NA	NA		NA	NA	NA
Applying Dusts with a Power Duster (11)	stored grain facility	No Data	No Data	No Data	No Data	No Data	No Data	No Data
	dates							
Dipping Plants (12)	grape root dip	No Data	No Data	No Data	No Data	No Data	No Data	No Data
Mixer/Loader/Applicator Exposure								
Mixing/Loading/Applying Liquids with a Low Pressure Handwand (13)	stored grain facility, agricultural premises, ornamentals	None	NF	NF	None	NF	NF	NF

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Exposure Scenario (Scenario #)	Crop Type or Target	Dermal - Engineering Controls			Inhalation - Engineering Controls			Total - Eng. Controls
		Unit Exposure (mg/lb ai)	Daily Dose (mg/kg/day)[b]	MOE[c]	Unit Exposure (µg/lb ai)[a]	Daily Dose (mg/kg/day)[d]	MOE[e]	Total MOE[f]
Mixing/Loading/Applying with a Backpack Sprayer (14)	stored grain facility, agricultural premises, ornamentals	None	NF	NF	None	NF	NF	NF
Mixing/Loading/Applying with a Low Pressure Handgun (15)	mushrooms	None	NF	NF	None	NF	NF	NF
Mixing/Loading/Applying with a Paintbrush (16)	mosquitoes	None	NF	NF	None	NF	NF	NF
Flagger Exposure								
Flagging for Aerial Spray Applications (17)	pine trees, ULV mosquitoes	NA	NA	NA	NA	NA	NA	NA

Footnotes:

a Engineering Controls: Enclosed cockpit, single layer clothing, no gloves.
b Daily Dermal Dose (mg/kg/day) = Daily Dermal Exposure (mg/day)/ Body weight (70 kg).
c Dermal MOE = NOAEL (50 mg/kg/day)/ Daily Dermal Dose (mg/kg/day).
d Daily Inhalation Dose (mg/kg/day) = Daily Inhalation Exposure (mg/day)/ Body weight (70 kg).
e Inhalation MOE = NOAEL (25.8 mg/kg/day)/ Daily Inhalation Dose (mg/kg/day).
f Total MOE (short- and Intermediate-term) = 1 / ((1/Dermal MOE) + (1 /Inhalation MOE)).
NF Not Feasible
NA Not Applicable - Because previous level of mitigation resulted in total MOE ≥100.
None There are no unit exposure values for engineering controls for the equiprment used or the formulation type (i.e., water-soluble bags are only used with wettable powders)

2.1.3 Summary of Risk for Occupational Handlers and Confidence in Exposure and Risk Estimates

Total MOEs of equal to, or greater than 100 (for the cholinesterase inhibition endpoint), **do not exceed HED's level of concern. MOEs for inhalation alone, of equal to, or greater than 1000** (for the histopathological lesions endpoint), **do not exceed HED's level of concern.**

Short- and Intermediate-term Occupational Handler Risks

The calculations of short-/intermediate-term risks to occupational handlers for mixing, loading and applying malathion for occupational use sites, formulations and application rates are summarized above in Tables 4 - 9. Commercial applications of malathion at residential use sites (i.e., home gardens, ornamentals and orchards, and perimeter house treatments) were not assessed in this document. When these activities were assessed for homeowners[5], all risks reached or exceeded the target MOE for the short- and intermediate-term exposure endpoint, and, therefore they also will reach or exceed the target MOE for the same activities performed by professionals. Highlights of the handler assessment include the following:

Mixers/Loaders:

Most mixer/loader scenarios do not reach the target MOE of 100 at baseline clothing (i.e., long pants, long sleeved shirt, shoes & socks). With the addition of gloves, most mixer/loader scenarios reach the target MOE, except for those that involve high application rates, large area of treatment, or wettable powder formulations. For these latter exceptions, most require addtitional clothing, a respirator, or engineering controls such as a closed mixing/loading system, in order to reach the target MOE.

Applicators:

All applicator scenarios (*except airblast application of EC to apricots, cherries, nectarines, peaches, avocados, figs, chestnuts, pecans, walnuts, citrus fruits and ornamentals, and applying sprays for mosquitoes with a non-thermal fogger)*, reach the target MOE with handlers wearing baseline clothing, and are not of concern to HED. Of the scenarios for which more than baseline protection is necessary, several require engineering controls (i.e., enclosed cab tractors). Note: Reliable unit exposure data for aerial application only exist in PHED for closed cockpit fixed-wing aircraft (i.e., engineering controls), and therefore, only this mitigation option has been assessed.

Flaggers:

All flaggers for all formulations and crops reach the target Total MOE of 100 with handlers wearing baseline clothing, and are not of concern to HED.

Application to Dates

Data for assessing the risk from loading/applying malathion dusts with a power duster to treat date crops are not available in PHED. As seen in the tables above, using unit exposure values from PHED for mixers/loaders of wettable powders as a reasonable surrogate for loading dusts, the risk for handlers at baseline does not reach the target MOE. If the dust-loader wears baseline clothing plus coveralls and chemical-resistant gloves, the calculated total MOE (dermal and inhalation) is 670, which does not exceed HED's level of concern. However, the combined activity of loading and applying is usually done by the same individual handler, and no reasonable surrogate for the activity of operating the power duster is available in PHED. Supplemental information is available for consideration in addressing the dust loading/applying activity.

Information on the malathion use pattern on dates was provided by the OPP's Biological and Economic Analysis Division (BEAD communication, March 14, 2001). According to BEAD information, 3500 acres of deglet dates are grown in California, 80% of which are treated with malathion. Date bunches are treated by a person on a cherry-picker, 60 feet up in the canopy of the tree, using a hand-held power duster to apply a maximum of 4.25 lb ai/acre. BEAD estimates that one person could treat 5 acres in an 8-hour day. One person loads/applies and one person drives the truck-mounted cherry-picker.

A study by Krieger and Dinoff, "Malathion Deposition, Metablolic Clearance, and Cholinesterase Status of Date Dusters and Harvesters in California," in *Arch. Environ. Contam. Toxicol.* Volume 38, Pages 456-553 (2000) provides estimates of occupational exposure from the use of malathion to treat dates.

The study used urinary clearance of alkyl phosphates and malathion mono- and di-acids as indicators of malathion exposure. Loaders/applicators were monitored over full work shifts on successive days, wearing coveralls, dust masks, hats and gloves. Application rates ranged from 1 to 4 lbs ai/acre. For loader/applicators, the estimated daily doses ranged from 0.4 to 1 mg/kg/day. Because these are total doses, and no airborne measurements were taken, the contributions to dose from dermal versus inhalation are not known. If all the dose is ascribed to the dermal route (NOAEL = 50 mg/kg/day), the **MOE for loaders/applicators ranges from 50 to 125.** The range of MOEs for loader/applicators pose a concern for the Agency at the lower end. Because workers were already wearing coveralls, gloves and dust/mist respirators, there are no additional mitigation strategies that would seem applicable to to address the exposures that did not reach the target MOE of 100. It is not expected that engineering controls would be applicable to the operator of the power-duster.

It should be noted that the Krieger and Dinoff study has not received a primary review by EPA, and therefore, even though the estimated risks described above are quantitative, they should be considered only as a screen until this study is subjected to a more thorough analysis by Agency scientists, especially those with expertise in biomonitoring and metabolism studies.

Data Quality and Confidence, and Data Gaps in Assessment.

HED has overall confidence that the calculated occupational handler risks are not underestimated, since a number of upper range input variables were used in the calculations (e.g., maximum application rates and durations of exposure). Also, PHED unit exposure data, when extrapolated to cover exposure from high volume applications (e.g., 1200 acres/day for aerial treatment of cotton and corn), likely represent a conservative input into the estimates of risk

No data exist for use in assessing the activity of grape root dipping. Also, data gaps exist for the use of power dusters in general, and, in particular, to this assessment for their use in applying malathion dusts to dates and stored grain.

As described earlier, a published study, "Malathion Deposition, Metabolite Clearance, and Cholinesterase Status of Date Dusters and Harvesters in California," (2000) authored by Krieger and Dinoff. *Arch. Environ. Contam. Toxicol.* Volume 38, Pages 546-553, was submitted by the USDA for consideration in this malathion assessment. The study reports estimated daily exposure doses of from 0.4 - 1.0 mg malathion/kg/day (i.e., MOEs from 50 to 125, if the total dose is attibuted to dermal exposure) for handlers who load/operate power dusters to treat dates with malathion 5% dust. While these MOEs bracket the target MOE of 100 for cholinesterase inhibition, the extent to which inhalation exposure contributed to the total dose is not known. Since the inhalation MOE must equal or exceed 1000 (for histopathologic lesions), the results of this study do not present a definitive basis upon which to assess power duster loader/operators in this handler section, but should be viewed as supplemental information upon which to base a risk management decision.

2.2 Occupational Postapplication Exposures and Risks

EPA has determined that there are potential short- and intermediate-term occupational postapplication exposures to individuals entering treated fields and contacting malathion residues on plant surfaces. Only postapplication dermal exposure has been assessed because postapplication inhalation exposure is expected to be negligible. Workers are expected, generally, to be performing activities (harvesting or non-harvesting) in malathion-treated fields for more than 30 consecutive workdays in a growing season (i.e., short- and intermediate-term exposure potential), with some fields receiving repeat malathion applications at 7-10 day intervals. Because of the seasonal nature of malathion use, a long-term exposure scenario is not expected for field workers. Mushroom houses are a special case, where the indoor, nearly year long treatment and harvesting of multiple crop cycles result in the potential for mushroom house workers to experience long-term exposure to malathion (i.e. $\geq$180 days).

2.2.1 Postapplication Exposure Scenarios, Data, and Assumptions for Occupational Use

Postapplication exposure scenarios assessed for malathion were developed from the revised HED Exposure Science Advisory Council Policy (Policy 003 - revised August 7, 2000) on Agricultural Transfer Coefficients. Transfer coefficients are based primarily on data submitted by the Agricultural Reentry Task Force (ARTF) to the Agency or from published literature studies. Data from these studies are proprietary and compensation issues with ARTF may need to be addressed. The crop groupings and activities were based in large part on the ARTF Scoping Survey. Occupational postapplication exposure scenarios, including crops, range of transfer coefficients and range of application rates used in this assessment are summarized in Table 10 (for EC, WP and RTU formulations) and Table 11 (for ULV formulation).

Table 10. Crop Groupings: Selected Transfer Coefficients, Treated Crops, and Rates (EC, WP and RTU formulations)

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Berry, low	1500 400 - 1,800	400 400 - 1,800	Blueberries (lowbush), Strawberries	1.25 to 2
Bunch / bundle	2000 1,346 - 2,308	100 TBD	Hops, Dates	0.63 to 4.25
Field / row crops, low / medium	2500 486 - 2,760	100 TBD	Alfalfa, Barley, Clover, Cotton, Flax, Grasses (forage and hay grass), Lespedeza, Lupine, Mint, Oats, Peas (green), Rice, Rye, Vetch, Wheat (spring), Wheat (winter), Wild rice	0.5 to 2.5
Field / row crops, tall	1000 418 - 1,980	100 TBD	Corn (all types), Sorghum	1.25
Trees, fruit, deciduous	3000 1,421 - 4,393	1000 197 - 2,302	Apples, Apricots, Cherries, Figs, Nectarines, Peaches, Pears, Quince	1.25 to 3.75
Trees, fruit, evergreen	3000 2,177 - 3,688	1000 197 - 2,302	Avocados, Grapefruit, Guava, Kumquat, Lemons, Lime, Mangos, Oranges, Papaya, Tangelo, Tangerines	1.25 to 6.25
Trees, nut	2500 1,121 - 4,929	500 197 - 2,302	Chestnut, Macadamia nuts, Pecans, Walnuts	0.94 to 5
Unassigned	N/A	N/A	Mushrooms	1.7
Vegetable, cucurbit	2500 486 - 2,760	500 486 - 2,760	Cantalope, Chayote fruit, Cucumbers, Melons, Pumpkin, Squash (summer), Squash (winter), Watermelon	1 to 1.88
Vegetable, fruiting	1000 364 - 1,908	500 486 - 2,760	Eggplant, Okra, Peppers (bell), Peppers (chili), Tomatoes (fresh), Tomatoes (processed)	1.5 to 3.43
Vegetable, head and stem Brassica	5000 2,862 - 7,584	2000 1,672 - 8,147	Broccoli, Broccoli raab, Brussel sprouts, Cabbage, Cauliflower, Kohlrabi, Mustard greens	1.25

Vegetable, leafy	2500 486 - 2,760	500 486 - 2,760	Celery, Collards, Dandelion, Endive (escarole), Kale, Lettuce, Parsley, Spinach, Swiss chard, Watercress	1.25 to 2
Vegetable, root	2500 486 - 2,760	300 140 - 290	Beets (table), Carrots, Chayote root, Garlic, Horseradish, Leeks, Onion, Parsnip, Potatoes, Radish, Rutabaga, Salsify, Shallots, Sweet potatoes, Turnips, Yams	1.25 to 1.56
Vegetable, stem / stalk	1000 364 - 1,908	300 140 - 290	Asparagus, Pineapple	1.25 to 5
Vine / trellis (w/ girdling)	5000 TBD	500 197 - 2,302	Boysenberries, Grapes (table and raisin)	1.88 to 2
Vine / trellis (w/o girdling)	5000 TBD	500 197 - 2,302	Blackberries, Blueberries (highbush), Dewberry, Grapes (juice and wine), Loganberry, Passion fruit, Raspberries	1.25 to 2

Flowers, cut	400 TBD	110 TBD	Ornamentals (flowers, shrubs, flowering plants, nursery stock, and wood plants)	2.5
Trees, fruit, evergreen	3000 2,177 - 3,688	1000 197 - 2,302	Pine trees (Pine seed orchards, Christmas trees, Slash pine plantations, shrubs, shade trees, forest trees)	2.5

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova or found on end use product labels.

Table 11. Crop Groupings: Selected Transfer Coefficients, Treated Crops, and Rates (ULV formulation)

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Berry, low	1500 400 - 1,800	400 400 - 1,800	Blueberries (lowbush)	0.76
Field / row crops, low / medium	2500 486 - 2,760	100 TBD	Alfalfa, Barley, Beans (dry), Beans (string), Clover, Cotton, Grasses (hay grass), Lespedeza, Lupine, Oats, Rice, Rye, Vetch, Wheat (spring), Wheat (winter), Wild rice	0.61 to 1.22
Field / row crops, tall	1000 418 - 1,980	100 TBD	Corn (all types), Sorghum	0.61
Trees, fruit, deciduous	3000 1,421 - 4,393	1000 197 - 2,302	Cherries	1.22
Trees, fruit, evergreen	3000 2,177 - 3,688	1000 197 - 2,302	Grapefruit, Kumquat, Lemons, Lime, Oranges, Tangarine, Tangelo	~~0.18 to 0.92~~
Vine / trellis (w/o girdling)	5000 TBD	500 197 - 2,302	Blueberries (highbush)	0.76

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by primary producer, Cheminova, or from end use product labels.

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2.2.2 Basis and Approach for Assessment of Postapplication Scenarios

Malathion is used in a wide variety of agricultural crops, but only 6 dislodgeable foliar residue studies were submitted that meet current Agency guidelines for sampling techniques and data quality. Postapplication exposures in this assessment were based on the chemical-specific residue dissipation rates determined from these studies, along with surrogate transfer coefficients from Agency's interim transfer coefficient policy developed by HED's Science Advisory Council for Exposure using proprietary data from the Agricultural Re-entry Task Force (ARTF) database (policy # 3.1 , August 17, 2000).

The chemical-specific dissipation data used in this current assessment were generated in studies completed by the ARTF as part of its data generation effort. These studies were conducted on grapes, apples, squash, blackberries and nursery stock. Data from these studies were extrapolated to other crops based on the nature of the crop group and application method. For example, the apple data were used to calculate risks for all tree crops because airblast (which was used in the apple study) would be the application method of choice for tree crops and the plant canopies are similar (i.e., can impact light and precipitation levels which in turn impact DFRs). When the Agency extrapolated the available DFR data to other crops, it adjusted the data for differences in application rate using a simple proportional approach. This approach seems to be the most appropriate given the data which are available. This approach is commonly used in Agency postapplication risk assessments. A more complete description of the DFR data used in this assessment is provided below.

Postapplication Studies: A total of six studies are described in this section. The studies were all conducted by the ARTF for use in defining generic transfer coefficients. Malathion is one of the compounds that was selected by the ARTF as a surrogate chemical for its efforts. These studies quantified residue dissipation and exposure during scouting in grapes, harvesting in grapes, apples, squash and blackberries, and pruning nursery stock. The DFR component of those studies has been extracted for chemical-specific use in this risk assessment. The studies which have been used in this assessment are identified below followed by a brief summary of each:

MRID 450059-10. ARTF Study No. ARF023. "Determination of Dermal and Inhalation Exposure to Reentry Workers During Scouting in Grapes," November 1999.

This study was conducted with Malathion 57 EC® for the purpose of establishing transfer coefficients. Only the dislodgeable foliar residue (DFR) portion of the study was used in the postapplication assessment, and is summarized here. Two applications of malathion were made at seven days apart, to test plots in the San Joaquin Valley of California, by vertical boom sprayer at a rate of 1 lb ai/A in a spray volume of 210 gal/A. Samples were collected prior to the first application, and on day 0 (after spray was dry). Following the second application, DFR samples were collected on day 0 (after spray was dry), and then at 1, 2, 3, 4, 5, 6, 7, 14 and 21 days after application. On the sampling days, triplicate samples were collected across the two test subplots and single samples from a separate untreated control plot. Forty leaf punches were obtained for

each sample with a Birkestrand leaf punch, resulting in 400 cm^2 of leaf surface (both sides) per sample. Residues on leaf discs were dislodged with 0.01% Aerosol OT solution. The limit of quantitation (LOQ) in this study was 2.0 ug/sample or 0.005 ug/cm^2. Field recovery values were within the acceptable range. No significant rainfall event was evident that might affect results. Results of the statistical analysis of the data are presented in the table below.

Grape DFR Dissipation Data (MRID 450059-10)					
Location	App. Rate in Study (lb ai/A)	Corr. Coeff. (adjust. R^2)	Slope of Semilog Regression	Day 0 Conc. (ug/cm^2)	% Dissipation/Day
CA	1.0	0.87	-0.3533906	1.39	30

These residue data were extrapolated in the postapplication assessment of malathion to cover the following currently labelled crops: grapes, hops and passion fruit.

MRID 454919-01. ARTF Study No. ARF048. "Determination of Dermal and Inhalation Exposure to Reentry Workers During Harvesting in Wine Grapes," March 2001.

This study was conducted with Malathion 57 EC® for the purpose of establishing transfer coefficients. Only the dislodgeable foliar residue (DFR) portion of the study was used in the postapplication assessment, and is summarized here. Two applications of malathion were made at seven days apart, to test plots in Sanger, California, by vertical boom sprayer at a rate of 0.93 lb ai/A in a spray volume of 218 gal/A. Samples were collected just before the first application and on day 0 (after spray was dry). Following the second application, DFR samples were collected on day 0 (after spray was dry), and then at 1, 2, 3, 4, 5, 6, 7, 10 and 14 days after application. On the sampling days, triplicate samples were collected across the two test subplots and single samples from a separate untreated control plot. Forty leaf punches were obtained for each sample with a Birkestrand leaf punch, resulting in 400 cm^2 of leaf surface (both sides) per sample. Residues on leaf discs were dislodged with 0.01% Aerosol OT solution. The limit of quantitation (LOQ) in this study was 2.0 ug/sample or 0.005 ug/cm^2. No significant rainfall event was evident that might affect results. Results of the statistical analysis of the data are presented in the table below.

Wine Grape DFR Dissipation Data (MRID 454919-01)					
Location	App. Rate in Study (lb ai/A)	Corr. Coeff. (adjust. R^2)	Slope of Semilog Regression	Day 0 Conc. (ug/cm^2)	% Dissipation/Day
CA	0.93	0.92	-0.4367956	0.57	35

These residue data would cover grapes, hops and passion fruit, however, they were not extrapolated in the postapplication assessment of malathion. Data from the grape study, MRID 450059-10, were used because they represent a more conservative surrogate screen.

MRID 451382-02. ARTF Study No. ARF025. "Determination of Dermal and Inhalation Exposure to Reentry Workers During Harvesting in Apples," January 2000.

This study was conducted with Malathion 57 EC® for the purpose of establishing transfer coefficients. Only the dislodgeable foliar residue (DFR) portion of the study was used in the postapplication assessment, and is summarized here. Two applications of malathion were made at ten days apart, to test plots in Orefield, Pennsylvania, by airblast sprayer at a rate of 1.25 lb ai/A in a spray volume of 125 gal/A. Samples were collected two days before the first application and on day 0 (after spray was dry). Following the second application, DFR samples were collected on day 0 (after spray was dry), and then at 1, 2, 3, 5, 6, 7, and 15 days after application. On the sampling days, triplicate samples were collected across the two test subplots and single samples from a separate untreated control plot. Forty leaf punches were obtained for each sample with a Birkestrand leaf punch, resulting in 400 cm^2 of leaf surface (both sides) per sample. Residues on leaf discs were dislodged with 0.01% Aerosol OT solution. The limit of quantitation (LOQ) in this study was 2.0 ug/sample or 0.005 ug/cm^2. A rainfall event between day 3 and 4 following application significantly lowered DFR values. Results of the statistical analysis of the data are presented in the table below.

Apple DFR Dissipation Data (MRID 451382-02)					
Location	App. Rate in Study (lb ai/A)	Corr. Coeff. (adjust. R^2)	Slope of Semilog Regression	Day 0 Conc. (ug/cm^2)	% Dissipation/Day
PA	1.25	0.70	-0.468671	2.65	37

These residue data were extrapolated in the postapplication assessment of malathion to cover the following currently labelled crops: apple, apricot, avocado, cherry, chestnut, fig, grapefruit, guava, kumquat, lemon, lime, macadamia nut, mango, nectarine, orange, papaya, peach, pear, pecan, quince, tangelo, tangerine, walnut, pine seed orchards, Christmas tree plantations, shade trees, and forest trees.

MRID 454919-02. ARTF Study No. ARF049. "Determination of Dermal and Inhalation Exposure to Reentry Workers During Harvesting in Summer Squash," May 2001.

This study was conducted with Malathion 57 EC® for the purpose of establishing transfer coefficients. Only the dislodgeable foliar residue (DFR) portion of the study was used in the postapplication assessment, and is summarized here. Two applications of malathion were made at seven days apart, to test plots in Porterville, California, by tractor-mounted boom sprayer at a rate of 0.95 lb ai/A in a spray volume of 20 gal/A. Samples were collected on the day before the first application and on day 0 (after spray was dry). Following the second application, DFR samples were collected on day 0 (after spray was dry), and then at 1, 2, 3, 4, 5, 6, and 7 days after application. On the sampling days, triplicate samples were collected across the two test subplots and single samples from a separate untreated control plot. Forty leaf punches were obtained for each sample with a Birkestrand leaf punch, resulting in 400 cm^2 of leaf surface (both sides) per

sample. Residues on leaf discs were dislodged with 0.01% Aerosol OT solution. The limit of quantitation (LOQ) in this study was 2.0 ug/sample or 0.005 ug/cm^2. No significant rainfall events were evident to affect the results. Results of the statistical analysis of the data are presented in the table below.

Squash DFR Dissipation Data (MRID 454919-02)					
Location	App. Rate in Study (lb ai/A)	Corr. Coeff. (adjust. R^2)	Slope of Semilog Regression	Day 0 Conc. (ug/cm^2)	% Dissipation/Day
CA	0.95	0.83	-0.583225	3.95	44

These residue data were extrapolated in the postapplication assessment of malathion to cover the following currently labelled crops: alfalfa, asparagus, barley, beets, broccoli, broccoli-raab, brussels sprouts, cabbage, carrot, cantaloupe, cauliflower, celery, chayote root, chayote fruit, clover, collards, corn, cotton, cucumber, dandelion, eggplant, endive, flax, garlic, grasses (hay, forage), horseradish, kale, kohlrabi, leeks, lespedeza, lettuce, lupine, melon, mint, mushroom, mustard greens, oats, okra, onion, parsley, parsnip, peas, pepper, potato, pumpkin, radish, rice, rutabaga, rye, salsify, shallots, sorghum grain, spinach, squash, sweet potato, Swiss chard, tomato, turnip, vetch, watercress, watermelon, wheat, wild rice and yam.

MRID 451382-01. ARTF Study No. ARF020. "Determination of Dermal and Inhalation Exposure to Reentry Workers During Hand-Harvesting in Blackberries," January 2000.

This study was conducted with Malathion 57 EC® for the purpose of establishing transfer coefficients. Only the dislodgeable foliar residue (DFR) portion of the study was used in the postapplication assessment, and is summarized here. Two applications of malathion were made at seven days apart, to test plots in Mount Angel, Oregon, by airblast sprayer at a rate of 1.9 lb ai/A in a spray volume of 90 gal/A. Samples were collected on the day before the first application and on day 0 (after spray was dry). Following the second application, DFR samples were collected on day 0 (after spray was dry), and then at 1, 2, 3, 4, 5, 6, 7 and 14 days after application. On the sampling days, triplicate samples were collected across the two test subplots and single samples from a separate untreated control plot. Eighty leaf punches were obtained for each sample with a Birkestrand leaf punch, resulting in 400 cm^2 of leaf surface (both sides) per sample. Residues on leaf discs were dislodged with 0.01% Aerosol OT solution. The limit of quantitation (LOQ) in this study was 2.0 ug/sample or 0.005 ug/cm^2. No rainfall events were evident to affect the results. Results of the statistical analysis of the data are presented in the table below.

Blackberry DFR Dissipation Data (MRID 451382-01)					
Location	App. Rate in Study (lb ai/A)	Corr. Coeff. (adjust. R^2)	Slope of Semilog Regression	Day 0 Conc. (ug/cm^2)	% Dissipation/Day
OR	1.9	0.91	-0.3923051	1.24	32

These residue data were extrapolated in the postapplication assessment of malathion to cover the following currently labelled crops: blackberry, blueberry, boysenberry, dewberry, loganberry, pineapple, raspberry and strawberry.

MRID 454695-01. ARTF Study No. ARF043. "Determination of Dermal and Inhalation Exposure to Reentry Workers During Pruning in Nursery Stock," January 2000.

This study was conducted with Malathion 57 EC® for the purpose of establishing transfer coefficients. Only the dislodgeable foliar residue (DFR) portion of the study was used in the postapplication assessment, and is summarized here. A single application of malathion was made to test plots of assorted citrus trees in Yuma, Arizona, by commercial boom sprayer at a rate of 1.3 lb ai/A in a spray volume of 47 gal/A. Samples were collected on the day before application, on day 0 (after spray was dry), and then at 1, 2, 3, 4, 5, 6, 7 and 14 days after application. On the sampling days, triplicate samples were collected across the two test subplots and single samples from a separate untreated control plot. Forty leaf punches were obtained for each sample with a Birkestrand leaf punch, resulting in 400 cm^2 of leaf surface (both sides) per sample. Residues on leaf discs were dislodged with 0.01% Aerosol OT solution. The limit of quantitation (LOQ) in this study was 2.0 ug/sample or 0.005 ug/cm^2. No rainfall events were evident to affect the results. Results of the statistical analysis of the data are presented in the table below.

Nursery Stock DFR Dissipation Data (MRID 454695-01)					
Location	App. Rate in Study (lb ai/A)	Corr. Coeff. (adjust. R^2)	Slope of Semilog Regression	Day 0 Conc. (ug/cm^2)	% Dissipation/Day
AZ	1.3	0.88	-0.4140081	2.63	34

These residue data were extrapolated in the postapplication assessment of malathion to cover all currently labelled ornamental crops, including nusery stock, shrubs and cut flowers.

It should be noted that this assessment of the potential postapplication exposure reflects residue of malathion *per se*. Information specific to the potential formation of malaoxon following uses subject to this tolerance reassessment action has not been submitted. Monitoring data used in the assessment of malathion bait spray in the California medfly eradication program (Bradman, M.A.,et al., 1994) indicates the postapplication formation of the oxidative breakdown product, malaoxon, at levels an order of magnitude less than the parent compound on plant surfaces. Although aware of the possible formation of malaoxon following the uses subject to this reregistration action, there is insufficient information currently available to perform a quantitative exposure assessment without a large degree of uncertainty. Therefore, an assessment of the potential postapplication exposure to malaoxon has not been performed, and in order to do so would require the results from residue dissipation studies that specifically measured for malaoxon.

2.2.3 Occupational Postapplication Exposure and Risk Estimates

Postapplication exposure and risk assessments were performed for the crop groupings, application rates, activities and transfer coefficients summarized in Tables 10 and 11 above. The results of these assessments are summarzed in Tables 13 and 14 below, with details regarding the reentry exposure levels for specific use rates and crop sites presented in Attachment 2 to this document.

The equations used for the calculations in Tables 13 and 14 are presented below:

$$\text{DFR}\left(\frac{\mu g}{cm^2}\right) = \text{AR}\left(\frac{\text{lb ai}}{\text{acre}}\right) \times \text{CF}\left(\frac{\mu g/cm^2}{\text{lb ai/acre}}\right) \times \text{F} \times (1 - \text{DR})^t$$

Where:

DFR	=	Dislodgeable foliar residue ($\mu g/cm^2$),
AR	=	Application rate (lb ai/acre),
CF	=	Conversion factor (11.2 $\mu g/cm^2$ per lb ai/acre),
F	=	Fraction retained on foliage (%),
DR	=	Daily dissipation rate (%),
t	=	Days after treatment.

$$\text{Dose (mg/kg/day)} = \frac{(\text{DFR } (\mu g/cm^2) \times \text{Tc } (cm^2/hr) \times \text{CF } (0.001 \text{ mg}/\mu g) \times \text{ED (hr/day)}) \times \text{Abs } (\%/100)}{\text{BW (kg)}}$$

Where:

Tc	=	Transfer coefficient (cm^2/hr),
CF	=	Conversion factor (0.001 mg/μg),
Abs	=	Absorption (10% dermal absorption; applies only to long-term exposure)
ED	=	Exposure duration (8 hours worked per day), and
BW	=	Body weight (70 kg).

MOE = NOAEL (mg/kg/day) ÷ Dose (mg/kg/day

Where:

NOAEL= 50 mg/kg/day (short and intermediate-term) or 2.4 mg/kg/day (long-term)
Dose = Calculated dose.

2.2.4 Summary of Occupational Postapplication Risks, Data Gaps, and Confidence in Exposure and Risk Estimates

Postapplication Worker Risks

Tables 13 (EC, WP and RTU formulations) and 14 (ULV formulations) below, present, by crop grouping, the range of "days after treatment" at which the dermal MOEs reach or exceed the target of 100. For each crop grouping, the range of "days after treatment" are presented for a range of activities from "very low" contact (e.g., propping fruit trees), to "very high" contact (e.g., thinning fruit trees). As seen earlier with handlers, postapplication risks also vary significantly according to application rate. Most "low and very low" contact activities reach the target MOE on the day of application. Even for "high and very high" contact activities, the range is from 0 to 6 days after treatment. Attachment 2 presents the detailed results of the postapplication assessment for each crop, activity and application rate.

The existing REI established under the Worker Protection Standard (WPS) is 12 hours. Occupational postapplication risks for crop/activity/application rate combinations that lead to REI determinations of more than "day 0," exceed the WPS-determined REI.

The postapplication assessment for two specific malathion use sites are presented separately below, because of the need to describe additional information and basis for the assessment.

- **Mushroom Houses**

Malathion is applied to commercial mushroom house beds as often as twice per week from approximately April to December to control flies. The application is to vacant portions of beds and not directly to the growing mushrooms. Postapplication exposure from contact with treated beds is expected to be minimal until growing mushrooms are cut and harvested. Because both treatment and postapplication activities occur for more than 180 continuous days, short- and intermediate-term exposure is expected, and long-term exposure is believed to be possible.

The transfer coefficient used here (i.e., 2500 cm^2/hour) is from the HED Science Advisory Council for Exposure Policy # 003 (May 7, 1998), and only covers "high" contact activities (i.e., cutting, harvesting, sorting and packing). Transfer coefficients from the ARTF do not include those for activities involved in commercial mushroom production.

Using the **short-, and intermediate-term** dermal endpoint NOAEL of 50 mg/kg/day, results in an MOE that equals or exceeds the target MOE of 100 (i.e., MOE = 141) for high contact activities on the **2nd day following application** of malathion to mushroom beds at a rate of 1.7 lb ai/acre.

The **long-term** dermal NOAEL for malathion is 2.4 mg/kg/day, from a two-year feeding study. A dermal equivalent dose (using a 10% dermal absorption factor) of 24 mg/kg/day was used in the estimation of long-term postapplication risk. The resulting risk (i.e., MOE = 119) exceeds the target MOE of 100 for high contact activities on the **3rd day following application**.

- **Dates**

Information on the malathion use pattern on dates was provided by the OPP's Biological and Economic Analysis Division (BEAD communication, March 14, 2001). According to BEAD, three to five applications are made starting in August, and up to 21 days before harvest at the end of October, with typically 2 - 3 weeks between applications. The only activities undertaken following application are irrigation and discing on ground, which currently occurs at 24 hours postapplication. No residue dissipation data are available for malathion on dates. A study by Krieger and Dinoff, "Malathion Deposition, Metablolic Clearance, and Cholinesterase Status of Date Dusters and Harvesters in California," in *Arch. Environ. Contam. Toxicol.* Volume 38, Pages 456-553 (2000) presented occupational postapplication exposure estimates from harvesting malathion treated dates.

The study used urinary clearance of alkyl phosphates and malathion mono- and di-acids as indicators of malathion exposure. Harvesters were monitored over full work shifts, over a two-day period, wearing baseline clothing, plus gloves and a hat. Monitoring was also conducted for harvesters over a two-week period. Application rates ranged from 1 - 4 lbs ai/acre. For harvesters, the estimated daily dose ranged from 0.001 to 0.3 mg/kg/day. **For harvesters the corresponding MOEs range from 170 to 50,000.** These values would indicate that risks to harvesters are well above the target MOE of 100 and would not pose a concern to the Agency. However, it should be kept in mind that the monitored workers were wearing gloves, which are not a requirement for postapplication workers.

For comparative purposes, the postapplication exposure also was estimated using the ARTF transfer coefficient (Tc) for "Bunch/bundle" crops (i.e., Tc = 2000 for harvesting, pruning, thinning and weeding; from ARF024). From this analysis, the MOE on "day 0" is 37. It is not until the 3rd day following application that the risk reaches or exceeds the target MOE of 100 (i.e., MOE = 110) for the activity of harvesting dates. However, for activities which are discribed as the only activities occurring within 24 hours of treatment (i.e., discing and irrigation) the appropriate transfer coefficient of 100 (for low contact activities), yields an MOE of 740 on day 0 following application, which does not exceed HED's level of concern. More details on the postapplication assessment for dates are found in Attachment 2 of this document.

Table 13. Summary of 'Days After Treatment' to Reach the Target MOE for Intermediate-term Exposure (EC, WP and RTU formulations)

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Berry, low	Blueberries (lowbush), Strawberries	1.25 - 2	N/A	0	N/A	0	N/A
Bunch / bundle	Hops, Dates	0.63 - 4.25	N/A	0	0 - 2	0 - 3	N/A
Field / row crops, low / medium	Alfalfa, Barley, Cotton, Flax, Mint, Peas (dry), Peas (green), Rice, Wheat (spring), Wheat (winter), Clover, Grasses (forage & hay), Lespedeza, Lupine, Oats, Rye, Vetch, Wild rice	0.5 - 2.5	N/A	0	0 - 3	1 - 4	N/A
Field / row crops, tall	Corn (all types), Sorghum	1.25	N/A	0	0	1	6
Trees, fruit, deciduous	Apples, Apricots, Cherries, Figs, Nectarines, Peaches, Pears, Quince	1.25 - 3.75	0	0 - 2	N/A	2 - 4	2 - 4
Trees, fruit, evergreen	Avocados, Grapefruit, Lemons, Mangos, Oranges, Papaya, Guava, Kumquat, Lime, Tangelo, Tangerines	1.25 - 6.25	0	0 - 3	2 - 5	2 - 5	N/A

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Trees, nut	Macadamia nuts, Pecans, Walnuts, Chestnut	0.94 - 5	N/A	0 - 1	N/A	1 - 4	N/A
Unassigned	Mushrooms	1.7 - 2.5	0	0	0	0	0
Vegetable, cucurbit	Cantalope, Cucumbers, Melons, Squash (summer), Squash (winter), Watermelon, Chayote fruit, Pumpkin	1 - 1.88	N/A	0	1 - 2	2 - 3	N/A
Vegetable, fruiting	Eggplant, Okra, Peppers (bell), Peppers (chili), Tomatoes (fresh), Tomatoes (processed)	1.5 - 3.43	N/A	0 - 1	0 - 2	1 - 3	N/A
Vegetable, head and stem Brassica	Broccoli, Brussel sprouts, Cabbage, Cauliflower, Broccoli raab, Kohlrabi	1.25	N/A	2	3	4	N/A
Vegetable, leafy	Celery, Collards, Kale, Lettuce, Mustard greens, Parsley, Spinach, Swiss chard, Watercress, Dandelion, Endive	1.25 - 2	N/A	0	1 - 2	2 - 3	N/A

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Vegetable, root	Beets (table), Carrots, Onions (dry), Onions (green), Potatoes, Sweet potatoes, Turnips, Chayote root, Garlic, Horseradish, Leeks, Parsnip, Radish, Rutabaga, Salsify, Shallots, Yams	1.25 - 1.56	N/A	0	1 - 2	2 - 3	N/A
Vegetable, stem / stalk	Asparagus, Pineapple	1.25 - 5	N/A	0	0	0 - 1	N/A
Vine / trellis (w/ girdling)	Grapes (table and raisin), Boysenberry	1.88 - 2	N/A	0	0	2 - 4	3 - 6
Vine / trellis (w/o girdling)	Blackberries, Blueberries (highbush), Grapes (juice and wine), Raspberries, Dewberry, Loganberry, Passion fruit	1.25 - 2	N/A	0	0	0 - 4	N/A

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Flowers, cut	Ornamentals (flowers, shrubs, flowering plants, nursery stock, and wood plants)	2.5	N/A	0	0	0	6
Trees, fruit, evergreen	Pine trees (Pine seed orchards, Christmas trees, Slash pine plantations, shrubs, shade trees, forest trees)	2.5	0	1	3	3	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

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Table 14. Summary of 'Days After Treatment' to Reach the Target MOE for Short-/Intermediate-term Exposure (ULV formulation)

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Berry, low	Blueberries (lowbush)	0.76	N/A	0	N/A	0	N/A
Field / row crops, low / medium	Alfalfa, Barley, Beans (dry), Beans (string), Cotton, Rice, Wheat (spring), Wheat (winter), Clover, Grasses (forage, hay), Lespedeza, Lupine, Oats, Rye, Vetch, Wild rice	0.61 - 1.22	N/A	0	0 - 1	1 - 2	N/A
Field / row crops, tall	Corn (all types), Sorghum	0.61	N/A	0	0	0	4
Trees, fruit, deciduous	Cherries	1.22	0	0	N/A	2	2
Trees, fruit, evergreen	Grapefruit, Lemons, Oranges, Kumquat, Lime, Tangelo, Tangerine	0.18 - 0.92	0	0	0 - 1	0 - 1	N/A
Vine / trellis (w/o girdling)	Blueberries (highbush)	0.76	N/A	0	0	0	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

Data Quality, Confidence and Data Gaps in Assessment

Transfer coefficients used are believed to be the best currently available for the assessment of malathion postapplication exposure potential. The use of maximum application rates for each crop will help prevent an underestimation of risks.

Appropriate chemical-specific DFR studies were available to determine postapplication risks for some of the major crop groups: tree crops, nursery crops, low/medium field row crops, vine/trellis and berries. All individual crops were addressed by using the data from these studies, although in some cases data were used for crops that would better be represented by malathion crop-specific studies. For example, data from the malathion DFR study on squash was used to cover crops such as alfalfa and clover, for which the squash data were the best available fit.

HED's revised policy 003 for transfer coefficients only quantitatively addresses risks where the transfer coefficient model is appropriate (i.e., where foliar contact is known to exist). There are many kinds of potential exposure pathways that do not involve foliar contact that have not been addressed in this risk assessment (as defined in policy 003, refer to that document for a complete list). The scenarios include:

- Transplanting many crops including in the ornamental and forestry industry;
- Thinning some crops such as hops;
- Hand weeding some crops such as wheat;
- Various operations with Christmas trees such as pruning or baling;
- Various operations with nut production such as sweeping for harvest; and
- Some partially mechanized operations that also involve human contact (e.g., cotton harvesting where module builders and trampers are used, see below).

The latter two scenarios involve mechanical operations. Mechanized practices can be divided into fully mechanized activities that meet the definition of "No contact" in the Agency's Worker Protection Standard (WPS) and mechanically assisted practices with potential for exposure.

In the case of fully mechanized activities, the Agency addresses potential exposures by allowing early entry as described in the WPS:

"A worker may enter a treated area during a restricted-entry interval if the agricultural employer assures that both of the following are met: (1) The worker will have no contact with anything that has been treated with the pesticide to which the restricted-entry interval applies including, but not limited to, soil, water, air, or surfaces of plants; and (2) no such entry is

allowed until any inhalation exposure level listed in the labeling has been reached or any ventilation criteria established by § 170.110 (c)(3) or in the labeling have been met."

The Agency also acknowledges that there is some potential for exposure because individuals engaged in fully mechanized activities have short-term excursions from the protected area for various reasons (e.g., unclogging machinery or equipment inspection for breakage). In these cases, the WPS § 170.112(c) *Exception for short-term activities* applies.

The postapplication assessment in this document sometimes includes risk estimates for high contact activities such as hand-harvesting for crops which are rarely hand-harvested (e.g., field row crops). The Agency recognizes that REIs should rarely be based on such risks, but includes them in its assessment for the limited, but possible occurrence of such scenarios.

References

1) Lateulere, D. Memorandum: Malathion Uses Subject to Reregistration Risk Assessments. Prepared by the Malathion Reregistration Eligibility Decision (RED) Team. U.S. EPA, Office of Pesticide Programs, Special Review Branch. February 17, 1998.

2) Jellinek, Schwartz and Connolly, Inc. Memorandum: Response to EPA's February 17, 1998 Memorandum. Prepared by Jellinek, Schwartz and Connolly, Inc. In behalf of Cheminova Agro. March 10, 1998.

3) Letter from Diane Allemang, Director of Regulatory Affairs, Cheminova, Inc., RE: Deletion of Certain Malathion Residential Uses. Sent to Ann Overstreet, SRRD, OPP. Dated March 18, 2002.

4) PHED Surrogate Exposure Guide. Estimates of Worker Exposure from the Pesticide Handler Exposure Database Version 1.1. August 1998.

5) Malathion: Updated Revised Residential Exposure and Risk Assessment for the Interim Reregistration Eligibility Decision (RED) Document. (DP Barcode: D283741; Chemical Number: 057701; EPA MRID No.: 43945001), July 17, 2002

SignOff Date: 11/02
DP Barcode: D283741
cc: RAB3 File, J. Arthur

Attachment 1.

Estimates of Handler Exposure and Risk at Various Levels of Mitigation

- 78 pages

- Baseline Risk (long pants, long sleeved shirt, shoes and socks)..... 1
- PPE1 Risk (long pants, long sleeved shirt and chemical-resistant gloves; no respirator) 10
- PPE2 Risk (long pants, long sleeved shirt and chemical-resistant gloves, plus an appropriate respirator with a protection factor of 5) 18
- PPE3 Risk (long pants, long sleeved shirt and chemical-resistant gloves, plus an approprate respirator with a protection factor of 10) 27
- PPE4 Risk (coveralls over long pants and long sleeved shirt, and chemical-resistant gloves; no respirator)..... 35
- PPE5 Risk (coveralls over long pants and long sleeved shirt, and chemical-resistant gloves, plus an appropriate respirator with a protection factor of 5) 43
- PPE6 Risk (coverall over long pants and long sleeved shirt, and chemical-resistant gloves, plus an appropriate respirator with a protection factor of 10) 51
- Engineering Controls Risk (long pants, long sleeved shirts, and, for mixers and loaders, chemical-resistant gloves)..... 59

Short Term and Intermediate-term Baseline Risk for Malathion

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixer/Loader										
Mixing/Loading Liquids for Groundboom application (1)	2.9	1.2	Non-grass animal feed(alfalfa)	1.25	200	10	5	0.0043	6000	4.8
Mixing/Loading Liquids for Groundboom application (2)	2.9	1.2	Non-grass animal feed(clover, lespedeza, lupin, vetch)	1.25	80	4.1	12	0.0017	15000	12
Mixing/Loading Liquids for Groundboom application (3)	2.9	1.2	Stalk and stem vegetables (asparagus)	1.25	80	4.1	12	0.0017	15000	12
Mixing/Loading Liquids for Groundboom application (4)	2.9	1.2	Cereal grains (corn, wheat, rice)	1.25	200	10	5	0.0043	6000	4.8
Mixing/Loading Liquids for Groundboom application (5)	2.9	1.2	Cereal grains (barley, oats, rye ,sorghum, wild rice)	1.25	80	4.1	12	0.0017	15000	12
Mixing/Loading Liquids for Groundboom application (6)	2.9	1.2	Roots and tuber vegetables(garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	80	4.1	12	0.0017	15000	12
Mixing/Loading Liquids for Groundboom application (7)	2.9	1.2	Root and tuber vegetables(chayote root, potatoes, sweet potato, yams)	1.56	80	5.2	10	0.0021	12000	9.7
Mixing/Loading Liquids for Groundboom application (8)	2.9	1.2	Berries(blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	6.6	8	0.0027	9400	7.5
Mixing/Loading Liquids for Groundboom application (9)	2.9	1.2	Berries(blueberries)	1.25	80	4.1	12	0.0017	15000	12
Mixing/Loading Liquids for Groundboom application (10)	2.9	1.2	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	80	4.1	12	0.0017	15000	12
Mixing/Loading Liquids for Groundboom application (11)	2.9	1.2	Cucurbit vegetables (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	80	3.3	15	0.0014	19000	15
Mixing/Loading Liquids for Groundboom application (12)	2.9	1.2	Cucurbit vegetables (cucumber, summer squash, chayote fruit)	1.88	80	6.2	8	0.0026	10000	8
Mixing/Loading Liquids for Groundboom application (13)	2.9	1.2	Leafy vegetables (celery, watercress)	1.25	80	4.1	12	0.0017	15000	12
Mixing/Loading Liquids for Groundboom application (14)	2.9	1.2	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	80	6.6	8	0.0027	9400	7.5
Mixing/Loading Liquids for Groundboom application (15)	2.9	1.2	Leafy vegetables (endive, lettuce)	1.88	80	6.2	8	0.0026	10000	8
Mixing/Loading Liquids for Groundboom application (16)	2.9	1.2	Oilseed (cotton)	1.15	200	9.5	5	0.0039	6500	5.2
Mixing/Loading Liquids for Groundboom application (17)	2.9	1.2	Oilseed (cotton)	2.50	200	21	2	0.0086	3000	2.4
Mixing/Loading Liquids for Groundboom application (18)	2.9	1.2	Oilseed (flax)	0.50	80	1.7	30	0.00069	38000	30
Mixing/Loading Liquids for Groundboom application (19)	2.9	1.2	Fruiting vegetables (eggplant, tomatoes)	3.43	80	11	4	0.0047	5500	4.4

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Groundboom application (20)	2.9	1.2	Fruiting vegetables (okra)	1.50	80	5	10	0.0021	13000	10
Mixing/Loading Liquids for Groundboom application (21)	2.9	1.2	Bulb vegetables (garlic, leeks, onion, shallots)	1.56	80	5.2	10	0.0021	12000	9.7
Mixing/Loading Liquids for Groundboom application (22)	2.9	1.2	Small fruits (strawberry)	2	80	6.6	8	0.0027	9400	7.5
Mixing/Loading Liquids for Groundboom application (23)	2.9	1.2	Forage grass (grass)	1.25	80	4.1	12	0.0017	15000	12
Mixing/Loading Liquids for Groundboom application (24)	2.9	1.2	Herbs and spices (mint)	0.94	80	3.1	16	0.0013	20000	16
Mixing/Loading Liquids for Groundboom application (25)	2.9	1.2	Herbs and spices (pepper)	1.56	80	5.2	10	0.0021	12000	9.7
Mixing/Loading Liquids for Groundboom application (26)	2.9	1.2	Legume vegetables (peas)	2.50	80	8.3	6	0.0034	7500	6
Mixing/Loading Liquids for Airblast application (27)	2.9	1.2	Pome fruits (apples, pear, quince)	1.25	40	2.1	24	0.00086	30000	24
Mixing/Loading Liquids for Airblast application (28)	2.9	1.2	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	40	6.2	8	0.0026	10000	8
Mixing/Loading Liquids for Airblast application (29)	2.9	1.2	Tropical and subtropical fruits (avocado)	4.70	40	7.8	6	0.0032	8000	6.4
Mixing/Loading Liquids for Airblast application (30)	2.9	1.2	Tropical and subtropical fruits (fig)	2.50	40	4.1	12	0.0017	15000	12
Mixing/Loading Liquids for Airblast application (31)	2.9	1.2	Tropical and subtropical fruits (guava, mango ,passion fruit)	1.25	40	2.1	24	0.00086	30000	24
Mixing/Loading Liquids for Groundboom application (32)	2.9	1.2	Tropical and subtropical fruits (pineapples)	5	80	17	3	0.0069	3800	3
Mixing/Loading Liquids for Airblast application (33)	2.9	1.2	Tree nuts (chestnuts)	5	40	8.3	6	0.0034	7500	6
Mixing/Loading Liquids for Airblast application (34)	2.9	1.2	Tree nuts (macadamia nuts)	0.94	40	1.6	32	0.00064	40000	32
Mixing/Loading Liquids for Airblast application (35)	2.9	1.2	Tree nuts (pecans, walnuts)	2.50	40	4.1	12	0.0017	15000	12
Mixing/Loading Liquids for Airblast application (36)	2.9	1.2	Citrus (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	40	10	5	0.0043	6000	4.8
Mixing/Loading Liquids for Airblast application (37)	2.9	1.2	Small fruits (grapes)	1.88	40	3.1	16	0.0013	20000	16
Mixing/Loading Liquids for Airblast application (38)	2.9	1.2	Herbs and spices (hops)	0.63	40	1	48	0.00043	60000	48
Mixing/Loading Liquids for Aerial application (39)	2.9	1.2	Non-grass animal feed (alfalfa)	1.25	1200	62	1	0.026	1000	0.80
Mixing/Loading Liquids for Aerial application (40)	2.9	1.2	Non-grass animal feed (clover, lespedeza, lupin, vetch)	1.25	350	18	3	0.0075	3400	2.8
Mixing/Loading Liquids for Aerial application (41)	2.9	1.2	Pome fruits (apples, pear, quince)	1.25	350	18	3	0.0075	3400	2.8

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Aerial application (42)	2.9	1.2	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	350	54	1	0.023	1100	0.92
Mixing/Loading Liquids for Aerial application (43)	2.9	1.2	Stalk and stem vegetables (asparagus)	1.25	350	18	3	0.0075	3400	2.8
Mixing/Loading Liquids for Aerial application (44)	2.9	1.2	Tropical and subtropical fruits (avocado)	4.70	350	68	1	0.028	920	0.73
Mixing/Loading Liquids for Aerial application (45)	2.9	1.2	Tropical and subtropical fruits (fig)	2.50	350	36	1	0.015	1700	1.4
Mixing/Loading Liquids for Aerial application (46)	2.9	1.2	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	18	3	0.0075	3400	2.8
Mixing/Loading Liquids for Aerial application (47)	2.9	1.2	Tropical and subtropical fruits (pineapples)	5	350	73	1	0.03	860	0.69
Mixing/Loading Liquids for Aerial application (48)	2.9	1.2	Cereal grains (corn rice, wheat)	1.25	1200	62	1	0.026	1000	0.80
Mixing/Loading Liquids for Aerial application (49)	2.9	1.2	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	350	18	3	0.0075	3400	2.8
Mixing/Loading Liquids for Aerial application (50)	2.9	1.2	Root and tuber vegetables (garden beets, carrot, root, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	18	3	0.0075	3400	2.8
Mixing/Loading Liquids for Aerial application (51)	2.9	1.2	Root and tuber vegetables (chayote root, potatoes, sweet potatoes, yams)	1.56	350	23	2	0.0094	2800	2.2
Mixing/Loading Liquids for Aerial application (52)	2.9	1.2	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry,)	2	350	29	2	0.012	2200	1.7
Mixing/Loading Liquids for Aerial application (53)	2.9	1.2	Berries (blueberries)	1.25	350	18	3	0.0075	3400	2.8
Mixing/Loading Liquids for Aerial application (54)	2.9	1.2	Brassica and leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	18	3	0.0075	3400	2.8
Mixing/Loading Liquids for Aerial application (55)	2.9	1.2	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon,	1	350	15	3	0.006	4300	3.4
Mixing/Loading Liquids for Aerial application (56)	2.9	1.2	Cucurbit (Cucumber, summer squash, chayote fruit)	1.88	350	27	2	0.011	2300	1.8
Mixing/Loading Liquids for Aerial application (57)	2.9	1.2	Leafy vegetables (celery, watercress)	1.25	350	18	3	0.0075	3400	2.8
Mixing/Loading Liquids for Aerial application (58)	2.9	1.2	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	29	2	0.012	2200	1.7
Mixing/Loading Liquids for Aerial application (59)	2.9	1.2	Leafy vegetables (endive, lettuce)	1.88	350	27	2	0.011	2300	1.8
Mixing/Loading Liquids for Aerial application (60)	2.9	1.2	Tree nuts (chestnuts)	5	350	73	1	0.03	860	0.69
Mixing/Loading Liquids for Aerial application (61)	2.9	1.2	Tree nuts (macadamia nuts)	0.94	350	14	4	0.0056	4600	3.7
Mixing/Loading Liquids for Aerial application (62)	2.9	1.2	Tree nuts (pecans, walnuts)	2.50	350	36	1	0.015	1700	1.4
Mixing/Loading Liquids for Aerial application (63)	2.9	1.2	Oilseed (cotton)	1.15	1200	57	1	0.024	1100	0.87

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Aerial application (64)	2.9	1.2	Oilseed (cotton)	2.50	1200	120	< 1	0.051	500	0.40
Mixing/Loading Liquids for Aerial application (65)	2.9	1.2	Oilseed (flax)	0.50	350	7.3	7	0.003	8600	6.9
Mixing/Loading Liquids for Aerial application (66)	2.9	1.2	Citrus Fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	91	1	0.038	690	0.55
Mixing/Loading Liquids for Aerial application (67)	2.9	1.2	Forage grass (grass)	1.25	350	18	3	0.0075	3400	2.8
Mixing/Loading Liquids for Aerial application (68)	2.9	1.2	Legume vegetables (peas)	2.50	350	36	1	0.015	1700	1.4
Mixing/Loading Liquids for Chemigation application (69)	2.9	1.2	Non-grass animal feed (alfalfa, clover, lespedeza, lupin, vetch)	1.25	350	18	3	0.0075	3400	2.8
Mixing/Loading Liquids for Chemigation application (70)	2.9	1.2	Cereal grains (barley, corn, oats, rice, rye, sorghum, wheat, wild rice)	1.25	350	18	3	0.0075	3400	2.8
Mixing/Loading Liquids for Chemigation application (71)	2.9	1.2	Small fruits (strawberry)	2	350	29	2	0.012	2200	1.7
Mixing/Loading Liquids for Chemigation application (72)	2.9	1.2	Herbs and spices (mint)	0.94	350	14	4	0.0056	4600	3.7
Mixing/Loading Liquids for Chemigation application (73)	2.9	1.2	Herbs and spices (pepper)	1.56	350	23	2	0.0094	2800	2.2
Mixing/Loading Liquids for Chemigation application (74)	2.9	1.2	Legume vegetables (peas)	2.50	350	36	1	0.015	1700	1.4
Wettable Powders for Aerial application (75)	3.7	43	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	37	1	0.43	60	1.3
Wettable Powders for Groundboom application (76)	3.7	43	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	8.5	6	0.098	260	5.8
Wettable Powders for Groundboom application (77)	3.7	43	Small fruits (strawberry)	2	80	8.5	6	0.098	260	5.8
Wettable Powders for Chemigation application (78)	3.7	43	Small fruits (strawberry)	2	350	37	1	0.43	60	1.3
Applicator										
Sprays for Groundboom application (79)	0.014	0.74	Non-grass animal feed(alfalfa)	1.25	200	0.05	1000	0.0026	9800	910
Sprays for Groundboom application (80)	0.014	0.74	Non-grass animal feed(clover, lespedeza, lupin, vetch)	1.25	80	0.02	2500	0.0011	24000	2300
Sprays for Groundboom application (81)	0.014	0.74	Stalk and stem vegetables (asparagus)	1.25	80	0.02	2500	0.0011	24000	2300
Sprays for Groundboom application (82)	0.014	0.74	Cereal grains (corn, wheat, rice)	1.25	200	0.05	1000	0.0026	9800	910
Sprays for Groundboom application (83)	0.014	0.74	Cereal grains (barley, oats ,rye, sorghum, wild rice)	1.25	80	0.02	2500	0.0011	24000	2300
Sprays for Groundboom application (84)	0.014	0.74	Roots and tuber vegetables(garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	80	0.02	2500	0.0011	24000	2300
Sprays for Groundboom application (85)	0.014	0.74	Root and tuber vegetables(chayote root, potatoes, sweet potato, yams)	1.56	80	0.025	2000	0.0013	20000	1800

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure. (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Sprays for Groundboom application (86)	0.014	0.74	Berries(blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.032	1600	0.0017	15000	1400
Sprays for Groundboom application (87)	0.014	0.74	Berries(blueberries)	1.25	80	0.02	2500	0.0011	24000	2300
Sprays for Groundboom application (88)	0.014	0.74	Brassica leafy vegetables (broccoli; broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	80	0.02	2500	0.0011	24000	2300
Sprays for Groundboom application (89)	0.014	0.74	Cucurbit vegetables (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	80	0.016	3100	0.00085	31000	2800
Sprays for Groundboom application (90)	0.014	0.74	Cucurbit vegetables (cucumber, summer squash, chayote fruit)	1.88	80	0.030	1700	0.0016	16000	1500
Sprays for Groundboom application (91)	0.014	0.74	Leafy vegetables (celery, watercress)	1.25	80	0.02	2500	0.0011	24000	2300
Sprays for Groundboom application (92)	0.014	0.74	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	80	0.032	1600	0.0017	15000	1400
Sprays for Groundboom application (93)	0.014	0.74	Leafy vegetables (endive, lettuce)	1.88	80	0.030	1700	0.0016	16000	1500
Sprays for Groundboom application (94)	0.014	0.74	Oilseed (cotton)	1.15	200	0.046	1100	0.0024	11000	990
Sprays for Groundboom application (95)	0.014	0.74	Oilseed (cotton)	2.50	200	0.1	500	0.0053	4900	450
Sprays for Groundboom application (96)	0.014	0.74	Oilseed (flax)	0.50	80	0.008	6300	0.00042	61000	5700
Sprays for Groundboom application (97)	0.014	0.74	Fruiting vegetables (eggplant, tomatoes)	3.43	80	0.055	910	0.0029	8900	830
Sprays for Groundboom application (98)	0.014	0.74	Fruiting vegetables (okra)	1.50	80	0.024	2100	0.0013	20000	1900
Sprays for Groundboom application (99)	0.014	0.74	Bulb vegetables (garlic, leeks, onion, shallots)	1.56	80	0.025	2000	0.0013	20000	1800
Sprays for Groundboom application (100)	0.014	0.74	Small fruits (strawberry)	2	80	0.032	1600	0.0017	15000	1400
Sprays for Groundboom application (101)	0.014	0.74	Forage grass (grass)	1.25	80	0.02	2500	0.0011	24000	2300
Sprays for Groundboom application (102)	0.014	0.74	Herbs and spices (mint)	0.94	80	0.015	3300	0.00079	32000	3000
Sprays for Groundboom application (103)	0.014	0.74	Herbs and spices (pepper)	1.56	80	0.025	2000	0.0013	20000	1800
Sprays for Groundboom application (104)	0.014	0.74	Legume vegetables (peas)	2.50	80	0.04	1300	0.0021	12000	1100
Sprays for Airblast application (105)	0.36	4.5	Pome fruits (apples, pear, quince)	1.25	40	0.26	190	0.0032	8000	190
Sprays for Airblast application (106)	0.36	4.5	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	40	0.77	65	0.0096	2700	63
Sprays for Airblast application (107)	0.36	4.5	Tropical and subtropical fruits (avocado)	4.70	40	0.97	52	0.012	2100	50
Sprays for Airblast application (108)	0.36	4.5	Tropical and subtropical fruits (fig)	2.50	40	0.51	97	0.0064	4000	95
Sprays for Airblast application (109)	0.36	4.5	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	40	0.26	190	0.0032	8000	190

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Sprays for Groundboom application (110)	0.014	0.74	Tropical and subtropical fruits (pineapples)	5	80	0.08	630	0.0042	6100	570
Sprays for Airblast application (111)	0.36	4.5	Tree nuts (chestnuts)	5	40	1	49	0.013	2000	47
Sprays for Airblast application (112)	0.36	4.5	Tree nuts (macadamia nuts)	0.94	40	0.19	260	0.0024	11000	250
Sprays for Airblast application (113)	0.36	4.5	Tree nuts (pecans, walnuts)	2.50	40	0.51	97	0.0064	4000	95
Sprays for Airblast application (114)	0.36	4.5	Citrus (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	40	1.3	39	0.016	1600	38
Sprays for Airblast application (115)	0.36	4.5	Small fruits (grapes)	1.88	40	0.39	130	0.0048	5300	130
Sprays for Airblast application (116)	0.36	4.5	Herbs and spices (hops)	0.63	40	0.13	390	0.0016	16000	380
Sprays for Aerial application (117)	No Data	No Data	Non-grass animal feed (alfalfa)	1.25	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (118)	No Data	No Data	Non-grass animal feed (clover, lespedeza, lupin, vetch)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (119)	No Data	No Data	Pome fruits (apples, pear, quince)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (120)	No Data	No Data	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach,)	3.75	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (121)	No Data	No Data	Stalk and stem vegetables (asparagus)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (122)	No Data	No Data	Tropical and subtropical fruits (avocado)	4.70	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (123)	No Data	No Data	Tropical and subtropical fruits (fig)	2.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (124)	No Data	No Data	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (125)	No Data	No Data	Tropical and subtropical fruits (pineapples)	5	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (126)	No Data	No Data	Cereal grains (corn rice, wheat)	1.25	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (127)	No Data	No Data	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (128)	No Data	No Data	Root and tuber vegetables (garden beets, carrot, root, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (129)	No Data	No Data	Root and tuber vegetables (chayote root, potatoes, sweet potatoes, yams)	1.56	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (130)	No Data	No Data	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry,)	2	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (131)	No Data	No Data	Berries (blueberries)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (132)	No Data	No Data	Brassica and leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	No Data	No Data	No Data	No Data	No Data

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Sprays for Aerial application (133)	No Data	No Data	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (134)	No Data	No Data	Cucurbit (Cucumber, summer squash, chayote fruit)	1.88	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (135)	No Data	No Data	Leafy vegetables (celery, watercress)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (136)	No Data	No Data	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (137)	No Data	No Data	Leafy vegetables (endive, lettuce)	1.88	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (138)	No Data	No Data	Tree nuts (chestnuts)	5	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (139)	No Data	No Data	Tree nuts (macadamia nuts)	0.94	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (140)	No Data	No Data	Tree nuts (pecans, walnuts)	2.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (141)	No Data	No Data	Oilseed (cotton)	1.15	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (142)	No Data	No Data	Oilseed (cotton)	2.50	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (143)	No Data	No Data	Oilseed (flax)	0.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (144)	No Data	No Data	Citrus Fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (145)	No Data	No Data	Forage grass (grass)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (146)	No Data	No Data	Legume vegetables (peas)	2.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (147)	No Data	No Data	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	No Data	No Data	No Data	No Data	No Data
Flagger										
Flagging for Sprays application (148)	0.011	0.35	Non-grass animal feed (alfalfa, clover, lespedeza, lupin, vetch)	1.25	350	0.069	730	0.0022	12000	690
Flagging for Sprays application (149)	0.011	0.35	Pome fruits (apples, pear, quince)	1.25	350	0.069	730	0.0022	12000	690
Flagging for Sprays application (150)	0.011	0.35	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	350	0.21	240	0.0066	3900	230
Flagging for Sprays application (151)	0.011	0.35	Tropical and subtropical fruits (avocado)	4.70	350	0.26	190	0.0082	3100	180
Flagging for Sprays application (152)	0.011	0.35	Tropical and subtropical fruits (fig)	2.50	350	0.14	360	0.0044	5900	340
Flagging for Sprays application (153)	0.011	0.35	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	0.069	730	0.0022	12000	690
Flagging for Sprays application (154)	0.011	0.35	Tropical and subtropical fruits (pineapples)	5	350	0.28	180	0.0088	2900	170
Flagging for Sprays application (155)	0.011	0.35	Cereal grains (barley, corn, oats, rice, rye, sorghum, wheat, wild rice)	1.25	350	0.069	730	0.0022	12000	690

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Flagging for Sprays application (156)	0.011	0.35	Root and tuber vegetables (garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	0.069	730	0.0022	12000	690
Flagging for Sprays application (157)	0.011	0.35	Root and tuber vegetables (potatoes, sweet potatoes, chayote root, yams)	1.56	350	0.086	580	0.0027	9500	550
Flagging for Sprays application (158)	0.011	0.35	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	0.11	460	0.0035	7400	430
Flagging for Sprays application (159)	0.011	0.35	Berries (blueberries)	1.25	350	0.069	730	0.0022	12000	690
Flagging for Sprays application (160)	0.011	0.35	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	0.069	730	0.0022	12000	690
Flagging for Sprays application (161)	0.011	0.35	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	350	0.055	910	0.0018	15000	860
Flagging for Sprays application (162)	0.011	0.35	Cucurbit (cucumber, summer squash, chayote fruit)	1.88	350	0.10	480	0.0033	7800	460
Flagging for Sprays application (163)	0.011	0.35	Leafy vegetables (celery, watercress)	1.25	350	0.069	730	0.0022	12000	690
Flagging for Sprays application (164)	0.011	0.35	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	0.11	460	0.0035	7400	430
Flagging for Sprays application (165)	0.011	0.35	Leafy vegetables (endive, lettuce)	1.88	350	0.10	480	0.0033	7800	460
Flagging for Sprays application (166)	0.011	0.35	Tree nuts (chestnuts)	5	350	0.28	180	0.0088	2900	170
Flagging for Sprays application (167)	0.011	0.35	Tree nuts (macadamia nuts)	0.94	350	0.052	970	0.0016	16000	910
Flagging for Sprays application (168)	0.011	0.35	Tree nuts (pecans, walnuts)	2.50	350	0.14	360	0.0044	5900	340
Flagging for Sprays application (169)	0.011	0.35	Oilseed (cotton)	2.50	350	0.14	360	0.0044	5900	340
Flagging for Sprays application (170)	0.011	0.35	Oilseed (cotton)	1.15	350	0.063	790	0.0020	13000	740
Flagging for Sprays application (171)	0.011	0.35	Oilseed (flax)	0.50	350	0.028	1800	0.00088	29000	1700
Flagging for Sprays application (172)	0.011	0.35	Citrus fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	0.34	150	0.011	2400	140
Flagging for Sprays application (173)	0.011	0.35	Forage grass (grass)	1.25	350	0.069	730	0.0022	12000	690
Flagging for Sprays application (174)	0.011	0.35	Legume vegetables (peas)	2.50	350	0.14	360	0.0044	5900	340

[1]Baseline dermal unit exposures represent long pants, long sleeved shirts, shoes, and socks. Values are reported in the PHED Surrogate Exposure Guide dated August 1998 or are from data submitted by the Outdoor Residential Exposure Task Force dated May 2000.

[2]Baseline inhalation unit exposures represent no respirator. Values are reported in the PHED Surrogate Exposure Guide dated August 1998 or are from data submitted by the Outdoor Residential Exposure Task Force dated May 2000.

[3]Crops and use patterns are from submissions by the primary producer, Cheminova, or found in various sources including LUIS and various labels

[4]Application rates are based primarily on maximum rates used in residue field trial studies and supported by the primary producer, Cheminova, or found in various sources including LUIS and various labels. Most application rates upon which the analysis is based are presented as lb ai/A. In some cases, the application rate is based on applying a solution at concentrations specified by the label (i.e., presented as lb ai/gallon).

[5]Amount treated is based on the area or gallons that can be reasonably applied in a single day for each exposure scenario of concern based on the application method and formulation/packaging type. (Standard EPA/OPP/HED values).

[6]Dermal dose (mg/kg/day) = [unit exposure (mg/lb ai) * Dermal absorption (100%) * Application rate (lb ai/acre or lb ai/gallon) * Daily area treated (acres or gallons)] / Body weight (70 kg).

[7]Dermal MOE = Dermal NOAEL (50 mg/kg/day) / Daily Dermal Dose. Target Dermal MOE is 100.

[8]Inhalation dose (mg/kg/day) = [unit exposure (ug/lb ai) *.001 mg/ g unit conversion * Inhalation absorption (100%) * Application rate (lb ai/acre or lb ai/gallon) * Daily area treated (acres or gallons)] / Body weight (70 kg).

[a]Inhalation MOE = Inhalation LOAEL (25.8 mg/kg/day) / Daily Inhalation Dose. Target Inhalation MOE is 1000.

Short Term and Intermediate-term with PPE I (Single Layer Protection, Gloves, No Respirator) for Malathion

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixer/Loader										
Mixing/Loading Liquids for Groundboom application (1)	0.023	1.2	Non-grass animal feed(alfalfa)	1.25	200	0.082	610	0.0043	6000	550
Mixing/Loading Liquids for Groundboom application (2)	0.023	1.2	Non-grass animal feed(clover, lespedeza, lupin, vetch)	1.25	80	0.033	1500	0.0017	15000	1400
Mixing/Loading Liquids for Groundboom application (3)	0.023	1.2	Stalk and stem vegetables (asparagus)	1.25	80	0.033	1500	0.0017	15000	1400
Mixing/Loading Liquids for Groundboom application (4)	0.023	1.2	Cereal grains (corn, wheat ,rice)	1.25	200	0.082	610	0.0043	6000	550
Mixing/Loading Liquids for Groundboom application (5)	0.023	1.2	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	80	0.033	1500	0.0017	15000	1400
Mixing/Loading Liquids for Groundboom application (6)	0.023	1.2	Roots and tuber vegetables(garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabuga, salsify, turnip)	1.25	80	0.033	1500	0.0017	15000	1400
Mixing/Loading Liquids for Groundboom application (7)	0.023	1.2	Root and tuber vegetables(chayote root, potatoes, sweet potato, yams)	1.56	80	0.041	1200	0.0021	12000	1100
Mixing/Loading Liquids for Groundboom application (8)	0.023	1.2	Berries(blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.053	950	0.0027	9400	860
Mixing/Loading Liquids for Groundboom application (9)	0.023	1.2	Berries(blueberries)	1.25	80	0.033	1500	0.0017	15000	1400
Mixing/Loading Liquids for Groundboom application (10)	0.023	1.2	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	80	0.033	1500	0.0017	15000	1400
Mixing/Loading Liquids for Groundboom application (11)	0.023	1.2	Cucurbit vegetables (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	80	0.026	1900	0.0014	19000	1700
Mixing/Loading Liquids for Groundboom application (12)	0.023	1.2	Cucurbit vegetables (cucumber, summer squash, chayote fruit)	1.88	80	0.049	1000	0.0026	10000	920
Mixing/Loading Liquids for Groundboom application (13)	0.023	1.2	Leafy vegetables (celery, watercress)	1.25	80	0.033	1500	0.0017	15000	1400
Mixing/Loading Liquids for Groundboom application (14)	0.023	1.2	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	80	0.053	950	0.0027	9400	860
Mixing/Loading Liquids for Groundboom application (15)	0.023	1.2	Leafy vegetables (endive, lettuce)	1.88	80	0.049	1000	0.0026	10000	920
Mixing/Loading Liquids for Groundboom application (16)	0.023	1.2	Oilseed (cotton)	1.15	200	0.076	660	0.0039	6500	600
Mixing/Loading Liquids for Groundboom application (17)	0.023	1.2	Oilseed (cotton)	2.50	200	0.16	300	0.0086	3000	280
Mixing/Loading Liquids for Groundboom application (18)	0.023	1.2	Oilseed (flax)	0.50	80	0.013	3800	0.00069	38000	3500
Mixing/Loading Liquids for Groundboom application (19)	0.023	1.2	Fruiting vegetables (eggplant, tomatoes)	3.43	80	0.090	560	0.0047	5500	500

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Groundboom application (20)	0.023	1.2	Fruiting vegetables (okra)	1.50	80	0.039	1300	0.0021	13000	1200
Mixing/Loading Liquids for Groundboom application (21)	0.023	1.2	Bulb vegetables (garlic, leeks, onion, shallots)	1.56	80	0.041	1200	0.0021	12000	1100
Mixing/Loading Liquids for Groundboom application (22)	0.023	1.2	Small fruits (strawberry)	2	80	0.053	950	0.0027	9400	860
Mixing/Loading Liquids for Groundboom application (23)	0.023	1.2	Forage grass (grass)	1.25	80	0.033	1500	0.0017	15000	1400
Mixing/Loading Liquids for Groundboom application (24)	0.023	1.2	Herbs and spices (mint)	0.94	80	0.025	2000	0.0013	20000	1800
Mixing/Loading Liquids for Groundboom application (25)	0.023	1.2	Herbs and spices (pepper)	1.56	80	0.041	1200	0.0021	12000	1100
Mixing/Loading Liquids for Groundboom application (26)	0.023	1.2	Legume vegetables (peas)	2.50	80	0.066	760	0.0034	7500	690
Mixing/Loading Liquids for Airblast application (27)	0.023	1.2	Pome fruits (apples, pear, quince)	1.25	40	0.016	3000	0.00086	30000	2800
Mixing/Loading Liquids for Airblast application (28)	0.023	1.2	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	40	0.049	1000	0.0026	10000	920
Mixing/Loading Liquids for Airblast application (29)	0.023	1.2	Tropical and subtropical fruits (avocado)	4.70	40	0.062	810	0.0032	8000	740
Mixing/Loading Liquids for Airblast application (30)	0.023	1.2	Tropical and subtropical fruits (fig)	2.50	40	0.033	1500	0.0017	15000	1400
Mixing/Loading Liquids for Airblast application (31)	0.023	1.2	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	40	0.016	3000	0.00086	30000	2800
Mixing/Loading Liquids for Groundboom application (32)	0.023	1.2	Tropical and subtropical fruits (pineapples)	5	80	0.13	380	0.0069	3800	350
Mixing/Loading Liquids for Airblast application (33)	0.023	1.2	Tree nuts (chestnuts)	5	40	0.066	760	0.0034	7500	690
Mixing/Loading Liquids for Airblast application (34)	0.023	1.2	Tree nuts (macadamia nuts)	0.94	40	0.012	4000	0.00064	40000	3700
Mixing/Loading Liquids for Airblast application (35)	0.023	1.2	Tree nuts (pecans, walnuts)	2.50	40	0.033	1500	0.0017	15000	1400
Mixing/Loading Liquids for Airblast application (36)	0.023	1.2	Citrus (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	40	0.082	610	0.0043	6000	550
Mixing/Loading Liquids for Airblast application (37)	0.023	1.2	Small fruits (grapes)	1.88	40	0.025	2000	0.0013	20000	1800
Mixing/Loading Liquids for Airblast application (38)	0.023	1.2	Herbs and spices (hops)	0.63	40	0.0083	6000	0.00043	60000	5500
Mixing/Loading Liquids for Aerial application (39)	0.023	1.2	Non-grass animal feed (alfalfa)	1.25	1200	0.49	100	0.026	1000	92
Mixing/Loading Liquids for Aerial application (40)	0.023	1.2	Non-grass animal feed (clover, lespedeza, lupin, vetch)	1.25	350	0.14	350	0.0075	3400	320
Mixing/Loading Liquids for Aerial application (41)	0.023	1.2	Pome fruits (apples, pear, quince)	1.25	350	0.14	350	0.0075	3400	320

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Aerial application (42)	0.023	1.2	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach,)	3.75	350	0.43	120	0.023	1100	110
Mixing/Loading Liquids for Aerial application (43)	0.023	1.2	Stalk and stem vegetables (asparagus)	1.25	350	0.14	350	0.0075	3400	320
Mixing/Loading Liquids for Aerial application (44)	0.023	1.2	Tropical and subtropical fruits (avocado)	4.70	350	0.54	93	0.028	920	84
Mixing/Loading Liquids for Aerial application (45)	0.023	1.2	Tropical and subtropical fruits (fig)	2.50	350	0.29	170	0.015	1700	160
Mixing/Loading Liquids for Aerial application (46)	0.023	1.2	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	0.14	350	0.0075	3400	320
Mixing/Loading Liquids for Aerial application (47)	0.023	1.2	Tropical and subtropical fruits (pineapples)	5	350	0.58	87	0.03	860	79
Mixing/Loading Liquids for Aerial application (48)	0.023	1.2	Cereal grains (corn rice, wheat)	1.25	1200	0.49	100	0.026	1000	92
Mixing/Loading Liquids for Aerial application (49)	0.023	1.2	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	350	0.14	350	0.0075	3400	320
Mixing/Loading Liquids for Aerial application (50)	0.023	1.2	Root and tuber vegetables (garden beets, carrot, root, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	0.14	350	0.0075	3400	320
Mixing/Loading Liquids for Aerial application (51)	0.023	1.2	Root and tuber vegetables (chayote root, potatoes, sweet potatoes, yams)	1.56	350	0.18	280	0.0094	2800	250
Mixing/Loading Liquids for Aerial application (52)	0.023	1.2	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry,)	2	350	0.23	220	0.012	2200	200
Mixing/Loading Liquids for Aerial application (53)	0.023	1.2	Berries (blueberries)	1.25	350	0.14	350	0.0075	3400	320
Mixing/Loading Liquids for Aerial application (54)	0.023	1.2	Brassica and leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	0.14	350	0.0075	3400	320
Mixing/Loading Liquids for Aerial application (55)	0.023	1.2	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon,	1	350	0.12	440	0.006	4300	390
Mixing/Loading Liquids for Aerial application (56)	0.023	1.2	Cucurbit (Cucumber, summer squash, chayote fruit)	1.88	350	0.22	230	0.011	2300	210
Mixing/Loading Liquids for Aerial application (57)	0.023	1.2	Leafy vegetables (celery, watercress)	1.25	350	0.14	350	0.0075	3400	320
Mixing/Loading Liquids for Aerial application (58)	0.023	1.2	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	0.23	220	0.012	2200	200
Mixing/Loading Liquids for Aerial application (59)	0.023	1.2	Leafy vegetables (endive, lettuce)	1.88	350	0.22	230	0.011	2300	210
Mixing/Loading Liquids for Aerial application (60)	0.023	1.2	Tree nuts (chestnuts)	5	350	0.58	87	0.03	860	79
Mixing/Loading Liquids for Aerial application (61)	0.023	1.2	Tree nuts (macadamia nuts)	0.94	350	0.11	460	0.0056	4600	420
Mixing/Loading Liquids for Aerial application (62)	0.023	1.2	Tree nuts (pecans, walnuts)	2.50	350	0.29	170	0.015	1700	160
Mixing/Loading Liquids for Aerial application (63)	0.023	1.2	Oilseed (cotton)	1.15	1200	0.45	110	0.024	1100	100

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Aerial application (64)	0.023	1.2	Oilseed (cotton)	2.50	1200	0.99	51	0.051	500	46
Mixing/Loading Liquids for Aerial application (65)	0.023	1.2	Oilseed (flax)	0.50	350	0.058	870	0.003	8600	790
Mixing/Loading Liquids for Aerial application (66)	0.023	1.2	Citrus Fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	0.72	70	0.038	690	63
Mixing/Loading Liquids for Aerial application (67)	0.023	1.2	Forage grass (grass)	1.25	350	0.14	350	0.0075	3400	320
Mixing/Loading Liquids for Aerial application (68)	0.023	1.2	Legume vegetables (peas)	2.50	350	0.29	170	0.015	1700	160
Mixing/Loading Liquids for Chemigation application (69)	0.023	1.2	Non-grass animal feed (alfalfa, clover, lespedeza, lupin, vetch)	1.25	350	0.14	350	0.0075	3400	320
Mixing/Loading Liquids for Chemigation application (70)	0.023	1.2	Cereal grains (barley, corn, oats, rice, rye, sorghum, wheat, wild rice)	1.25	350	0.14	350	0.0075	3400	320
Mixing/Loading Liquids for Chemigation application (71)	0.023	1.2	Small fruits (strawberry)	2	350	0.23	220	0.012	2200	200
Mixing/Loading Liquids for Chemigation application (72)	0.023	1.2	Herbs and spices (mint)	0.94	350	0.11	460	0.0056	4600	420
Mixing/Loading Liquids for Chemigation application (73)	0.023	1.2	Herbs and spices (pepper)	1.56	350	0.18	280	0.0094	2800	250
Mixing/Loading Liquids for Chemigation application (74)	0.023	1.2	Legume vegetables (peas)	2.50	350	0.29	170	0.015	1700	160
Wettable Powders for Aerial application (75)	0.17	43	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	1.7	29	0.43	60	20
Wettable Powders for Groundboom application (76)	0.17	43	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.39	130	0.098	260	86
Wettable Powders for Groundboom application (77)	0.17	43	Small fruits (strawberry)	2	80	0.39	130	0.098	260	86
Wettable Powders for Chemigation application (78)	0.17	43	Small fruits (strawberry)	2	350	1.7	29	0.43	60	20
Applicator										
Sprays for Groundboom application (79)	0.014	0.74	Non-grass animal feed(alfalfa)	1.25	200	0.05	1000	0.0026	9800	910
Sprays for Groundboom application (80)	0.014	0.74	Non-grass animal feed(clover, lespedeza, lupin, vetch)	1.25	80	0.02	2500	0.0011	24000	2300
Sprays for Groundboom application (81)	0.014	0.74	Stalk and stem vegetables (asparagus)	1.25	80	0.02	2500	0.0011	24000	2300
Sprays for Groundboom application (82)	0.014	0.74	Cereal grains (corn, wheat ,rice)	1.25	200	0.05	1000	0.0026	9800	910
Sprays for Groundboom application (83)	0.014	0.74	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	80	0.02	2500	0.0011	24000	2300
Sprays for Groundboom application (84)	0.014	0.74	Roots and tuber vegetables(garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	80	0.02	2500	0.0011	24000	2300
Sprays for Groundboom application (85)	0.014	0.74	Root and tuber vegetables(chayote root, potatoes, sweet potato, yams)	1.56	80	0.025	2000	0.0013	20000	1800

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Sprays for Groundboom application (86)	0.014	0.74	Berries(blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.032	1600	0.0017	15000	1400
Sprays for Groundboom application (87)	0.014	0.74	Berries(blueberries)	1.25	80	0.02	2500	0.0011	24000	2300
Sprays for Groundboom application (88)	0.014	0.74	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	80	0.02	2500	0.0011	24000	2300
Sprays for Groundboom application (89)	0.014	0.74	Cucurbit vegetables (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	80	0.016	3100	0.00085	31000	2800
Sprays for Groundboom application (90)	0.014	0.74	Cucurbit vegetables (cucumber, summer squash, chayote fruit)	1.88	80	0.030	1700	0.0016	16000	1500
Sprays for Groundboom application (91)	0.014	0.74	Leafy vegetables (celery, watercress)	1.25	80	0.02	2500	0.0011	24000	2300
Sprays for Groundboom application (92)	0.014	0.74	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	80	0.032	1600	0.0017	15000	1400
Sprays for Groundboom application (93)	0.014	0.74	Leafy vegetables (endive, lettuce)	1.88	80	0.030	1700	0.0016	16000	1500
Sprays for Groundboom application (94)	0.014	0.74	Oilseed (cotton)	1.15	200	0.046	1100	0.0024	11000	990
Sprays for Groundboom application (95)	0.014	0.74	Oilseed (cotton)	2.50	200	0.1	500	0.0053	4900	450
Sprays for Groundboom application (96)	0.014	0.74	Oilseed (flax)	0.50	80	0.008	6300	0.00042	61000	5700
Sprays for Groundboom application (97)	0.014	0.74	Fruiting vegetables (eggplant, tomatoes)	3.43	80	0.055	910	0.0029	8900	830
Sprays for Groundboom application (98)	0.014	0.74	Fruiting vegetables (okra)	1.50	80	0.024	2100	0.0013	20000	1900
Sprays for Groundboom application (99)	0.014	0.74	Bulb vegetables (garlic, leeks, onion, shallots)	1.56	80	0.025	2000	0.0013	20000	1800
Sprays for Groundboom application (100)	0.014	0.74	Small fruits (strawberry)	2	80	0.032	1600	0.0017	15000	1400
Sprays for Groundboom application (101)	0.014	0.74	Forage grass (grass)	1.25	80	0.02	2500	0.0011	24000	2300
Sprays for Groundboom application (102)	0.014	0.74	Herbs and spices (mint)	0.94	80	0.015	3300	0.00079	32000	3000
Sprays for Groundboom application (103)	0.014	0.74	Herbs and spices (pepper)	1.56	80	0.025	2000	0.0013	20000	1800
Sprays for Groundboom application (104)	0.014	0.74	Legume vegetables (peas)	2.50	80	0.04	1300	0.0021	12000	1100
Sprays for Airblast application (105)	0.24	4.5	Pome fruits (apples, pear, quince)	1.25	40	0.17	290	0.0032	8000	280
Sprays for Airblast application (106)	0.24	4.5	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	40	0.51	97	0.0096	2700	94
Sprays for Airblast application (107)	0.24	4.5	Tropical and subtropical fruits (avocado)	4.70	40	0.64	78	0.012	2100	75
Sprays for Airblast application (108)	0.24	4.5	Tropical and subtropical fruits (fig)	2.50	40	0.34	150	0.0064	4000	140
Sprays for Airblast application (109)	0.24	4.5	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	40	0.17	290	0.0032	8000	280

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Sprays for Groundboom application (110)	0.014	0.74	Tropical and subtropical fruits (pineapples)	5	80	0.08	630	0.0042	6100	570
Sprays for Airblast application (111)	0.24	4.5	Tree nuts (chestnuts)	5	40	0.69	73	0.013	2000	70
Sprays for Airblast application (112)	0.24	4.5	Tree nuts (macadamia nuts)	0.94	40	0.13	390	0.0024	11000	370
Sprays for Airblast application (113)	0.24	4.5	Tree nuts (pecans, walnuts)	2.50	40	0.34	150	0.0064	4000	140
Sprays for Airblast application (114)	0.24	4.5	Citrus (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	40	0.86	58	0.016	1600	56
Sprays for Airblast application (115)	0.24	4.5	Small fruits (grapes)	1.88	40	0.26	190	0.0048	5300	190
Sprays for Airblast application (116)	0.24	4.5	Herbs and spices (hops)	0.63	40	0.086	580	0.0016	16000	560
Sprays for Aerial application (117)	No Data	No Data	Non-grass animal feed (alfalfa)	1.25	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (118)	No Data	No Data	Non-grass animal feed (clover, lespedeza, lupin, vetch)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (119)	No Data	No Data	Pome fruits (apples, pear, quince)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (120)	No Data	No Data	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach,)	3.75	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (121)	No Data	No Data	Stalk and stem vegetables (asparagus)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (122)	No Data	No Data	Tropical and subtropical fruits (avocado)	4.70	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (123)	No Data	No Data	Tropical and subtropical fruits (fig)	2.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (124)	No Data	No Data	Tropical and subtropical fruits (guava, mango ,passion fruit)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (125)	No Data	No Data	Tropical and subtropical fruits (pineapples)	5	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (126)	No Data	No Data	Cereal grains (corn rice, wheat)	1.25	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (127)	No Data	No Data	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (128)	No Data	No Data	Root and tuber vegetables (garden beets, carrot, root, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (129)	No Data	No Data	Root and tuber vegetables (chayote root, potatoes, sweet potatoes, yams)	1.56	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (130)	No Data	No Data	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry,)	2	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (131)	No Data	No Data	Berries (blueberries)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (132)	No Data	No Data	Brassica and leafy vegetables (broccoli, broccoli rasb, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	No Data	No Data	No Data	No Data	No Data

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Sprays for Aerial application (133)	No Data	No Data	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (134)	No Data	No Data	Cucurbit (Cucumber, summer squash, chayote fruit)	1.88	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (135)	No Data	No Data	Leafy vegetables (celery, watercress)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (136)	No Data	No Data	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (137)	No Data	No Data	Leafy vegetables (endive, lettuce)	1.88	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (138)	No Data	No Data	Tree nuts (chestnuts)	5	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (139)	No Data	No Data	Tree nuts (macadamia nuts)	0.94	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (140)	No Data	No Data	Tree nuts (pecans, walnuts)	2.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (141)	No Data	No Data	Oilseed (cotton)	1.15	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (142)	No Data	No Data	Oilseed (cotton)	2.50	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (143)	No Data	No Data	Oilseed (flax)	0.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (144)	No Data	No Data	Citrus Fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (145)	No Data	No Data	Forage grass (grass)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (146)	No Data	No Data	Legume vegetables (peas)	2.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (147)	No Data	No Data	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	No Data	No Data	No Data	No Data	No Data
Flagger										
Flagging for Sprays application (148)	0.01	0.35	Non-grass animal feed (alfalfa, clover, lespedeza, lupin, vetch)	1.25	350	0.063	800	0.0022	12000	750
Flagging for Sprays application (149)	0.01	0.35	Pome fruits (apples, pear, quince)	1.25	350	0.063	800	0.0022	12000	750
Flagging for Sprays application (150)	0.01	0.35	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	350	0.19	270	0.0066	3900	250
Flagging for Sprays application (151)	0.01	0.35	Tropical and subtropical fruits (avocado)	4.70	350	0.24	210	0.0082	3100	200
Flagging for Sprays application (152)	0.01	0.35	Tropical and subtropical fruits (fig)	2.50	350	0.13	400	0.0044	5900	370
Flagging for Sprays application (153)	0.01	0.35	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	0.063	800	0.0022	12000	750
Flagging for Sprays application (154)	0.01	0.35	Tropical and subtropical fruits (pineapples)	5	350	0.25	200	0.0088	2900	190
Flagging for Sprays application (155)	0.01	0.35	Cereal grains (barley, corn, oats, rice, rye, sorghum, wheat, wild rice)	1.25	350	0.063	800	0.0022	12000	750

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Flagging for Sprays application (156)	0.01	0.35	Root and tuber vegetables (garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	0.063	800	0.0022	12000	750
Flagging for Sprays application (157)	0.01	0.35	Root and tuber vegetables (potatoes, sweet potatoes, chayote root, yams)	1.56	350	0.078	640	0.0027	9500	600
Flagging for Sprays application (158)	0.01	0.35	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	0.1	500	0.0035	7400	470
Flagging for Sprays application (159)	0.01	0.35	Berries (blueberries)	1.25	350	0.063	800	0.0022	12000	750
Flagging for Sprays application (160)	0.01	0.35	Brassica leafy vegetables (broccoli, broccoli rash, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	0.063	800	0.0022	12000	750
Flagging for Sprays application (161)	0.01	0.35	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	350	0.05	1000	0.0018	15000	940
Flagging for Sprays application (162)	0.01	0.35	Cucurbit (cucumber, summer squash, chayote fruit)	1.88	350	0.094	530	0.0033	7800	500
Flagging for Sprays application (163)	0.01	0.35	Leafy vegetables (celery, watercress)	1.25	350	0.063	800	0.0022	12000	750
Flagging for Sprays application (164)	0.01	0.35	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	0.1	500	0.0035	7400	470
Flagging for Sprays application (165)	0.01	0.35	Leafy vegetables (endive, lettuce)	1.88	350	0.094	530	0.0033	7800	500
Flagging for Sprays application (166)	0.01	0.35	Tree nuts (chestnuts)	5	350	0.25	200	0.0088	2900	190
Flagging for Sprays application (167)	0.01	0.35	Tree nuts (macadamia nuts)	0.94	350	0.047	1100	0.0016	16000	100
Flagging for Sprays application (168)	0.01	0.35	Tree nuts (pecans, walnuts)	2.50	350	0.13	400	0.0044	5900	370
Flagging for Sprays application (169)	0.01	0.35	Oilseed (cotton)	2.50	350	0.13	400	0.0044	5900	370
Flagging for Sprays application (170)	0.01	0.35	Oilseed (cotton)	1.15	350	0.058	870	0.0020	13000	810
Flagging for Sprays application (171)	0.01	0.35	Oilseed (flax)	0.50	350	0.025	2000	0.00088	29000	1900
Flagging for Sprays application (172)	0.01	0.35	Citrus fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	0.31	160	0.011	2400	150
Flagging for Sprays application (173)	0.01	0.35	Forage grass (grass)	1.25	350	0.063	800	0.0022	12000	750
Flagging for Sprays application (174)	0.01	0.35	Legume vegetables (peas)	2.50	350	0.13	400	0.0044	5900	370

[1]PPE1 dermal unit exposures represent long pants, long sleeved shirts, and chemical-resistant gloves. Values are reported in the PHED Surrogate Exposure Guide dated August 1998 or are from data submitted by the Outdoor Residential Exposure Task Force dated May 2000.

[2]PPE1 inhalation unit exposures represent no respirator. Values are reported in the PHED Surrogate Exposure Guide dated August 1998 or are from data submitted by the Outdoor Residential Exposure Task Force dated May 2000.

[3]Crops and use patterns are from submissions by the primary producer, Cheminova, or found in various sources including LUIS and various labels

[4]Application rates are based primarily on maximum rates used in residue field trial studies and supported by the primary producer, Cheminova, or found in various sources including LUIS and various labels. Most application rates upon which the analysis is based are presented as lb ai/A. In some cases, the application rate is based on applying a solution at concentrations specified by the label (i.e., presented as lb ai/gallon).

[5]Amount treated is based on the area or gallons that can be reasonably applied in a single day for each exposure scenario of concern based on the application method and formulation/packaging type. (Standard EPA/OPP/HED values).

[6]Dermal dose (mg/kg/day) = [unit exposure (mg/lb ai) * Dermal absorption (100%) * Application rate (lb ai/acre or lb ai/gallon) * Daily area treated (acres or gallons)] / Body weight (70 kg).

[7]Dermal MOE = Dermal NOAEL (50 mg/kg/day) / Daily Dermal Dose. Target Dermal MOE is 100.

[8]Inhalation dose (mg/kg/day) = [unit exposure (ug/lb ai) * 0.001 mg/ g unit conversion * Inhalation absorption (100%) * Application rate (lb ai/acre or lb ai/gallon) * Daily area treated (acres or gallons)] / Body weight (70 kg).

[9]Inhalation MOE = Inhalation LOAEL (25.8 mg/kg/day) / Daily Inhalation Dose. Target Inhalation MOE is 1000.

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Short Term and Intermediate Term Risk with PPE 2 (Single Layer Protection, Gloves, PF5 Respirator) for Malathion

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixer/Loader										
Mixing/Loading Liquids for Groundboom application (1)	0.023	0.24	Non-grass animal feed(alfalfa)	1.25	200	0.082	610	0.00086	30000	600
Mixing/Loading Liquids for Groundboom application (2)	0.023	0.24	Non-grass animal feed(clover, lespedeza, lupin, vetch)	1.25	80	0.033	1500	0.00034	75000	1500
Mixing/Loading Liquids for Groundboom application (3)	0.023	0.24	Stalk and stem vegetables (asparagus)	1.25	80	0.033	1500	0.00034	75000	1500
Mixing/Loading Liquids for Groundboom application (4)	0.023	0.24	Cereal grains (corn, wheat ,rice)	1.25	200	0.082	610	0.00086	30000	600
Mixing/Loading Liquids for Groundboom application (5)	0.023	0.24	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	80	0.033	1500	0.00034	75000	1500
Mixing/Loading Liquids for Groundboom application.(6)	0.023	0.24	Roots and tuber vegetables(garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	80	0.033	1500	0.00034	75000	1500
Mixing/Loading Liquids for Groundboom application (7)	0.023	0.24	Root and tuber vegetables(chayote root, potatoes, sweet potato, yams)	1.56	80	0.041	1200	0.00043	60000	1200
Mixing/Loading Liquids for Groundboom application (8)	0.023	0.24	Berries(blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.053	950	0.00055	47000	930
Mixing/Loading Liquids for Groundboom application (9)	0.023	0.24	Berries(blueberries)	1.25	80	0.033	1500	0.00034	75000	1500
Mixing/Loading Liquids for Groundboom application (10)	0.023	0.24	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	80	0.033	1500	0.00034	75000	1500
Mixing/Loading Liquids for Groundboom application (11)	0.023	0.24	Cucurbit vegetables (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	80	0.026	1900	0.00027	94000	1900
Mixing/Loading Liquids for Groundboom application (12)	0.023	0.24	Cucurbit vegetables (cucumber, summer squash, chayote fruit)	1.88	80	0.049	1000	0.00052	50000	990
Mixing/Loading Liquids for Groundboom application (13)	0.023	0.24	Leafy vegetables (celery, watercress)	1.25	80	0.033	1500	0.00034	75000	1500
Mixing/Loading Liquids for Groundboom application (14)	0.023	0.24	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	80	0.053	950	0.00055	47000	930
Mixing/Loading Liquids for Groundboom application (15)	0.023	0.24	Leafy vegetables (endive, lettuce)	1.88	80	0.049	1000	0.00052	50000	990
Mixing/Loading Liquids for Groundboom application (16)	0.023	0.24	Oilseed (cotton)	1.15	200	0.076	660	0.00079	33000	650
Mixing/Loading Liquids for Groundboom application (17)	0.023	0.24	Oilseed (cotton)	2.50	200	0.16	300	0.0017	15000	300
Mixing/Loading Liquids for Groundboom application (18)	0.023	0.24	Oilseed (flax)	0.50	80	0.013	3800	0.00014	190000	3700
Mixing/Loading Liquids for Groundboom application (19)	0.023	0.24	Fruiting vegetables (eggplant, tomatoes)	3.43	80	0.090	560	0.00094	27000	540

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Groundboom application (20)	0.023	0.24	Fruiting vegetables (okra)	1.50	80	0.039	1300	0.00041	63000	1200
Mixing/Loading Liquids for Groundboom application (21)	0.023	0.24	Bulb vegetables (garlic, leeks, onion, shallots)	1.56	80	0.041	1200	0.00043	60000	1200
Mixing/Loading Liquids for Groundboom application (22)	0.023	0.24	Small fruits (strawberry)	2	80	0.053	950	0.00055	47000	930
Mixing/Loading Liquids for Groundboom application (23)	0.023	0.24	Forage grass (grass)	1.25	80	0.033	1500	0.00034	75000	1500
Mixing/Loading Liquids for Groundboom application (24)	0.023	0.24	Herbs and spices (mint)	0.94	80	0.025	2000	0.00026	100000	2000
Mixing/Loading Liquids for Groundboom application (25)	0.023	0.24	Herbs and spices (pepper)	1.56	80	0.041	1200	0.00043	60000	1200
Mixing/Loading Liquids for Groundboom application (26)	0.023	0.24	Legume vegetables (peas)	2.50	80	0.066	760	0.00069	38000	750
Mixing/Loading Liquids for Airblast application (27)	0.023	0.24	Pome fruits (apples, pear, quince)	1.25	40	0.016	3000	0.00017	150000	3000
Mixing/Loading Liquids for Airblast application (28)	0.023	0.24	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	40	0.049	1000	0.00051	50000	990
Mixing/Loading Liquids for Airblast application (29)	0.023	0.24	Tropical and subtropical fruits (avocado)	4.70	40	0.062	810	0.00064	40000	790
Mixing/Loading Liquids for Airblast application (30)	0.023	0.24	Tropical and subtropical fruits (fig)	2.50	40	0.033	1500	0.00034	75000	1500
Mixing/Loading Liquids for Airblast application (31)	0.023	0.24	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	40	0.016	3000	0.00017	150000	3000
Mixing/Loading Liquids for Groundboom application (32)	0.023	0.24	Tropical and subtropical fruits (pineapples)	5	80	0.13	380	0.0014	19000	370
Mixing/Loading Liquids for Airblast application (33)	0.023	0.24	Tree nuts (chestnuts)	5	40	0.066	760	0.00069	38000	750
Mixing/Loading Liquids for Airblast application (34)	0.023	0.24	Tree nuts (macadamia nuts)	0.94	40	0.012	4000	0.00013	200000	4000
Mixing/Loading Liquids for Airblast application (35)	0.023	0.24	Tree nuts (pecans, walnuts)	2.50	40	0.033	1500	0.00034	75000	1500
Mixing/Loading Liquids for Airblast application (36)	0.023	0.24	Citrus (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	40	0.082	610	0.00086	30000	600
Mixing/Loading Liquids for Airblast application (37)	0.023	0.24	Small fruits (grapes)	1.88	40	0.025	2000	0.00026	100000	2000
Mixing/Loading Liquids for Airblast application (38)	0.023	0.24	Herbs and spices (hops)	0.63	40	0.0083	6000	0.000086	300000	5900
Mixing/Loading Liquids for Aerial application (39)	0.023	0.24	Non-grass animal feed (alfalfa)	1.25	1200	0.49	100	0.0051	5000	99
Mixing/Loading Liquids for Aerial application (40)	0.023	0.24	Non-grass animal feed (clover, lespedeza, lupin, vetch)	1.25	350	0.14	350	0.0015	17000	340
Mixing/Loading Liquids for Aerial application (41)	0.023	0.24	Pome fruits (apples, pear, quince)	1.25	350	0.14	350	0.0015	17000	340

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Aerial application (42)	0.023	0.24	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach,)	3.75	350	0.43	120	0.0045	5700	110
Mixing/Loading Liquids for Aerial application (43)	0.023	0.24	Stalk and stem vegetables (asparagus)	1.25	350	0.14	350	0.0015	17000	340
Mixing/Loading Liquids for Aerial application (44)	0.023	0.24	Tropical and subtropical fruits (avocado)	4.70	350	0.54	93	0.0056	4600	91
Mixing/Loading Liquids for Aerial application (45)	0.023	0.24	Tropical and subtropical fruits (fig)	2.50	350	0.29	170	0.003	8600	170
Mixing/Loading Liquids for Aerial application (46)	0.023	0.24	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	0.14	350	0.0015	17000	340
Mixing/Loading Liquids for Aerial application (47)	0.023	0.24	Tropical and subtropical fruits (pineapples)	5	350	0.58	87	0.006	4300	85
Mixing/Loading Liquids for Aerial application (48)	0.023	0.24	Cereal grains (corn rice, wheat)	1.25	1200	0.49	100	0.0051	5000	99
Mixing/Loading Liquids for Aerial application (49)	0.023	0.24	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	350	0.14	350	0.0015	17000	340
Mixing/Loading Liquids for Aerial application (50)	0.023	0.24	Root and tuber vegetables (garden beets, carrot, root, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	0.14	350	0.0015	17000	340
Mixing/Loading Liquids for Aerial application (51)	0.023	0.24	Root and tuber vegetables (chayote root, potatoes, sweet potatoes, yams)	1.56	350	0.18	280	0.0019	14000	270
Mixing/Loading Liquids for Aerial application (52)	0.023	0.24	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry,)	2	350	0.23	220	0.0024	11000	210
Mixing/Loading Liquids for Aerial application (53)	0.023	0.24	Berries (blueberries)	1.25	350	0.14	350	0.0015	17000	340
Mixing/Loading Liquids for Aerial application (54)	0.023	0.24	Brassica and leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	0.14	350	0.0015	17000	340
Mixing/Loading Liquids for Aerial application (55)	0.023	0.24	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon,	1	350	0.12	440	0.0012	22000	430
Mixing/Loading Liquids for Aerial application (56)	0.023	0.24	Cucurbit (Cucumber, summer squash, chayote fruit)	1.88	350	0.22	230	0.0023	11000	230
Mixing/Loading Liquids for Aerial application (57)	0.023	0.24	Leafy vegetables (celery, watercress)	1.25	350	0.14	350	0.0015	17000	340
Mixing/Loading Liquids for Aerial application (58)	0.023	0.24	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	0.23	220	0.0024	11000	210
Mixing/Loading Liquids for Aerial application (59)	0.023	0.24	Leafy vegetables (endive, lettuce)	1.88	350	0.22	230	0.0023	11000	230
Mixing/Loading Liquids for Aerial application (60)	0.023	0.24	Tree nuts (chestnuts)	5	350	0.58	87	0.006	4300	85
Mixing/Loading Liquids for Aerial application (61)	0.023	0.24	Tree nuts (macadamia nuts)	0.94	350	0.11	460	0.0011	23000	450
Mixing/Loading Liquids for Aerial application (62)	0.023	0.24	Tree nuts (pecans, walnuts)	2.50	350	0.29	170	0.003	8600	170
Mixing/Loading Liquids for Aerial application (63)	0.023	0.24	Oilseed (cotton)	1.15	1200	0.45	110	0.0047	5500	110

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Mixing/Loading Liquids for Aerial application (64)	0.023	0.24	Oilseed (cotton)	2.50	1200	0.99	51	0.010	2500	50
Mixing/Loading Liquids for Aerial application (65)	0.023	0.24	Oilseed (flax)	0.50	350	0.058	870	0.0006	43000	850
Mixing/Loading Liquids for Aerial application (66)	0.023	0.24	Citrus Fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	0.72	70	0.0075	3400	68
Mixing/Loading Liquids for Aerial application (67)	0.023	0.24	Forage grass (grass)	1.25	350	0.14	350	0.0015	17000	340
Mixing/Loading Liquids for Aerial application (68)	0.023	0.24	Legume vegetables (peas)	2.50	350	0.29	170	0.003	8600	170
Mixing/Loading Liquids for Chemigation application (69)	0.023	0.24	Non-grass animal feed (alfalfa, clover, lespedeza, lupin, vetch)	1.25	350	0.14	350	0.0015	17000	340
Mixing/Loading Liquids for Chemigation application (70)	0.023	0.24	Cereal grains (barley, corn, oats, rice, rye, sorghum, wheat, wild rice)	1.25	350	0.14	350	0.0015	17000	340
Mixing/Loading Liquids for Chemigation application (71)	0.023	0.24	Small fruits (strawberry)	2	350	0.23	220	0.0024	11000	210
Mixing/Loading Liquids for Chemigation application (72)	0.023	0.24	Herbs and spices (mint)	0.94	350	0.11	460	0.0011	23000	450
Mixing/Loading Liquids for Chemigation application (73)	0.023	0.24	Herbs and spices (pepper)	1.56	350	0.18	280	0.0019	14000	270
Mixing/Loading Liquids for Chemigation application (74)	0.023	0.24	Legume vegetables (peas)	2.50	350	0.29	170	0.003	8600	170
Wettable Powders for Aerial application (75)	0.17	8.6	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	1.7	29	0.086	300	27
Wettable Powders for Groundboom application (76)	0.17	8.6	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.39	130	0.020	1300	120
Wettable Powders for Groundboom application (77)	0.17	8.6	Small fruits (strawberry)	2	80	0.39	130	0.020	1300	120
Wettable Powders for Chemigation application (78)	0.17	8.6	Small fruits (strawberry)	2	350	1.7	29	0.086	300	27
Applicator										
Sprays for Groundboom application (79)	0.014	0.15	Non-grass animal feed(alfalfa)	1.25	200	0.05	1000	0.00054	48000	980
Sprays for Groundboom application (80)	0.014	0.15	Non-grass animal feed(clover, lespedeza, lupin, vetch)	1.25	80	0.02	2500	0.00021	120000	2400
Sprays for Groundboom application (81)	0.014	0.15	Stalk and stem vegetables (asparagus)	1.25	80	0.02	2500	0.00021	120000	2400
Sprays for Groundboom application (82)	0.014	0.15	Cereal grains (corn, wheat ,rice)	1.25	200	0.05	1000	0.00054	48000	980
Sprays for Groundboom application (83)	0.014	0.15	Cereal grains (barley, oats ,rye, sorghum, wild rice)	1.25	80	0.02	2500	0.00021	120000	2400
Sprays for Groundboom application (84)	0.014	0.15	Roots and tuber vegetables(garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	80	0.02	2500	0.00021	120000	2400
Sprays for Groundboom application (85)	0.014	0.15	Root and tuber vegetables(chayote root, potatoes, sweet potato, yams)	1.56	80	0.025	2000	0.00027	96000	2000

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Sprays for Groundboom application (86)	0.014	0.15	Berries(blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.032	1600	0.00034	75000	1500
Sprays for Groundboom application (87)	0.014	0.15	Berries(blueberries)	1.25	80	0.02	2500	0.00021	120000	2400
Sprays for Groundboom application (88)	0.014	0.15	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	80	0.02	2500	0.00021	120000	2400
Sprays for Groundboom application (89)	0.014	0.15	Cucurbit vegetables (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	80	0.016	3100	0.00017	150000	3100
Sprays for Groundboom application (90)	0.014	0.15	Cucurbit vegetables (cucumber, summer squash, chayote fruit)	1.88	80	0.030	1700	0.00032	80000	1600
Sprays for Groundboom application (91)	0.014	0.15	Leafy vegetables (celery, watercress)	1.25	80	0.02	2500	0.00021	120000	2400
Sprays for Groundboom application (92)	0.014	0.15	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	80	0.032	1600	0.00034	75000	1500
Sprays for Groundboom application (93)	0.014	0.15	Leafy vegetables (endive, lettuce)	1.88	80	0.030	1700	0.00032	80000	1600
Sprays for Groundboom application (94)	0.014	0.15	Oilseed (cotton)	1.15	200	0.046	1100	0.00049	52000	1100
Sprays for Groundboom application (95)	0.014	0.15	Oilseed (cotton)	2.50	200	0.1	500	0.0011	24000	490
Sprays for Groundboom application (96)	0.014	0.15	Oilseed (flax)	0.50	80	0.008	6300	0.000086	300000	6100
Sprays for Groundboom application (97)	0.014	0.15	Fruiting vegetables (eggplant, tomatoes)	3.43	80	0.055	910	0.00059	44000	890
Sprays for Groundboom application (98)	0.014	0.15	Fruiting vegetables (okra)	1.50	80	0.024	2100	0.00026	100000	2000
Sprays for Groundboom application (99)	0.014	0.15	Bulb vegetables (garlic, leeks, onion, shallots)	1.56	80	0.025	2000	0.00027	96000	2000
Sprays for Groundboom application (100)	0.014	0.15	Small fruits (strawberry)	2	80	0.032	1600	0.00034	75000	1500
Sprays for Groundboom application (101)	0.014	0.15	Forage grass (grass)	1.25	80	0.02	2500	0.00021	120000	2400
Sprays for Groundboom application (102)	0.014	0.15	Herbs and spices (mint)	0.94	80	0.015	3300	0.00016	160000	3300
Sprays for Groundboom application (103)	0.014	0.15	Herbs and spices (pepper)	1.56	80	0.025	2000	0.00027	96000	2000
Sprays for Groundboom application (104)	0.014	0.15	Legume vegetables (peas)	2.50	80	0.04	1300	0.00043	60000	1200
Sprays for Airblast application (105)	0.24	0.9	Pome fruits (apples, pear, quince)	1.25	40	0.17	290	0.00064	40000	290
Sprays for Airblast application (106)	0.24	0.9	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	40	0.51	97	0.0019	13000	97
Sprays for Airblast application (107)	0.24	0.9	Tropical and subtropical fruits (avocado)	4.70	40	0.64	78	0.0024	11000	77
Sprays for Airblast application (108)	0.24	0.9	Tropical and subtropical fruits (fig)	2.50	40	0.34	150	0.0013	20000	140
Sprays for Airblast application (109)	0.24	0.9	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	40	0.17	290	0.00064	40000	290
Sprays for Groundboom application (110)	0.014	0.15	Tropical and subtropical fruits (pineapples)	5	80	0.08	630	0.00086	30000	610

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Sprays for Airblast application (111)	0.24	0.9	Tree nuts (chestnuts)	5	40	0.69	73	0.0026	10000	72
Sprays for Airblast application (112)	0.24	0.9	Tree nuts (macadamia nuts)	0.94	40	0.13	390	0.00048	53000	390
Sprays for Airblast application (113)	0.24	0.9	Tree nuts (pecans, walnuts)	2.50	40	0.34	150	0.0013	20000	140
Sprays for Airblast application (114)	0.24	0.9	Citrus (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	40	0.86	58	0.0032	8000	58
Sprays for Airblast application (115)	0.24	0.9	Small fruits (grapes)	1.88	40	0.26	190	0.00097	27000	190
Sprays for Airblast application (116)	0.24	0.9	Herbs and spices (hops)	0.63	40	0.086	580	0.00032	80000	570
Sprays for Aerial application (117)	No Data	No Data	Non-grass animal feed (alfalfa)	1.25	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (118)	No Data	No Data	Non-grass animal feed (clover, lespedeza, lupin, vetch)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (119)	No Data	No Data	Pome fruits (apples, pear, quince)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (120)	No Data	No Data	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach,)	3.75	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (121)	No Data	No Data	Stalk and stem vegetables (asparagus)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (122)	No Data	No Data	Tropical and subtropical fruits (avocado)	4.70	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (123)	No Data	No Data	Tropical and subtropical fruits (fig)	2.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (124)	No Data	No Data	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (125)	No Data	No Data	Tropical and subtropical fruits (pineapples)	5	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (126)	No Data	No Data	Cereal grains (corn rice, wheat)	1.25	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (127)	No Data	No Data	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (128)	No Data	No Data	Root and tuber vegetables (garden beets, carrot, root, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (129)	No Data	No Data	Root and tuber vegetables (chayote root, potatoes, sweet potatoes, yams)	1.56	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (130)	No Data	No Data	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry,)	2	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (131)	No Data	No Data	Berries (blueberries)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (132)	No Data	No Data	Brassica and leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	No Data	No Data	No Data	No Data	No Data

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Sprays for Aerial application (133)	No Data	No Data	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (134)	No Data	No Data	Cucurbit (Cucumber, summer squash, chayote fruit)	1.88	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (135)	No Data	No Data	Leafy vegetables (celery, watercress)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (136)	No Data	No Data	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (137)	No Data	No Data	Leafy vegetables (endive, lettuce)	1.88	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (138)	No Data	No Data	Tree nuts (chestnuts)	5	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (139)	No Data	No Data	Tree nuts (macadamia nuts)	0.94	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (140)	No Data	No Data	Tree nuts (pecans, walnuts)	2.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (141)	No Data	No Data	Oilseed (cotton)	1.15	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (142)	No Data	No Data	Oilseed (cotton)	2.50	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (143)	No Data	No Data	Oilseed (flax)	0.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (144)	No Data	No Data	Citrus Fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (145)	No Data	No Data	Forage grass (grass)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (146)	No Data	No Data	Legume vegetables (peas)	2.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (147)	No Data	No Data	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	No Data	No Data	No Data	No Data	No Data
Flagger										
Flagging for Sprays application (148)	0.01	0.07	Non-grass animal feed (alfalfa, clover, lespedeza, lupin, vetch)	1.25	350	0.063	800	0.00044	59000	790
Flagging for Sprays application (149)	0.01	0.07	Pome fruits (apples, pear, quince)	1.25	350	0.063	800	0.00044	59000	790
Flagging for Sprays application (150)	0.01	0.07	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	350	0.19	270	0.0013	20000	260
Flagging for Sprays application (151)	0.01	0.07	Tropical and subtropical fruits (avocado)	4.70	350	0.24	210	0.0016	16000	210
Flagging for Sprays application (152)	0.01	0.07	Tropical and subtropical fruits (fig)	2.50	350	0.13	400	0.00088	29000	390
Flagging for Sprays application (153)	0.01	0.07	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	0.063	800	0.00044	59000	790
Flagging for Sprays application (154)	0.01	0.07	Tropical and subtropical fruits (pineapples)	5	350	0.25	200	0.0018	15000	200
Flagging for Sprays application (155)	0.01	0.07	Cereal grains (barley, corn, oats, rice, rye, sorghum, wheat, wild rice)	1.25	350	0.063	800	0.00044	59000	790

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Flagging for Sprays application (156)	0.01	0.07	Root and tuber vegetables (garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	0.063	800	0.00044	59000	790
Flagging for Sprays application (157)	0.01	0.07	Root and tuber vegetables (potatoes, sweet potatoes, chayote root, yams)	1.56	350	0.078	640	0.00055	47000	630
Flagging for Sprays application (158)	0.01	0.07	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	0.1	500	0.0007	37000	490
Flagging for Sprays application (159)	0.01	0.07	Berries (blueberries)	1.25	350	0.063	800	0.00044	59000	790
Flagging for Sprays application (160)	0.01	0.07	Brassica leafy vegetables (broccoli, broccoli rab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	0.063	800	0.00044	59000	790
Flagging for Sprays application (161)	0.01	0.07	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	350	0.05	1000	0.00035	74000	990
Flagging for Sprays application (162)	0.01	0.07	Cucurbit (cucumber, summer squash, chayote fruit)	1.88	350	0.094	530	0.00066	39000	520
Flagging for Sprays application (163)	0.01	0.07	Leafy vegetables (celery, watercress)	1.25	350	0.063	800	0.00044	59000	790
Flagging for Sprays application (164)	0.01	0.07	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	0.1	500	0.0007	37000	490
Flagging for Sprays application (165)	0.01	0.07	Leafy vegetables (endive, lettuce)	1.88	350	0.094	530	0.00066	39000	520
Flagging for Sprays application (166)	0.01	0.07	Tree nuts (chestnuts)	5	350	0.25	200	0.0018	15000	200
Flagging for Sprays application (167)	0.01	0.07	Tree nuts (macadamia nuts)	0.94	350	0.047	1100	0.00033	78000	1000
Flagging for Sprays application (168)	0.01	0.07	Tree nuts (pecans, walnuts)	2.50	350	0.13	400	0.00088	29000	390
Flagging for Sprays application (169)	0.01	0.07	Oilseed (cotton)	2.50	350	0.13	400	0.00088	29000	390
Flagging for Sprays application (170)	0.01	0.07	Oilseed (cotton)	1.15	350	0.058	870	0.00040	64000	860
Flagging for Sprays application (171)	0.01	0.07	Oilseed (flax)	0.50	350	0.025	2000	0.00018	150000	2000
Flagging for Sprays application (172)	0.01	0.07	Citrus fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	0.31	160	0.0022	12000	160
Flagging for Sprays application (173)	0.01	0.07	Forage grass (grass)	1.25	350	0.063	800	0.00044	59000	790
Flagging for Sprays application (174)	0.01	0.07	Legume vegetables (peas)	2.50	350	0.13	400	0.00088	29000	390

[1]PPE2 dermal unit exposures represent long pants and long sleeved shirts plus chemical-resistant gloves. Values are reported in the PHED Surrogate Exposure Guide dated August 1998 or are from data submitted by the Outdoor Residential Exposure Task Force dated May 2000.

[2]PPE2 inhalation unit exposures represent a dust/mist respirator with a protection factor of 5. Values are reported in the PHED Surrogate Exposure Guide dated August 1998 or are from data submitted by the Outdoor Residential Exposure Task Force dated May 2000.

[3]Crops and use patterns are from submissions by the primary producer, Cheminova, or found in various sources including LUIS and various labels.

[4]Application rates are based primarily on maximum rates used in residue field trial studies and supported by the primary producer, Chemiova, or found in various sources including LUIS and various labels. Most application rates upon which the analysis is based are presented as lb ai/A. In some cases, the application rate is based on applying a solution at concentrations specified by the label (i.e., presented as lb ai/gallon).

[5]Amount treated is based on the area or gallons that can be reasonably applied in a single day for each exposure scenario of concern based on the application method and formulation/packaging type. (Standard EPA/OPP/HED values).

[6]Dermal dose (mg/kg/day) = [unit exposure (mg/lb ai) * Dermal absorption (100%) * Application rate (lb ai/acre or lb ai/gallon) * Daily area treated (acres or gallons)] / Body weight (70 kg).

[7]Dermal MOE = Dermal NOAEL (50 mg/kg/day) / Daily Dermal Dose. Target Dermal MOE is 100.

[8]Inhalation dose (mg/kg/day) = [unit exposure (ug/lb ai) * 0.001 mg/ g unit conversion * Inhalation absorption (100%) * Application rate (lb ai/acre or lb ai/gallon) * Daily area treated (acres or gallons)] / Body weight (70 kg).

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[a]Inhalation MOE = Inhalation LOAEL (25.8 mg/kg/day) / Daily Inhalation Dose. Target Inhalation MOE is 1000.

Short Term and Intermediate-Term Risk with PPE 3 (Single Layer Protection, Gloves, PF10 Respirator) for Malathion

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixer/Loader										
Mixing/Loading Liquids for Groundboom application (1)	0.023	0.12	Non-grass animal feed(alfalfa)	1.25	200	0.082	610	0.00043	60000	600
Mixing/Loading Liquids for Groundboom application (2)	0.023	0.12	Non-grass animal feed(clover, lespedeza, lupin, vetch)	1.25	80	0.033	1500	0.00017	150000	1500
Mixing/Loading Liquids for Groundboom application (3)	0.023	0.12	Stalk and stem vegetables (asparagus)	1.25	80	0.033	1500	0.00017	150000	1500
Mixing/Loading Liquids for Groundboom application (4)	0.023	0.12	Cereal grains (corn, wheat, rice)	1.25	200	0.082	610	0.00043	60000	600
Mixing/Loading Liquids for Groundboom application (5)	0.023	0.12	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	80	0.033	1500	0.00017	150000	1500
Mixing/Loading Liquids for Groundboom application (6)	0.023	0.12	Roots and tuber vegetables(garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	80	0.033	1500	0.00017	150000	1500
Mixing/Loading Liquids for Groundboom application (7)	0.023	0.12	Root and tuber vegetables(chayote root, potatoes, sweet potato, yams)	1.56	80	0.041	1200	0.00021	120000	1200
Mixing/Loading Liquids for Groundboom application (8)	0.023	0.12	Berries(blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.053	950	0.00027	94000	940
Mixing/Loading Liquids for Groundboom application (9)	0.023	0.12	Berries(blueberries)	1.25	80	0.033	1500	0.00017	150000	1500
Mixing/Loading Liquids for Groundboom application (10)	0.023	0.12	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	80	0.033	1500	0.00017	150000	1500
Mixing/Loading Liquids for Groundboom application (11)	0.023	0.12	Cucurbit vegetables (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	80	0.026	1900	0.00014	190000	1900
Mixing/Loading Liquids for Groundboom application (12)	0.023	0.12	Cucurbit vegetables (cucumber, summer squash, chayote fruit)	1.88	80	0.049	1000	0.00026	100000	1000
Mixing/Loading Liquids for Groundboom application (13)	0.023	0.12	Leafy vegetables (celery, watercress)	1.25	80	0.033	1500	0.00017	150000	1500
Mixing/Loading Liquids for Groundboom application (14)	0.023	0.12	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	80	0.053	950	0.00027	94000	940
Mixing/Loading Liquids for Groundboom application (15)	0.023	0.12	Leafy vegetables (endive, lettuce)	1.88	80	0.049	1000	0.00026	100000	1000
Mixing/Loading Liquids for Groundboom application (16)	0.023	0.12	Oilseed (cotton)	1.15	200	0.076	660	0.00039	65000	660
Mixing/Loading Liquids for Groundboom application (17)	0.023	0.12	Oilseed (cotton)	2.50	200	0.16	300	0.00086	30000	300
Mixing/Loading Liquids for Groundboom application (18)	0.023	0.12	Oilseed (flax)	0.50	80	0.013	3800	0.000069	380000	3800
Mixing/Loading Liquids for Groundboom application (19)	0.023	0.12	Fruiting vegetables (eggplant, tomatoes)	3.43	80	0.090	560	0.00047	55000	550

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Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Groundboom application (20)	0.023	0.12	Fruiting vegetables (okra)	1.50	80	0.039	1300	0.00021	130000	1300
Mixing/Loading Liquids for Groundboom application (21)	0.023	0.12	Bulb vegetables (garlic, leeks, onion, shallots)	1.56	80	0.041	1200	0.00021	120000	1200
Mixing/Loading Liquids for Groundboom application (22)	0.023	0.12	Small fruits (strawberry)	2	80	0.053	950	0.00027	94000	940
Mixing/Loading Liquids for Groundboom application (23)	0.023	0.12	Forage grass (grass)	1.25	80	0.033	1500	0.00017	150000	1500
Mixing/Loading Liquids for Groundboom application (24)	0.023	0.12	Herbs and spices (mint)	0.94	80	0.025	2000	0.00013	200000	2000
Mixing/Loading Liquids for Groundboom application (25)	0.023	0.12	Herbs and spices (pepper)	1.56	80	0.041	1200	0.00021	120000	1200
Mixing/Loading Liquids for Groundboom application (26)	0.023	0.12	Legume vegetables (peas)	2.50	80	0.066	760	0.00034	75000	750
Mixing/Loading Liquids for Airblast application (27)	0.023	0.12	Pome fruits (apples, pear, quince)	1.25	40	0.016	3000	0.000086	300000	3000
Mixing/Loading Liquids for Airblast application (28)	0.023	0.12	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	40	0.049	1000	0.00026	100000	1000
Mixing/Loading Liquids for Airblast application (29)	0.023	0.12	Tropical and subtropical fruits (avocado)	4.70	40	0.062	810	0.00032	80000	800
Mixing/Loading Liquids for Airblast application (30)	0.023	0.12	Tropical and subtropical fruits (fig)	2.50	40	0.033	1500	0.00017	150000	1500
Mixing/Loading Liquids for Airblast application (31)	0.023	0.12	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	40	0.016	3000	0.000086	300000	3000
Mixing/Loading Liquids for Groundboom application (32)	0.023	0.12	Tropical and subtropical fruits (pineapples)	5	80	0.13	380	0.00069	38000	380
Mixing/Loading Liquids for Airblast application (33)	0.023	0.12	Tree nuts (chestnuts)	5	40	0.066	760	0.00034	75000	750
Mixing/Loading Liquids for Airblast application (34)	0.023	0.12	Tree nuts (macadamia nuts)	0.94	40	0.012	4000	0.000064	400000	4000
Mixing/Loading Liquids for Airblast application (35)	0.023	0.12	Tree nuts (pecans, walnuts)	2.50	40	0.033	1500	0.00017	150000	1500
Mixing/Loading Liquids for Airblast application (36)	0.023	0.12	Citrus (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	40	0.082	610	0.00043	60000	600
Mixing/Loading Liquids for Airblast application (37)	0.023	0.12	Small fruits (grapes)	1.88	40	0.025	2000	0.00013	200000	2000
Mixing/Loading Liquids for Airblast application (38)	0.023	0.12	Herbs and spices (hops)	0.63	40	0.0083	6000	0.000043	600000	6000
Mixing/Loading Liquids for Aerial application (39)	0.023	0.12	Non-grass animal feed (alfalfa)	1.25	1200	0.49	100	0.0026	10000	100
Mixing/Loading Liquids for Aerial application (40)	0.023	0.12	Non-grass animal feed (clover, lespedeza, lupin, vetch)	1.25	350	0.14	350	0.00075	34000	340
Mixing/Loading Liquids for Aerial application (41)	0.023	0.12	Pome fruits (apples, pear, quince)	1.25	350	0.14	350	0.00075	34000	340

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Aerial application (42)	0.023	0.12	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach,)	3.75	350	0.43	120	0.0023	11000	110
Mixing/Loading Liquids for Aerial application (43)	0.023	0.12	Stalk and stem vegetables (asparagus)	1.25	350	0.14	350	0.00075	34000	340
Mixing/Loading Liquids for Aerial application (44)	0.023	0.12	Tropical and subtropical fruits (avocado)	4.70	350	0.54	93	0.0028	9100	92
Mixing/Loading Liquids for Aerial application (45)	0.023	0.12	Tropical and subtropical fruits (fig)	2.50	350	0.29	170	0.0015	17000	170
Mixing/Loading Liquids for Aerial application (46)	0.023	0.12	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	0.14	350	0.00075	34000	340
Mixing/Loading Liquids for Aerial application (47)	0.023	0.12	Tropical and subtropical fruits (pineapples)	5	350	0.58	87	0.003	8600	86
Mixing/Loading Liquids for Aerial application (48)	0.023	0.12	Cereal grains (corn rice, wheat)	1.25	1200	0.49	100	0.0026	10000	100
Mixing/Loading Liquids for Aerial application (49)	0.023	0.12	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	350	0.14	350	0.00075	34000	340
Mixing/Loading Liquids for Aerial application (50)	0.023	0.12	Root and tuber vegetables (garden beets, carrot, root, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	0.14	350	0.00075	34000	340
Mixing/Loading Liquids for Aerial application (51)	0.023	0.12	Root and tuber vegetables (chayote root, potatoes, sweet potatoes, yams)	1.56	350	0.18	280	0.00094	28000	280
Mixing/Loading Liquids for Aerial application (52)	0.023	0.12	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry,)	2	350	0.23	220	0.0012	22000	220
Mixing/Loading Liquids for Aerial application (53)	0.023	0.12	Berries (blueberries)	1.25	350	0.14	350	0.00075	34000	340
Mixing/Loading Liquids for Aerial application (54)	0.023	0.12	Brassica and leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	0.14	350	0.00075	34000	340
Mixing/Loading Liquids for Aerial application (55)	0.023	0.12	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon,	1	350	0.12	440	0.0006	43000	430
Mixing/Loading Liquids for Aerial application (56)	0.023	0.12	Cucurbit (Cucumber, summer squash, chayote fruit)	1.88	350	0.22	230	0.0011	23000	230
Mixing/Loading Liquids for Aerial application (57)	0.023	0.12	Leafy vegetables (celery, watercress)	1.25	350	0.14	350	0.00075	34000	340
Mixing/Loading Liquids for Aerial application (58)	0.023	0.12	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	0.23	220	0.0012	22000	220
Mixing/Loading Liquids for Aerial application (59)	0.023	0.12	Leafy vegetables (endive, lettuce)	1.88	350	0.22	230	0.0011	23000	230
Mixing/Loading Liquids for Aerial application (60)	0.023	0.12	Tree nuts (chestnuts)	5	350	0.58	87	0.003	8600	86
Mixing/Loading Liquids for Aerial application (61)	0.023	0.12	Tree nuts (macadamia nuts)	0.94	350	0.11	460	0.00056	46000	460
Mixing/Loading Liquids for Aerial application (62)	0.023	0.12	Tree nuts (pecans, walnuts)	2.50	350	0.29	170	0.0015	17000	170
Mixing/Loading Liquids for Aerial application (63)	0.023	0.12	Oilseed (cotton)	1.15	1200	0.45	110	0.0024	11000	110
Mixing/Loading Liquids for Aerial application (64)	0.023	0.12	Oilseed (cotton)	2.50	1200	0.99	51	0.0051	5000	50

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Aerial application (65)	0.023	0.12	Oilseed (flax)	0.50	350	0.058	870	0.0003	86000	860
Mixing/Loading Liquids for Aerial application (66)	0.023	0.12	Citrus Fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	0.72	70	0.0038	6900	69
Mixing/Loading Liquids for Aerial application (67)	0.023	0.12	Forage grass (grass)	1.25	350	0.14	350	0.00075	34000	340
Mixing/Loading Liquids for Aerial application (68)	0.023	0.12	Legume vegetables (peas)	2.50	350	0.29	170	0.0015	17000	170
Mixing/Loading Liquids for Chemigation application (69)	0.023	0.12	Non-grass animal feed (alfalfa, clover, lespedeza, lupin, vetch)	1.25	350	0.14	350	0.00075	34000	340
Mixing/Loading Liquids for Chemigation application (70)	0.023	0.12	Cereal grains (barley, corn, oats, rice, rye, sorghum, wheat, wild rice)	1.25	350	0.14	350	0.00075	34000	340
Mixing/Loading Liquids for Chemigation application (71)	0.023	0.12	Small fruits (strawberry)	2	350	0.23	220	0.0012	22000	220
Mixing/Loading Liquids for Chemigation application (72)	0.023	0.12	Herbs and spices (mint)	0.94	350	0.11	460	0.00056	46000	460
Mixing/Loading Liquids for Chemigation application (73)	0.023	0.12	Herbs and spices (pepper)	1.56	350	0.18	280	0.00094	28000	280
Mixing/Loading Liquids for Chemigation application (74)	0.023	0.12	Legume vegetables (peas)	2.50	350	0.29	170	0.0015	17000	170
Wettable Powders for Aerial application (75)	0.17	4.3	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	1.7	29	0.043	600	28
Wettable Powders for Groundboom application (76)	0.17	4.3	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.39	130	0.0098	2600	120
Wettable Powders for Groundboom application (77)	0.17	4.3	Small fruits (strawberry)	2	80	0.39	130	0.0098	2600	120
Wettable Powders for Chemigation application (78)	0.17	4.3	Small fruits (strawberry)	2	350	1.7	29	0.043	600	28
Applicator										
Sprays for Groundboom application (79)	0.014	0.074	Non-grass animal feed(alfalfa)	1.25	200	0.05	1000	0.00026	98000	990
Sprays for Groundboom application (80)	0.014	0.074	Non-grass animal feed(clover, lespedeza, lupin, vetch)	1.25	80	0.02	2500	0.00011	240000	2500
Sprays for Groundboom application (81)	0.014	0.074	Stalk and stem vegetables (asparagus)	1.25	80	0.02	2500	0.00011	240000	2500
Sprays for Groundboom application (82)	0.014	0.074	Cereal grains (corn, wheat, rice)	1.25	200	0.05	1000	0.00026	98000	990
Sprays for Groundboom application (83)	0.014	0.074	Cereal grains (barley, oats ,rye, sorghum, wild rice)	1.25	80	0.02	2500	0.00011	240000	2500
Sprays for Groundboom application (84)	0.014	0.074	Roots and tuber vegetables(garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	80	0.02	2500	0.00011	240000	2500
Sprays for Groundboom application (85)	0.014	0.074	Root and tuber vegetables(chayote root, potatoes, sweet potato, yams)	1.56	80	0.025	2000	0.00013	200000	2000
Sprays for Groundboom application (86)	0.014	0.074	Berries(blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.032	1600	0.00017	150000	1500

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Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Sprays for Groundboom application (87)	0.014	0.074	Berries(blueberries)	1.25	80	0.02	2500	0.00011	240000	2500
Sprays for Groundboom application (88)	0.014	0.074	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	80	0.02	2500	0.00011	240000	2500
Sprays for Groundboom application (89)	0.014	0.074	Cucurbit vegetables (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	80	0.016	3100	0.000085	310000	3100
Sprays for Groundboom application (90)	0.014	0.074	Cucurbit vegetables (cucumber, summer squash, chayote fruit)	1.88	80	0.030	1700	0.00016	160000	1600
Sprays for Groundboom application (91)	0.014	0.074	Leafy vegetables (celery, watercress)	1.25	80	0.02	2500	0.00011	240000	2500
Sprays for Groundboom application (92)	0.014	0.074	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	80	0.032	1600	0.00017	150000	1500
Sprays for Groundboom application (93)	0.014	0.074	Leafy vegetables (endive, lettuce)	1.88	80	0.030	1700	0.00016	160000	1600
Sprays for Groundboom application (94)	0.014	0.074	Oilseed (cotton)	1.15	200	0.046	1100	0.00024	110000	1100
Sprays for Groundboom application (95)	0.014	0.074	Oilseed (cotton)	2.50	200	0.1	500	0.00053	49000	490
Sprays for Groundboom application (96)	0.014	0.074	Oilseed (flax)	0.50	80	0.008	6300	0.000042	610000	6200
Sprays for Groundboom application (97)	0.014	0.074	Fruiting vegetables (eggplant, tomatoes)	3.43	80	0.055	910	0.00029	89000	900
Sprays for Groundboom application (98)	0.014	0.074	Fruiting vegetables (okra)	1.50	80	0.024	2100	0.00013	200000	2100
Sprays for Groundboom application (99)	0.014	0.074	Bulb vegetables (garlic, leeks, onion, shallots)	1.56	80	0.025	2000	0.00013	200000	2000
Sprays for Groundboom application (100)	0.014	0.074	Small fruits (strawberry)	2	80	0.032	1600	0.00017	150000	1500
Sprays for Groundboom application (101)	0.014	0.074	Forage grass (grass)	1.25	80	0.02	2500	0.00011	240000	2500
Sprays for Groundboom application (102)	0.014	0.074	Herbs and spices (mint)	0.94	80	0.015	3300	0.000079	320000	3300
Sprays for Groundboom application (103)	0.014	0.074	Herbs and spices (pepper)	1.56	80	0.025	2000	0.00013	200000	2000
Sprays for Groundboom application (104)	0.014	0.074	Legume vegetables (peas)	2.50	80	0.04	1300	0.00021	120000	1200
Sprays for Airblast application (105)	0.24	0.45	Pome fruits (apples, pear, quince)	1.25	40	0.17	290	0.00032	80000	290
Sprays for Airblast application (106)	0.24	0.45	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	40	0.51	97	0.00096	27000	97
Sprays for Airblast application (107)	0.24	0.45	Tropical and subtropical fruits (avocado)	4.70	40	0.64	78	0.0012	21000	77
Sprays for Airblast application (108)	0.24	0.45	Tropical and subtropical fruits (fig)	2.50	40	0.34	150	0.00064	40000	150
Sprays for Airblast application (109)	0.24	0.45	Tropical and subtropical fruits (guava, mango ,passion fruit)	1.25	40	0.17	290	0.00032	80000	290
Sprays for Groundboom application (110)	0.014	0.074	Tropical and subtropical fruits (pineapples)	5	80	0.08	630	0.00042	61000	620
Sprays for Airblast application (111)	0.24	0.45	Tree nuts (chestnuts)	5	40	0.69	73	0.0013	20000	73

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Sprays for Airblast application (112)	0.24	0.45	Tree nuts (macadamia nuts)	0.94	40	0.13	390	0.00024	110000	390
Sprays for Airblast application (113)	0.24	0.45	Tree nuts (pecans, walnuts)	2.50	40	0.34	150	0.00064	40000	150
Sprays for Airblast application (114)	0.24	0.45	Citrus (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	40	0.86	58	0.0016	16000	58
Sprays for Airblast application (115)	0.24	0.45	Small fruits (grapes)	1.88	40	0.26	190	0.00048	53000	190
Sprays for Airblast application (116)	0.24	0.45	Herbs and spices (hops)	0.63	40	0.086	580	0.00016	160000	580
Sprays for Aerial application (117)	No Data	No Data	Non-grass animal feed (alfalfa)	1.25	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (118)	No Data	No Data	Non-grass animal feed (clover, lespedeza, lupin, vetch)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (119)	No Data	No Data	Pome fruits (apples, pear, quince)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (120)	No Data	No Data	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach,)	3.75	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (121)	No Data	No Data	Stalk and stem vegetables (asparagus)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (122)	No Data	No Data	Tropical and subtropical fruits (avocado)	4.70	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (123)	No Data	No Data	Tropical and subtropical fruits (fig)	2.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (124)	No Data	No Data	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (125)	No Data	No Data	Tropical and subtropical fruits (pineapples)	5	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (126)	No Data	No Data	Cereal grains (corn rice, wheat)	1.25	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (127)	No Data	No Data	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (128)	No Data	No Data	Root and tuber vegetables (garden beets, carrot, root, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (129)	No Data	No Data	Root and tuber vegetables (chayote root, potatoes, sweet potatoes, yams)	1.56	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (130)	No Data	No Data	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry,)	2	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (131)	No Data	No Data	Berries (blueberries)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (132)	No Data	No Data	Brassica and leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (133)	No Data	No Data	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	350	No Data	No Data	No Data	No Data	No Data

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Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Sprays for Aerial application (134)	No Data	No Data	Cucurbit (Cucumber, summer squash, chayote fruit)	1.88	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (135)	No Data	No Data	Leafy vegetables (celery, watercress)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (136)	No Data	No Data	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (137)	No Data	No Data	Leafy vegetables (endive, lettuce)	1.88	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (138)	No Data	No Data	Tree nuts (chestnuts)	5	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (139)	No Data	No Data	Tree nuts (macadamia nuts)	0.94	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (140)	No Data	No Data	Tree nuts (pecans, walnuts)	2.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (141)	No Data	No Data	Oilseed (cotton)	1.15	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (142)	No Data	No Data	Oilseed (cotton)	2.50	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (143)	No Data	No Data	Oilseed (flax)	0.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (144)	No Data	No Data	Citrus Fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (145)	No Data	No Data	Forage grass (grass)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (146)	No Data	No Data	Legume vegetables (peas)	2.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (147)	No Data	No Data	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	No Data	No Data	No Data	No Data	No Data
Flagger										
Flagging for Sprays application (148)	0.01	0.035	Non-grass animal feed (alfalfa, clover, lespedeza, lupin, vetch)	1.25	350	0.063	800	0.00022	120000	790
Flagging for Sprays application (149)	0.01	0.035	Pome fruits (apples, pear, quince)	1.25	350	0.063	800	0.00022	120000	790
Flagging for Sprays application (150)	0.01	0.035	stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	350	0.19	270	0.00066	39000	260
Flagging for Sprays application (151)	0.01	0.035	Tropical and subtropical fruits (avocado)	4.70	350	0.24	210	0.00082	31000	210
Flagging for Sprays application (152)	0.01	0.035	Tropical and subtropical fruits (fig)	2.50	350	0.13	400	0.00044	59000	400
Flagging for Sprays application (153)	0.01	0.035	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	0.063	800	0.00022	120000	790
Flagging for Sprays application (154)	0.01	0.035	Tropical and subtropical fruits (pineapples)	5	350	0.25	200	0.00088	29000	200
Flagging for Sprays application (155)	0.01	0.035	Cereal grains (barley, corn, oats, rice, rye, sorghum, wheat, wild rice)	1.25	350	0.063	800	0.00022	120000	790
Flagging for Sprays application (156)	0.01	0.035	Root and tuber vegetables (garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	0.063	800	0.00022	120000	790

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Flagging for Sprays application (157)	0.01	0.035	Root and tuber vegetables (potatoes, sweet potatoes, chayote root, yams)	1.56	350	0.078	640	0.00027	95000	640
Flagging for Sprays application (158)	0.01	0.035	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	0.1	500	0.00035	74000	500
Flagging for Sprays application (159)	0.01	0.035	Berries (blueberries)	1.25	350	0.063	800	0.00022	120000	790
Flagging for Sprays application (160)	0.01	0.035	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	0.063	800	0.00022	120000	790
Flagging for Sprays application (161)	0.01	0.035	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	350	0.05	1000	0.00018	150000	990
Flagging for Sprays application (162)	0.01	0.035	Cucurbit (cucumber, summer squash, chayote fruit)	1.88	350	0.094	530	0.00033	78000	530
Flagging for Sprays application (163)	0.01	0.035	Leafy vegetables (celery, watercress)	1.25	350	0.063	800	0.00022	120000	790
Flagging for Sprays application (164)	0.01	0.035	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	0.1	500	0.00035	74000	500
Flagging for Sprays application (165)	0.01	0.035	Leafy vegetables (endive, lettuce)	1.88	350	0.094	530	0.00033	78000	530
Flagging for Sprays application (166)	0.01	0.035	tree nuts (chestnuts)	5	350	0.25	200	0.00088	29000	200
Flagging for Sprays application (167)	0.01	0.035	tree nuts (macadamia nuts)	0.94	350	0.047	1100	0.00016	160000	1100
Flagging for Sprays application (168)	0.01	0.035	tree nuts (pecans, walnuts)	2.50	350	0.13	400	0.00044	59000	400
Flagging for Sprays application (169)	0.01	0.035	Oilseed (cotton)	2.50	350	0.13	400	0.00044	59000	400
Flagging for Sprays application (170)	0.01	0.035	Oilseed (cotton)	1.15	350	0.058	870	0.00020	130000	860
Flagging for Sprays application (171)	0.01	0.035	Oilseed (flax)	0.50	350	0.025	2000	0.000088	290000	2000
Flagging for Sprays application (172)	0.01	0.035	Citrus fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	0.31	160	0.0011	24000	160
Flagging for Sprays application (173)	0.01	0.035	Forage grass (grass)	1.25	350	0.063	800	0.00022	120000	790
Flagging for Sprays application (174)	0.01	0.035	Legume vegetables (peas)	2.50	350	0.13	400	0.00044	59000	400

[1]PPE3 dermal unit exposures represent long pants and long sleeved shirts plus chemical-resistant gloves. Values are reported in the PHED Surrogate Exposure Guide dated August 1998 or are from data submitted by the Outdoor Residential Exposure Task Force dated May 2000.

[2]PPE3 inhalation unit exposures represent an organic-vapor-removing respirator with a protection factor of 10. Values are reported in the PHED Surrogate Exposure Guide dated August 1998 or are from data submitted by the Outdoor Residential Exposure Task Force dated May 2000.

[3]Crops and use patterns are from submissions by the primary producer, Cheminova, or found in various sources including LUIS and various labels.

[4]Application rates are based primarily on maximum rates used in residue field trial studies and supported by the primary producer, Cheminova, or found in various sources including LUIS and various labels. Most application rates upon which the analysis is based are presented as lb ai/A. In some cases, the application rate is based on applying a solution at concentrations specified by the label (i.e., presented as lb ai/gallon).

[5]Amount treated is based on the area or gallons that can be reasonably applied in a single day for each exposure scenario of concern based on the application method and formulation/packaging type. (Standard EPA/OPP/HED values).

[6]Dermal dose (mg/kg/day) = [unit exposure (mg/lb ai) * Dermal absorption (100%) * Application rate (lb ai/acre or lb ai/gallon) * Daily area treated (acres or gallons)] / Body weight (70 kg).

[7]Dermal MOE = Dermal NOAEL (50 mg/kg/day) / Daily Dermal Dose. Target Dermal MOE is 100.

[8]Inhalation dose (mg/kg/day) = [unit exposure (ug/lb ai) * 0.001 mg/ g unit conversion * Inhalation absorption (100%) * Application rate (lb ai/acre or lb ai/gallon) * Daily area treated (acres or gallons)] / Body weight (70 kg).

[9]Inhalation MOE = Inhalation LOAEL (25.8 mg/kg/day) / Daily Inhalation Dose. Target Inhalation MOE is 1000.

Short Term and Intermediate-Term Risk with PPE 4 (Double Layer Protection, Gloves, No Respirator) for Malathion

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixer/Loader										
Mixing/Loading Liquids for Groundboom application (1)	0.017	1.2	Non-grass animal feed(alfalfa)	1.25	200	0.061	820	0.0043	6000	720
Mixing/Loading Liquids for Groundboom application (2)	0.017	1.2	Non-grass animal feed(clover, lespedeza, lupin, vetch)	1.25	80	0.024	2100	0.0017	15000	1800
Mixing/Loading Liquids for Groundboom application (3)	0.017	1.2	Stalk and stem vegetables (asparagus)	1.25	80	0.024	2100	0.0017	15000	1800
Mixing/Loading Liquids for Groundboom application (4)	0.017	1.2	Cereal grains (corn, wheat ,rice)	1.25	200	0.061	820	0.0043	6000	720
Mixing/Loading Liquids for Groundboom application (5)	0.017	1.2	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	80	0.024	2100	0.0017	15000	1800
Mixing/Loading Liquids for Groundboom application (6)	0.017	1.2	Roots and tuber vegetables(garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	80	0.024	2100	0.0017	15000	1800
Mixing/Loading Liquids for Groundboom application (7)	0.017	1.2	Root and tuber vegetables(chayote root, potatoes, sweet potato, yams)	1.56	80	0.030	1700	0.0021	12000	1500
Mixing/Loading Liquids for Groundboom application (8)	0.017	1.2	Berries(blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.039	1300	0.0027	9400	1100
Mixing/Loading Liquids for Groundboom application (9)	0.017	1.2	Berries(blueberries)	1.25	80	0.024	2100	0.0017	15000	1800
Mixing/Loading Liquids for Groundboom application (10)	0.017	1.2	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	80	0.024	2100	0.0017	15000	1800
Mixing/Loading Liquids for Groundboom application (11)	0.017	1.2	Cucurbit vegetables (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	80	0.019	2600	0.0014	19000	2300
Mixing/Loading Liquids for Groundboom application (12)	0.017	1.2	Cucurbit vegetables (cucumber, summer squash, chayote fruit)	1.88	80	0.037	1400	0.0026	10000	1200
Mixing/Loading Liquids for Groundboom application (13)	0.017	1.2	Leafy vegetables (celery, watercress)	1.25	80	0.024	2100	0.0017	15000	1800
Mixing/Loading Liquids for Groundboom application (14)	0.017	1.2	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	80	0.039	1300	0.0027	9400	1100
Mixing/Loading Liquids for Groundboom application (15)	0.017	1.2	Leafy vegetables (endive, lettuce)	1.88	80	0.037	1400	0.0026	10000	1200
Mixing/Loading Liquids for Groundboom application (16)	0.017	1.2	Oilseed (cotton)	1.15	200	0.056	900	0.0039	6500	790
Mixing/Loading Liquids for Groundboom application (17)	0.017	1.2	Oilseed (cotton)	2.50	200	0.12	410	0.0086	3000	360
Mixing/Loading Liquids for Groundboom application (18)	0.017	1.2	Oilseed (flax)	0.50	80	0.0097	5100	0.00069	38000	4500
Mixing/Loading Liquids for Groundboom application (19)	0.017	1.2	Fruiting vegetables (eggplant, tomatoes)	3.43	80	0.067	750	0.0047	5500	660
Mixing/Loading Liquids for Groundboom application (20)	0.017	1.2	Fruiting vegetables (okra)	1.50	80	0.029	1700	0.0021	13000	1500
Mixing/Loading Liquids for Groundboom application (21)	0.017	1.2	Bulb vegetables (garlic, leeks, onion, shallots)	1.56	80	0.030	1700	0.0021	12000	1500
Mixing/Loading Liquids for Groundboom application (22)	0.017	1.2	Small fruits (strawberry)	2	80	0.039	1300	0.0027	9400	1100

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Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Groundboom application (23)	0.017	1.2	Forage grass (grass)	1.25	80	0.024	2100	0.0017	15000	1800
Mixing/Loading Liquids for Groundboom application (24)	0.017	1.2	Herbs and spices (mint)	0.94	80	0.018	2700	0.0013	20000	2400
Mixing/Loading Liquids for Groundboom application (25)	0.017	1.2	Herbs and spices (pepper)	1.56	80	0.030	1700	0.0021	12000	1500
Mixing/Loading Liquids for Groundboom application (26)	0.017	1.2	Legume vegetables (peas)	2.50	80	0.049	1000	0.0034	7500	910
Mixing/Loading Liquids for Airblast application (27)	0.017	1.2	Pome fruits (apples, pear, quince)	1.25	40	0.012	4100	0.00086	30000	3600
Mixing/Loading Liquids for Airblast application (28)	0.017	1.2	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	40	0.036	1400	0.0026	10000	1200
Mixing/Loading Liquids for Airblast application (29)	0.017	1.2	Tropical and subtropical fruits (avocado)	4.70	40	0.046	1100	0.0032	8000	960
Mixing/Loading Liquids for Airblast application (30)	0.017	1.2	Tropical and subtropical fruits (fig)	2.50	40	0.024	2100	0.0017	15000	1800
Mixing/Loading Liquids for Airblast application (31)	0.017	1.2	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	40	0.012	4100	0.00086	30000	3600
Mixing/Loading Liquids for Groundboom application (32)	0.017	1.2	Tropical and subtropical fruits (pineapples)	5	80	0.097	520	0.0069	3800	450
Mixing/Loading Liquids for Airblast application (33)	0.017	1.2	Tree nuts (chestnuts)	5	40	0.049	1000	0.0034	7500	910
Mixing/Loading Liquids for Airblast application (34)	0.017	1.2	Tree nuts (macadamia nuts)	0.94	40	0.0091	5500	0.00064	40000	4800
Mixing/Loading Liquids for Airblast application (35)	0.017	1.2	Tree nuts (pecans, walnuts)	2.50	40	0.024	2100	0.0017	15000	1800
Mixing/Loading Liquids for Airblast application (36)	0.017	1.2	Citrus (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	40	0.061	820	0.0043	6000	720
Mixing/Loading Liquids for Airblast application (37)	0.017	1.2	Small fruits (grapes)	1.88	40	0.018	2700	0.0013	20000	2400
Mixing/Loading Liquids for Airblast application (38)	0.017	1.2	Herbs and spices (hops)	0.63	40	0.0061	8200	0.00043	60000	7200
Mixing/Loading Liquids for Aerial application (39)	0.017	1.2	Non-grass animal feed (alfalfa)	1.25	1200	0.36	140	0.026	1000	120
Mixing/Loading Liquids for Aerial application (40)	0.017	1.2	Non-grass animal feed (clover, lespedeza, lupin, vetch)	1.25	350	0.11	470	0.0075	3400	410
Mixing/Loading Liquids for Aerial application (41)	0.017	1.2	Pome fruits (apples, pear, quince)	1.25	350	0.11	470	0.0075	3400	410
Mixing/Loading Liquids for Aerial application (42)	0.017	1.2	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach,)	3.75	350	0.32	160	0.023	1100	140
Mixing/Loading Liquids for Aerial application (43)	0.017	1.2	Stalk and stem vegetables (asparagus)	1.25	350	0.11	470	0.0075	3400	410
Mixing/Loading Liquids for Aerial application (44)	0.017	1.2	Tropical and subtropical fruits (avocado)	4.70	350	0.40	130	0.028	920	110
Mixing/Loading Liquids for Aerial application (45)	0.017	1.2	Tropical and subtropical fruits (fig)	2.50	350	0.21	240	0.015	1700	210
Mixing/Loading Liquids for Aerial application (46)	0.017	1.2	Tropical and subtropical fruits (guava, mango ,passion fruit)	1.25	350	0.11	470	0.0075	3400	410
Mixing/Loading Liquids for Aerial application (47)	0.017	1.2	Tropical and subtropical fruits (pineapples)	5	350	0.43	120	0.03	860	100
Mixing/Loading Liquids for Aerial application (48)	0.017	1.2	Cereal grains (corn rice, wheat)	1.25	1200	0.36	140	0.026	1000	120

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Aerial application (49)	0.017	1.2	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	350	0.11	470	0.0075	3400	410
Mixing/Loading Liquids for Aerial application (50)	0.017	1.2	Root and tuber vegetables (garden beets, carrot, root, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	0.11	470	0.0075	3400	410
Mixing/Loading Liquids for Aerial application (51)	0.017	1.2	Root and tuber vegetables (chayote root, potatoes, sweet potatoes, yams)	1.56	350	0.13	380	0.0094	2800	330
Mixing/Loading Liquids for Aerial application (52)	0.017	1.2	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry,)	2	350	0.17	290	0.012	2200	260
Mixing/Loading Liquids for Aerial application (53)	0.017	1.2	Berries (blueberries)	1.25	350	0.11	470	0.0075	3400	410
Mixing/Loading Liquids for Aerial application (54)	0.017	1.2	Brassica and leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	0.11	470	0.0075	3400	410
Mixing/Loading Liquids for Aerial application (55)	0.017	1.2	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon,	1	350	0.085	590	0.006	4300	520
Mixing/Loading Liquids for Aerial application (56)	0.017	1.2	Cucurbit (Cucumber, summer squash, chayote fruit)	1.88	350	0.16	310	0.011	2300	280
Mixing/Loading Liquids for Aerial application (57)	0.017	1.2	Leafy vegetables (celery, watercress)	1.25	350	0.11	470	0.0075	3400	410
Mixing/Loading Liquids for Aerial application (58)	0.017	1.2	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	0.17	290	0.012	2200	260
Mixing/Loading Liquids for Aerial application (59)	0.017	1.2	Leafy vegetables (endive, lettuce)	1.88	350	0.16	310	0.011	2300	280
Mixing/Loading Liquids for Aerial application (60)	0.017	1.2	Tree nuts (chestnuts)	5	350	0.43	120	0.03	860	100
Mixing/Loading Liquids for Aerial application (61)	0.017	1.2	Tree nuts (macadamia nuts)	0.94	350	0.080	630	0.0056	4600	550
Mixing/Loading Liquids for Aerial application (62)	0.017	1.2	Tree nuts (pecans, walnuts)	2.50	350	0.21	240	0.015	1700	210
Mixing/Loading Liquids for Aerial application (63)	0.017	1.2	Oilseed (cotton)	1.15	1200	0.34	150	0.024	1100	130
Mixing/Loading Liquids for Aerial application (64)	0.017	1.2	Oilseed (cotton)	2.50	1200	0.73	69	0.051	500	60
Mixing/Loading Liquids for Aerial application (65)	0.017	1.2	Oilseed (flax)	0.50	350	0.043	1200	0.003	8600	1000
Mixing/Loading Liquids for Aerial application (66)	0.017	1.2	Citrus Fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	0.53	94	0.038	690	83
Mixing/Loading Liquids for Aerial application (67)	0.017	1.2	Forage grass (grass)	1.25	350	0.11	470	0.0075	3400	410
Mixing/Loading Liquids for Aerial application (68)	0.017	1.2	Legume vegetables (peas)	2.50	350	0.21	240	0.015	1700	210
Mixing/Loading Liquids for Chemigation application (69)	0.017	1.2	Non-grass animal feed (alfalfa, clover, lespedeza, lupin, vetch)	1.25	350	0.11	470	0.0075	3400	410
Mixing/Loading Liquids for Chemigation application (70)	0.017	1.2	Cereal grains (barley, corn, oats, rice, rye, sorghum, wheat, wild rice)	1.25	350	0.11	470	0.0075	3400	410

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Mixing/Loading Liquids for Chemigation application (71)	0.017	1.2	Small fruits (strawberry)	2	350	0.17	290	0.012	2200	260
Mixing/Loading Liquids for Chemigation application (72)	0.017	1.2	Herbs and spices (mint)	0.94	350	0.080	630	0.0056	4600	550
Mixing/Loading Liquids for Chemigation application (73)	0.017	1.2	Herbs and spices (pepper)	1.56	350	0.13	380	0.0094	2800	330
Mixing/Loading Liquids for Chemigation application (74)	0.017	1.2	Legume vegetables (peas)	2.50	350	0.21	240	0.015	1700	210
Wettable Powders for Aerial application (75)	0.13	43	Berries (blackberry ,boysenberry, dewberry, loganberry, raspberry)	2	350	1.3	38	0.43	60	23
Wettable Powders for Groundboom application (76)	0.13	43	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.30	170	0.098	260	100
Wettable Powders for Groundboom application (77)	0.13	43	Small fruits (strawberry)	2	80	0.30	170	0.098	260	100
Wettable Powders for Chemigation application (78)	0.13	43	Small fruits (strawberry)	2	350	1.3	38	0.43	60	23
Applicator										
Sprays for Groundboom application (79)	0.011	0.74	Non-grass animal feed(alfalfa)	1.25	200	0.039	1300	0.0026	9800	1100
Sprays for Groundboom application (80)	0.011	0.74	Non-grass animal feed(clover, lespedeza, lupin, vetch)	1.25	80	0.016	3200	0.0011	24000	2800
Sprays for Groundboom application (81)	0.011	0.74	Stalk and stem vegetables (asparagus)	1.25	80	0.016	3200	0.0011	24000	2800
Sprays for Groundboom application (82)	0.011	0.74	Cereal grains (corn, wheat, rice)	1.25	200	0.039	1300	0.0026	9800	1100
Sprays for Groundboom application (83)	0.011	0.74	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	80	0.016	3200	0.0011	24000	2800
Sprays for Groundboom application (84)	0.011	0.74	Roots and tuber vegetables(garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	80	0.016	3200	0.0011	24000	2800
Sprays for Groundboom application (85)	0.011	0.74	Root and tuber vegetables(chayote root, potatoes, sweet potato, yams)	1.56	80	0.020	2600	0.0013	20000	2300
Sprays for Groundboom application (86)	0.011	0.74	Berries(blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.025	2000	0.0017	15000	1800
Sprays for Groundboom application (87)	0.011	0.74	Berries(blueberries)	1.25	80	0.016	3200	0.0011	24000	2800
Sprays for Groundboom application (88)	0.011	0.74	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	80	0.016	3200	0.0011	24000	2800
Sprays for Groundboom application (89)	0.011	0.74	Cucurbit vegetables (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	80	0.013	4000	0.00085	31000	3500
Sprays for Groundboom application (90)	0.011	0.74	Cucurbit vegetables (cucumber, summer squash, chayote fruit)	1.88	80	0.024	2100	0.0016	16000	1900
Sprays for Groundboom application (91)	0.011	0.74	Leafy vegetables (celery, watercress)	1.25	80	0.016	3200	0.0011	24000	2800

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Sprays for Groundboom application (92)	0.011	0.74	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	80	0.025	2000	0.0017	15000	1800
Sprays for Groundboom application (93)	0.011	0.74	Leafy vegetables (endive, lettuce)	1.88	80	0.024	2100	0.0016	16000	1900
Sprays for Groundboom application (94)	0.011	0.74	Oilseed (cotton)	1.15	200	0.036	1400	0.0024	11000	1200
Sprays for Groundboom application (95)	0.011	0.74	Oilseed (cotton)	2.50	200	0.079	640	0.0053	4900	560
Sprays for Groundboom application (96)	0.011	0.74	Oilseed (flax)	0.50	80	0.0063	8000	0.00042	61000	7000
Sprays for Groundboom application (97)	0.011	0.74	Fruiting vegetables (eggplant, tomatoes)	3.43	80	0.043	1200	0.0029	8900	1000
Sprays for Groundboom application (98)	0.011	0.74	Fruiting vegetables (okra)	1.50	80	0.019	2700	0.0013	20000	2300
Sprays for Groundboom application (99)	0.011	0.74	Bulb vegetables (garlic, leeks, onion, shallots)	1.56	80	0.020	2600	0.0013	20000	2300
Sprays for Groundboom application (100)	0.011	0.74	Small fruits (strawberry)	2	80	0.025	2000	0.0017	15000	1800
Sprays for Groundboom application (101)	0.011	0.74	Forage grass (grass)	1.25	80	0.016	3200	0.0011	24000	2800
Sprays for Groundboom application (102)	0.011	0.74	Herbs and spices (mint)	0.94	80	0.012	4200	0.00079	32000	3700
Sprays for Groundboom application (103)	0.011	0.74	Herbs and spices (pepper)	1.56	80	0.020	2600	0.0013	20000	2300
Sprays for Groundboom application (104)	0.011	0.74	Legume vegetables (peas)	2.50	80	0.031	1600	0.0021	12000	1400
Sprays for Airblast application (105)	0.22	4.5	Pome fruits (apples, pear, quince)	1.25	40	0.16	320	0.0032	8000	310
Sprays for Airblast application (106)	0.22	4.5	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	40	0.47	110	0.0096	2700	100
Sprays for Airblast application (107)	0.22	4.5	Tropical and subtropical fruits (avocado)	4.70	40	0.59	85	0.012	2100	81
Sprays for Airblast application (108)	0.22	4.5	Tropical and subtropical fruits (fig)	2.50	40	0.31	160	0.0064	4000	150
Sprays for Airblast application (109)	0.22	4.5	Tropical and subtropical fruits (guava, mango ,passion fruit)	1.25	40	0.16	320	0.0032	8000	310
Sprays for Groundboom application (110)	0.011	0.74	Tropical and subtropical fruits (pineapples)	5	80	0.063	800	0.0042	6100	700
Sprays for Airblast application (111)	0.22	4.5	Tree nuts (chestnuts)	5	40	0.63	80	0.013	2000	77
Sprays for Airblast application (112)	0.22	4.5	Tree nuts (macadamia nuts)	0.94	40	0.12	420	0.0024	11000	410
Sprays for Airblast application (113)	0.22	4.5	Tree nuts (pecans, walnuts)	2.50	40	0.31	160	0.0064	4000	150
Sprays for Airblast application (114)	0.22	4.5	Citrus (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	40	0.79	64	0.016	1600	61
Sprays for Airblast application (115)	0.22	4.5	Small fruits (grapes)	1.88	40	0.24	210	0.0048	5300	200
Sprays for Airblast application (116)	0.22	4.5	Herbs and spices (hops)	0.63	40	0.079	630	0.0016	16000	610
Sprays for Aerial application (117)	No Data	No Data	Non-grass animal feed (alfalfa)	1.25	1200	No Data	No Data	No Data	No Data	No Data

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Sprays for Aerial application (118)	No Data	No Data	Non-grass animal feed (clover, lespedeza, lupin, vetch)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (119)	No Data	No Data	Pome fruits (apples, pear, quince)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (120)	No Data	No Data	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach,)	3.75	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (121)	No Data	No Data	Stalk and stem vegetables (asparagus)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (122)	No Data	No Data	Tropical and subtropical fruits (avocado)	4.70	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (123)	No Data	No Data	Tropical and subtropical fruits (fig)	2.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (124)	No Data	No Data	Tropical and subtropical fruits (guava, mango ,passion fruit)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (125)	No Data	No Data	Tropical and subtropical fruits (pineapples)	5	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (126)	No Data	No Data	Cereal grains (corn rice, wheat)	1.25	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (127)	No Data	No Data	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (128)	No Data	No Data	Root and tuber vegetables (garden beets, carrot, root, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (129)	No Data	No Data	Root and tuber vegetables (chayote root, potatoes, sweet potatoes, yams)	1.56	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (130)	No Data	No Data	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry,)	2	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (131)	No Data	No Data	Berries (blueberries)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (132)	No Data	No Data	Brassica and leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (133)	No Data	No Data	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (134)	No Data	No Data	Cucurbit (Cucumber, summer squash, chayote fruit)	1.88	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (135)	No Data	No Data	Leafy vegetables (celery, watercress)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (136)	No Data	No Data	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (137)	No Data	No Data	Leafy vegetables (endive, lettuce)	1.88	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (138)	No Data	No Data	Tree nuts (chestnuts)	5	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (139)	No Data	No Data	Tree nuts (macadamia nuts)	0.94	350	No Data	No Data	No Data	No Data	No Data

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Sprays for Aerial application (140)	No Data	No Data	Tree nuts (pecans, walnuts)	2.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (141)	No Data	No Data	Oilseed (cotton)	1.15	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (142)	No Data	No Data	Oilseed (cotton)	2.50	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (143)	No Data	No Data	Oilseed (flax)	0.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (144)	No Data	No Data	Citrus Fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (145)	No Data	No Data	Forage grass (grass)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (146)	No Data	No Data	Legume vegetables (peas)	2.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (147)	No Data	No Data	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	No Data	No Data	No Data	No Data	No Data
Flagger										
Flagging for Sprays application (148)	0.01	0.35	Non-grass animal feed (alfalfa, clover, lespedeza, lupin, vetch)	1.25	350	0.063	800	0.0022	12000	750
Flagging for Sprays application (149)	0.01	0.35	Pome fruits (apples, pear, quince)	1.25	350	0.063	800	0.0022	12000	750
Flagging for Sprays application (150)	0.01	0.35	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	350	0.19	270	0.0066	3900	250
Flagging for Sprays application (151)	0.01	0.35	Tropical and subtropical fruits (avocado)	4.70	350	0.24	210	0.0082	3100	200
Flagging for Sprays application (152)	0.01	0.35	Tropical and subtropical fruits (fig)	2.50	350	0.13	400	0.0044	5900	370
Flagging for Sprays application (153)	0.01	0.35	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	0.063	800	0.0022	12000	750
Flagging for Sprays application (154)	0.01	0.35	Tropical and subtropical fruits (pineapples)	5	350	0.25	200	0.0088	2900	190
Flagging for Sprays application (155)	0.01	0.35	Cereal grains (barley, corn, oats, rice, rye, sorghum, wheat, wild rice)	1.25	350	0.063	800	0.0022	12000	750
Flagging for Sprays application (156)	0.01	0.35	Root and tuber vegetables (garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	0.063	800	0.0022	12000	750
Flagging for Sprays application (157)	0.01	0.35	Root and tuber vegetables (potatoes, sweet potatoes, chayote root, yams)	1.56	350	0.078	640	0.0027	9500	600
Flagging for Sprays application (158)	0.01	0.35	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	0.1	500	0.0035	7400	470
Flagging for Sprays application (159)	0.01	0.35	Berries (blueberries)	1.25	350	0.063	800	0.0022	12000	750
Flagging for Sprays application (160)	0.01	0.35	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	0.063	800	0.0022	12000	750

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Flagging for Sprays application (161)	0.01	0.35	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	350	0.05	1000	0.0018	15000	940
Flagging for Sprays application (162)	0.01	0.35	Cucurbit (cucumber, summer squash, chayote fruit)	1.88	350	0.094	530	0.0033	7800	500
Flagging for Sprays application (163)	0.01	0.35	Leafy vegetables (celery, watercress)	1.25	350	0.063	800	0.0022	12000	750
Flagging for Sprays application (164)	0.01	0.35	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	0.1	500	0.0035	7400	470
Flagging for Sprays application (165)	0.01	0.35	Leafy vegetables (endive, lettuce)	1.88	350	0.094	530	0.0033	7800	500
Flagging for Sprays application (166)	0.01	0.35	Tree nuts (chestnuts)	5	350	0.25	200	0.0088	2900	190
Flagging for Sprays application (167)	0.01	0.35	Tree nuts (macadamia nuts)	0.94	350	0.047	1100	0.0016	16000	100
Flagging for Sprays application (168)	0.01	0.35	Tree nuts (pecans, walnuts)	2.50	350	0.13	400	0.0044	5900	370
Flagging for Sprays application (169)	0.01	0.35	Oilseed (cotton)	2.50	350	0.13	400	0.0044	5900	370
Flagging for Sprays application (170)	0.01	0.35	Oilseed (cotton)	1.15	350	0.058	870	0.0020	13000	810
Flagging for Sprays application (171)	0.01	0.35	Oilseed (flax)	0.50	350	0.025	2000	0.00088	29000	1900
Flagging for Sprays application (172)	0.01	0.35	Citrus fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	0.31	160	0.011	2400	150
Flagging for Sprays application (173)	0.01	0.35	Forage grass (grass)	1.25	350	0.063	800	0.0022	12000	750
Flagging for Sprays application (174)	0.01	0.35	Legume vegetables (peas)	2.50	350	0.13	400	0.0044	5900	370

[1]PPE4 dermal unit exposures represent coveralls worn over long pants and long sleeved shirts plus chemical-resistant gloves. Values are reported in the PHED Surrogate Exposure Guide dated August 1998 or are from data submitted by the Outdoor Residential Exposure Task Force dated May 2000.
[2]PPE4 inhalation unit exposures represent no respirator. Values are reported in the PHED Surrogate Exposure Guide dated August 1998 or are from data submitted by the Outdoor Residential Exposure Task Force dated May 2000.
[3]Crops and use patterns are from submissions by the primary producer, Cheminova, or found in various sources including LUIS and various labels.
[4]Application rates are based primarily on maximum rates usedin residue field trial studies and supported by the primary producer, Cheminova, or found in various sources including LUIS and various labels. Most application rates upon which the analysis is based are presented as lb ai/A. In some cases, the application rate is based on applying a solution at concentrations specified by the label (i.e., presented as lb ai/gallon).
[5]Amount treated is based on the area or gallons that can be reasonably applied in a single day for each exposure scenario of concern based on the application method and formulation/packaging type. (Standard EPA/OPP/HED values).
[6]Dermal dose (mg/kg/day) = [unit exposure (mg/lb ai) * Dermal absorption (100%) * Application rate (lb ai/acre or lb ai/gallon) * Daily area treated (acres or gallons)] / Body weight (70 kg).
[7]Dermal MOE = Dermal NOAEL (50 mg/kg/day) / Daily Dermal Dose. Target Dermal MOE is 100.
[8]Inhalation dose (mg/kg/day) = [unit exposure (ug/lb ai) * 0.001 mg/ g unit conversion * Inhalation absorption (100%) * Application rate (lb ai/acre or lb ai/gallon) * Daily area treated (acres or gallons)] / Body weight (70 kg).
[9]Inhalation MOE = Inhalation LOAEL (25.8 mg/kg/day) / Daily Inhalation Dose. Target Inhalation MOE is 1000.

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Short Term and Intermediate-Term Risk with PPE 5 (Double Layer Protection, Gloves, PF5 Respirator) for Malathion

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixer/Loader										
Mixing/Loading Liquids for Groundboom application (1)	0.017	0.24	Non-grass animal feed(alfalfa)	1.25	200	0.061	820	0.00086	30000	800
Mixing/Loading Liquids for Groundboom application (2)	0.017	0.24	Non-grass animal feed(clover, lespedeza, lupin, vetch)	1.25	80	0.024	2100	0.00034	75000	2000
Mixing/Loading Liquids for Groundboom application (3)	0.017	0.24	Stalk and stem vegetables (asparagus)	1.25	80	0.024	2100	0.00034	75000	2000
Mixing/Loading Liquids for Groundboom application (4)	0.017	0.24	Cereal grains (corn, wheat ,rice)	1.25	200	0.061	820	0.00086	30000	800
Mixing/Loading Liquids for Groundboom application (5)	0.017	0.24	Cereal grains (barley, oats ,rye, sorghum, wild rice)	1.25	80	0.024	2100	0.00034	75000	2000
Mixing/Loading Liquids for Groundboom application (6)	0.017	0.24	Roots and tuber vegetables(garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	80	0.024	2100	0.00034	75000	2000
Mixing/Loading Liquids for Groundboom application (7)	0.017	0.24	Root and tuber vegetables(chayote root, potatoes, sweet potato, yams)	1.56	80	0.030	1700	0.00043	60000	1600
Mixing/Loading Liquids for Groundboom application (8)	0.017	0.24	Berries(blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.039	1300	0.00055	47000	1300
Mixing/Loading Liquids for Groundboom application (9)	0.017	0.24	Berries(blueberries)	1.25	80	0.024	2100	0.00034	75000	2000
Mixing/Loading Liquids for Groundboom application (10)	0.017	0.24	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	80	0.024	2100	0.00034	75000	2000
Mixing/Loading Liquids for Groundboom application (11)	0.017	0.24	Cucurbit vegetables (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	80	0.019	2600	0.00027	94000	2500
Mixing/Loading Liquids for Groundboom application (12)	0.017	0.24	Cucurbit vegetables (cucumber, summer squash, chayote fruit)	1.88	80	0.037	1400	0.00052	50000	1300
Mixing/Loading Liquids for Groundboom application (13)	0.017	0.24	Leafy vegetables (celery, watercress)	1.25	80	0.024	2100	0.00034	75000	2000
Mixing/Loading Liquids for Groundboom application (14)	0.017	0.24	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	80	0.039	1300	0.00055	47000	1300
Mixing/Loading Liquids for Groundboom application (15)	0.017	0.24	Leafy vegetables (endive, lettuce)	1.88	80	0.037	1400	0.00052	50000	1300
Mixing/Loading Liquids for Groundboom application (16)	0.017	0.24	Oilseed (cotton)	1.15	200	0.056	900	0.00079	33000	870
Mixing/Loading Liquids for Groundboom application (17)	0.017	0.24	Oilseed (cotton)	2.50	200	0.12	410	0.0017	15000	400
Mixing/Loading Liquids for Groundboom application (18)	0.017	0.24	Oilseed (flax)	0.50	80	0.0097	5100	0.00014	190000	5000
Mixing/Loading Liquids for Groundboom application (19)	0.017	0.24	Fruiting vegetables (eggplant, tomatoes)	3.43	80	0.067	750	0.00094	27000	730
Mixing/Loading Liquids for Groundboom application (20)	0.017	0.24	Fruiting vegetables (okra)	1.50	80	0.029	1700	0.00041	63000	1700
Mixing/Loading Liquids for Groundboom application (21)	0.017	0.24	Bulb vegetables (garlic, leeks, onion, shallots)	1.56	80	0.030	1700	0.00043	60000	1600
Mixing/Loading Liquids for Groundboom application (22)	0.017	0.24	Small fruits (strawberry)	2	80	0.039	1300	0.00055	47000	1300

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Groundboom application (23)	0.017	0.24	Forage grass (grass)	1.25	80	0.024	2100	0.00034	75000	2000
Mixing/Loading Liquids for Groundboom application (24)	0.017	0.24	Herbs and spices (mint)	0.94	80	0.018	2700	0.00026	100000	2700
Mixing/Loading Liquids for Groundboom application (25)	0.017	0.24	Herbs and spices (pepper)	1.56	80	0.030	1700	0.00043	60000	1600
Mixing/Loading Liquids for Groundboom application (26)	0.017	0.24	Legume vegetables (peas)	2.50	80	0.049	1000	0.00069	38000	1000
Mixing/Loading Liquids for Airblast application (27)	0.017	0.24	Pome fruits (apples, pear, quince)	1.25	40	0.012	4100	0.00017	150000	4000
Mixing/Loading Liquids for Airblast application (28)	0.017	0.24	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	40	0.036	1400	0.00051	50000	1300
Mixing/Loading Liquids for Airblast application (29)	0.017	0.24	Tropical and subtropical fruits (avocado)	4.70	40	0.046	1100	0.00064	40000	1100
Mixing/Loading Liquids for Airblast application (30)	0.017	0.24	Tropical and subtropical fruits (fig)	2.50	40	0.024	2100	0.00034	75000	2000
Mixing/Loading Liquids for Airblast application (31)	0.017	0.24	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	40	0.012	4100	0.00017	150000	4000
Mixing/Loading Liquids for Groundboom application (32)	0.017	0.24	Tropical and subtropical fruits (pineapples)	5	80	0.097	520	0.0014	19000	500
Mixing/Loading Liquids for Airblast application (33)	0.017	0.24	Tree nuts (chestnuts)	5	40	0.049	1000	0.00069	38000	1000
Mixing/Loading Liquids for Airblast application (34)	0.017	0.24	Tree nuts (macadamia nuts)	0.94	40	0.0091	5500	0.00013	200000	5300
Mixing/Loading Liquids for Airblast application (35)	0.017	0.24	Tree nuts (pecans, walnuts)	2.50	40	0.024	2100	0.00034	75000	2000
Mixing/Loading Liquids for Airblast application (36)	0.017	0.24	Citrus (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	40	0.061	820	0.00086	30000	800
Mixing/Loading Liquids for Airblast application (37)	0.017	0.24	Small fruits (grapes)	1.88	40	0.018	2700	0.00026	100000	2700
Mixing/Loading Liquids for Airblast application (38)	0.017	0.24	Herbs and spices (hops)	0.63	40	0.0061	8200	0.000086	300000	8000
Mixing/Loading Liquids for Aerial application (39)	0.017	0.24	Non-grass animal feed (alfalfa)	1.25	1200	0.36	140	0.0051	5000	130
Mixing/Loading Liquids for Aerial application (40)	0.017	0.24	Non-grass animal feed (clover, lespedeza, lupin, vetch)	1.25	350	0.11	470	0.0015	17000	460
Mixing/Loading Liquids for Aerial application (41)	0.017	0.24	Pome fruits (apples, pear, quince)	1.25	350	0.11	470	0.0015	17000	460
Mixing/Loading Liquids for Aerial application (42)	0.017	0.24	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach,)	3.75	350	0.32	160	0.0045	5700	150
Mixing/Loading Liquids for Aerial application (43)	0.017	0.24	Stalk and stem vegetables (asparagus)	1.25	350	0.11	470	0.0015	17000	460
Mixing/Loading Liquids for Aerial application (44)	0.017	0.24	Tropical and subtropical fruits (avocado)	4.70	350	0.40	130	0.0056	4600	120
Mixing/Loading Liquids for Aerial application (45)	0.017	0.24	Tropical and subtropical fruits (fig)	2.50	350	0.21	240	0.003	8600	230
Mixing/Loading Liquids for Aerial application (46)	0.017	0.24	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	0.11	470	0.0015	17000	460
Mixing/Loading Liquids for Aerial application (47)	0.017	0.24	Tropical and subtropical fruits (pineapples)	5	350	0.43	120	0.006	4300	110
Mixing/Loading Liquids for Aerial application (48)	0.017	0.24	Cereal grains (corn rice, wheat)	1.25	1200	0.36	140	0.0051	5000	130

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Aerial application (49)	0.017	0.24	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	350	0.11	470	0.0015	17000	460
Mixing/Loading Liquids for Aerial application (50)	0.017	0.24	Root and tuber vegetables (garden beets, carrot, root, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	0.11	470	0.0015	17000	460
Mixing/Loading Liquids for Aerial application (51)	0.017	0.24	Root and tuber vegetables (chayote root, potatoes, sweet potatoes, yams)	1.56	350	0.13	380	0.0019	14000	370
Mixing/Loading Liquids for Aerial application (52)	0.017	0.24	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry,)	2	350	0.17	290	0.0024	11000	290
Mixing/Loading Liquids for Aerial application (53)	0.017	0.24	Berries (blueberries)	1.25	350	0.11	470	0.0015	17000	460
Mixing/Loading Liquids for Aerial application (54)	0.017	0.24	Brassica and leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	0.11	470	0.0015	17000	460
Mixing/Loading Liquids for Aerial application (55)	0.017	0.24	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon,	1	350	0.085	590	0.0012	22000	570
Mixing/Loading Liquids for Aerial application (56)	0.017	0.24	Cucurbit (Cucumber, summer squash, chayote fruit)	1.88	350	0.16	310	0.0023	11000	300
Mixing/Loading Liquids for Aerial application (57)	0.017	0.24	Leafy vegetables (celery, watercress)	1.25	350	0.11	470	0.0015	17000	460
Mixing/Loading Liquids for Aerial application (58)	0.017	0.24	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	0.17	290	0.0024	11000	290
Mixing/Loading Liquids for Aerial application (59)	0.017	0.24	Leafy vegetables (endive, lettuce)	1.88	350	0.16	310	0.0023	11000	300
Mixing/Loading Liquids for Aerial application (60)	0.017	0.24	Tree nuts (chestnuts)	5	350	0.43	120	0.006	4300	110
Mixing/Loading Liquids for Aerial application (61)	0.017	0.24	Tree nuts (macadamia nuts)	0.94	350	0.080	630	0.0011	23000	610
Mixing/Loading Liquids for Aerial application (62)	0.017	0.24	Tree nuts (pecans, walnuts)	2.50	350	0.21	240	0.003	8600	230
Mixing/Loading Liquids for Aerial application (63)	0.017	0.24	Oilseed (cotton)	1.15	1200	0.34	150	0.0047	5500	150
Mixing/Loading Liquids for Aerial application (64)	0.017	0.24	Oilseed (cotton)	2.50	1200	0.73	69	0.010	2500	67
Mixing/Loading Liquids for Aerial application (65)	0.017	0.24	Oilseed (flax)	0.50	350	0.043	1200	0.0006	43000	1100
Mixing/Loading Liquids for Aerial application (66)	0.017	0.24	Citrus Fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	0.53	94	0.0075	3400	92
Mixing/Loading Liquids for Aerial application (67)	0.017	0.24	Forage grass (grass)	1.25	350	0.11	470	0.0015	17000	460
Mixing/Loading Liquids for Aerial application (68)	0.017	0.24	Legume vegetables (peas)	2.50	350	0.21	240	0.003	8600	230
Mixing/Loading Liquids for Chemigation application (69)	0.017	0.24	Non-grass animal feed (alfalfa, clover, lespedeza, lupin, vetch)	1.25	350	0.11	470	0.0015	17000	460
Mixing/Loading Liquids for Chemigation application (70)	0.017	0.24	Cereal grains (barley, corn, oats, rice, rye, sorghum, wheat, wild rice)	1.25	350	0.11	470	0.0015	17000	460

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Chemigation application (71)	0.017	0.24	Small fruits (strawberry)	2	350	0.17	290	0.0024	11000	290
Mixing/Loading Liquids for Chemigation application (72)	0.017	0.24	Herbs and spices (mint)	0.94	350	0.080	630	0.0011	23000	610
Mixing/Loading Liquids for Chemigation application (73)	0.017	0.24	Herbs and spices (pepper)	1.56	350	0.13	380	0.0019	14000	370
Mixing/Loading Liquids for Chemigation application (74)	0.017	0.24	Legume vegetables (peas)	2.50	350	0.21	240	0.003	8600	230
Wettable Powders for Aerial application (75)	0.13	8.6	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	1.3	38	0.086	300	34
Wettable Powders for Groundboom application (76)	0.13	8.6	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.30	170	0.020	1300	150
Wettable Powders for Groundboom application (77)	0.13	8.6	Small fruits (strawberry)	2	80	0.30	170	0.020	1300	150
Wettable Powders for Chemigation application (78)	0.13	8.6	Small fruits (strawberry)	2	350	1.3	38	0.086	300	34
Applicator										
Sprays for Groundboom application (79)	0.011	0.15	Non-grass animal feed(alfalfa)	1.25	200	0.039	1300	0.00054	48000	1200
Sprays for Groundboom application (80)	0.011	0.15	Non-grass animal feed(clover, lespedeza, lupin, vetch)	1.25	80	0.016	3200	0.00021	120000	3100
Sprays for Groundboom application (81)	0.011	0.15	Stalk and stem vegetables (asparagus)	1.25	80	0.016	3200	0.00021	120000	3100
Sprays for Groundboom application (82)	0.011	0.15	Cereal grains (corn, wheat, rice)	1.25	200	0.039	1300	0.00054	48000	1200
Sprays for Groundboom application (83)	0.011	0.15	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	80	0.016	3200	0.00021	120000	3100
Sprays for Groundboom application (84)	0.011	0.15	Roots and tuber vegetables(garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	80	0.016	3200	0.00021	120000	3100
Sprays for Groundboom application (85)	0.011	0.15	Root and tuber vegetables(chayote root, potatoes, sweet potato, yams)	1.56	80	0.020	2600	0.00027	96000	2500
Sprays for Groundboom application (86)	0.011	0.15	Berries(blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.025	2000	0.00034	75000	1900
Sprays for Groundboom application (87)	0.011	0.15	Berries(blueberries)	1.25	80	0.016	3200	0.00021	120000	3100
Sprays for Groundboom application (88)	0.011	0.15	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	80	0.016	3200	0.00021	120000	3100
Sprays for Groundboom application (89)	0.011	0.15	Cucurbit vegetables (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	80	0.013	4000	0.00017	150000	3900
Sprays for Groundboom application (90)	0.011	0.15	Cucurbit vegetables (cucumber, summer squash, chayote fruit)	1.88	80	0.024	2100	0.00032	80000	2100
Sprays for Groundboom application (91)	0.011	0.15	Leafy vegetables (celery, watercress)	1.25	80	0.016	3200	0.00021	120000	3100

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Sprays for Groundboom application (92)	0.011	0.15	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	80	0.025	2000	0.00034	75000	1900
Sprays for Groundboom application (93)	0.011	0.15	Leafy vegetables (endive, lettuce)	1.88	80	0.024	2100	0.00032	80000	2100
Sprays for Groundboom application (94)	0.011	0.15	Oilseed (cotton)	1.15	200	0.036	1400	0.00049	52000	1300
Sprays for Groundboom application (95)	0.011	0.15	Oilseed (cotton)	2.50	200	0.079	640	0.0011	24000	620
Sprays for Groundboom application (96)	0.011	0.15	Oilseed (flax)	0.50	80	0.0063	8000	0.000086	300000	7700
Sprays for Groundboom application (97)	0.011	0.15	Fruiting vegetables (eggplant, tomatoes)	3.43	80	0.043	1200	0.00059	44000	1100
Sprays for Groundboom application (98)	0.011	0.15	Fruiting vegetables (okra)	1.50	80	0.019	2700	0.00026	100000	2600
Sprays for Groundboom application (99)	0.011	0.15	Bulb vegetables (garlic, leeks, onion, shallots)	1.56	80	0.020	2600	0.00027	96000	2500
Sprays for Groundboom application (100)	0.011	0.15	Small fruits (strawberry)	2	80	0.025	2000	0.00034	75000	1900
Sprays for Groundboom application (101)	0.011	0.15	Forage grass (grass)	1.25	80	0.016	3200	0.00021	120000	3100
Sprays for Groundboom application (102)	0.011	0.15	Herbs and spices (mint)	0.94	80	0.012	4200	0.00016	160000	4100
Sprays for Groundboom application (103)	0.011	0.15	Herbs and spices (pepper)	1.56	80	0.020	2600	0.00027	96000	2500
Sprays for Groundboom application (104)	0.011	0.15	Legume vegetables (peas)	2.50	80	0.031	1600	0.00043	60000	1500
Sprays for Airblast application (105)	0.22	0.9	Pome fruits (apples, pear, quince)	1.25	40	0.16	320	0.00064	40000	320
Sprays for Airblast application (106)	0.22	0.9	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	40	0.47	110	0.0019	13000	110
Sprays for Airblast application (107)	0.22	0.9	Tropical and subtropical fruits (avocado)	4.70	40	0.59	85	0.0024	11000	84
Sprays for Airblast application (108)	0.22	0.9	Tropical and subtropical fruits (fig)	2.50	40	0.31	160	0.0013	20000	160
Sprays for Airblast application (109)	0.22	0.9	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	40	0.16	320	0.00064	40000	320
Sprays for Groundboom application (110)	0.011	0.15	Tropical and subtropical fruits (pineapples)	5	80	0.063	800	0.00086	30000	770
Sprays for Airblast application (111)	0.22	0.9	Tree nuts (chestnuts)	5	40	0.63	80	0.0026	10000	79
Sprays for Airblast application (112)	0.22	0.9	Tree nuts (macadamia nuts)	0.94	40	0.12	420	0.00048	53000	420
Sprays for Airblast application (113)	0.22	0.9	Tree nuts (pecans, walnuts)	2.50	40	0.31	160	0.0013	20000	160
Sprays for Airblast application (114)	0.22	0.9	Citrus (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	40	0.79	64	0.0032	8000	63
Sprays for Airblast application (115)	0.22	0.9	Small fruits (grapes)	1.88	40	0.24	210	0.00097	27000	210
Sprays for Airblast application (116)	0.22	0.9	Herbs and spices (hops)	0.63	40	0.079	630	0.00032	80000	630
Sprays for Aerial application (117)	No Data	No Data	Non-grass animal feed (alfalfa)	1.25	1200	No Data	No Data	No Data	No Data	No Data

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Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Sprays for Aerial application (118)	No Data	No Data	Non-grass animal feed (clover, lespedeza, lupin, vetch)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (119)	No Data	No Data	Pome fruits (apples, pear, quince)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (120)	No Data	No Data	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach,)	3.75	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (121)	No Data	No Data	Stalk and stem vegetables (asparagus)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (122)	No Data	No Data	Tropical and subtropical fruits (avocado)	4.70	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (123)	No Data	No Data	Tropical and subtropical fruits (fig)	2.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (124)	No Data	No Data	Tropical and subtropical fruits (guava, mango ,passion fruit)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (125)	No Data	No Data	Tropical and subtropical fruits (pineapples)	5	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (126)	No Data	No Data	Cereal grains (corn rice, wheat)	1.25	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (127)	No Data	No Data	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (128)	No Data	No Data	Root and tuber vegetables (garden beets, carrot, root, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (129)	No Data	No Data	Root and tuber vegetables (chayote root, potatoes, sweet potatoes, yams)	1.56	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (130)	No Data	No Data	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry,)	2	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (131)	No Data	No Data	Berries (blueberries)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (132)	No Data	No Data	Brassica and leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (133)	No Data	No Data	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (134)	No Data	No Data	Cucurbit (Cucumber, summer squash, chayote fruit)	1.88	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (135)	No Data	No Data	Leafy vegetables (celery, watercress)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (136)	No Data	No Data	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (137)	No Data	No Data	Leafy vegetables (endive, lettuce)	1.88	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (138)	No Data	No Data	Tree nuts (chestnuts)	5	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (139)	No Data	No Data	Tree nuts (macadamia nuts)	0.94	350	No Data	No Data	No Data	No Data	No Data

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Sprays for Aerial application (140)	No Data	No Data	Tree nuts (pecans, walnuts)	2.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (141)	No Data	No Data	Oilseed (cotton)	1.15	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (142)	No Data	No Data	Oilseed (cotton)	2.50	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (143)	No Data	No Data	Oilseed (flax)	0.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (144)	No Data	No Data	Citrus Fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (145)	No Data	No Data	Forage grass (grass)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (146)	No Data	No Data	Legume vegetables (peas)	2.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (147)	No Data	No Data	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	No Data	No Data	No Data	No Data	No Data
Flagger										
Flagging for Sprays application (148)	0.01	0.07	Non-grass animal feed (alfalfa, clover, lespedeza, lupin, vetch)	1.25	350	0.063	800	0.00044	59000	790
Flagging for Sprays application (149)	0.01	0.07	Pome fruits (apples, pear, quince)	1.25	350	0.063	800	0.00044	59000	790
Flagging for Sprays application (150)	0.01	0.07	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	350	0.19	270	0.0013	20000	260
Flagging for Sprays application (151)	0.01	0.07	Tropical and subtropical fruits (avocado)	4.70	350	0.24	210	0.0016	16000	210
Flagging for Sprays application (152)	0.01	0.07	Tropical and subtropical fruits (fig)	2.50	350	0.13	400	0.00088	29000	390
Flagging for Sprays application (153)	0.01	0.07	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	0.063	800	0.00044	59000	790
Flagging for Sprays application (154)	0.01	0.07	Tropical and subtropical fruits (pineapples)	5	350	0.25	200	0.0018	15000	200
Flagging for Sprays application (155)	0.01	0.07	Cereal grains (barley, corn, oats, rice, rye, sorghum, wheat, wild rice)	1.25	350	0.063	800	0.00044	59000	790
Flagging for Sprays application (156)	0.01	0.07	Root and tuber vegetables (garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	0.063	800	0.00044	59000	790
Flagging for Sprays application (157)	0.01	0.07	Root and tuber vegetables (potatoes, sweet potatoes, chayote root, yams)	1.56	350	0.078	640	0.00055	47000	630
Flagging for Sprays application (158)	0.01	0.07	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	0.1	500	0.0007	37000	490
Flagging for Sprays application (159)	0.01	0.07	Berries (blueberries)	1.25	350	0.063	800	0.00044	59000	790
Flagging for Sprays application (160)	0.01	0.07	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	0.063	800	0.00044	59000	790

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Flagging for Sprays application (161)	0.01	0.07	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	350	0.05	1000	0.00035	74000	990
Flagging for Sprays application (162)	0.01	0.07	Cucurbit (cucumber, summer squash, chayote fruit)	1.88	350	0.094	530	0.00066	39000	520
Flagging for Sprays application (163)	0.01	0.07	Leafy vegetables (celery, watercress)	1.25	350	0.063	800	0.00044	59000	790
Flagging for Sprays application (164)	0.01	0.07	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	0.1	500	0.0007	37000	490
Flagging for Sprays application (165)	0.01	0.07	Leafy vegetables (endive, lettuce)	1.88	350	0.094	530	0.00066	39000	520
Flagging for Sprays application (166)	0.01	0.07	Tree nuts (chestnuts)	5	350	0.25	200	0.0018	15000	200
Flagging for Sprays application (167)	0.01	0.07	Tree nuts (macadamia nuts)	0.94	350	0.047	1100	0.00033	78000	1000
Flagging for Sprays application (168)	0.01	0.07	Tree nuts (pecans, walnuts)	2.50	350	0.13	400	0.00088	29000	390
Flagging for Sprays application (169)	0.01	0.07	Oilseed (cotton)	2.50	350	0.13	400	0.00088	29000	390
Flagging for Sprays application (170)	0.01	0.07	Oilseed (cotton)	1.15	350	0.058	870	0.00040	64000	860
Flagging for Sprays application (171)	0.01	0.07	Oilseed (flax)	0.50	350	0.025	2000	0.00018	150000	2000
Flagging for Sprays application (172)	0.01	0.07	Citrus fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	0.31	160	0.0022	12000	160
Flagging for Sprays application (173)	0.01	0.07	Forage grass (grass)	1.25	350	0.063	800	0.00044	59000	790
Flagging for Sprays application (174)	0.01	0.07	Legume vegetables (peas)	2.50	350	0.13	400	0.00088	29000	390

[1]PPE5 dermal unit exposures represent coveralls worn over long pants and long sleeved shirts plus chemical-resistant gloves. Values are reported in the PHED Surrogate Exposure Guide dated August 1998 or are from data submitted by the Outdoor Residential Exposure Task Force dated May 2000.

[2]PPE5 inhalation unit exposures represent a dust/mist respirator with a protection factor of 5. Values are reported in the PHED Surrogate Exposure Guide dated August 1998 or are from data submitted by the Outdoor Residential Exposure Task Force dated May 2000.

[3]Crops and use patterns are from submissions by the primary producer, Cheminova, or found in various sources including LUIS and various labels.

[4]Application rates are based primarily on maximum rates used in residue field trial studies and supported by the primary producer, Cheminova, or found in various sources including LUIS and various labels. Most application rates upon which the analysis is based are presented as lb ai/A. In some cases, the application rate is based on applying a solution at concentrations specified by the label (i.e., presented as lb ai/gallon).

[5]Amount treated is based on the area or gallons that can be reasonably applied in a single day for each exposure scenario of concern based on the application method and formulation/packaging type. (Standard EPA/OPP/HED values).

[6]Dermal dose (mg/kg/day) = [unit exposure (mg/lb ai) * Dermal absorption (100%) * Application rate (lb ai/acre or lb ai/gallon) * Daily area treated (acres or gallons)] / Body weight (70 kg).

[7]Dermal MOE = Dermal NOAEL (50 mg/kg/day) / Daily Dermal Dose. Target Dermal MOE is 100.

[8]Inhalation dose (mg/kg/day) = [unit exposure (ug/lb ai) * 0.001 mg/ g unit conversion * Inhalation absorption (100%) * Application rate (lb ai/acre or lb ai/gallon) * Daily area treated (acres or gallons)] / Body weight (70 kg).

[9]Inhalation MOE = Inhalation LOAEL (25.8 mg/kg/day) / Daily Inhalation Dose. Target Inhalation MOE is 1000.

Short Term and Intermediate-Term Risk with PPE 6 (Double Layer Protection, Gloves, PF10 Respirator) for Malathion

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crop)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixer/Loader										
Mixing/Loading Liquids for Groundboom application (1)	0.017	0.12	Non-grass animal feed(alfalfa)	1.25	200	0.061	820	0.00043	60000	810
Mixing/Loading Liquids for Groundboom application (2)	0.017	0.12	Non-grass animal feed(clover, lespedeza, lupin, vetch)	1.25	80	0.024	2100	0.00017	150000	2000
Mixing/Loading Liquids for Groundboom application (3)	0.017	0.12	Stalk and stem vegetables (asparagus)	1.25	80	0.024	2100	0.00017	150000	2000
Mixing/Loading Liquids for Groundboom application (4)	0.017	0.12	Cereal grains (corn, wheat, rice)	1.25	200	0.061	820	0.00043	60000	810
Mixing/Loading Liquids for Groundboom application (5)	0.017	0.12	Cereal grains (barley, oats ,rye, sorghum, wild rice)	1.25	80	0.024	2100	0.00017	150000	2000
Mixing/Loading Liquids for Groundboom application (6)	0.017	0.12	Roots and tuber vegetables(garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	80	0.024	2100	0.00017	150000	2000
Mixing/Loading Liquids for Groundboom application (7)	0.017	0.12	Root and tuber vegetables(chayote root, potatoes, sweet potato, yams)	1.56	80	0.030	1700	0.00021	120000	1600
Mixing/Loading Liquids for Groundboom application (8)	0.017	0.12	Berries(blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.039	1300	0.00027	94000	1300
Mixing/Loading Liquids for Groundboom application (9)	0.017	0.12	Berries(blueberries)	1.25	80	0.024	2100	0.00017	150000	2000
Mixing/Loading Liquids for Groundboom application (10)	0.017	0.12	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	80	0.024	2100	0.00017	150000	2000
Mixing/Loading Liquids for Groundboom application (11)	0.017	0.12	Cucurbit vegetables (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	80	0.019	2600	0.00014	190000	2500
Mixing/Loading Liquids for Groundboom application (12)	0.017	0.12	Cucurbit vegetables (cucumber, summer squash, chayote fruit)	1.88	80	0.037	1400	0.00026	100000	1400
Mixing/Loading Liquids for Groundboom application (13)	0.017	0.12	Leafy vegetables (celery, watercress)	1.25	80	0.024	2100	0.00017	150000	2000
Mixing/Loading Liquids for Groundboom application (14)	0.017	0.12	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	80	0.039	1300	0.00027	94000	1300
Mixing/Loading Liquids for Groundboom application (15)	0.017	0.12	Leafy vegetables (endive, lettuce)	1.88	80	0.037	1400	0.00026	100000	1400
Mixing/Loading Liquids for Groundboom application (16)	0.017	0.12	Oilseed (cotton)	1.15	200	0.056	900	0.00039	65000	880
Mixing/Loading Liquids for Groundboom application (17)	0.017	0.12	Oilseed (cotton)	2.50	200	0.12	410	0.00086	30000	410
Mixing/Loading Liquids for Groundboom application (18)	0.017	0.12	Oilseed (flax)	0.50	80	0.0097	5100	0.000069	380000	5100
Mixing/Loading Liquids for Groundboom application (19)	0.017	0.12	Fruiting vegetables (eggplant, tomatoes)	3.43	80	0.067	750	0.00047	55000	740

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crop)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Groundboom application (20)	0.017	0.12	Fruiting vegetables (okra)	1.50	80	0.029	1700	0.00021	130000	1700
Mixing/Loading Liquids for Groundboom application (21)	0.017	0.12	Bulb vegetables (garlic, leeks, onion, shallots)	1.56	80	0.030	1700	0.00021	120000	1600
Mixing/Loading Liquids for Groundboom application (22)	0.017	0.12	Small fruits (strawberry)	2	80	0.039	1300	0.00027	94000	1300
Mixing/Loading Liquids for Groundboom application (23)	0.017	0.12	Forage grass (grass)	1.25	80	0.024	2100	0.00017	150000	2000
Mixing/Loading Liquids for Groundboom application (24)	0.017	0.12	Herbs and spices (mint)	0.94	80	0.018	2700	0.00013	200000	2700
Mixing/Loading Liquids for Groundboom application (25)	0.017	0.12	Herbs and spices (pepper)	1.56	80	0.030	1700	0.00021	120000	1600
Mixing/Loading Liquids for Groundboom application (26)	0.017	0.12	Legume vegetables (peas)	2.50	80	0.049	1000	0.00034	75000	1000
Mixing/Loading Liquids for Airblast application (27)	0.017	0.12	Pome fruits (apples, pear, quince)	1.25	40	0.012	4100	0.000086	300000	4100
Mixing/Loading Liquids for Airblast application (28)	0.017	0.12	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	40	0.036	1400	0.00026	100000	1400
Mixing/Loading Liquids for Airblast application (29)	0.017	0.12	Tropical and subtropical fruits (avocado)	4.70	40	0.046	1100	0.00032	80000	1100
Mixing/Loading Liquids for Airblast application (30)	0.017	0.12	Tropical and subtropical fruits (fig)	2.50	40	0.024	2100	0.00017	150000	2000
Mixing/Loading Liquids for Airblast application (31)	0.017	0.12	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	40	0.012	4100	0.000086	300000	4100
Mixing/Loading Liquids for Groundboom application (32)	0.017	0.12	Tropical and subtropical fruits (pineapples)	5	80	0.097	520	0.00069	38000	510
Mixing/Loading Liquids for Airblast application (33)	0.017	0.12	Tree nuts (chestnuts)	5	40	0.049	1000	0.00034	75000	1000
Mixing/Loading Liquids for Airblast application (34)	0.017	0.12	Tree nuts (macadamia nuts)	0.94	40	0.0091	5500	0.000064	400000	5400
Mixing/Loading Liquids for Airblast application (35)	0.017	0.12	Tree nuts (pecans, walnuts)	2.50	40	0.024	2100	0.00017	150000	2000
Mixing/Loading Liquids for Airblast application (36)	0.017	0.12	Citrus (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	40	0.061	820	0.00043	60000	810
Mixing/Loading Liquids for Airblast application (37)	0.017	0.12	Small fruits (grapes)	1.88	40	0.018	2700	0.00013	200000	2700
Mixing/Loading Liquids for Airblast application (38)	0.017	0.12	Herbs and spices (hops)	0.63	40	0.0061	8200	0.000043	600000	8100
Mixing/Loading Liquids for Aerial application (39)	0.017	0.12	Non-grass animal feed (alfalfa)	1.25	1200	0.36	140	0.0026	10000	140
Mixing/Loading Liquids for Aerial application (40)	0.017	0.12	Non-grass animal feed (clover, lespedeza, lupin, vetch)	1.25	350	0.11	470	0.00075	34000	460
Mixing/Loading Liquids for Aerial application (41)	0.017	0.12	Pome fruits (apples, pear, quince)	1.25	350	0.11	470	0.00075	34000	460

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crop)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Aerial application (42)	0.017	0.12	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach,)	3.75	350	0.32	160	0.0023	11000	150
Mixing/Loading Liquids for Aerial application (43)	0.017	0.12	Stalk and stem vegetables (asparagus)	1.25	350	0.11	470	0.00075	34000	460
Mixing/Loading Liquids for Aerial application (44)	0.017	0.12	Tropical and subtropical fruits (avocado)	4.70	350	0.40	130	0.0028	9100	120
Mixing/Loading Liquids for Aerial application (45)	0.017	0.12	Tropical and subtropical fruits (fig)	2.50	350	0.21	240	0.0015	17000	230
Mixing/Loading Liquids for Aerial application (46)	0.017	0.12	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	0.11	470	0.00075	34000	460
Mixing/Loading Liquids for Aerial application (47)	0.017	0.12	Tropical and subtropical fruits (pineapples)	5	350	0.43	120	0.003	8600	120
Mixing/Loading Liquids for Aerial application (48)	0.017	0.12	Cereal grains (corn rice, wheat)	1.25	1200	0.36	140	0.0026	10000	140
Mixing/Loading Liquids for Aerial application (49)	0.017	0.12	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	350	0.11	470	0.00075	34000	460
Mixing/Loading Liquids for Aerial application (50)	0.017	0.12	Root and tuber vegetables (garden beets, carrot, root, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	0.11	470	0.00075	34000	460
Mixing/Loading Liquids for Aerial application (51)	0.017	0.12	Root and tuber vegetables (chayote root, potatoes, sweet potatoes, yams)	1.56	350	0.13	380	0.00094	28000	370
Mixing/Loading Liquids for Aerial application (52)	0.017	0.12	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry,)	2	350	0.17	290	0.0012	22000	290
Mixing/Loading Liquids for Aerial application (53)	0.017	0.12	Berries (blueberries)	1.25	350	0.11	470	0.00075	34000	460
Mixing/Loading Liquids for Aerial application (54)	0.017	0.12	Brassica and leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	0.11	470	0.00075	34000	460
Mixing/Loading Liquids for Aerial application (55)	0.017	0.12	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon.	1	350	0.085	590	0.0006	43000	580
Mixing/Loading Liquids for Aerial application (56)	0.017	0.12	Cucurbit (Cucumber, summer squash, chayote fruit)	1.88	350	0.16	310	0.0011	23000	310
Mixing/Loading Liquids for Aerial application (57)	0.017	0.12	Leafy vegetables (celery, watercress)	1.25	350	0.11	470	0.00075	34000	460
Mixing/Loading Liquids for Aerial application (58)	0.017	0.12	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	0.17	290	0.0012	22000	290
Mixing/Loading Liquids for Aerial application (59)	0.017	0.12	Leafy vegetables (endive, lettuce)	1.88	350	0.16	310	0.0011	23000	310
Mixing/Loading Liquids for Aerial application (60)	0.017	0.12	Tree nuts (chestnuts)	5	350	0.43	120	0.003	8600	120
Mixing/Loading Liquids for Aerial application (61)	0.017	0.12	Tree nuts (macadamia nuts)	0.94	350	0.080	630	0.00056	46000	620
Mixing/Loading Liquids for Aerial application (62)	0.017	0.12	Tree nuts (pecans, walnuts)	2.50	350	0.21	240	0.0015	17000	230
Mixing/Loading Liquids for Aerial application (63)	0.017	0.12	Oilseed (cotton)	1.15	1200	0.34	150	0.0024	11000	150
Mixing/Loading Liquids for Aerial application (64)	0.017	0.12	Oilseed (cotton)	2.50	1200	0.73	69	0.0051	5000	68

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crop)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Aerial application (65)	0.017	0.12	Oilseed (flax)	0.50	350	0.043	1200	0.0003	86000	1200
Mixing/Loading Liquids for Aerial application (66)	0.017	0.12	Citrus Fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	0.53	94	0.0038	6900	93
Mixing/Loading Liquids for Aerial application (67)	0.017	0.12	Forage grass (grass)	1.25	350	0.11	470	0.00075	34000	460
Mixing/Loading Liquids for Aerial application (68)	0.017	0.12	Legume vegetables (peas)	2.50	350	0.21	240	0.0015	17000	230
Mixing/Loading Liquids for Chemigation application (69)	0.017	0.12	Non-grass animal feed (alfalfa, clover, lespedeza, lupin, vetch)	1.25	350	0.11	470	0.00075	34000	460
Mixing/Loading Liquids for Chemigation application (70)	0.017	0.12	Cereal grains (barley, corn, oats, rice, rye, sorghum, wheat, wild rice)	1.25	350	0.11	470	0.00075	34000	460
Mixing/Loading Liquids for Chemigation application (71)	0.017	0.12	Small fruits (strawberry)	2	350	0.17	290	0.0012	22000	290
Mixing/Loading Liquids for Chemigation application (72)	0.017	0.12	Herbs and spices (mint)	0.94	350	0.080	630	0.00056	46000	620
Mixing/Loading Liquids for Chemigation application (73)	0.017	0.12	Herbs and spices (pepper)	1.56	350	0.13	380	0.00094	28000	370
Mixing/Loading Liquids for Chemigation application (74)	0.017	0.12	Legume vegetables (peas)	2.50	350	0.21	240	0.0015	17000	230
Wettable Powders for Aerial application (75)	0.13	4.3	Berries (blackberry ,boysenberry, dewberry, loganberry, raspberry)	2	350	1.3	38	0.043	600	36
Wettable Powders for Groundboom application (76)	0.13	4.3	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.30	170	0.0098	2600	160
Wettable Powders for Groundboom application (77)	0.13	4.3	Small fruits (strawberry)	2	80	0.30	170	0.0098	2600	160
Wettable Powders for Chemigation application (78)	0.13	4.3	Small fruits (strawberry)	2	350	1.3	38	0.043	600	36
Applicator										
Sprays for Groundboom application (79)	0.011	0.074	Non-grass animal feed(alfalfa)	1.25	200	0.039	1300	0.00026	98000	1300
Sprays for Groundboom application (80)	0.011	0.074	Non-grass animal feed(clover, lespedeza, lupin, vetch)	1.25	80	0.016	3200	0.00011	240000	3100
Sprays for Groundboom application (81)	0.011	0.074	Stalk and stem vegetables (asparagus)	1.25	80	0.016	3200	0.00011	240000	3100
Sprays for Groundboom application (82)	0.011	0.074	Cereal grains (corn, wheat ,rice)	1.25	200	0.039	1300	0.00026	98000	1300
Sprays for Groundboom application (83)	0.011	0.074	Cereal grains (barley, oats ,rye, sorghum, wild rice)	1.25	80	0.016	3200	0.00011	240000	3100
Sprays for Groundboom application (84)	0.011	0.074	Roots and tuber vegetables(garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	80	0.016	3200	0.00011	240000	3100
Sprays for Groundboom application (85)	0.011	0.074	Root and tuber vegetables(chayote root, potatoes, sweet potato, yams)	1.56	80	0.020	2600	0.00013	200000	2500
Sprays for Groundboom application (86)	0.011	0.074	Berries(blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.025	2000	0.00017	150000	2000

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crop)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Sprays for Groundboom application (87)	0.011	0.074	Berries(blueberries)	1.25	80	0.016	3200	0.00011	240000	3100
Sprays for Groundboom application (88)	0.011	0.074	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	80	0.016	3200	0.00011	240000	3100
Sprays for Groundboom application (89)	0.011	0.074	Cucurbit vegetables (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	80	0.013	4000	0.000085	310000	3900
Sprays for Groundboom application (90)	0.011	0.074	Cucurbit vegetables (cucumber, summer squash, chayote fruit)	1.88	80	0.024	2100	0.00016	160000	2100
Sprays for Groundboom application (91)	0.011	0.074	Leafy vegetables (celery, watercress)	1.25	80	0.016	3200	0.00011	240000	3100
Sprays for Groundboom application (92)	0.011	0.074	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	80	0.025	2000	0.00017	150000	2000
Sprays for Groundboom application (93)	0.011	0.074	Leafy vegetables (endive, lettuce)	1.88	80	0.024	2100	0.00016	160000	2100
Sprays for Groundboom application (94)	0.011	0.074	Oilseed (cotton)	1.15	200	0.036	1400	0.00024	110000	1400
Sprays for Groundboom application (95)	0.011	0.074	Oilseed (cotton)	2.50	200	0.079	640	0.00053	49000	630
Sprays for Groundboom application (96)	0.011	0.074	Oilseed (flax)	0.50	80	0.0063	8000	0.000042	610000	7900
Sprays for Groundboom application (97)	0.011	0.074	Fruiting vegetables (eggplant, tomatoes)	3.43	80	0.043	1200	0.00029	89000	1100
Sprays for Groundboom application (98)	0.011	0.074	Fruiting vegetables (okra)	1.50	80	0.019	2700	0.00013	200000	2600
Sprays for Groundboom application (99)	0.011	0.074	Bulb vegetables (garlic, leeks, onion, shallots)	1.56	80	0.020	2600	0.00013	200000	2500
Sprays for Groundboom application (100)	0.011	0.074	Small fruits (strawberry)	2	80	0.025	2000	0.00017	150000	2000
Sprays for Groundboom application (101)	0.011	0.074	Forage grass (grass)	1.25	80	0.016	3200	0.00011	240000	3100
Sprays for Groundboom application (102)	0.011	0.074	Herbs and spices (mint)	0.94	80	0.012	4200	0.000079	320000	4200
Sprays for Groundboom application (103)	0.011	0.074	Herbs and spices (pepper)	1.56	80	0.020	2600	0.00013	200000	2500
Sprays for Groundboom application (104)	0.011	0.074	Legume vegetables (peas)	2.50	80	0.031	1600	0.00021	120000	1600
Sprays for Airblast application (105)	0.22	0.45	Pome fruits (apples, pear, quince)	1.25	40	0.16	320	0.00032	80000	320
Sprays for Airblast application (106)	0.22	0.45	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	40	0.47	110	0.00096	27000	110
Sprays for Airblast application (107)	0.22	0.45	Tropical and subtropical fruits (avocado)	4.70	40	0.59	85	0.0012	21000	84
Sprays for Airblast application (108)	0.22	0.45	Tropical and subtropical fruits (fig)	2.50	40	0.31	160	0.00064	40000	160
Sprays for Airblast application (109)	0.22	0.45	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	40	0.16	320	0.00032	80000	320
Sprays for Groundboom application (110)	0.011	0.074	Tropical and subtropical fruits (pineapples)	5	80	0.063	800	0.00042	61000	790
Sprays for Airblast application (111)	0.22	0.45	Tree nuts (chestnuts)	5	40	0.63	80	0.0013	20000	79

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crop)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Sprays for Airblast application (112)	0.22	0.45	Tree nuts (macadamia nuts)	0.94	40	0.12	420	0.00024	110000	420
Sprays for Airblast application (113)	0.22	0.45	Tree nuts (pecans, walnuts)	2.50	40	0.31	160	0.00064	40000	160
Sprays for Airblast application (114)	0.22	0.45	Citrus (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	40	0.79	64	0.0016	16000	63
Sprays for Airblast application (115)	0.22	0.45	Small fruits (grapes)	1.88	40	0.24	210	0.00048	53000	210
Sprays for Airblast application (116)	0.22	0.45	Herbs and spices (hops)	0.63	40	0.079	630	0.00016	160000	630
Sprays for Aerial application (117)	No Data	No Data	Non-grass animal feed (alfalfa)	1.25	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (118)	No Data	No Data	Non-grass animal feed (clover, lespedeza, lupin, vetch)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (119)	No Data	No Data	Pome fruits (apples, pear, quince)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (120)	No Data	No Data	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach,)	3.75	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (121)	No Data	No Data	Stalk and stem vegetables (asparagus)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (122)	No Data	No Data	Tropical and subtropical fruits (avocado)	4.70	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (123)	No Data	No Data	Tropical and subtropical fruits (fig)	2.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (124)	No Data	No Data	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (125)	No Data	No Data	Tropical and subtropical fruits (pineapples)	5	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (126)	No Data	No Data	Cereal grains (corn rice, wheat)	1.25	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (127)	No Data	No Data	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (128)	No Data	No Data	Root and tuber vegetables (garden beets, carrot, root, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (129)	No Data	No Data	Root and tuber vegetables (chayote root, potatoes, sweet potatoes, yams)	1.56	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (130)	No Data	No Data	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry,)	2	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (131)	No Data	No Data	Berries (blueberries)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (132)	No Data	No Data	Brassica and leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (133)	No Data	No Data	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	350	No Data	No Data	No Data	No Data	No Data

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop groups (crop)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Sprays for Aerial application (134)	No Data	No Data	Cucurbit (Cucumber, summer squash, chayote fruit)	1.88	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (135)	No Data	No Data	Leafy vegetables (celery, watercress)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (136)	No Data	No Data	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (137)	No Data	No Data	Leafy vegetables (endive, lettuce)	1.88	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (138)	No Data	No Data	Tree nuts (chestnuts)	5	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (139)	No Data	No Data	Tree nuts (macadamia nuts)	0.94	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (140)	No Data	No Data	Tree nuts (pecans, walnuts)	2.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (141)	No Data	No Data	Oilseed (cotton)	1.15	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (142)	No Data	No Data	Oilseed (cotton)	2.50	1200	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (143)	No Data	No Data	Oilseed (flax)	0.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (144)	No Data	No Data	Citrus Fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (145)	No Data	No Data	Forage grass (grass)	1.25	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (146)	No Data	No Data	Legume vegetables (peas)	2.50	350	No Data	No Data	No Data	No Data	No Data
Sprays for Aerial application (147)	No Data	No Data	Berries (blackberry ,boysenberry, dewberry, loganberry, raspberry)	2	350	No Data	No Data	No Data	No Data	No Data
Flagger										
Flagging for Sprays application (148)	0.01	0.035	Non-grass animal feed (alfalfa, clover, lespedeza, lupin, vetch)	1.25	350	0.063	800	0.00022	120000	790
Flagging for Sprays application (149)	0.01	0.035	Pome fruits (apples, pear, quince)	1.25	350	0.063	800	0.00022	120000	790
Flagging for Sprays application (150)	0.01	0.035	stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	350	0.19	270	0.00066	39000	260
Flagging for Sprays application (151)	0.01	0.035	Tropical and subtropical fruits (avocado)	4.70	350	0.24	210	0.00082	31000	210
Flagging for Sprays application (152)	0.01	0.035	Tropical and subtropical fruits (fig)	2.50	350	0.13	400	0.00044	59000	400
Flagging for Sprays application (153)	0.01	0.035	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	0.063	800	0.00022	120000	790
Flagging for Sprays application (154)	0.01	0.035	Tropical and subtropical fruits (pineapples)	5	350	0.25	200	0.00088	29000	200
Flagging for Sprays application (155)	0.01	0.035	Cereal grains (barley, corn, oats, rice, rye, sorghum, wheat, wild rice)	1.25	350	0.063	800	0.00022	120000	790
Flagging for Sprays application (156)	0.01	0.035	Root and tuber vegetables (garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	0.063	800	0.00022	120000	790

Short Term and Intermediate-term Risk with Engineering Control forMalathion

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop Groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixer/Loader										
Mixing/Loading Liquids for Groundboom application (1)	0.0086	0.083	Non-grass animal feed(alfalfa)	1.25	200	0.031	1600	0.00030	87000	1600
Mixing/Loading Liquids for Groundboom application (2)	0.0086	0.083	Non-grass animal feed(clover, lespedeza, lupin, vetch)	1.25	80	0.012	4100	0.00012	220000	4000
Mixing/Loading Liquids for Groundboom application (3)	0.0086	0.083	Stalk and stem vegetables (asparagus)	1.25	80	0.012	4100	0.00012	220000	4000
Mixing/Loading Liquids for Groundboom application (4)	0.0086	0.083	Cereal grains (corn, wheat, rice)	1.25	200	0.031	1600	0.00030	87000	1600
Mixing/Loading Liquids for Groundboom application (5)	0.0086	0.083	Cereal grains (barley, oats ,rye, sorghum, wild rice)	1.25	80	0.012	4100	0.00012	220000	4000
Mixing/Loading Liquids for Groundboom application (6)	0.0086	0.083	Roots and tuber vegetables(garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	80	0.012	4100	0.00012	220000	4000
Mixing/Loading Liquids for Groundboom application (7)	0.0086	0.083	Root and tuber vegetables(chayote root, potatoes, sweet potato, yams)	1.56	80	0.015	3300	0.00015	170000	3200
Mixing/Loading Liquids for Groundboom application (8)	0.0086	0.083	Berries(blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.020	2500	0.00019	140000	2500
Mixing/Loading Liquids for Groundboom application (9)	0.0086	0.083	Berries(blueberries)	1.25	80	0.012	4100	0.00012	220000	4000
Mixing/Loading Liquids for Groundboom application (10)	0.0086	0.083	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	80	0.012	4100	0.00012	220000	4000
Mixing/Loading Liquids for Groundboom application (11)	0.0086	0.083	Cucurbit vegetables (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	80	0.0098	5100	0.000095	270000	5000
Mixing/Loading Liquids for Groundboom application (12)	0.0086	0.083	Cucurbit vegetables (cucumber, summer squash, chayote fruit)	1.88	80	0.018	2700	0.00018	140000	2700
Mixing/Loading Liquids for Groundboom application (13)	0.0086	0.083	Leafy vegetables (celery, watercress)	1.25	80	0.012	4100	0.00012	220000	4000
Mixing/Loading Liquids for Groundboom application (14)	0.0086	0.083	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	80	0.020	2500	0.00019	140000	2500
Mixing/Loading Liquids for Groundboom application (15)	0.0086	0.083	Leafy vegetables (endive, lettuce)	1.88	80	0.018	2700	0.00018	140000	2700
Mixing/Loading Liquids for Groundboom application (16)	0.0086	0.083	Oilseed (cotton)	1.15	200	0.028	1800	0.00027	95000	1700

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop Groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Groundboom application (17)	0.0086	0.083	Oilseed (cotton)	2.50	200	0.061	810	0.00059	44000	800
Mixing/Loading Liquids for Groundboom application (18)	0.0086	0.083	Oilseed (flax)	0.50	80	0.0049	10000	0.000047	540000	1000
Mixing/Loading Liquids for Groundboom application (19)	0.0086	0.083	Fruiting vegetables (eggplant, tomatoes)	3.43	80	0.034	1500	0.00033	79000	1500
Mixing/Loading Liquids for Groundboom application (20)	0.0086	0.083	Fruiting vegetables (okra)	1.50	80	0.015	3400	0.00014	180000	3300
Mixing/Loading Liquids for Groundboom application (21)	0.0086	0.083	Bulb vegetables (garlic, leeks, onion, shallots)	1.56	80	0.015	3300	0.00015	170000	3200
Mixing/Loading Liquids for Groundboom application (22)	0.0086	0.083	Small fruits (strawberry)	2	80	0.020	2500	0.00019	140000	2500
Mixing/Loading Liquids for Groundboom application (23)	0.0086	0.083	Forage grass (grass)	1.25	80	0.012	4100	0.00012	220000	4000
Mixing/Loading Liquids for Groundboom application (24)	0.0086	0.083	Herbs and spices (mint)	0.94	80	0.0092	5400	0.000089	290000	5300
Mixing/Loading Liquids for Groundboom application (25)	0.0086	0.083	Herbs and spices (pepper)	1.56	80	0.015	3300	0.00015	170000	3200
Mixing/Loading Liquids for Groundboom application (26)	0.0086	0.083	Legume vegetables (peas)	2.50	80	0.025	2000	0.00024	110000	2000
Mixing/Loading Liquids for Airblast application (27)	0.0086	0.083	Pome fruits (apples, pear, quince)	1.25	40	0.0061	8100	0.000059	440000	8000
Mixing/Loading Liquids for Airblast application (28)	0.0086	0.083	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	40	0.018	2700	0.00018	150000	2700
Mixing/Loading Liquids for Airblast application (29)	0.0086	0.083	Tropical and subtropical fruits (avocado)	4.70	40	0.023	2200	0.00022	120000	2100
Mixing/Loading Liquids for Airblast application (30)	0.0086	0.083	Tropical and subtropical fruits (fig)	2.50	40	0.012	4100	0.00012	220000	4000
Mixing/Loading Liquids for Airblast application (31)	0.0086	0.083	Tropical and subtropical fruits (guava, mango ,passion fruit)	1.25	40	0.0061	8100	0.000059	440000	8000
Mixing/Loading Liquids for Groundboom application (32)	0.0086	0.083	Tropical and subtropical fruits (pineapples)	5	80	0.049	1000	0.00047	54000	100
Mixing/Loading Liquids for Airblast application (33)	0.0086	0.083	Tree nuts (chestnuts)	5	40	0.025	2000	0.00024	110000	2000
Mixing/Loading Liquids for Airblast application (34)	0.0086	0.083	Tree nuts (macadamia nuts)	0.94	40	0.0046	11000	0.000045	580000	11000
Mixing/Loading Liquids for Airblast application (35)	0.0086	0.083	Tree nuts (pecans, walnuts)	2.50	40	0.012	4100	0.00012	220000	4000
Mixing/Loading Liquids for Airblast application (36)	0.0086	0.083	Citrus (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	40	0.031	1600	0.00030	87000	1600

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop Groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Airblast application (37)	0.0086	0.083	Small fruits (grapes)	1.88	40	0.0092	5400	0.000089	290000	5300
Mixing/Loading Liquids for Airblast application (38)	0.0086	0.083	Herbs and spices (hops)	0.63	40	0.0031	16000	0.000030	860000	16000
Mixing/Loading Liquids for Aerial application (39)	0.0086	0.083	Non-grass animal feed (alfalfa)	1.25	1200	0.18	270	0.0018	15000	270
Mixing/Loading Liquids for Aerial application (40)	0.0086	0.083	Non-grass animal feed (clover, lespedeza, lupin, vetch)	1.25	350	0.054	930	0.00052	50000	910
Mixing/Loading Liquids for Aerial application (41)	0.0086	0.083	Pome fruits (apples, pear, quince)	1.25	350	0.054	930	0.00052	50000	910
Mixing/Loading Liquids for Aerial application (42)	0.0086	0.083	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach,)	3.75	350	0.16	310	0.0016	17000	300
Mixing/Loading Liquids for Aerial application (43)	0.0086	0.083	Stalk and stem vegetables (asparagus)	1.25	350	0.054	930	0.00052	50000	910
Mixing/Loading Liquids for Aerial application (44)	0.0086	0.083	Tropical and subtropical fruits (avocado)	4.70	350	0.20	250	0.0020	13000	240
Mixing/Loading Liquids for Aerial application (45)	0.0086	0.083	Tropical and subtropical fruits (fig)	2.50	350	0.11	470	0.0010	25000	460
Mixing/Loading Liquids for Aerial application (46)	0.0086	0.083	Tropical and subtropical fruits (guava, mango ,passion fruit)	1.25	350	0.054	930	0.00052	50000	910
Mixing/Loading Liquids for Aerial application (47)	0.0086	0.083	Tropical and subtropical fruits (pineapples)	5	350	0.22	230	0.0021	12000	230
Mixing/Loading Liquids for Aerial application (48)	0.0086	0.083	Cereal grains (corn rice, wheat)	1.25	1200	0.18	270	0.0018	15000	270
Mixing/Loading Liquids for Aerial application (49)	0.0086	0.083	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	350	0.054	930	0.00052	50000	910
Mixing/Loading Liquids for Aerial application (50)	0.0086	0.083	Root and tuber vegetables (garden beets, carrot, root, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	0.054	930	0.00052	50000	910
Mixing/Loading Liquids for Aerial application (51)	0.0086	0.083	Root and tuber vegetables (chayote root, potatoes, sweet potatoes, yams)	1.56	350	0.067	750	0.00065	40000	730
Mixing/Loading Liquids for Aerial application (52)	0.0086	0.083	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry,)	2	350	0.086	580	0.00083	31000	570
Mixing/Loading Liquids for Aerial application (53)	0.0086	0.083	Berries (blueberries)	1.25	350	0.054	930	0.00052	50000	910
Mixing/Loading Liquids for Aerial application (54)	0.0086	0.083	Brassica and leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	0.054	930	0.00052	50000	910
Mixing/Loading Liquids for Aerial application (55)	0.0086	0.083	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon,	1	350	0.043	1200	0.00042	62000	1100

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop Groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Mixing/Loading Liquids for Aerial application (56)	0.0086	0.083	Cucurbit (Cucumber, summer squash, chayote fruit)	1.88	350	0.081	620	0.00078	33000	610
Mixing/Loading Liquids for Aerial application (57)	0.0086	0.083	Leafy vegetables (celery, watercress)	1.25	350	0.054	930	0.00052	50000	910
Mixing/Loading Liquids for Aerial application (58)	0.0086	0.083	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	0.086	580	0.00083	31000	570
Mixing/Loading Liquids for Aerial application (59)	0.0086	0.083	Leafy vegetables (endive, lettuce)	1.88	350	0.081	620	0.00078	33000	610
Mixing/Loading Liquids for Aerial application (60)	0.0086	0.083	Tree nuts (chestnuts)	5	350	0.22	230	0.0[illegible]1	12000	230
Mixing/Loading Liquids for Aerial application (61)	0.0086	0.083	Tree nuts (macadamia nuts)	0.94	350	0.040	1200	0.00039	66000	1200
Mixing/Loading Liquids for Aerial application (62)	0.0086	0.083	Tree nuts (pecans, walnuts)	2.50	350	0.11	470	0.0010	25000	460
Mixing/Loading Liquids for Aerial application (63)	0.0086	0.083	Oilseed (cotton)	1.15	1200	0.17	300	0.0016	16000	290
Mixing/Loading Liquids for Aerial application (64)	0.0086	0.083	Oilseed (cotton)	2.50	1200 Acres per day	0.37	140	0.0036	7300	130
Mixing/Loading Liquids for Aerial application (65)	0.0086	0.083	Oilseed (flax)	0.50	350	0.022	2300	0.00021	120000	2300
Mixing/Loading Liquids for Aerial application (66)	0.0086	0.083	Citrus Fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	0.27	190	0.0026	9900	180
Mixing/Loading Liquids for Aerial application (67)	0.0086	0.083	Forage grass (grass)	1.25	350	0.054	930	0.00052	50000	910
Mixing/Loading Liquids for Aerial application (68)	0.0086	0.083	Legume vegetables (peas)	2.50	350	0.11	470	0.0010	25000	460
Mixing/Loading Liquids for Chemigation application (69)	0.0086	0.083	Non-grass animal feed (alfalfa, clover, lespedeza, lupin, vetch)	1.25	350	0.054	930	0.00052	50000	910
Mixing/Loading Liquids for Chemigation application (70)	0.0086	0.083	Cereal grains (barley, corn, oats, rice, rye, sorghum, wheat, wild rice)	1.25	350	0.054	930	0.00052	50000	910
Mixing/Loading Liquids for Chemigation application (71)	0.0086	0.083	Small fruits (strawberry)	2	350	0.086	580	0.00083	31000	570
Mixing/Loading Liquids for Chemigation application (72)	0.0086	0.083	Herbs and spices (mint)	0.94	350	0.040	1200	0.00039	66000	1200
Mixing/Loading Liquids for Chemigation application (73)	0.0086	0.083	Herbs and spices (pepper)	1.56	350	0.067	750	0.00065	40000	730
Mixing/Loading Liquids for Chemigation application (74)	0.0086	0.083	Legume vegetables (peas)	2.50	350	0.11	470	0.0010	25000	460
Wettable Powders for Aerial application (75)	0.0098	0.24	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	0.098	510	0.0024	11000	490

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop Groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Wettable Powders for Groundboom application (76)	0.0098	0.24	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.022	2200	0.00055	47000	2100
Wettable Powders for Groundboom application (77)	0.0098	0.24	Small fruits (st räuber)	2	80	0.022	2200	0.00055	47000	2100
Wettable Powders for Chemigation application (78)	0.0098	0.24	Small fruits (str räuber)	2	350	0.098	510	0.0024	11000	490
Applicator										
Sprays for Groundboom application (79)	0.005	0.043	Non-grass animal feed(alfalfa)	1.25	200	0.018	2800	0.00015	170000	2800
Sprays for Groundboom application (80)	0.005	0.043	Non-grass animal feed(clover, lespedeza, lupin, vetch)	1.25	80	0.0071	7000	0.000061	420000	6900
Sprays for Groundboom application (81)	0.005	0.043	Stalk and stem vegetables (asparagus)	1.25	80	0.0071	7000	0.000061	420000	6900
Sprays for Groundboom application (82)	0.005	0.043	Cereal grains (corn, wheat, rice)	1.25	200	0.018	2800	0.00015	170000	2800
Sprays for Groundboom application (83)	0.005	0.043	Cereal grains (barley, oats ,rye, sorghum, wild rice)	1.25	80	0.0071	7000	0.000061	420000	6900
Sprays for Groundboom application (84)	0.005	0.043	Roots and tuber vegetables(garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	80	0.0071	7000	0.000061	420000	6900
Sprays for Groundboom application (85)	0.005	0.043	Root and tuber vegetables(chayote root, potatoes, sweet potato, yams)	1.56	80	0.0089	5600	0.000077	340000	5500
Sprays for Groundboom application (86)	0.005	0.043	Berries(blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	0.011	4400	0.000098	260000	4300
Sprays for Groundboom application (87)	0.005	0.043	Berries(blueberries)	1.25	80	0.0071	7000	0.000061	420000	6900
Sprays for Groundboom application (88)	0.005	0.043	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	80	0.0071	7000	0.000061	420000	6900
Sprays for Groundboom application (89)	0.005	0.043	Cucurbit vegetables (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	80	0.0057	8800	0.0[illegible]049	530000	8600
Sprays for Groundboom application (90)	0.005	0.043	Cucurbit vegetables (cucumber, summer squash, chayote fruit)	1.88	80	0.011	4700	0.000092	280000	4600
Sprays for Groundboom application (91)	0.005	0.043	Leafy vegetables (celery, watercress)	1.25	80	0.0071	7000	0.000061	420000	6900
Sprays for Groundboom application (92)	0.005	0.043	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	80	0.011	4400	0.000098	260000	4300
Sprays for Groundboom application (93)	0.005	0.043	Leafy vegetables (endive, lettuce)	1.88	80	0.011	4700	0.000092	280000	4600
Sprays for Groundboom application (94)	0.005	0.043	Oilseed (cotton)	1.15	200	0.016	3000	0.00014	180000	3000

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop Groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Sprays for Groundboom application (95)	0.005	0.043	Oilseed (cotton)	2.50	200	0.036	1400	0.00031	84000	1400
Sprays for Groundboom application (96)	0.005	0.043	Oilseed (flax)	0.50	80	0.0029	18000	0.000025	1100000	17000
Sprays for Groundboom application (97)	0.005	0.043	Fruiting vegetables (eggplant, tomatoes)	3.43	80	0.020	2600	0.00017	150000	2500
Sprays for Groundboom application (98)	0.005	0.043	Fruiting vegetables (okra)	1.50	80	0.0086	5800	0.000074	350000	5700
Sprays for Groundboom application (99)	0.005	0.043	Bulb vegetables (garlic, leeks, onion, shallots)	1.56	80	0.0089	5600	0.000077	340000	5500
Sprays for Groundboom application (100)	0.005	0.043	Small fruits (strawberry)	2	80	0.011	4400	0.000098	260000	4300
Sprays for Groundboom application (101)	0.005	0.043	Forage grass (grass)	1.25	80	0.0071	7000	0.000061	420000	6900
Sprays for Groundboom application (102)	0.005	0.043	Herbs and spices (mint)	0.94	80	0.0054	9300	0.000046	560000	9200
Sprays for Groundboom application (103)	0.005	0.043	Herbs and spices (pepper)	1.56	80	0.0089	5600	0.000077	340000	5500
Sprays for Groundboom application (104)	0.005	0.043	Legume vegetables (peas)	2.50	80	0.014	3500	0.00012	210000	3400
Sprays for Airblast application (105)	0.019	0.45	Pome fruits (apples, pear, quince)	1.25	40	0.014	3700	0.00032	80000	3500
Sprays for Airblast application (106)	0.019	0.45	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	40	0.041	1200	0.00096	27000	1200
Sprays for Airblast application (107)	0.019	0.45	Tropical and subtropical fruits (avocado)	4.70	40	0.051	980	0.0012	21000	940
Sprays for Airblast application (108)	0.019	0.45	Tropical and subtropical fruits (fig)	2.50	40	0.027	1800	0.00064	40000	1800
Sprays for Airblast application (109)	0.019	0.45	Tropical and subtropical fruits (guava, mango ,passion fruit)	1.25	40	0.014	3700	0.00032	80000	3500
Sprays for Groundboom application (110)	0.005	0.043	Tropical and subtropical fruits (pineapples)	5	80	0.029	1800	0.00025	110000	1700
Sprays for Airblast application (111)	0.019	0.45	Tree nuts (chestnuts)	5	40	0.054	920	0.0013	20000	880
Sprays for Airblast application (112)	0.019	0.45	Tree nuts (macadamia nuts)	0.94	40	0.010	4900	0.00024	110000	4700
Sprays for Airblast application (113)	0.019	0.45	Tree nuts (pecans, walnuts)	2.50	40	0.027	1800	0.00064	40000	1800
Sprays for Airblast application (114)	0.019	0.45	Citrus (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	40	0.068	740	0.0016	16000	700
Sprays for Airblast application (115)	0.019	0.45	Small fruits (grapes)	1.88	40	0.020	2500	0.00048	53000	2300
Sprays for Airblast application (116)	0.019	0.45	Herbs and spices (hops)	0.63	40	0.0068	7300	0.00016	160000	7000
Sprays for Aerial application (117)	0.005	0.068	Non-grass animal feed (alfalfa)	1.25	1200	0.11	470	0.0015	18000	450
Sprays for Aerial application (118)	0.005	0.068	Non-grass animal feed (clover, lespedeza, lupin, vetch)	1.25	350	0.031	1600	0.00043	61000	1600

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop Groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Sprays for Aerial application (119)	0.005	0.068	Pome fruits (apples, pear, quince)	1.25	350	0.031	1600	0.00043	61000	1600
Sprays for Aerial application (120)	0.005	0.068	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach,)	3.75	350	0.094	530	0.0013	20000	520
Sprays for Aerial application (121)	0.005	0.068	Stalk and stem vegetables (asparagus)	1.25	350	0.031	1600	0.00043	61000	1600
Sprays for Aerial application (122)	0.005	0.068	Tropical and subtropical fruits (avocado)	4.70	350	0.12	430	0.0016	16000	410
Sprays for Aerial application (123)	0.005	0.068	Tropical and subtropical fruits (fig)	2.50	350	0.063	800	0.00085	30000	780
Sprays for Aerial application (124)	0.005	0.068	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	0.031	1600	0.00043	61000	1600
Sprays for Aerial application (125)	0.005	0.068	Tropical and subtropical fruits (pineapples)	5	350	0.13	400	0.0017	15000	390
Sprays for Aerial application (126)	0.005	0.068	Cereal grains (corn rice, wheat)	1.25	1200	0.11	470	0.0015	18000	450
Sprays for Aerial application (127)	0.005	0.068	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	350	0.031	1600	0.00043	61000	1600
Sprays for Aerial application (128)	0.005	0.068	Root and tuber vegetables (garden beets, carrot, root, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	0.031	1600	0.00043	61000	1600
Sprays for Aerial application (129)	0.005	0.068	Root and tuber vegetables (chayote root, potatoes, sweet potatoes, yams)	1.56	350	0.039	1300	0.00053	49000	1200
Sprays for Aerial application (130)	0.005	0.068	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry,)	2	350	0.05	1000	0.00068	38000	970
Sprays for Aerial application (131)	0.005	0.068	Berries (blueberries)	1.25	350	0.031	1600	0.00043	61000	1600
Sprays for Aerial application (132)	0.005	0.068	Brassica and leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	0.031	1600	0.00043	61000	1600
Sprays for Aerial application (133)	0.005	0.068	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	350	0.025	2000	0.00034	76000	1900
Sprays for Aerial application (134)	0.005	0.068	Cucurbit (Cucumber, summer squash, chayote fruit)	1.88	350	0.047	1100	0.00064	40000	1000
Sprays for Aerial application (135)	0.005	0.068	Leafy vegetables (celery, watercress)	1.25	350	0.031	1600	0.00043	61000	1600
Sprays for Aerial application (136)	0.005	0.068	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	0.05	1000	0.00068	38000	970

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop Groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE [7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Sprays for Aerial application (137)	0.005	0.068	Leafy vegetables (endive, lettuce)	1.88	350	0.047	1100	0.00064	40000	1000
Sprays for Aerial application (138)	0.005	0.068	Tree nuts (chestnuts)	5	350	0.13	400	0.0017	15000	390
Sprays for Aerial application (139)	0.005	0.068	Tree nuts (macadamia nuts)	0.94	350	0.024	2100	0.00032	81000	2100
Sprays for Aerial application (140)	0.005	0.068	Tree nuts (pecans, walnuts)	2.50	350	0.063	800	0.00085	30000	780
Sprays for Aerial application (141)	0.005	0.068	Oilseed (cotton)	1.15	1200	0.099	510	0.0013	19000	490
Sprays for Aerial application (142)	0.005	0.068	Oilseed (cotton)	2.50	1200	0.21	230	0.0029	8900	230
Sprays for Aerial application (143)	0.005	0.068	Oilseed (flax)	0.50 acre	350	0.013	4000	0.00017	150000	3900
Sprays for Aerial application (144)	0.005	0.068	Citrus Fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	0.16	320	0.0021	12000	310
Sprays for Aerial application (145)	0.005	0.068	Forage grass (grass)	1.25	350	0.031	1600	0.00043	61000	1600
Sprays for Aerial application (146)	0.005	0.068	Legume vegetables (peas)	2.50	350	0.063	800	0.00085	30000	780
Sprays for Aerial application (147)	0.005	0.068	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	0.05	1000	0.00068	38000	970
Flagger										
Flagging for Sprays application (148)	0.00022	0.007	Non-grass animal feed (alfalfa, clover, lespedeza, lupin, vetch)	1.25	350	0.0014	36000	0.000044	590000	34000
Flagging for Sprays application (149)	0.00022	0.007	Pome fruits (apples, pear, quince)	1.25	350	0.0014	36000	0.000044	590000	34000
Flagging for Sprays application (150)	0.00022	0.007	stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	350	0.0041	12000	0.00013	200000	11000
Flagging for Sprays application (151)	0.00022	0.007	Tropical and subtropical fruits (avocado)	4.70	350	0.0052	9700	0.00016	160000	9100
Flagging for Sprays application (152)	0.00022	0.007	Tropical and subtropical fruits (fig)	2.50	350	0.0028	18000	0.000088	290000	17000
Flagging for Sprays application (153)	0.00022	0.007	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	0.0014	36000	0.000044	590000	34000
Flagging for Sprays application (154)	0.00022	0.007	Tropical and subtropical fruits (pineapples)	5	350	0.0055	9100	0.00018	150000	8600
Flagging for Sprays application (155)	0.00022	0.007	Cereal grains (barley, corn, oats, rice, rye, sorghum, wheat, wild rice)	1.25	350	0.0014	36000	0.000044	590000	34000
Flagging for Sprays application (156)	0.00022	0.007	Root and tuber vegetables (garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	0.0014	36000	0.000044	590000	34000

Exposure Scenario (Scenario #)	Dermal Unit Exposure (mg/lb ai)[1]	Inhalation Unit Exposure (Ug/lb ai)[2]	Crop Groups (crops)[3]	Application Rate[4] lb ai / acre	Daily Area Treated[5] Acres/ day	Dermal Dose (mg/kg/day)[6]	Dermal MOE[7]	Inhalation Dose (mg/kg/day)[8]	Inhalation MOE[9]	Total MOE[10]
Flagging for Sprays application (157)	0.00022	0.007	Root and tuber vegetables (potatoes, sweet potatoes, chayote root, yams)	1.56	350	0.0017	29000	0.000055	470000	27000
Flagging for Sprays application (158)	0.00022	0.007	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	0.0022	23000	0.00007	370000	21000
Flagging for Sprays application (159)	0.00022	0.007	Berries (blueberries)	1.25	350	0.0014	36000	0.000044	590000	34000
Flagging for Sprays application (160)	0.00022	0.007	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	0.0014	36000	0.000044	590000	34000
Flagging for Sprays application (161)	0.00022	0.007	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	350	0.0011	45000	0.000035	740000	43000
Flagging for Sprays application (162)	0.00022	0.007	Cucurbit (cucumber, summer squash, chayote fruit)	1.88	350	0.0021	24000	0.000066	390000	23000
Flagging for Sprays application (163)	0.00022	0.007	Leafy vegetables (celery, watercress)	1.25	350	0.0014	36000	0.000044	590000	34000
Flagging for Sprays application (164)	0.00022	0.007	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	0.0022	23000	0.00007	370000	21000
Flagging for Sprays application (165)	0.00022	0.007	Leafy vegetables (endive, lettuce)	1.88	350	0.0021	24000	0.000066	390000	23000
Flagging for Sprays application (166)	0.00022	0.007	tree nuts (chestnuts)	5	350	0.0055	9100	0.00018	150000	8600
Flagging for Sprays application (167)	0.00022	0.007	tree nuts (macadamia nuts)	0.94	350	0.0010	48000	0.000033	780000	46000
Flagging for Sprays application (168)	0.00022	0.007	tree nuts (pecans, walnuts)	2.50	350	0.0028	18000	0.000088	290000	17000
Flagging for Sprays application (169)	0.00022	0.007	Oilseed (cotton)	2.50	350	0.0028	18000	0.000088	290000	17000
Flagging for Sprays application (170)	0.00022	0.007	Oilseed (cotton)	1.15	350	0.0013	40000	0.000040	640000	37000
Flagging for Sprays application (171)	0.00022	0.007	Oilseed (flax)	0.50	350	0.00055	91000	0.000018	1500000	86000
Flagging for Sprays application (172)	0.00022	0.007	Citrus fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	0.0069	7300	0.00022	120000	6900
Flagging for Sprays application (173)	0.00022	0.007	Forage grass (grass)	1.25	350	0.0014	36000	0.000044	590000	34000
Flagging for Sprays application (174)	0.00022	0.007	Legume vegetables (peas)	2.50	350	0.0028	18000	0.000088	290000	17000

[1]Engineering controls dermal unit exposures represent long pants and long sleeved shirts. For mixers and loaders, chemical-resistant gloves are also included. Values are reported in the PHED Surrogate Exposure Guide dated August 1998 or are from data submitted by the Outdoor Residential Exposure Task Force dated May 2000.
[2]Engineering controls inhalation unit exposures represent no respirator. Values are reported in the PHED Surrogate Exposure Guide dated August 1998 or are from data submitted by the Outdoor Residential Exposure Task Force dated May 2000.
[3]Crops and use patterns are from submissions by the primary producer, Cheminova, or found in various sources including LUIS and various labels.
[4]Application rates are based primarily on maximum rates used in residue field trial studies and supported by the primary producer, Cheminova, or found in various sources including LUIS and various labels. Most application rates upon which the analysis is based are presented as lb ai/A. In some cases, the application rate is based on applying a solution at concentrations specified by the label (i.e., presented as lb ai/gallon).
[5]Amount treated is based on the area or gallons that can be reasonably applied in a single day for each exposure scenario of concern based on the application method and formulation/packaging type. (Standard EPA/OPP/HED values).
[6]Dermal dose (mg/kg/day) = [unit exposure (mg/lb ai) * Dermal absorption (100%) * Application rate (lb ai/acre or lb ai/gallon) * Daily area treated (acres or gallons)] / Body weight (70 kg).
[7]Dermal MOE = Dermal NOAEL (50 mg/kg/day) / Daily Dermal Dose. Target Dermal MOE is 100.

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[a]Inhalation dose (mg/kg/day) = [unit exposure (ug/lb ai) * 0.001 mg/ g unit conversion * Inhalation absorption (100%) * Application rate (lb ai/acre or lb ai/gallon) * Daily area treated (acres or gallons)] / Body weight (70 kg).
[b]Inhalation MOE = Inhalation LOAEL (25.8 mg/kg/day) / Daily Inhalation Dose. Target Inhalation MOE is 1000.

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Summary ofShort Term and Intermediate-Term Handler Risk for Malathion

Exposure Scenario (Scenario #)	Crop groups (crops)	Application Rate lb ai / acre	Daily Area Treated Acres/ day	Total MOE Baseline	Total MOE PPE1	Total MOE PPE2	Total MOE PPE3	Total MOE PPE4	Total MOE PPE5	Total MOE PPE6	Total MOE Eng. Control
Mixer/Loader											
Mixing/Loading Liquids for Groundboom application (1)	Non-grass animal feed(alfalfa)	1.25	200	4.8	550	600	600	720	800	810	1600
Mixing/Loading Liquids for Groundboom application (2)	Non-grass animal feed(clover, lespedeza, lupin, vetch)	1.25	80	12	1400	1500	1500	1800	2000	2000	4000
Mixing/Loading Liquids for Groundboom application (3)	Stalk and stem vegetables (asparagus)	1.25	80	12	1400	1500	1500	1800	2000	2000	4000
Mixing/Loading Liquids for Groundboom application (4)	Cereal grains (corn, wheat, rice)	1.25	200	4.8	550	600	600	720	800	810	1600
Mixing/Loading Liquids for Groundboom application (5)	Cereal grains (barley, oats, rye ,sorghum, wild rice)	1.25	80	12	1400	1500	1500	1800	2000	2000	4000
Mixing/Loading Liquids for Groundboom application (6)	Roots and tuber vegetables(garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	80	12	1400	1500	1500	1800	2000	2000	4000
Mixing/Loading Liquids for Groundboom application (7)	Root and tuber vegetables(chayote root, potatoes, sweet potato, yams)	1.56	80	9.7	1100	1200	1200	1500	1600	1600	3200
Mixing/Loading Liquids for Groundboom application (8)	Berries(blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	7.5	860	930	940	1100	1300	1300	2500
Mixing/Loading Liquids for Groundboom application (9)	Berries(blueberries)	1.25	80	12	1400	1500	1500	1800	2000	2000	4000
Mixing/Loading Liquids for Groundboom application (10)	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	80	12	1400	1500	1500	1800	2000	2000	4000
Mixing/Loading Liquids for Groundboom application (11)	Cucurbit vegetables (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	80	15	1700	1900	1900	2300	2500	2500	5000
Mixing/Loading Liquids for Groundboom application (12)	Cucurbit vegetables (cucumber, summer squash, chayote fruit)	1.88	80	8	920	990	1000	1200	1300	1400	2700
Mixing/Loading Liquids for Groundboom application (13)	Leafy vegetables (celery, watercress)	1.25	80	12	1400	1500	1500	1800	2000	2000	4000
Mixing/Loading Liquids for Groundboom application (14)	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	80	7.5	860	930	940	1100	1300	1300	2500
Mixing/Loading Liquids for Groundboom application (15)	Leafy vegetables (endive, lettuce)	1.88	80	8	920	990	1000	1200	1300	1400	2700
Mixing/Loading Liquids for Groundboom application (16)	Oilseed (cotton)	1.15	200	5.2	600	650	660	790	870	880	1700
Mixing/Loading Liquids for Groundboom application (17)	Oilseed (cotton)	2.50	200	2.4	280	300	300	360	400	410	800

Exposure Scenario (Scenario #)	Crop groups (crops)	Application Rate lb ai / acre	Daily Area Treated Acres/ day	Total MOE Baseline	Total MOE PPE1	Total MOE PPE2	Total MOE PPE3	Total MOE PPE4	Total MOE PPE5	Total MOE PPE6	Total MOE Eng. Control
Mixing/Loading Liquids for Groundboom application (18)	Oilseed (flax)	0.50	80	30	3500	3700	3800	4500	5000	5100	1000
Mixing/Loading Liquids for Groundboom application (19)	Fruiting vegetables (eggplant, tomatoes)	3.43	80	4.4	500	540	550	660	730	740	1500
Mixing/Loading Liquids for Groundboom application (20)	Fruiting vegetables (okra)	1.50	80	10	1200	1200	1300	1500	1700	1700	3300
Mixing/Loading Liquids for Groundboom application (21)	Bulb vegetables (garlic, leeks, onion, shallots)	1.56	80	9.7	1100	1200	1200	1500	1600	1600	3200
Mixing/Loading Liquids for Groundboom application (22)	Small fruits (strawberry)	2	80	7.5	860	930	940	1100	1300	1300	2500
Mixing/Loading Liquids for Groundboom application (23)	Forage grass (grass)	1.25	80	12	1400	1500	1500	1800	2000	2000	4000
Mixing/Loading Liquids for Groundboom application (24)	Herbs and spices (mint)	0.94	80	16	1800	2000	2000	2400	2700	2700	5300
Mixing/Loading Liquids for Groundboom application (25)	Herbs and spices (pepper)	1.56	80	9.7	1100	1200	1200	1500	1600	1600	3200
Mixing/Loading Liquids for Groundboom application (26)	Legume vegetables (peas)	2.50	80	6	690	750	750	910	1000	1000	2000
Mixing/Loading Liquids for Airblast application (27)	Pome fruits (apples, pear, quince)	1.25	40	24	2800	3000	3000	3600	4000	4100	8000
Mixing/Loading Liquids for Airblast application (28)	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	40	8	920	990	1000	1200	1300	1400	2700
Mixing/Loading Liquids for Airblast application (29)	Tropical and subtropical fruits (avocado)	4.70	40	6.4	740	790	800	960	1100	1100	2100
Mixing/Loading Liquids for Airblast application (30)	Tropical and subtropical fruits (fig)	2.50	40	12	1400	1500	1500	1800	2000	2000	4000
Mixing/Loading Liquids for Airblast application (31)	Tropical and subtropical fruits (guava, mango ,passion fruit)	1.25	40	24	2800	3000	3000	3600	4000	4100	8000
Mixing/Loading Liquids for Groundboom application (32)	Tropical and subtropical fruits (pineapples)	5	80	3	350	370	380	450	500	510	100
Mixing/Loading Liquids for Airblast application (33)	Tree nuts (chestnuts)	5	40	6	690	750	750	910	1000	1000	2000
Mixing/Loading Liquids for Airblast application (34)	Tree nuts (macadamia nuts)	0.94	40	32	3700	4000	4000	4800	5300	5400	11000
Mixing/Loading Liquids for Airblast application (35)	Tree nuts (pecans, walnuts)	2.50	40	12	1400	1500	1500	1800	2000	2000	4000
Mixing/Loading Liquids for Airblast application (36)	Citrus (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	40	4.8	550	600	600	720	800	810	1600

Exposure Scenario (Scenario #)	Crop groups (crops)	Application Rate lb ai / acre	Daily Area Treated Acres/ day	Total MOE Baseline	Total MOE PPE1	Total MOE PPE2	Total MOE PPE3	Total MOE PPE4	Total MOE PPE5	Total MOE PPE6	Total MOE Eng. Control
Mixing/Loading Liquids for Airblast application (37)	Small fruits (grapes)	1.88	40	16	1800	2000	2000	2400	2700	2700	5300
Mixing/Loading Liquids for Airblast application (38)	Herbs and spices (hops)	0.63	40	48	5500	5900	6000	7200	8000	8100	16000
Mixing/Loading Liquids for Aerial application (39)	Non-grass animal feed (alfalfa)	1.25	1200	0.80	92	99	100	120	130	140	270
Mixing/Loading Liquids for Aerial application (40)	Non-grass animal feed (clover, lespedeza, lupin, vetch)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Aerial application (41)	Pome fruits (apples, pear, quince)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Aerial application (42)	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	350	0.92	110	110	110	140	150	150	300
Mixing/Loading Liquids for Aerial application (43)	Stalk and stem vegetables (asparagus)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Aerial application (44)	Tropical and subtropical fruits (avocado)	4.70	350	0.73	84	91	92	110	120	120	240
Mixing/Loading Liquids for Aerial application (45)	Tropical and subtropical fruits (fig)	2.50	350	1.4	160	170	170	210	230	230	460
Mixing/Loading Liquids for Aerial application (46)	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Aerial application (47)	Tropical and subtropical fruits (pineapples)	5	350	0.69	79	85	86	100	110	120	230
Mixing/Loading Liquids for Aerial application (48)	Cereal grains (corn rice, wheat)	1.25	1200	0.80	92	99	100	120	130	140	270
Mixing/Loading Liquids for Aerial application (49)	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Aerial application (50)	Root and tuber vegetables (garden beets, carrot, root, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Aerial application (51)	Root and tuber vegetables (chayote root, potatoes, sweet potatoes, yams)	1.56	350	2.2	250	270	280	330	370	370	730
Mixing/Loading Liquids for Aerial application (52)	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry,)	2	350	1.7	200	210	220	260	290	290	570
Mixing/Loading Liquids for Aerial application (53)	Berries (blueberries)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Aerial application (54)	Brassica and leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	2.8	320	340	340	410	460	460	910

Exposure Scenario (Scenario #)	Crop groups (crops)	Application Rate lb ai / acre	Daily Area Treated Acres/ day	Total MOE Baseline	Total MOE PPE1	Total MOE PPE2	Total MOE PPE3	Total MOE PPE4	Total MOE PPE5	Total MOE PPE6	Total MOE Eng. Control
Mixing/Loading Liquids for Aerial application (55)	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon,	1	350	3.4	390	430	430	520	570	580	1100
Mixing/Loading Liquids for Aerial application (56)	Cucurbit (Cucumber, summer squash, chayote fruit)	1.88	350	1.8	210	230	230	280	300	310	610
Mixing/Loading Liquids for Aerial application (57)	Leafy vegetables (celery, watercress)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Aerial application (58)	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	1.7	200	210	220	260	290	290	570
Mixing/Loading Liquids for Aerial application (59)	Leafy vegetables (endive, lettuce)	1.88	350	1.8	210	230	230	280	300	310	610
Mixing/Loading Liquids for Aerial application (60)	Tree nuts (chestnuts)	5	350	0.69	79	85	86	100	110	120	230
Mixing/Loading Liquids for Aerial application (61)	Tree nuts (macadamia nuts)	0.94	350	3.7	420	450	460	550	610	620	1200
Mixing/Loading Liquids for Aerial application (62)	Tree nuts (pecans, walnuts)	2.50	350	1.4	160	170	170	210	230	230	460
Mixing/Loading Liquids for Aerial application (63)	Oilseed (cotton)	1.15	1200	0.87	100	110	110	130	150	150	290
Mixing/Loading Liquids for Aerial application (64)	Oilseed (cotton)	2.50	1200	0.40	46	50	50	60	67	68	130
Mixing/Loading Liquids for Aerial application (65)	Oilseed (flax)	0.50	350	6.9	790	850	860	1000	1100	1200	2300
Mixing/Loading Liquids for Aerial application (66)	Citrus Fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	0.55	63	68	69	83	92	93	180
Mixing/Loading Liquids for Aerial application (67)	Forage grass (grass)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Aerial application (68)	Legume vegetables (peas)	2.50	350	1.4	160	170	170	210	230	230	460
Mixing/Loading Liquids for Chemigation application (69)	Non-grass animal feed (alfalfa, clover, lespedeza, lupin, vetch)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Chemigation application (70)	Cereal grains (barley, corn, oats, rice, rye, sorghum, wheat, wild rice)	1.25	350	2.8	320	340	340	410	460	460	910
Mixing/Loading Liquids for Chemigation application (71)	Small fruits (strawberry)	2	350	1.7	200	210	220	260	290	290	570
Mixing/Loading Liquids for Chemigation application (72)	Herbs and spices (mint)	0.94	350	3.7	420	450	460	550	610	620	1200
Mixing/Loading Liquids for Chemigation application (73)	Herbs and spices (pepper)	1.56	350	2.2	250	270	280	330	370	370	730

Exposure Scenario (Scenario #)	Crop groups (crops)	Application Rate lb ai / acre	Daily Area Treated Acres/ day	Total MOE Baseline	Total MOE PPE1	Total MOE PPE2	Total MOE PPE3	Total MOE PPE4	Total MOE PPE5	Total MOE PPE6	Total MOE Eng. Control
Mixing/Loading Liquids for Chemigation application (74)	Legume vegetables (peas)	2.50	350	1.4	160	170	170	210	230	230	460
Wettable Powders for Aerial application (75)	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	1.3	20	27	28	23	34	36	490
Wettable Powders for Groundboom application (76)	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	5.8	86	120	120	100	150	160	2100
Wettable Powders for Groundboom application (77)	Small fruits (strawberry)	2	80	5.8	86	120	120	100	150	160	2100
Wettable Powders for Chemigation application (78)	Small fruits (strawberry)	2	350	1.3	20	27	28	23	34	36	490
Applicator											
Sprays for Groundboom application (79)	Non-grass animal feed(alfalfa)	1.25	200	910	910	980	990	1100	1200	1300	2800
Sprays for Groundboom application (80)	Non-grass animal feed(clover, lespedeza, lupin, vetch)	1.25	80	2300	2300	2400	2500	2800	3100	3100	6900
Sprays for Groundboom application (81)	Stalk and stem vegetables (asparagus)	1.25	80	2300	2300	2400	2500	2800	3100	3100	6900
Sprays for Groundboom application (82)	Cereal grains (corn, wheat, rice)	1.25	200	910	910	980	990	1100	1200	1300	2800
Sprays for Groundboom application (83)	Cereal grains (barley, oats ,rye, sorghum, wild rice)	1.25	80	2300	2300	2400	2500	2800	3100	3100	6900
Sprays for Groundboom application (84)	Roots and tuber vegetables(garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	80	2300	2300	2400	2500	2800	3100	3100	6900
Sprays for Groundboom application (85)	Root and tuber vegetables(chayote root, potatoes, sweet potato, yams)	1.56	80	1800	1800	2000	2000	2300	2500	2500	5500
Sprays for Groundboom application (86)	Berries(blackberry, boysenberry, dewberry, loganberry, raspberry)	2	80	1400	1400	1500	1500	1800	1900	2000	4300
Sprays for Groundboom application (87)	Berries(blueberries)	1.25	80	2300	2300	2400	2500	2800	3100	3100	6900
Sprays for Groundboom application (88)	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	80	2300	2300	2400	2500	2800	3100	3100	6900
Sprays for Groundboom application (89)	Cucurbit vegetables (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	80	2800	2800	3100	3100	3500	3900	3900	8600
Sprays for Groundboom application (90)	Cucurbit vegetables (cucumber, summer squash, chayote fruit)	1.88	80	1500	1500	1600	1600	1900	2100	2100	4600
Sprays for Groundboom application (91)	Leafy vegetables (celery, watercress)	1.25	80	2300	2300	2400	2500	2800	3100	3100	6900

Exposure Scenario (Scenario #)	Crop groups (crops)	Application Rate lb ai / acre	Daily Area Treated Acres/ day	Total MOE Baseline	Total MOE PPE1	Total MOE PPE2	Total MOE PPE3	Total MOE PPE4	Total MOE PPE5	Total MOE PPE6	Total MOE Eng. Control
Sprays for Groundboom application (92)	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	80	1400	1400	1500	1500	1800	1900	2000	4300
Sprays for Groundboom application (93)	Leafy vegetables (endive, lettuce)	1.88	80	1500	1500	1600	1600	1900	2100	2100	4600
Sprays for Groundboom application (94)	Oilseed (cotton)	1.15	200	990	990	1100	1100	1200	1300	1400	3000
Sprays for Groundboom application (95)	Oilseed (cotton)	2.50	200	450	450	490	490	560	620	630	1400
Sprays for Groundboom application (96)	Oilseed (flax)	0.50	80	5700	5700	6100	6200	7000	7700	7900	17000
Sprays for Groundboom application (97)	Fruiting vegetables (eggplant, tomatoes)	3.43	80	830	830	890	900	1000	1100	1100	2500
Sprays for Groundboom application (98)	Fruiting vegetables (okra)	1.50	80	1900	1900	2000	2100	2300	2600	2600	5700
Sprays for Groundboom application (99)	Bulb vegetables (garlic, leeks, onion, shallots)	1.56	80	1800	1800	2000	2000	2300	2500	2500	5500
Sprays for Groundboom application (100)	Small fruits (strawberry)	2	80	1400	1400	1500	1500	1800	1900	2000	4300
Sprays for Groundboom application (101)	Forage grass (grass)	1.25	80	2300	2300	2400	2500	2800	3100	3100	6900
Sprays for Groundboom application (102)	Herbs and spices (mint)	0.94	80	3000	3000	3300	3300	3700	4100	4200	9200
Sprays for Groundboom application (103)	Herbs and spices (pepper)	1.56	80	1800	1800	2000	2000	2300	2500	2500	5500
Sprays for Groundboom application (104)	Legume vegetables (peas)	2.50	80	1100	1100	1200	1200	1400	1500	1600	3400
Sprays for Airblast application (105)	Pome fruits (apples, pear, quince)	1.25	40	190	280	290	290	310	320	320	3500
Sprays for Airblast application (106)	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	40	63	94	97	97	100	110	110	1200
Sprays for Airblast application (107)	Tropical and subtropical fruits (avocado)	4.70	40	50	75	77	77	81	84	84	940
Sprays for Airblast application (108)	Tropical and subtropical fruits (fig)	2.50	40	95	140	140	150	150	160	160	1800
Sprays for Airblast application (109)	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	40	190	280	290	290	310	320	320	3500
Sprays for Groundboom application (110)	Tropical and subtropical fruits (pineapples)	5	80	570	570	610	620	700	770	790	1700
Sprays for Airblast application (111)	Tree nuts (chestnuts)	5	40	47	70	72	73	77	79	79	880
Sprays for Airblast application (112)	Tree nuts (macadamia nuts)	0.94	40	250	370	390	390	410	420	420	4700

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Exposure Scenario (Scenario #)	Crop groups (crops)	Application Rate lb ai / acre	Daily Area Treated Acres/ day	Total MOE Baseline	Total MOE PPE1	Total MOE PPE2	Total MOE PPE3	Total MOE PPE4	Total MOE PPE5	Total MOE PPE6	Total MOE Eng. Control
Sprays for Airblast application (113)	Tree nuts (pecans, walnuts)	2.50	40	95	140	140	150	150	160	160	1800
Sprays for Airblast application (114)	Citrus (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	40	38	56	58	58	61	63	63	700
Sprays for Airblast application (115)	Small fruits (grapes)	1.88	40	130	190	190	190	200	210	210	2300
Sprays for Airblast application (116)	Herbs and spices (hops)	0.63	40	380	560	570	580	610	630	630	7000
Sprays for Aerial application (117)	Non-grass animal feed (alfalfa)	1.25	1200	No Data	No Data	No Data	No Data	No Data	No Data	No Data	450
Sprays for Aerial application (118)	Non-grass animal feed (clover, lespedeza, lupin, vetch)	1.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1600
Sprays for Aerial application (119)	Pome fruits (apples, pear, quince)	1.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1600
Sprays for Aerial application (120)	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach,)	3.75	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	520
Sprays for Aerial application (121)	Stalk and stem vegetables (asparagus)	1.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1600
Sprays for Aerial application (122)	Tropical and subtropical fruits (avocado)	4.70	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	410
Sprays for Aerial application (123)	Tropical and subtropical fruits (fig)	2.50	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	780
Sprays for Aerial application (124)	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1600
Sprays for Aerial application (125)	Tropical and subtropical fruits (pineapples)	5	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	390
Sprays for Aerial application (126)	Cereal grains (corn rice, wheat)	1.25	1200	No Data	No Data	No Data	No Data	No Data	No Data	No Data	450
Sprays for Aerial application (127)	Cereal grains (barley, oats, rye, sorghum, wild rice)	1.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1600
Sprays for Aerial application (128)	Root and tuber vegetables (garden beets, carrot, root, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1600
Sprays for Aerial application (129)	Root and tuber vegetables (chayote root, potatoes, sweet potatoes, yams)	1.56	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1200
Sprays for Aerial application (130)	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry,)	2	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	970
Sprays for Aerial application (131)	Berries (blueberries)	1.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1600
Sprays for Aerial application (132)	Brassica and leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1600
Sprays for Aerial application (133)	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1900
Sprays for Aerial application (134)	Cucurbit (Cucumber, summer squash, chayote fruit)	1.88	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1000

Exposure Scenario (Scenario #)	Crop groups (crops)	Application Rate lb ai / acre	Daily Area Treated Acres/ day	Total MOE Baseline	Total MOE PPE1	Total MOE PPE2	Total MOE PPE3	Total MOE PPE4	Total MOE PPE5	Total MOE PPE6	Total MOE Eng. Control
Sprays for Aerial application (135)	Leafy vegetables (celery, watercress)	1.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1600
Sprays for Aerial application (136)	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	970
Sprays for Aerial application (137)	Leafy vegetables (endive, lettuce)	1.88	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1000
Sprays for Aerial application (138)	Tree nuts (chestnuts)	5	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	390
Sprays for Aerial application (139)	Tree nuts (macadamia nuts)	0.94	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	2100
Sprays for Aerial application (140)	Tree nuts (pecans, walnuts)	2.50	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	780
Sprays for Aerial application (141)	Oilseed (cotton)	1.15	1200	No Data	No Data	No Data	No Data	No Data	No Data	No Data	490
Sprays for Aerial application (142)	Oilseed (cotton)	2.50	1200	No Data	No Data	No Data	No Data	No Data	No Data	No Data	230
Sprays for Aerial application (143)	Oilseed (flax)	0.50	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	3900
Sprays for Aerial application (144)	Citrus Fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	310
Sprays for Aerial application (145)	Forage grass (grass)	1.25	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	1600
Sprays for Aerial application (146)	Legume vegetables (peas)	2.50	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	780
Sprays for Aerial application (147)	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	No Data	No Data	No Data	No Data	No Data	No Data	No Data	970
				Flagger							
Flagging for Sprays application (148)	Non-grass animal feed (alfalfa, clover, lespedeza, lupin, vetch)	1.25	350	690	750	790	790	750	790	790	34000
Flagging for Sprays application (149)	Pome fruits (apples, pear, quince)	1.25	350	690	750	790	790	750	790	790	34000
Flagging for Sprays application (150)	Stone fruits (apricots, cherries (sweet and tart),nectarine, peach)	3.75	350	230	250	260	260	250	260	260	11000
Flagging for Sprays application (151)	Tropical and subtropical fruits (avocado)	4.70	350	180	200	210	210	200	210	210	9100
Flagging for Sprays application (152)	Tropical and subtropical fruits (fig)	2.50	350	340	370	390	400	370	390	400	17000
Flagging for Sprays application (153)	Tropical and subtropical fruits (guava, mango, passion fruit)	1.25	350	690	750	790	790	750	790	790	34000
Flagging for Sprays application (154)	Tropical and subtropical fruits (pineapples)	5	350	170	190	200	200	190	200	200	8600
Flagging for Sprays application (155)	Cereal grains (barley, corn, oats, rice, rye, sorghum, wheat, wild rice)	1.25	350	690	750	790	790	750	790	790	34000

Exposure Scenario (Scenario #)	Crop groups (crops)	Application Rate lb ai / acre	Daily Area Treated Acres/ day	Total MOE Baseline	Total MOE PPE1	Total MOE PPE2	Total MOE PPE3	Total MOE PPE4	Total MOE PPE5	Total MOE PPE6	Total MOE Eng. Control
Flagging for Sprays application (156)	Root and tuber vegetables (garden beets, carrot, chayote fruit, horseradish, parsnip, radish, rutabaga, salsify, turnip)	1.25	350	690	750	790	790	750	790	790	34000
Flagging for Sprays application (157)	Root and tuber vegetables (potatoes, sweet potatoes, chayote root, yams)	1.56	350	550	600	630	640	600	630	640	27000
Flagging for Sprays application (158)	Berries (blackberry, boysenberry, dewberry, loganberry, raspberry)	2	350	430	470	490	500	470	490	500	21000
Flagging for Sprays application (159)	Berries (blueberries)	1.25	350	690	750	790	790	750	790	790	34000
Flagging for Sprays application (160)	Brassica leafy vegetables (broccoli, broccoli raab, brussels sprouts, cabbage, cauliflower, collard, kale, kohlrabi, mustard green)	1.25	350	690	750	790	790	750	790	790	34000
Flagging for Sprays application (161)	Cucurbit (cantaloupe, melon, pumpkin, winter squash, watermelon)	1	350	860	940	990	990	940	990	990	43000
Flagging for Sprays application (162)	Cucurbit (cucumber, summer squash, chayote fruit)	1.88	350	460	500	520	530	500	520	530	23000
Flagging for Sprays application (163)	Leafy vegetables (celery, watercress)	1.25	350	690	750	790	790	750	790	790	34000
Flagging for Sprays application (164)	Leafy vegetables (dandelion, parsley, spinach, Swiss chard)	2	350	430	470	490	500	470	490	500	21000
Flagging for Sprays application (165)	Leafy vegetables (endive, lettuce)	1.88	350	460	500	520	530	500	520	530	23000
Flagging for Sprays application (166)	Tree nuts (chestnuts)	5	350	170	190	200	200	190	200	200	8600
Flagging for Sprays application (167)	Tree nuts (macadamia nuts)	0.94	350	910	100	1000	1100	100	1000	1100	46000
Flagging for Sprays application (168)	Tree nuts (pecans, walnuts)	2.50	350	340	370	390	400	370	390	400	17000
Flagging for Sprays application (169)	Oilseed (cotton)	2.50	350	340	370	390	400	370	390	400	17000
Flagging for Sprays application (170)	Oilseed (cotton)	1.15	350	740	810	860	860	810	860	860	37000
Flagging for Sprays application (171)	Oilseed (flax)	0.50	350	1700	1900	2000	2000	1900	2000	2000	86000
Flagging for Sprays application (172)	Citrus fruits (grapefruits, kumquat, lemon, lime, orange, tangelo, tangerines)	6.25	350	140	150	160	160	150	160	160	6900
Flagging for Sprays application (173)	Forage grass (grass)	1.25	350	690	750	790	790	750	790	790	34000

Exposure Scenario (Scenario #)	Crop groups (crops)	Application Rate lb ai / acre	Daily Area Treated Acres/ day	Total MOE Baseline	Total MOE PPE1	Total MOE PPE2	Total MOE PPE3	Total MOE PPE4	Total MOE PPE5	Total MOE PPE6	Total MOE Eng. Control
Flagging for Sprays application (174)	Legume vegetables (peas)	2.50	350	340	370	390	400	370	390	400	17000

Baseline dermal unit exposures represent long pants, long sleeved shirts, shoes, and socks
[1]PPE1 unit exposures represent long pants, long sleeved shirts, and chemical-resistant gloves and no respirator
[1]PPE2 unit exposures represent long pants and long sleeved shirts plus chemical-resistant gloves and dust mist respirator
[1]PPE3 unit exposures represent long pants and long sleeved shirts plus chemical-resistant gloves and o/v respirator
[1]PPE4 unit exposures represent coveralls worn over long pants and long sleeved shirts plus chemical-resistant gloves and no respirator
[1]PPE5 unit exposures represent coveralls worn over long pants and long sleeved shirts plus chemical-resistant gloves and dust mist respirator
[1]PPE6 unit exposures represent coveralls worn over long pants and long sleeved shirts plus chemical-resistant gloves and o/v respirator
[1]Engineering controls dermal unit exposures represent long pants and long sleeved shirts. For mixers and loaders

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Attachment 2.

Postapplication Risk (EC, WP and RTU formulations)

- 230 pages
- Covers food crop use sites and application rates for emulsifiable concentrates, wettable powders and ready-to-use formulations.
- Detailed exposure and risk information is presented for each individual crop and application rate, including the residue levels, exposure and risk estimates leading up to the "day after treatment" at which the target MOE of 100 is reached.

Note: The "high" and "very high" contact activities assessed for a few crops may rarely occur. During the mitigation phase of the reregistration process, the relevance of REIs estimated for these activities should be discussed.

Table 1. Crop Groupings: Selected Transfer Coefficients, Treated Crops, and Rates (EC, WP and RTU formulations)

Berry, low	1500 400 - 1,800	400 400 - 1,800	Blueberries (lowbush), Strawberries	1.25 to 2
Bunch / bundle	2000 1,346 - 2,308	100 TBD	Dates, Hops	0.63 to 4.25
Field / row crops, low / medium	2500 486 - 2,760	100 TBD	Alfalfa, Barley, Clover, Cotton, Flax, Grasses (forage & hay), Lespedeza, Lupine, Mint, Oats, Peas (dry), Peas (green), Rice, Rye, Vetch, Wheat (spring), Wheat (winter), Wild rice	0.5 to 2.5
Field / row crops, tall	1000 418 - 1,980	100 TBD	Corn (all types), Sorghum	1.25
Trees, fruit, deciduous	3000 1,421 - 4,393	1000 197 - 2,302	Apples, Apricots, Cherries, Figs, Nectarines, Peaches, Pears, Quince	1.25 to 3.75
Trees, fruit, evergreen	3000 2,177 - 3,688	1000 197 - 2,302	Avocados, Grapefruit, Guava, Kumquat, Lemons, Lime, Mangos, Oranges, Papaya, Tangelo, Tangerines	1.25 to 6.25
Trees, nut	2500 1,121 - 4,929	500 197 - 2,302	Chestnut, Macadamia nuts, Pecans, Walnuts	0.94 to 5
Unassigned	N/A	N/A	Mushrooms	1.7 to 2.5
Vegetable, cucurbit	2500 486 - 2,760	500 486 - 2,760	Cantalope, Chayote fruit, Cucumbers, Melons, Pumpkin, Squash (summer), Squash (winter), Watermelon	1 to 1.88
Vegetable, fruiting	1000 364 - 1,908	500 486 - 2,760	Eggplant, Okra, Peppers (bell), Peppers (chili), Tomatoes (fresh), Tomatoes (processed)	1.5 to 3.43

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Vegetable, head and stem Brassica	5000 2,862 - 7,584	2000 1,672 - 8,147	Broccoli, Broccoli raab, Brussel sprouts, Cabbage, Cauliflower, Kohlrabi	1.25
Vegetable, leafy	2500 486 - 2,760	500 486 - 2,760	Celery, Collards, Dandelion, Endive, Kale, Lettuce, Mustard greens, Parsley, Spinach, Swiss chard, Watercress	1.25 to 2
Vegetable, root	2500 486 - 2,760	300 140 - 290	Beets (table), Carrots, Chayote root, Garlic, Horseradish, Leeks, Onions (dry), Onions (green), Parsnip, Potatoes, Radish, Rutabaga, Salsify, Shallots, Sweet potatoes, Turnips, Yams	1.25 to 1.56
Vegetable, stem / stalk	1000 364 - 1,908	300 140 - 290	Asparagus, Pineapple	1.25 to 5
Vine / trellis (w/ girdling)	5000 TBD	500 197 - 2,302	Boysenberry, Grapes (table and raisin)	1.88 to 2
Vine / trellis (w/o girdling)	5000 TBD	500 197 - 2,302	Blackberries, Blueberries (highbush), Dewberry, Grapes (juice and wine), Loganberry, Passion fruit, Raspberries	1.25 to 2

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by primary producer, Cheminova, or found on end use product labels.

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Table 2. Short- and Intermediate-term Post Application Assessment for Malathion Treated Agricultural Crops (including ornamentals)

[illegible]	[illegible]	[illegible]
0	550	330

Footnote:

1. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
2. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
3. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

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Table 2. Short- and Intermediate-term Post Application Assessment for Malathion Treated Agricultural Crops (including ornamentals)

0	840	740	420	840	55	33	83	110
1	-	-	-	-	88	53	130	-
2	-	-	-	-	140	84	-	-
3	-	-	-	-	-	130	-	-

Footnote:

1. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
2. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
3. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (.n2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

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Table 2. Short- and Intermediate-term Post Application Assessment for Malathion Treated Agricultural Crops (including ornamentals) (continued)

0	61	42	110	220	280	330	330
1	110	75	-	-	-	-	-
2	-	140	-	-	-	-	-
3	-	-	-	-	-	-	-

Footnote:

1. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
2. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
3. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

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Table 2. Short- and Intermediate-term Post Application Assessment for Malathion Treated Agricultural Crops (including ornamentals)

0	57	28	210	11	37	44	21	35	45	170	170	170
1	81	50	-	18	67	79	38	63	81	-	-	-
2	120	90	-	28	120	140	68	110	140	-	-	-
3	-	160	-	45	-	-	120	-	-	-	-	-
5	-	-	-	110	-	-	-	-	-	-	-	-

Footnote:

1. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
2. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
3. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

Table 2. Short- and Intermediate-term Post Application Assessment for Malathion Treated Agricultural Crops (including ornamentals)

0	220	37	17	84	18	11	17	22
1	-	53	30	150	29	18	26	40
3	-	110	97	-	75	45	67	130
4	-	-	170	-	120	72	110	-
5	-	-	-	-	-	110	-	-

Footnote:

1. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
2. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
3. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

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Table 2. Short- and Intermediate-term Post Application Assessment for Malathion Treated Agricultural Crops (including ornamentals) (continued)

0	31	17	21	27	84	33	36
1	55	30	38	48	150	48	48
3	180	97	120	160	-	97	97
4	-	170	-	-	-	140	140
5	-	-	-	-	-	-	-

Footnote:

1. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
2. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
3. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

Table 2. Short- and Intermediate-term Post Application Assessment for Malathion Treated Agricultural Crops (including ornamentals)

[illegible]	[illegible]	[illegible]	[illegible]
0	5.0	18	17
1	8.9	29	24
2	16	47	34
3	28	75	48
4	51	120	69
6	160	-	140

Footnote:

1. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
2. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
3. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

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Table 3. Summary of 'Days After Treatment' to Reach the Target MOE for Short- and Intermediate-term Exposure

Berry, low	Blueberries (lowbush), Strawberries	1.25 - 2	N/A	0	N/A	0	N/A
Bunch / bundle	Hops, Dates	0.63 - 4.25	N/A	0	0 - 2	0 - 3	N/A
Field / row crops, low / medium	Alfalfa, Barley, Cotton, Flax, Mint, Peas (dry), Peas (green), Rice, Wheat (spring), Wheat (winter), Clover, Grasses (forage & hay), Lespedeza, Lupine, Oats, Rye, Vetch, Wild rice	0.5 - 2.5	N/A	0	0 - 3	1 - 4	N/A
Field / row crops, tall	Corn (all types), Sorghum	1.25	N/A	0	0	1	6
Trees, fruit, deciduous	Apples, Apricots, Cherries, Figs, Nectarines, Peaches, Pears, Quince	1.25 - 3.75	0	0 - 2	N/A	2 - 4	2 - 4
Trees, fruit, evergreen	Avocados, Grapefruit, Lemons, Mangos, Oranges, Papaya, Guava, Kumquat, Lime, Tangelo, Tangerines	1.25 - 6.25	0	0 - 3	2 - 5	2 - 5	N/A

Trees, nut	Macadamia nuts, Pecans, Walnuts, Chestnut	0.94 - 5	N/A	0 - 1	N/A	1 - 4	N/A
Unassigned	Mushrooms	1.7 - 2.5	0	0	0	0	0
Vegetable, cucurbit	Cantalope, Cucumbers, Melons, Squash (summer), Squash (winter), Watermelon, Chayote fruit, Pumpkin	1 - 1.88	N/A	0	1 - 2	2 - 3	N/A
Vegetable, fruiting	Eggplant, Okra, Peppers (bell), Peppers (chili), Tomatoes (fresh), Tomatoes (processed)	1.5 - 3.43	N/A	0 - 1	0 - 2	1 - 3	N/A
Vegetable, head and stem Brassica	Broccoli, Brussel sprouts, Cabbage, Cauliflower, Broccoli raab, Kohlrabi	1.25	N/A	2	3	4	N/A
Vegetable, leafy	Celery, Collards, Kale, Lettuce, Mustard greens, Parsley, Spinach, Swiss chard, Watercress, Dandelion, Endive	1.25 - 2	N/A	0	1 - 2	2 - 3	N/A

Vegetable, root	Beets (table), Carrots, Onions (dry), Onions (green), Potatoes, Sweet potatoes, Turnips, Chayote root, Garlic, Horseradish, Leeks, Parsnip, Radish, Rutabaga, Salsify, Shallots, Yams	1.25 - 1.56	N/A	0	1 - 2	2 - 3	N/A
Vegetable, stem / stalk	Asparagus, Pineapple	1.25 - 5	N/A	0	0	0 - 1	N/A
Vine / trellis (w/ girdling)	Grapes (table and raisin), Boysenberry	1.88 - 2	N/A	0	0	2 - 4	3 - 6
Vine / trellis (w/o girdling)	Blackberries, Blueberries (highbush), Grapes (juice and wine), Raspberries, Dewberry, Loganberry, Passion fruit	1.25 - 2	N/A	0	0	0 - 4	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

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Occupational Post-Application Risk Assessment Calculator (12/7/01)

Chemical:	Malathion
Reason:	TC Policy 3.1
Date:	11/05/02
Assessor:	Seyed Tadayon

Applicable TC Groups:
Berry, low
Bunch / bundle
Field / row crops, low / medium
Field / row crops, tall
Trees, fruit, deciduous
Trees, fruit, evergreen
Trees, nut
Unassigned
Vegetable, cucurbit
Vegetable, fruiting
Vegetable, head and stem Brassica
Vegetable, leafy
Vegetable, root
Vegetable, stem / stalk
Vine / trellis (w/ girdling)
Vine / trellis (w/o girdling)

[Note: Only applicable TCGroups are included above.]

DFR/TTR Data Defaults:

Initial Percent of Rate as DFR (%):	20
Dissipation Rate per day (%):	10
Initial Percent of Rate as TTR (%):	5
Dissipation Rate per day (%):	10

Toxicology & Exposure Factor Inputs:

Uncertainty Factor:	
Adult Exposure Duration (hrs/day):	
Dermal Abs. (%):	40

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Short-term NOAEL (mg/kg/day):	50
Source of Short-term NOAEL:	
Adult Body Weight (kg):	N/A
Intermediate-term NOAEL (mg/kg/day):	50
Source of Intermediate-term NOAEL:	
Adult Body Weight (kg):	70

Note: If a dermal administration toxicity study is the source of the endpoint used for risk assessment, then the dermal absorption factor is set to 100% to satisfy the calculations in this program.

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Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Alfalfa
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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0	3.950	5.197	N/A	0.059	0.89	1.5	N/A	N/A	840	56	34	N/A
1	2.204	2.901	N/A	0.033	0.50	0.83	N/A	N/A	1500	100	60	N/A
2	1.230	1.619	N/A	0.019	0.28	0.46	N/A	N/A	2700	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, deciduous
Specific Crop Considered:	Apples
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Scouting, Weeding (hand), Irrigation
Medium	N/A	N/A	N/A
High	3000	1,421 - 4,393	Harvest (hand), Propping, Pruning (hand), Training, Tying
Very High	3000	2,177 - 3,688	Thinning

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0	2.650	2.650	0.030	0.30	N/A	0.91	0.91	1700	170	N/A	55	55
1	1.658	1.658	0.019	0.19	N/A	0.57	0.57	2600	260	N/A	88	88
2	1.038	1.038	0.012	0.12	N/A	0.36	0.36	4200	420	N/A	140	140

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

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Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, deciduous
Specific Crop Considered:	Apricots
Application Rate of Crop (lb ai/A):	3.75

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Scouting, Weeding (hand), Irrigation
Medium	N/A	N/A	N/A
High	3000	1,421 - 4,393	Harvest (hand), Propping, Pruning (hand), Training, Tying
Very High	3000	2,177 - 3,688	Thinning

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0	2.650	7.950	0.091	0.91	N/A	2.7	2.7	550	55	N/A	18	18
1	1.658	4.975	0.057	0.57	N/A	1.7	1.7	880	88	N/A	29	29
2	1.038	3.114	0.036	0.36	N/A	1.1	1.1	1400	140	N/A	47	47
3	0.650	1.949	0.022	0.22	N/A	0.67	0.67	2200	220	N/A	75	75
4	0.407	1.220	0.014	0.14	N/A	0.42	0.42	3600	360	N/A	120	120

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, stem / stalk
Specific Crop Considered:	Asparagus
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	300	140 - 290	Irrigation, Scouting, Thinning, Weeding (hand)
Medium	500	364 - 1,908	Irrigation, Scouting
High	1000	364 - 1,908	Harvest (hand), Pruning (hand)
Very High	N/A	N/A	N/A

0	3.950	5.197	N/A	0.18	0.30	0.59	N/A	N/A	280	170	84	N/A
1	2.204	2.901	N/A	0.099	0.17	0.33	N/A	N/A	500	300	150	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, evergreen
Specific Crop Considered:	Avocados
Application Rate of Crop (lb ai/A):	4.7

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Irrigation, Scouting, Weeding (hand), Thinning
Medium	3000	1,121 - 4,929	Pruning (cones), Pruning (hand), Thinning, Seed Cone Harvesting
High	3000	2,177 - 3,688	Bagging Fruit, Hand Labor (misc.), Harvest (hand), Pollination, Staking, Topping, Training, Thinning, Tying
Very High	N/A	N/A	N/A

0	2.650	9.964	0.11	1.1	3.4	3.4	N/A	440	44	15	15	N/A
1	1.658	6.236	0.071	0.71	2.1	2.1	N/A	700	70	23	23	N/A
2	1.038	3.903	0.045	0.45	1.3	1.3	N/A	1100	110	37	37	N/A
3	0.650	2.442	0.028	0.28	0.84	0.84	N/A	1800	180	60	60	N/A
4	0.407	1.529	0.017	0.17	0.52	0.52	N/A	2900	290	95	95	N/A
5	0.254	0.957	0.011	0.11	0.33	0.33	N/A	4600	460	150	150	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Barley
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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0	3.950	5.197	N/A	0.059	0.89	1.5	N/A	N/A	840	56	34	N/A
1	2.204	2.901	N/A	0.033	0.50	0.83	N/A	N/A	1500	100	60	N/A
2	1.230	1.619	N/A	0.019	0.28	0.46	N/A	N/A	2700	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, root
Specific Crop Considered:	Beets (table)
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	300	140 - 290	Irrigation, Scouting, Thinning, Weeding (hand), Pruning (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Thinning
Very High	N/A	N/A	N/A

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0	3.950	5.197	N/A	0.18	0.89	1.5	N/A	N/A	280	56	34	N/A
1	2.204	2.901	N/A	0.099	0.50	0.83	N/A	N/A	500	100	60	N/A
2	1.230	1.619	N/A	0.056	0.28	0.46	N/A	N/A	900	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

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Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vine / trellis (w/o girdling)
Specific Crop Considered:	Blackberries
Application Rate of Crop (lb ai/A):	2

DFR Data Summary

Source:	451382-01
Slope of Semilog Regression:	-0.39231
Day 0 Concentration (ug/cm):	1.24
Study Application Rate (lb ai/A):	1.9
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	197 - 2,302	Irrigation, Weeding (hand), Scouting, Hedging
Medium	1000	197 - 2,302	Scouting, Training, Tying
High	5000	TBD	Harvest (hand), Pruning (hand), Training, Tying, Thinning, Leaf Pulling
Very High	N/A	N/A	N/A

0	1.240	1.305	N/A	0.075	0.15	0.75	N/A	N/A	670	340	67	N/A
1	0.838	0.882	N/A	0.050	0.10	0.50	N/A	N/A	990	500	99	N/A
2	0.566	0.596	N/A	0.034	0.068	0.34	N/A	N/A	1500	730	150	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vine / trellis (w/o girdling)
Specific Crop Considered:	Blueberries (highbush)
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	451382-01
Slope of Semilog Regression:	-0.39231
Day 0 Concentration (ug/cm):	1.24
Study Application Rate (lb ai/A):	1.9
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	197 - 2,302	Irrigation, Weeding (hand), Scouting, Hedging
Medium	1000	197 - 2,302	Scouting, Training, Tying
High	5000	TBD	Harvest (hand), Pruning (hand), Training, Tying, Thinning, Leaf Pulling
Very High	N/A	N/A	N/A

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0	1.240	0.816	N/A	0.047	0.093	0.47	N/A	N/A	1100	540	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Trans: r Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Berry, low
Specific Crop Considered:	Blueberries (lowbush)
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	451382-01
Slope of Semilog Regression:	-0.39231
Day 0 Concentration (ug/cm):	1.24
Study Application Rate (lb ai/A):	1.9
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	400	400 - 1,800	Scouting, Weeding (hand), Irrigation, Pruning (hand), Thinning, Harvest (hand) (raking), Pruning (hand) (shears), Mulching
Medium	N/A	N/A	N/A
High	1500	400 - 1,800	Harvest (hand), Pruning (hand), Pinching, Training
Very High	N/A	N/A	N/A

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0	1.240	0.816	N/A	0.037	N/A	0.14	N/A	N/A	1300	N/A	360	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, head and stem Brassica
Specific Crop Considered:	Broccoli
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	2000	1,672 - 8,147	Weeding (hand), Scouting, Thinning, Irrigation, Pruning (hand)
Medium	4000	1,672 - 8,147	Scouting
High	5000	2,862 - 7,584	Harvest (hand), Irrigation, Pruning (hand), Thinning, Topping, Tying
Very High	N/A	N/A	N/A

0	3.950	5.197	N/A	1.2	2.4	3.0	N/A	N/A	42	21	17	N/A
1	2.204	2.901	N/A	0.66	1.3	1.7	N/A	N/A	75	38	30	N/A
2	1.230	1.619	N/A	0.37	0.74	0.93	N/A	N/A	140	68	54	N/A
3	0.687	0.903	N/A	0.21	0.41	0.52	N/A	N/A	240	120	97	N/A
4	0.383	0.504	N/A	0.12	0.23	0.29	N/A	N/A	430	220	170	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, head and stem Brassica
Specific Crop Considered:	Brussel sprouts
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	2000	1,672 - 8,147	Weeding (hand), Scouting, Thinning, Irrigation, Pruning (hand)
Medium	4000	1,672 - 8,147	Scouting
High	5000	2,862 - 7,584	Harvest (hand), Irrigation, Pruning (hand), Thinning, Topping, Tying
Very High	N/A	N/A	N/A

0	3.950	5.197	N/A	1.2	2.4	3.0	N/A	N/A	42	21	17	N/A
1	2.204	2.901	N/A	0.66	1.3	1.7	N/A	N/A	75	38	30	N/A
2	1.230	1.619	N/A	0.37	0.74	0.93	N/A	N/A	140	68	54	N/A
3	0.687	0.903	N/A	0.21	0.41	0.52	N/A	N/A	240	120	97	N/A
4	0.383	0.504	N/A	0.12	0.23	0.29	N/A	N/A	430	220	170	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, head and stem Brassica
Specific Crop Considered:	Cabbage
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	2000	1,672 - 8,147	Weeding (hand), Scouting, Thinning, Irrigation, Pruning (hand)
Medium	4000	1,672 - 8,147	Scouting
High	5000	2,862 - 7,584	Harvest (hand), Irrigation, Pruning (hand), Thinning, Topping, Tying
Very High	N/A	N/A	N/A

0	3.950	5.197	N/A	1.2	2.4	3.0	N/A	N/A	42	21	17	N/A
1	2.204	2.901	N/A	0.66	1.3	1.7	N/A	N/A	75	38	30	N/A
2	1.230	1.619	N/A	0.37	0.74	0.93	N/A	N/A	140	68	54	N/A
3	0.687	0.903	N/A	0.21	0.41	0.52	N/A	N/A	240	120	97	N/A
4	0.383	0.504	N/A	0.12	0.23	0.29	N/A	N/A	430	220	170	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, cucurbit
Specific Crop Considered:	Cantalope
Application Rate of Crop (lb ai/A):	1

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Irrigation, Scouting, Thinning, Weeding (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand), Leaf Pulling, Pruning (hand), Thinning, Turning
Very High	N/A	N/A	N/A

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0	3.950	4.158	N/A	0.24	0.71	1.2	N/A	N/A	210	70	42	N/A
1	2.204	2.321	N/A	0.13	0.40	0.66	N/A	N/A	380	130	75	N/A
2	1.230	1.295	N/A	0.074	0.22	0.37	N/A	N/A	680	230	140	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

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Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, root
Specific Crop Considered:	Carrots
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	300	140 - 290	Irrigation, Scouting, Thinning, Weeding (hand), Pruning (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Thinning
Very High	N/A	N/A	N/A

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0	3.950	5.197	N/A	0.18	0.89	1.5	N/A	N/A	280	56	34	N/A
1	2.204	2.901	N/A	0.099	0.50	0.83	N/A	N/A	500	100	60	N/A
2	1.230	1.619	N/A	0.056	0.28	0.46	N/A	N/A	900	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, head and stem Brassica
Specific Crop Considered:	Cauliflower
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	2000	1,672 - 8,147	Weeding (hand), Scouting, Thinning, Irrigation, Pruning (hand)
Medium	4000	1,672 - 8,147	Scouting
High	5000	2,862 - 7,584	Harvest (hand), Irrigation, Pruning (hand), Thinning, Topping, Tying
Very High	N/A	N/A	N/A

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0	3.950	5.197	N/A	1.2	2.4	3.0	N/A	N/A	42	21	17	N/A
1	2.204	2.901	N/A	0.66	1.3	1.7	N/A	N/A	75	38	30	N/A
2	1.230	1.619	N/A	0.37	0.74	0.93	N/A	N/A	140	68	54	N/A
3	0.687	0.903	N/A	0.21	0.41	0.52	N/A	N/A	240	120	97	N/A
4	0.383	0.504	N/A	0.12	0.23	0.29	N/A	N/A	430	220	170	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, leafy
Specific Crop Considered:	Celery
Application Rate of Crop (lb ai/A):	1.5

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Weeding (hand), Irrigation, Scouting, Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Pruning (hand), Thinning
Very High	N/A	N/A	N/A

0	3.950	6.237	N/A	0.36	1.1	1.8	N/A	N/A	140	47	28	N/A
1	2.204	3.481	N/A	0.20	0.60	0.99	N/A	N/A	250	84	50	N/A
2	1.230	1.943	N/A	0.11	0.33	0.56	N/A	N/A	450	150	90	N/A
3	0.687	1.084	N/A	0.062	0.19	0.31	N/A	N/A	810	270	160	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, deciduous
Specific Crop Considered:	Cherries
Application Rate of Crop (lb ai/A):	3.75

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Scouting, Weeding (hand), Irrigation
Medium	N/A	N/A	N/A
High	3000	1,421 - 4,393	Harvest (hand), Propping, Pruning (hand), Training, Tying
Very High	3000	2,177 - 3,688	Thinning

0	2.650	7.950	0.091	0.91	N/A	2.7	2.7	550	55	N/A	18	18
1	1.658	4.975	0.057	0.57	N/A	1.7	1.7	880	88	N/A	29	29
2	1.038	3.114	0.036	0.36	N/A	1.1	1.1	1400	140	N/A	47	47
3	0.650	1.949	0.022	0.22	N/A	0.67	0.67	2200	220	N/A	75	75
4	0.407	1.220	0.014	0.14	N/A	0.42	0.42	3600	360	N/A	120	120

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, leafy
Specific Crop Considered:	Collards
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Weeding (hand), Irrigation, Scouting, Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Pruning (hand), Thinning
Very High	N/A	N/A	N/A

0	3.950	5.197	N/A	0.30	0.89	1.5	N/A	N/A	170	56	34	N/A
1	2.204	2.901	N/A	0.17	0.50	0.83	N/A	N/A	300	100	60	N/A
2	1.230	1.619	N/A	0.093	0.28	0.46	N/A	N/A	540	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, tall
Specific Crop Considered:	Corn (all types)
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Scouting, Weeding (hand)
Medium	400	418 - 1,980	Scouting
High	1000	418 - 1,980	Irrigation, Scouting, Weeding (hand)
Very High	17000	6,748 - 25,254	Detasseling, Harvest (hand)

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0	3.950	5.197	N/A	0.059	0.24	0.59	10	N/A	840	210	84	5.0
1	2.204	2.901	N/A	0.033	0.13	0.33	5.6	N/A	1500	380	150	8.9
2	1.230	1.619	N/A	0.019	0.074	0.19	3.1	N/A	2700	680	270	16
3	0.687	0.903	N/A	0.010	0.041	0.10	1.8	N/A	4800	1200	480	28
4	0.383	0.504	N/A	0.0058	0.023	0.058	0.98	N/A	8700	2200	870	51
5	0.214	0.281	N/A	0.0032	0.013	0.032	0.55	N/A	16000	3900	1600	91
6	0.119	0.157	N/A	0.0018	0.0072	0.018	0.31	N/A	28000	7000	2800	160

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Cotton
Application Rate of Crop (lb ai/A):	2.5

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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0	3.950	10.395	N/A	0.12	1.8	3.0	N/A	N/A	420	28	17	N/A
1	2.204	5.801	N/A	0.066	0.99	1.7	N/A	N/A	750	50	30	N/A
2	1.230	3.238	N/A	0.037	0.56	0.93	N/A	N/A	1400	90	54	N/A
3	0.687	1.807	N/A	0.021	0.31	0.52	N/A	N/A	2400	160	97	N/A
4	0.383	1.008	N/A	0.012	0.17	0.29	N/A	N/A	4300	290	170	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, cucurbit
Specific Crop Considered:	Cucumbers
Application Rate of Crop (lb ai/A):	1.88

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Irrigation, Scouting, Thinning, Weeding (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand), Leaf Pulling, Pruning (hand), Thinning, Turning
Very High	N/A	N/A	N/A

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0	3.950	7.817	N/A	0.45	1.3	2.2	N/A	N/A	110	37	22	N/A
1	2.204	4.363	N/A	0.25	0.75	1.2	N/A	N/A	200	67	40	N/A
2	1.230	2.435	N/A	0.14	0.42	0.70	N/A	N/A	360	120	72	N/A
3	0.687	1.359	N/A	0.078	0.23	0.39	N/A	N/A	640	210	130	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, fruiting
Specific Crop Considered:	Eggplant
Application Rate of Crop (lb ai/A):	3.43

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Weeding (hand), Irrigation, Scouting, Thinning
Medium	700	TBD	Irrigation, Scouting, Pruning (hand), Staking, Tying
High	1000	364 - 1,908	Harvest (hand), Pruning (hand), Staking, Thinning, Training, Tying
Very High	N/A	N/A	N/A

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0	3.950	14.262	N/A	0.81	1.1	1.6	N/A	N/A	61	44	31	N/A
1	2.204	7.959	N/A	0.45	0.64	0.91	N/A	N/A	110	79	55	N/A
2	1.230	4.442	N/A	0.25	0.36	0.51	N/A	N/A	200	140	98	N/A
3	0.687	2.479	N/A	0.14	0.20	0.28	N/A	N/A	350	250	180	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, deciduous
Specific Crop Considered:	Figs
Application Rate of Crop (lb ai/A):	2.5

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Scouting, Weeding (hand), Irrigation
Medium	N/A	N/A	N/A
High	3000	1,421 - 4,393	Harvest (hand), Propping, Pruning (hand), Training, Tying
Very High	3000	2,177 - 3,688	Thinning

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0	2.650	5.300	0.061	0.61	N/A	1.8	1.8	830	83	N/A	28	28
1	1.658	3.317	0.038	0.38	N/A	1.1	1.1	1300	130	N/A	44	44
2	1.038	2.076	0.024	0.24	N/A	0.71	0.71	2100	210	N/A	70	70
3	0.650	1.299	0.015	0.15	N/A	0.45	0.45	3400	340	N/A	110	110

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Flax
Application Rate of Crop (lb ai/A):	0.5

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

0	3.950	2.079	N/A	0.024	0.36	0.59	N/A	N/A	2100	140	84	N/A
1	2.204	1.160	N/A	0.013	0.20	0.33	N/A	N/A	3800	250	150	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, evergreen
Specific Crop Considered:	Grapefruit
Application Rate of Crop (lb ai/A):	6.25

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Irrigation, Scouting, Weeding (hand), Thinning
Medium	3000	1,121 - 4,929	Pruning (cones), Pruning (hand), Thinning, Seed Cone Harvesting
High	3000	2,177 - 3,688	Bagging Fruit, Hand Labor (misc.), Harvest (hand), Pollination, Staking, Topping, Training, Thinning, Tying
Very High	N/A	N/A	N/A

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0	2.650	13.250	0.15	1.5	4.5	4.5	N/A	330	33	11	11	N/A
1	1.658	8.292	0.095	0.95	2.8	2.8	N/A	530	53	18	18	N/A
2	1.038	5.190	0.059	0.59	1.8	1.8	N/A	840	84	28	28	N/A
3	0.650	3.248	0.037	0.37	1.1	1.1	N/A	1300	130	45	45	N/A
4	0.407	2.033	0.023	0.23	0.70	0.70	N/A	2200	220	72	72	N/A
5	0.254	1.272	0.015	0.15	0.44	0.44	N/A	3400	340	110	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vine / trellis (w/o girdling)
Specific Crop Considered:	Grapes (juice and wine)
Application Rate of Crop (lb ai/A):	1.88

DFR Data Summary

Source:	450059-10
Slope of Semilog Regression:	-0.35339
Day 0 Concentration (ug/cm):	1.39
Study Application Rate (lb ai/A):	1
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	500	197 - 2,302	Irrigation, Weeding (hand), Scouting, Hedging
Medium	1000	197 - 2,302	Scouting, Training, Tying
High	5000	TBD	Harvest (hand), Pruning (hand), Training, Tying, Thinning, Leaf Pulling
Very High	N/A	N/A	N/A

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0	1.390	2.613	N/A	0.15	0.30	1.5	N/A	N/A	330	170	33	N/A
1	0.976	1.835	N/A	0.10	0.21	1.0	N/A	N/A	480	240	48	N/A
2	0.686	1.289	N/A	0.074	0.15	0.74	N/A	N/A	680	340	68	N/A
3	0.481	0.905	N/A	0.052	0.10	0.52	N/A	N/A	970	480	97	N/A
4	0.338	0.636	N/A	0.036	0.073	0.36	N/A	N/A	1400	690	140	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	2.650	13.250	0.15	1.5	4.5	4.5	N/A	330	33	11	11	N/A
1	1.658	8.292	0.095	0.95	2.8	2.8	N/A	530	53	18	18	N/A
2	1.038	5.190	0.059	0.59	1.8	1.8	N/A	840	84	28	28	N/A
3	0.650	3.248	0.037	0.37	1.1	1.1	N/A	1300	130	45	45	N/A
4	0.407	2.033	0.023	0.23	0.70	0.70	N/A	2200	220	72	72	N/A
5	0.254	1.272	0.015	0.15	0.44	0.44	N/A	3400	340	110	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, leafy
Specific Crop Considered:	Lettuce
Application Rate of Crop (lb ai/A):	1.88

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Weeding (hand), Irrigation, Scouting, Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Pruning (hand), Thinning
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	3.950	7.817	N/A	0.45	1.3	2.2	N/A	N/A	110	37	22	N/A
1	2.204	4.363	N/A	0.25	0.75	1.2	N/A	N/A	200	67	40	N/A
2	1.230	2.435	N/A	0.14	0.42	0.70	N/A	N/A	360	120	72	N/A
3	0.687	1.359	N/A	0.078	0.23	0.39	N/A	N/A	640	210	130	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, nut
Specific Crop Considered:	Macadamia nuts
Application Rate of Crop (lb ai/A):	0.94

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	500	197 - 2,302	Scouting, Thinning, Irrigation, Weeding (hand)
Medium	N/A	N/A	N/A
High	2500	1,121 - 4,929	Harvest (hand), Pruning (hand), Thinning, Harvest (hand) (net)
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	2.650	1.993	N/A	0.11	N/A	0.57	N/A	N/A	440	N/A	88	N/A
1	1.658	1.247	N/A	0.071	N/A	0.36	N/A	N/A	700	N/A	140	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, evergreen
Specific Crop Considered:	Mangos
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Irrigation, Scouting, Weeding (hand), Thinning
Medium	3000	1,121 - 4,929	Pruning (cones), Pruning (hand), Thinning, Seed Cone Harvesting
High	3000	2,177 - 3,688	Bagging Fruit, Hand Labor (misc.), Harvest (hand), Pollination, Staking, Topping, Training, Thinning, Tying
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	2.650	2.650	0.030	0.30	0.91	0.91	N/A	1700	170	55	55	N/A
1	1.658	1.658	0.019	0.19	0.57	0.57	N/A	2600	260	88	88	N/A
2	1.038	1.038	0.012	0.12	0.36	0.36	N/A	4200	420	140	140	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, cucurbit
Specific Crop Considered:	Melons
Application Rate of Crop (lb ai/A):	1

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Irrigation, Scouting, Thinning, Weeding (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand), Leaf Pulling, Pruning (hand), Thinning, Turning
Very High	N/A	N/A	N/A

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												Very High
0	3.950	4.158	N/A	0.24	0.71	1.2	N/A	N/A	210	70	42	N/A
1	2.204	2.321	N/A	0.13	0.40	0.66	N/A	N/A	380	130	75	N/A
2	1.230	1.295	N/A	0.074	0.22	0.37	N/A	N/A	680	230	140	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients'; August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Mint
Application Rate of Crop (lb ai/A):	0.94

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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0	3.950	3.908	N/A	0.045	0.67	1.1	N/A	N/A	1100	75	45	N/A
1	2.204	2.181	N/A	0.025	0.37	0.62	N/A	N/A	2000	130	80	N/A
2	1.230	1.217	N/A	0.014	0.21	0.35	N/A	N/A	3600	240	140	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Unassigned
Specific Crop Considered:	Mushrooms
Application Rate of Crop (lb ai/A):	1.7

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	N/A	N/A	N/A
Medium	N/A	N/A	N/A
High	N/A	N/A	N/A
Very High	N/A	N/A	N/A

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0	0.000	0.000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, leafy
Specific Crop Considered:	Mustard greens
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Weeding (hand), Irrigation, Scouting, Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Pruning (hand), Thinning
Very High	N/A	N/A	N/A

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Very High
0	3.950	5.197	N/A	0.30	0.89	1.5	N/A	N/A	170	56	34	N/A
1	2.204	2.901	N/A	0.17	0.50	0.83	N/A	N/A	300	100	60	N/A
2	1.230	1.619	N/A	0.093	0.28	0.46	N/A	N/A	540	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, deciduous
Specific Crop Considered:	Nectarines
Application Rate of Crop (lb ai/A):	3.75

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Scouting, Weeding (hand), Irrigation
Medium	N/A	N/A	N/A
High	3000	1,421 - 4,393	Harvest (hand), Propping, Pruning (hand), Training, Tying
Very High	3000	2,177 - 3,688	Thinning

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	2.650	7.950	0.091	0.91	N/A	2.7	2.7	550	55	N/A	18	18
1	1.658	4.975	0.057	0.57	N/A	1.7	1.7	880	88	N/A	29	29
2	1.038	3.114	0.036	0.36	N/A	1.1	1.1	1400	140	N/A	47	47
3	0.650	1.949	0.022	0.22	N/A	0.67	0.67	2200	220	N/A	75	75
4	0.407	1.220	0.014	0.14	N/A	0.42	0.42	3600	360	N/A	120	120

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, fruiting
Specific Crop Considered:	Okra
Application Rate of Crop (lb ai/A):	1.5

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Weeding (hand), Irrigation, Scouting, Thinning
Medium	700	TBD	Irrigation, Scouting, Pruning (hand), Staking, Tying
High	1000	364 - 1,908	Harvest (hand), Pruning (hand), Staking, Thinning, Training, Tying
Very High	N/A	N/A	N/A

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0	3.950	6.237	N/A	0.36	0.50	0.71	N/A	N/A	140	100	70	N/A
1	2.204	3.481	N/A	0.20	0.28	0.40	N/A	N/A	250	180	130	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, root
Specific Crop Considered:	Onions (dry)
Application Rate of Crop (lb ai/A):	1.56

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	300	140 - 290	Irrigation, Scouting, Thinning, Weeding (hand), Pruning (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Thinning
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	3.950	6.486	N/A	0.22	1.1	1.9	N/A	N/A	220	45	27	N/A
1	2.204	3.620	N/A	0.12	0.62	1.0	N/A	N/A	400	81	48	N/A
2	1.230	2.020	N/A	0.069	0.35	0.58	N/A	N/A	720	140	87	N/A
3	0.687	1.128	N/A	0.039	0.19	0.32	N/A	N/A	1300	260	160	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, root
Specific Crop Considered:	Onions (green)
Application Rate of Crop (lb ai/A):	1.56

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	300	140 - 290	Irrigation, Scouting, Thinning, Weeding (hand), Pruning (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Thinning
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	3.950	6.486	N/A	0.22	1.1	1.9	N/A	N/A	220	45	27	N/A
1	2.204	3.620	N/A	0.12	0.62	1.0	N/A	N/A	400	81	48	N/A
2	1.230	2.020	N/A	0.069	0.35	0.58	N/A	N/A	720	140	87	N/A
3	0.687	1.128	N/A	0.039	0.19	0.32	N/A	N/A	1300	260	160	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, evergreen
Specific Crop Considered:	Oranges
Application Rate of Crop (lb ai/A):	6.25

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Irrigation, Scouting, Weeding (hand), Thinning
Medium	3000	1,121 - 4,929	Pruning (cones), Pruning (hand), Thinning, Seed Cone Harvesting
High	3000	2,177 - 3,688	Bagging Fruit, Hand Labor (misc.), Harvest (hand), Pollination, Staking, Topping, Training, Thinning, Tying
Very High	N/A	N/A	N/A

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0	2.650	13.250	0.15	1.5	4.5	4.5	N/A	330	33	11	11	N/A
1	1.658	8.292	0.095	0.95	2.8	2.8	N/A	530	53	18	18	N/A
2	1.038	5.190	0.059	0.59	1.8	1.8	N/A	840	84	28	28	N/A
3	0.650	3.248	0.037	0.37	1.1	1.1	N/A	1300	130	45	45	N/A
4	0.407	2.033	0.023	0.23	0.70	0.70	N/A	2200	220	72	72	N/A
5	0.254	1.272	0.015	0.15	0.44	0.44	N/A	3400	340	110	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, evergreen
Specific Crop Considered:	Papaya
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Irrigation, Scouting, Weeding (hand), Thinning
Medium	3000	1,121 - 4,929	Pruning (cones), Pruning (hand), Thinning, Seed Cone Harvesting
High	3000	2,177 - 3,688	Bagging Fruit, Hand Labor (misc.), Harvest (hand), Pollination, Staking, Topping, Training, Thinning, Tying
Very High	N/A	N/A	N/A

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DAT	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	Medium	High	[illegible]	Very Low	[illegible]	Medium	High	Very High
0	2.650	2.650	0.030	0.30	0.91	0.91	N/A	1700	170	55	55	N/A
1	1.658	1.658	0.019	0.19	0.57	0.57	N/A	2600	260	88	88	N/A
2	1.038	1.038	0.012	0.12	0.36	0.36	N/A	4200	420	140	140	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, leafy
Specific Crop Considered:	Parsley
Application Rate of Crop (lb ai/A):	2

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Weeding (hand), Irrigation, Scouting, Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Pruning (hand), Thinning
Very High	N/A	N/A	N/A

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												Very High
0	3.950	8.316	N/A	0.48	1.4	2.4	N/A	N/A	110	35	21	N/A
1	2.204	4.641	N/A	0.27	0.80	1.3	N/A	N/A	190	63	38	N/A
2	1.230	2.590	N/A	0.15	0.44	0.74	N/A	N/A	340	110	68	N/A
3	0.687	1.446	N/A	0.083	0.25	0.41	N/A	N/A	610	200	120	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, deciduous
Specific Crop Considered:	Peaches
Application Rate of Crop (lb ai/A):	3.75

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Scouting, Weeding (hand), Irrigation
Medium	N/A	N/A	N/A
High	3000	1,421 - 4,393	Harvest (hand), Propping, Pruning (hand), Training, Tying
Very High	3000	2,177 - 3,688	Thinning

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0	2.650	7.950	0.091	0.91	N/A	2.7	2.7	550	55	N/A	18	18
1	1.658	4.975	0.057	0.57	N/A	1.7	1.7	880	88	N/A	29	29
2	1.038	3.114	0.036	0.36	N/A	1.1	1.1	1400	140	N/A	47	47
3	0.650	1.949	0.022	0.22	N/A	0.67	0.67	2200	220	N/A	75	75
4	0.407	1.220	0.014	0.14	N/A	0.42	0.42	3600	360	N/A	120	120

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, deciduous
Specific Crop Considered:	Pears
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Scouting, Weeding (hand), Irrigation
Medium	N/A	N/A	N/A
High	3000	1,421 - 4,393	Harvest (hand), Propping, Pruning (hand), Training, Tying
Very High	3000	2,177 - 3,688	Thinning

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Very High
0	2.650	2.650	0.030	0.30	N/A	0.91	0.91	1700	170	N/A	55	55
1	1.658	1.658	0.019	0.19	N/A	0.57	0.57	2600	260	N/A	88	88
2	1.038	1.038	0.012	0.12	N/A	0.36	0.36	4200	420	N/A	140	140

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Peas (dry)
Application Rate of Crop (lb ai/A):	2.5

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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0	3.950	10.395	N/A	0.12	1.8	3.0	N/A	N/A	420	28	17	N/A
1	2.204	5.801	N/A	0.066	0.99	1.7	N/A	N/A	750	50	30	N/A
2	1.230	3.238	N/A	0.037	0.56	0.93	N/A	N/A	1400	90	54	N/A
3	0.687	1.807	N/A	0.021	0.31	0.52	N/A	N/A	2400	160	97	N/A
4	0.383	1.008	N/A	0.012	0.17	0.29	N/A	N/A	4300	290	170	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Peas (green)
Application Rate of Crop (lb ai/A):	2.5

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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0	3.950	10.395	N/A	0.12	1.8	3.0	N/A	N/A	420	28	17	N/A
1	2.204	5.801	N/A	0.066	0.99	1.7	N/A	N/A	750	50	30	N/A
2	1.230	3.238	N/A	0.037	0.56	0.93	N/A	N/A	1400	90	54	N/A
3	0.687	1.807	N/A	0.021	0.31	0.52	N/A	N/A	2400	160	97	N/A
4	0.383	1.008	N/A	0.012	0.17	0.29	N/A	N/A	4300	290	170	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, nut
Specific Crop Considered:	Pecans
Application Rate of Crop (lb ai/A):	2.5

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	197 - 2,302	Scouting, Thinning, Irrigation, Weeding (hand)
Medium	N/A	N/A	N/A
High	2500	1,121 - 4,929	Harvest (hand), Pruning (hand), Thinning, Harvest (hand) (net)
Very High	N/A	N/A	N/A

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0	2.650	5.300	N/A	0.30	N/A	1.5	N/A	N/A	170	N/A	33	N/A
1	1.658	3.317	N/A	0.19	N/A	0.95	N/A	N/A	260	N/A	53	N/A
2	1.038	2.076	N/A	0.12	N/A	0.59	N/A	N/A	420	N/A	84	N/A
3	0.650	1.299	N/A	0.074	N/A	0.37	N/A	N/A	670	N/A	130	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, fruiting
Specific Crop Considered:	Peppers (bell)
Application Rate of Crop (lb ai/A):	1.56

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Weeding (hand), Irrigation, Scouting, Thinning
Medium	700	TBD	Irrigation, Scouting, Pruning (hand), Staking, Tying
High	1000	364 - 1,908	Harvest (hand), Pruning (hand), Staking, Thinning, Training, Tying
Very High	N/A	N/A	N/A

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0	3.950	6.486	N/A	0.37	0.52	0.74	N/A	N/A	130	96	67	N/A
1	2.204	3.620	N/A	0.21	0.29	0.41	N/A	N/A	240	170	120	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, fruiting
Specific Crop Considered:	Peppers (chili)
Application Rate of Crop (lb ai/A):	1.56

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Weeding (hand), Irrigation, Scouting, Thinning
Medium	700	TBD	Irrigation, Scouting, Pruning (hand), Staking, Tying
High	1000	364 - 1,908	Harvest (hand), Pruning (hand), Staking, Thinning, Training, Tying
Very High	N/A	N/A	N/A

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0	3.950	6.486	N/A	0.37	0.52	0.74	N/A	N/A	130	96	67	N/A
1	2.204	3.620	N/A	0.21	0.29	0.41	N/A	N/A	240	170	120	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, stem / stalk
Specific Crop Considered:	Pineapple
Application Rate of Crop (lb ai/A):	5

DFR Data Summary

Source:	451382-01
Slope of Semilog Regression:	-0.39231
Day 0 Concentration (ug/cm):	1.24
Study Application Rate (lb ai/A):	1.9
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	300	140 - 290	Irrigation, Scouting, Thinning, Weeding (hand)
Medium	500	364 - 1,908	Irrigation, Scouting
High	1000	364 - 1,908	Harvest (hand), Pruning (hand)
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	High	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Very High
0	1.240	3.263	N/A	0.11	0.19	0.37	N/A	N/A	450	270	130	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, root
Specific Crop Considered:	Potatoes
Application Rate of Crop (lb ai/A):	1.56

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	300	140 - 290	Irrigation, Scouting, Thinning, Weeding (hand), Pruning (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Thinning
Very High	N/A	N/A	N/A

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												Very High
0	3.950	6.486	N/A	0.22	1.1	1.9	N/A	N/A	220	45	27	N/A
1	2.204	3.620	N/A	0.12	0.62	1.0	N/A	N/A	400	81	48	N/A
2	1.230	2.020	N/A	0.069	0.35	0.58	N/A	N/A	720	140	87	N/A
3	0.687	1.128	N/A	0.039	0.19	0.32	N/A	N/A	1300	260	160	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vine / trellis (w/o girdling)
Specific Crop Considered:	Raspberries
Application Rate of Crop (lb ai/A):	2

DFR Data Summary

Source:	451382-01
Slope of Semilog Regression:	-0.39231
Day 0 Concentration (ug/cm):	1.24
Study Application Rate (lb ai/A):	1.9
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	500	197 - 2,302	Irrigation, Weeding (hand), Scouting, Hedging
Medium	1000	197 - 2,302	Scouting, Training, Tying
High	5000	TBD	Harvest (hand), Pruning (hand), Training, Tying, Thinning, Leaf Pulling
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	1.240	1.305	N/A	0.075	0.15	0.75	N/A	N/A	670	340	67	N/A
1	0.838	0.882	N/A	0.050	0.10	0.50	N/A	N/A	990	500	99	N/A
2	0.566	0.596	N/A	0.034	0.068	0.34	N/A	N/A	1500	730	150	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients'; August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Rice
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	3.950	5.197	N/A	0.059	0.89	1.5	N/A	N/A	840	56	34	N/A
1	2.204	2.901	N/A	0.033	0.50	0.83	N/A	N/A	1500	100	60	N/A
2	1.230	1.619	N/A	0.019	0.28	0.46	N/A	N/A	2700	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

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Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, tall
Specific Crop Considered:	Sorghum
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	100	TBD	Scouting, Weeding (hand)
Medium	400	418 - 1,980	Scouting
High	1000	418 - 1,980	Irrigation, Scouting, Weeding (hand)
Very High	17000	6,748 - 25,254	Detasseling, Harvest (hand)

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	High	Very High
0	3.950	5.197	N/A	0.059	0.24	0.59	10	N/A	840	210	84	5.0
1	2.204	2.901	N/A	0.033	0.13	0.33	5.6	N/A	1500	380	150	8.9
2	1.230	1.619	N/A	0.019	0.074	0.19	3.1	N/A	2700	680	270	16
3	0.687	0.903	N/A	0.010	0.041	0.10	1.8	N/A	4800	1200	480	28
4	0.383	0.504	N/A	0.0058	0.023	0.058	0.98	N/A	8700	2200	870	51
5	0.214	0.281	N/A	0.0032	0.013	0.032	0.55	N/A	16000	3900	1600	91
6	0.119	0.157	N/A	0.0018	0.0072	0.018	0.31	N/A	28000	7000	2800	160

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, leafy
Specific Crop Considered:	Spinach
Application Rate of Crop (lb ai/A):	2

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Weeding (hand), Irrigation, Scouting, Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Pruning (hand), Thinning
Very High	N/A	N/A	N/A

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	3.950	8.316	N/A	0.48	1.4	2.4	N/A	N/A	110	35	21	N/A
1	2.204	4.641	N/A	0.27	0.80	1.3	N/A	N/A	190	63	38	N/A
2	1.230	2.590	N/A	0.15	0.44	0.74	N/A	N/A	340	110	68	N/A
3	0.687	1.446	N/A	0.083	0.25	0.41	N/A	N/A	610	200	120	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, cucurbit
Specific Crop Considered:	Squash (summer)
Application Rate of Crop (lb ai/A):	1.88

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Irrigation, Scouting, Thinning, Weeding (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand), Leaf Pulling, Pruning (hand), Thinning, Turning
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	MOE [illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	High	Very High
0	3.950	7.817	N/A	0.45	1.3	2.2	N/A	N/A	110	37	22	N/A
1	2.204	4.363	N/A	0.25	0.75	1.2	N/A	N/A	200	67	40	N/A
2	1.230	2.435	N/A	0.14	0.42	0.70	N/A	N/A	360	120	72	N/A
3	0.687	1.359	N/A	0.078	0.23	0.39	N/A	N/A	640	210	130	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, cucurbit
Specific Crop Considered:	Squash (winter)
Application Rate of Crop (lb ai/A):	1

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Irrigation, Scouting, Thinning, Weeding (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand), Leaf Pulling, Pruning (hand), Thinning, Turning
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	3.950	4.158	N/A	0.24	0.71	1.2	N/A	N/A	210	70	42	N/A
1	2.204	2.321	N/A	0.13	0.40	0.66	N/A	N/A	380	130	75	N/A
2	1.230	1.295	N/A	0.074	0.22	0.37	N/A	N/A	680	230	140	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Berry, low
Specific Crop Considered:	Strawberries
Application Rate of Crop (lb ai/A):	2

DFR Data Summary

Source:	451382-01
Slope of Semilog Regression:	-0.39231
Day 0 Concentration (ug/cm):	1.24
Study Application Rate (lb ai/A):	1.9
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	400	400 - 1,800	Scouting, Weeding (hand), Irrigation, Pruning (hand), Thinning, Harvest (hand) (raking), Pruning (hand) (shears), Mulching
Medium	N/A	N/A	N/A
High	1500	400 - 1,800	Harvest (hand), Pruning (hand), Pinching, Training
Very High	N/A	N/A	N/A

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0	1.240	1.305	N/A	0.060	N/A	0.22	N/A	N/A	840	N/A	220	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

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Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, root
Specific Crop Considered:	Sweet potatoes
Application Rate of Crop (lb ai/A):	1.56

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	300	140 - 290	Irrigation, Scouting, Thinning, Weeding (hand), Pruning (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Thinning
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
										Medium	High	Very High
0	3.950	6.486	N/A	0.22	1.1	1.9	N/A	N/A	220	45	27	N/A
1	2.204	3.620	N/A	0.12	0.62	1.0	N/A	N/A	400	81	48	N/A
2	1.230	2.020	N/A	0.069	0.35	0.58	N/A	N/A	720	140	87	N/A
3	0.687	1.128	N/A	0.039	0.19	0.32	N/A	N/A	1300	260	160	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, leafy
Specific Crop Considered:	Swiss chard
Application Rate of Crop (lb ai/A):	2

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Weeding (hand), Irrigation, Scouting, Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Pruning (hand), Thinning
Very High	N/A	N/A	N/A

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	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] High	Very High
0	3.950	8.316	N/A	0.48	1.4	2.4	N/A	N/A	110	35	21	N/A
1	2.204	4.641	N/A	0.27	0.80	1.3	N/A	N/A	190	63	38	N/A
2	1.230	2.590	N/A	0.15	0.44	0.74	N/A	N/A	340	110	68	N/A
3	0.687	1.446	N/A	0.083	0.25	0.41	N/A	N/A	610	200	120	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, fruiting
Specific Crop Considered:	Tomatoes (fresh)
Application Rate of Crop (lb ai/A):	3.43

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Weeding (hand), Irrigation, Scouting, Thinning
Medium	700	TBD	Irrigation, Scouting, Pruning (hand), Staking, Tying
High	1000	364 - 1,908	Harvest (hand), Pruning (hand), Staking, Thinning, Training, Tying
Very High	N/A	N/A	N/A

											High	Very High
0	3.950	14.262	N/A	0.81	1.1	1.6	N/A	N/A	61	44	31	N/A
1	2.204	7.959	N/A	0.45	0.64	0.91	N/A	N/A	110	79	55	N/A
2	1.230	4.442	N/A	0.25	0.36	0.51	N/A	N/A	200	140	98	N/A
3	0.687	2.479	N/A	0.14	0.20	0.28	N/A	N/A	350	250	180	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, fruiting
Specific Crop Considered:	Tomatoes (processed)
Application Rate of Crop (lb ai/A):	3.43

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Weeding (hand), Irrigation, Scouting, Thinning
Medium	700	TBD	Irrigation, Scouting, Pruning (hand), Staking, Tying
High	1000	364 - 1,908	Harvest (hand), Pruning (hand), Staking, Thinning, Training, Tying
Very High	N/A	N/A	N/A

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											High	Very High
0	3.950	14.262	N/A	0.81	1.1	1.6	N/A	N/A	61	44	31	N/A
1	2.204	7.959	N/A	0.45	0.64	0.91	N/A	N/A	110	79	55	N/A
2	1.230	4.442	N/A	0.25	0.36	0.51	N/A	N/A	200	140	98	N/A
3	0.687	2.479	N/A	0.14	0.20	0.28	N/A	N/A	350	250	180	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, root
Specific Crop Considered:	Turnips
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	300	140 - 290	Irrigation, Scouting, Thinning, Weeding (hand), Pruning (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Thinning
Very High	N/A	N/A	N/A

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0	3.950	5.197	N/A	0.18	0.89	1.5	N/A	N/A	280	56	34	N/A
1	2.204	2.901	N/A	0.099	0.50	0.83	N/A	N/A	500	100	60	N/A
2	1.230	1.619	N/A	0.056	0.28	0.46	N/A	N/A	900	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, nut
Specific Crop Considered:	Walnuts
Application Rate of Crop (lb ai/A):	2.5

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	500	197 - 2,302	Scouting, Thinning, Irrigation, Weeding (hand)
Medium	N/A	N/A	N/A
High	2500	1,121 - 4,929	Harvest (hand), Pruning (hand), Thinning, Harvest (hand) (net)
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	MOE	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Very High
0	2.650	5.300	N/A	0.30	N/A	1.5	N/A	N/A	170	N/A	33	N/A
1	1.658	3.317	N/A	0.19	N/A	0.95	N/A	N/A	260	N/A	53	N/A
2	1.038	2.076	N/A	0.12	N/A	0.59	N/A	N/A	420	N/A	84	N/A
3	0.650	1.299	N/A	0.074	N/A	0.37	N/A	N/A	670	N/A	130	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, leafy
Specific Crop Considered:	Watercress
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Weeding (hand), Irrigation, Scouting, Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Pruning (hand), Thinning
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	3.950	5.197	N/A	0.30	0.89	1.5	N/A	N/A	170	56	34	N/A
1	2.204	2.901	N/A	0.17	0.50	0.83	N/A	N/A	300	100	60	N/A
2	1.230	1.619	N/A	0.093	0.28	0.46	N/A	N/A	540	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, cucurbit
Specific Crop Considered:	Watermelon
Application Rate of Crop (lb ai/A):	1

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Irrigation, Scouting, Thinning, Weeding (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand), Leaf Pulling, Pruning (hand), Thinning, Turning
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	3.950	4.158	N/A	0.24	0.71	1.2	N/A	N/A	210	70	42	N/A
1	2.204	2.321	N/A	0.13	0.40	0.66	N/A	N/A	380	130	75	N/A
2	1.230	1.295	N/A	0.074	0.22	0.37	N/A	N/A	680	230	140	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Wheat (spring)
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	3.950	5.197	N/A	0.059	0.89	1.5	N/A	N/A	840	56	34	N/A
1	2.204	2.901	N/A	0.033	0.50	0.83	N/A	N/A	1500	100	60	N/A
2	1.230	1.619	N/A	0.019	0.28	0.46	N/A	N/A	2700	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Wheat (winter)
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	MOE (5)		
	[illegible]	[illegible]					[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
0	3.950	5.197	N/A	0.059	0.89	1.5	N/A	N/A	840	56	34	N/A
1	2.204	2.901	N/A	0.033	0.50	0.83	N/A	N/A	1500	100	60	N/A
2	1.230	1.619	N/A	0.019	0.28	0.46	N/A	N/A	2700	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vine / trellis (w/ girdling)
Specific Crop Considered:	Boysenberry
Application Rate of Crop (lb ai/A):	2

DFR Data Summary

Source:	451382-01
Slope of Semilog Regression:	-0.39231
Day 0 Concentration (ug/cm):	1.24
Study Application Rate (lb ai/A):	1.9
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	500	197 - 2,302	Irrigation, Weeding (hand), Scouting, Hedging
Medium	1000	197 - 2,302	Scouting, Training, Tying
High	5000	TBD	Harvest (hand), Pruning (hand), Training, Tying, Thinning, Leaf Pulling
Very High	10000	TBD	Girdling, Turning (Cane turning), Tying (Cane turning)

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	1.240	1.305	N/A	0.075	0.15	0.75	1.5	N/A	670	340	67	34
1	0.838	0.882	N/A	0.050	0.10	0.50	1.0	N/A	990	500	99	50
2	0.566	0.596	N/A	0.034	0.068	0.34	0.68	N/A	1500	730	150	73
3	0.382	0.402	N/A	0.023	0.046	0.23	0.46	N/A	2200	1100	220	110

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, head and stem Brassica
Specific Crop Considered:	Broccoli raab
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	2000	1,672 - 8,147	Weeding (hand), Scouting, Thinning, Irrigation, Pruning (hand)
Medium	4000	1,672 - 8,147	Scouting
High	5000	2,862 - 7,584	Harvest (hand), Irrigation, Pruning (hand), Thinning, Topping, Tying
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Very High
0	3.950	5.197	N/A	1.2	2.4	3.0	N/A	N/A	42	21	17	N/A
1	2.204	2.901	N/A	0.66	1.3	1.7	N/A	N/A	75	38	30	N/A
2	1.230	1.619	N/A	0.37	0.74	0.93	N/A	N/A	140	68	54	N/A
3	0.687	0.903	N/A	0.21	0.41	0.52	N/A	N/A	240	120	97	N/A
4	0.383	0.504	N/A	0.12	0.23	0.29	N/A	N/A	430	220	170	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, root
Specific Crop Considered:	Chayote root
Application Rate of Crop (lb ai/A):	1.56

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	300	140 - 290	Irrigation, Scouting, Thinning, Weeding (hand), Pruning (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Thinning
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	3.950	6.486	N/A	0.22	1.1	1.9	N/A	N/A	220	45	27	N/A
1	2.204	3.620	N/A	0.12	0.62	1.0	N/A	N/A	400	81	48	N/A
2	1.230	2.020	N/A	0.069	0.35	0.58	N/A	N/A	720	140	87	N/A
3	0.687	1.128	N/A	0.039	0.19	0.32	N/A	N/A	1300	260	160	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, cucurbit
Specific Crop Considered:	Chayote fruit
Application Rate of Crop (lb ai/A):	1.88

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Irrigation, Scouting, Thinning, Weeding (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand), Leaf Pulling, Pruning (hand), Thinning, Turning
Very High	N/A	N/A	N/A

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	3.950	7.817	N/A	0.45	1.3	2.2	N/A	N/A	110	37	22	N/A
1	2.204	4.363	N/A	0.25	0.75	1.2	N/A	N/A	200	67	40	N/A
2	1.230	2.435	N/A	0.14	0.42	0.70	N/A	N/A	360	120	72	N/A
3	0.687	1.359	N/A	0.078	0.23	0.39	N/A	N/A	640	210	130	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova; or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

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Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, nut
Specific Crop Considered:	Chestnut
Application Rate of Crop (lb ai/A):	5

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	197 - 2,302	Scouting, Thinning, Irrigation, Weeding (hand)
Medium	N/A	N/A	N/A
High	2500	1,121 - 4,929	Harvest (hand), Pruning (hand), Thinning, Harvest (hand) (net)
Very High	N/A	N/A	N/A

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0	2.650	10.600	N/A	0.61	N/A	3.0	N/A	N/A	83	N/A	17	N/A
1	1.658	6.634	N/A	0.38	N/A	1.9	N/A	N/A	130	N/A	26	N/A
2	1.038	4.152	N/A	0.24	N/A	1.2	N/A	N/A	210	N/A	42	N/A
3	0.650	2.598	N/A	0.15	N/A	0.74	N/A	N/A	340	N/A	67	N/A
4	0.407	1.626	N/A	0.093	N/A	0.46	N/A	N/A	540	N/A	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Clover
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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												Very High
0	3.950	5.197	N/A	0.059	0.89	1.5	N/A	N/A	840	56	34	N/A
1	2.204	2.901	N/A	0.033	0.50	0.83	N/A	N/A	1500	100	60	N/A
2	1.230	1.619	N/A	0.019	0.28	0.46	N/A	N/A	2700	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, leafy
Specific Crop Considered:	Dandelion
Application Rate of Crop (lb ai/A):	2

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Weeding (hand), Irrigation, Scouting, Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Pruning (hand), Thinning
Very High	N/A	N/A	N/A

0	3.950	8.316	N/A	0.48	1.4	2.4	N/A	N/A	110	35	21	N/A
1	2.204	4.641	N/A	0.27	0.80	1.3	N/A	N/A	190	63	38	N/A
2	1.230	2.590	N/A	0.15	0.44	0.74	N/A	N/A	340	110	68	N/A
3	0.687	1.446	N/A	0.083	0.25	0.41	N/A	N/A	610	200	120	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vine / trellis (w/o girdling)
Specific Crop Considered:	Dewberry
Application Rate of Crop (lb ai/A):	2

DFR Data Summary

Source:	451382-01
Slope of Semilog Regression:	-0.39231
Day 0 Concentration (ug/cm):	1.24
Study Application Rate (lb ai/A):	1.9
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	197 - 2,302	Irrigation, Weeding (hand), Scouting, Hedging
Medium	1000	197 - 2,302	Scouting, Training, Tying
High	5000	TBD	Harvest (hand), Pruning (hand), Training, Tying, Thinning, Leaf Pulling
Very High	N/A	N/A	N/A

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0	1.240	1.305	N/A	0.075	0.15	0.75	N/A	N/A	670	340	67	N/A
1	0.838	0.882	N/A	0.050	0.10	0.50	N/A	N/A	990	500	99	N/A
2	0.566	0.596	N/A	0.034	0.068	0.34	N/A	N/A	1500	730	150	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

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Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, leafy
Specific Crop Considered:	Endive
Application Rate of Crop (lb ai/A):	1.88

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Weeding (hand), Irrigation, Scouting, Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Pruning (hand), Thinning
Very High	N/A	N/A	N/A

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0	3.950	7.817	N/A	0.45	1.3	2.2	N/A	N/A	110	37	22	N/A
1	2.204	4.363	N/A	0.25	0.75	1.2	N/A	N/A	200	67	40	N/A
2	1.230	2.435	N/A	0.14	0.42	0.70	N/A	N/A	360	120	72	N/A
3	0.687	1.359	N/A	0.078	0.23	0.39	N/A	N/A	640	210	130	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Bunch / bundle
Specific Crop Considered:	Dates
Application Rate of Crop (lb ai/A):	4.25

DFR Data Summary

Source:	450059-10
Slope of Semilog Regression:	-0.35339
Day 0 Concentration (ug/cm):	1.39
Study Application Rate (lb ai/A):	1
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Weeding (hand), Scouting, Thinning
Medium	1300	1,346 - 2,308	Irrigation, Scouting
High	2000	1,346 - 2,308	Harvest (hand), Harvest (mechanical), Stripping, Training, Pruning (hand), Thinning, Topping, Weeding (hand)
Very High	N/A	N/A	N/A

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0	1.390	5.907	N/A	0.068	0.88	1.4	N/A	N/A	740	57	37	N/A
1	0.976	4.149	N/A	0.047	0.62	0.95	N/A	N/A	1100	81	53	N/A
2	0.686	2.914	N/A	0.033	0.43	0.67	N/A	N/A	1500	120	75	N/A
3	0.481	2.046	N/A	0.023	0.30	0.47	N/A	N/A	2100	160	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, root
Specific Crop Considered:	Garlic
Application Rate of Crop (lb ai/A):	1.56

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	300	140 - 290	Irrigation, Scouting, Thinning, Weeding (hand), Pruning (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Thinning
Very High	N/A	N/A	N/A

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0	3.950	6.486	N/A	0.22	1.1	1.9	N/A	N/A	220	45	27	N/A
1	2.204	3.620	N/A	0.12	0.62	1.0	N/A	N/A	400	81	48	N/A
2	1.230	2.020	N/A	0.069	0.35	0.58	N/A	N/A	720	140	87	N/A
3	0.687	1.128	N/A	0.039	0.19	0.32	N/A	N/A	1300	260	160	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Grasses (forage & hay)
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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0	3.950	5.197	N/A	0.059	0.89	1.5	N/A	N/A	840	56	34	N/A
1	2.204	2.901	N/A	0.033	0.50	0.83	N/A	N/A	1500	100	60	N/A
2	1.230	1.619	N/A	0.019	0.28	0.46	N/A	N/A	2700	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, evergreen
Specific Crop Considered:	Guava
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Irrigation, Scouting, Weeding (hand), Thinning
Medium	3000	1,121 - 4,929	Pruning (cones), Pruning (hand), Thinning, Seed Cone Harvesting
High	3000	2,177 - 3,688	Bagging Fruit, Hand Labor (misc.), Harvest (hand), Pollination, Staking, Topping, Training, Thinning, Tying
Very High	N/A	N/A	N/A

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0	2.650	2.650	0.030	0.30	0.91	0.91	N/A	1700	170	55	55	N/A
1	1.658	1.658	0.019	0.19	0.57	0.57	N/A	2600	260	88	88	N/A
2	1.038	1.038	0.012	0.12	0.36	0.36	N/A	4200	420	140	140	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, root
Specific Crop Considered:	Horseradish
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	300	140 - 290	Irrigation, Scouting, Thinning, Weeding (hand), Pruning (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Thinning
Very High	N/A	N/A	N/A

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0	3.950	5.197	N/A	0.18	0.89	1.5	N/A	N/A	280	56	34	N/A
1	2.204	2.901	N/A	0.099	0.50	0.83	N/A	N/A	500	100	60	N/A
2	1.230	1.619	N/A	0.056	0.28	0.46	N/A	N/A	900	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, head and stem Brassica
Specific Crop Considered:	Kohlrabi
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	2000	1,672 - 8,147	Weeding (hand), Scouting, Thinning, Irrigation, Pruning (hand)
Medium	4000	1,672 - 8,147	Scouting
High	5000	2,862 - 7,584	Harvest (hand), Irrigation, Pruning (hand), Thinning, Topping, Tying
Very High	N/A	N/A	N/A

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0	3.950	5.197	N/A	1.2	2.4	3.0	N/A	N/A	42	21	17	N/A
1	2.204	2.901	N/A	0.66	1.3	1.7	N/A	N/A	75	38	30	N/A
2	1.230	1.619	N/A	0.37	0.74	0.93	N/A	N/A	140	68	54	N/A
3	0.687	0.903	N/A	0.21	0.41	0.52	N/A	N/A	240	120	97	N/A
4	0.383	0.504	N/A	0.12	0.23	0.29	N/A	N/A	430	220	170	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

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Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, evergreen
Specific Crop Considered:	Kumquat
Application Rate of Crop (lb ai/A):	6.25

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Irrigation, Scouting, Weeding (hand), Thinning
Medium	3000	1,121 - 4,929	Pruning (cones), Pruning (hand), Thinning, Seed Cone Harvesting
High	3000	2,177 - 3,688	Bagging Fruit, Hand Labor (misc.), Harvest (hand), Pollination, Staking, Topping, Training, Thinning, Tying
Very High	N/A	N/A	N/A

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Medium	High	Very High
0	2.650	13.250	0.15	1.5	4.5	4.5	N/A	330	33	11	11	N/A
1	1.658	8.292	0.095	0.95	2.8	2.8	N/A	530	53	18	18	N/A
2	1.038	5.190	0.059	0.59	1.8	1.8	N/A	840	84	28	28	N/A
3	0.650	3.248	0.037	0.37	1.1	1.1	N/A	1300	130	45	45	N/A
4	0.407	2.033	0.023	0.23	0.70	0.70	N/A	2200	220	72	72	N/A
5	0.254	1.272	0.015	0.15	0.44	0.44	N/A	3400	340	110	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, root
Specific Crop Considered:	Leeks
Application Rate of Crop (lb ai/A):	1.56

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	300	140 - 290	Irrigation, Scouting, Thinning, Weeding (hand), Pruning (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Thinning
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Low	[illegible]	High	Very High
0	3.950	6.486	N/A	0.22	1.1	1.9	N/A	N/A	220	45	27	N/A
1	2.204	3.620	N/A	0.12	0.62	1.0	N/A	N/A	400	81	48	N/A
2	1.230	2.020	N/A	0.069	0.35	0.58	N/A	N/A	720	140	87	N/A
3	0.687	1.128	N/A	0.039	0.19	0.32	N/A	N/A	1300	260	160	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Lespedeza
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	MOEs (5)		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Medium	High	Very High
0	3.950	5.197	N/A	0.059	0.89	1.5	N/A	N/A	840	56	34	N/A
1	2.204	2.901	N/A	0.033	0.50	0.83	N/A	N/A	1500	100	60	N/A
2	1.230	1.619	N/A	0.019	0.28	0.46	N/A	N/A	2700	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, evergreen
Specific Crop Considered:	Lime
Application Rate of Crop (lb ai/A):	6.25

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Irrigation, Scouting, Weeding (hand), Thinning
Medium	3000	1,121 - 4,929	Pruning (cones), Pruning (hand), Thinning, Seed Cone Harvesting
High	3000	2,177 - 3,688	Bagging Fruit, Hand Labor (misc.), Harvest (hand), Pollination, Staking, Topping, Training, Thinning, Tying
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Medium	[illegible]	Very High
0	2.650	13.250	0.15	1.5	4.5	4.5	N/A	330	33	11	11	N/A
1	1.658	8.292	0.095	0.95	2.8	2.8	N/A	530	53	18	18	N/A
2	1.038	5.190	0.059	0.59	1.8	1.8	N/A	840	84	28	28	N/A
3	0.650	3.248	0.037	0.37	1.1	1.1	N/A	1300	130	45	45	N/A
4	0.407	2.033	0.023	0.23	0.70	0.70	N/A	2200	220	72	72	N/A
5	0.254	1.272	0.015	0.15	0.44	0.44	N/A	3400	340	110	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vine / trellis (w/o girdling)
Specific Crop Considered:	Loganberry
Application Rate of Crop (lb ai/A):	2

DFR Data Summary

Source:	451382-01
Slope of Semilog Regression:	-0.39231
Day 0 Concentration (ug/cm):	1.24
Study Application Rate (lb ai/A):	1.9
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	197 - 2,302	Irrigation, Weeding (hand), Scouting, Hedging
Medium	1000	197 - 2,302	Scouting, Training, Tying
High	5000	TBD	Harvest (hand), Pruning (hand), Training, Tying, Thinning, Leaf Pulling
Very High	N/A	N/A	N/A

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Medium	High	Very High
0	1.240	1.305	N/A	0.075	0.15	0.75	N/A	N/A	670	340	67	N/A
1	0.838	0.882	N/A	0.050	0.10	0.50	N/A	N/A	990	500	99	N/A
2	0.566	0.596	N/A	0.034	0.068	0.34	N/A	N/A	1500	730	150	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Lupine
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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0	3.950	5.197	N/A	0.059	0.89	1.5	N/A	N/A	840	56	34	N/A
1	2.204	2.901	N/A	0.033	0.50	0.83	N/A	N/A	1500	100	60	N/A
2	1.230	1.619	N/A	0.019	0.28	0.46	N/A	N/A	2700	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Oats
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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0	3.950	5.197	N/A	0.059	0.89	1.5	N/A	N/A	840	56	34	N/A
1	2.204	2.901	N/A	0.033	0.50	0.83	N/A	N/A	1500	100	60	N/A
2	1.230	1.619	N/A	0.019	0.28	0.46	N/A	N/A	2700	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, root
Specific Crop Considered:	Parsnip
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	300	140 - 290	Irrigation, Scouting, Thinning, Weeding (hand), Pruning (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Thinning
Very High	N/A	N/A	N/A

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0	3.950	5.197	N/A	0.18	0.89	1.5	N/A	N/A	280	56	34	N/A
1	2.204	2.901	N/A	0.099	0.50	0.83	N/A	N/A	500	100	60	N/A
2	1.230	1.619	N/A	0.056	0.28	0.46	N/A	N/A	900	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vine / trellis (w/o girdling)
Specific Crop Considered:	Passion fruit
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	450059-10
Slope of Semilog Regression:	-0.35339
Day 0 Concentration (ug/cm):	1.39
Study Application Rate (lb ai/A):	1
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	197 - 2,302	Irrigation, Weeding (hand), Scouting, Hedging
Medium	1000	197 - 2,302	Scouting, Training, Tying
High	5000	TBD	Harvest (hand), Pruning (hand), Training, Tying, Thinning, Leaf Pulling
Very High	N/A	N/A	N/A

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0	1.390	1.737	N/A	0.099	0.20	0.99	N/A	N/A	500	250	50	N/A
1	0.976	1.220	N/A	0.070	0.14	0.70	N/A	N/A	720	360	72	N/A
2	0.686	0.857	N/A	0.049	0.098	0.49	N/A	N/A	1000	510	100	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, cucurbit
Specific Crop Considered:	Pumpkin
Application Rate of Crop (lb ai/A):	1

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	486 - 2,760	Irrigation, Scouting, Thinning, Weeding (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand), Leaf Pulling, Pruning (hand), Thinning, Turning
Very High	N/A	N/A	N/A

0	3.950	4.158	N/A	0.24	0.71	1.2	N/A	N/A	210	70	42	N/A
1	2.204	2.321	N/A	0.13	0.40	0.66	N/A	N/A	380	130	75	N/A
2	1.230	1.295	N/A	0.074	0.22	0.37	N/A	N/A	680	230	140	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, deciduous
Specific Crop Considered:	Quince
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Scouting, Weeding (hand), Irrigation
Medium	N/A	N/A	N/A
High	3000	1,421 - 4,393	Harvest (hand), Propping, Pruning (hand), Training, Tying
Very High	3000	2,177 - 3,688	Thinning

0	2.650	2.650	0.030	0.30	N/A	0.91	0.91	1700	170	N/A	55	55
1	1.658	1.658	0.019	0.19	N/A	0.57	0.57	2600	260	N/A	88	88
2	1.038	1.038	0.012	0.12	N/A	0.36	0.36	4200	420	N/A	140	140

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, root
Specific Crop Considered:	Radish
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	300	140 - 290	Irrigation, Scouting, Thinning, Weeding (hand), Pruning (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Thinning
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	3.950	5.197	N/A	0.18	0.89	1.5	N/A	N/A	280	56	34	N/A
1	2.204	2.901	N/A	0.099	0.50	0.83	N/A	N/A	500	100	60	N/A
2	1.230	1.619	N/A	0.056	0.28	0.46	N/A	N/A	900	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, root
Specific Crop Considered:	Rutabaga
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

[illegible]	[illegible]	[illegible]	[illegible]
Very Low	N/A	N/A	N/A
Low	300	140 - 290	Irrigation, Scouting, Thinning, Weeding (hand), Pruning (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Thinning
Very High	N/A	N/A	N/A

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0	3.950	5.197	N/A	0.18	0.89	1.5	N/A	N/A	280	56	34	N/A
1	2.204	2.901	N/A	0.099	0.50	0.83	N/A	N/A	500	100	60	N/A
2	1.230	1.619	N/A	0.056	0.28	0.46	N/A	N/A	900	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Rye
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

0	3.950	5.197	N/A	0.059	0.89	1.5	N/A	N/A	840	56	34	N/A
1	2.204	2.901	N/A	0.033	0.50	0.83	N/A	N/A	1500	100	60	N/A
2	1.230	1.619	N/A	0.019	0.28	0.46	N/A	N/A	2700	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, root
Specific Crop Considered:	Salsify
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	300	140 - 290	Irrigation, Scouting, Thinning, Weeding (hand), Pruning (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Thinning
Very High	N/A	N/A	N/A

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0	3.950	5.197	N/A	0.18	0.89	1.5	N/A	N/A	280	56	34	N/A
1	2.204	2.901	N/A	0.099	0.50	0.83	N/A	N/A	500	100	60	N/A
2	1.230	1.619	N/A	0.056	0.28	0.46	N/A	N/A	900	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, root
Specific Crop Considered:	Shallots
Application Rate of Crop (lb ai/A):	1.56

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	300	140 - 290	Irrigation, Scouting, Thinning, Weeding (hand), Pruning (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Thinning
Very High	N/A	N/A	N/A

0	3.950	6.486	N/A	0.22	1.1	1.9	N/A	N/A	220	45	27	N/A
1	2.204	3.620	N/A	0.12	0.62	1.0	N/A	N/A	400	81	48	N/A
2	1.230	2.020	N/A	0.069	0.35	0.58	N/A	N/A	720	140	87	N/A
3	0.687	1.128	N/A	0.039	0.19	0.32	N/A	N/A	1300	260	160	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, evergreen
Specific Crop Considered:	Tangelo
Application Rate of Crop (lb ai/A):	6.25

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Irrigation, Scouting, Weeding (hand), Thinning
Medium	3000	1,121 - 4,929	Pruning (cones), Pruning (hand), Thinning, Seed Cone Harvesting
High	3000	2,177 - 3,688	Bagging Fruit, Hand Labor (misc.), Harvest (hand), Pollination, Staking, Topping, Training, Thinning, Tying
Very High	N/A	N/A	N/A

												High
0	2.650	13.250	0.15	1.5	4.5	4.5	N/A	330	33	11	11	N/A
1	1.658	8.292	0.095	0.95	2.8	2.8	N/A	530	53	18	18	N/A
2	1.038	5.190	0.059	0.59	1.8	1.8	N/A	840	84	28	28	N/A
3	0.650	3.248	0.037	0.37	1.1	1.1	N/A	1300	130	45	45	N/A
4	0.407	2.033	0.023	0.23	0.70	0.70	N/A	2200	220	72	72	N/A
5	0.254	1.272	0.015	0.15	0.44	0.44	N/A	3400	340	110	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients'; August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, evergreen
Specific Crop Considered:	Tangerines
Application Rate of Crop (lb ai/A):	6.25

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Irrigation, Scouting, Weeding (hand), Thinning
Medium	3000	1,121 - 4,929	Pruning (cones), Pruning (hand), Thinning, Seed Cone Harvesting
High	3000	2,177 - 3,688	Bagging Fruit, Hand Labor (misc.), Harvest (hand), Pollination, Staking, Topping, Training, Thinning, Tying
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	2.650	13.250	0.15	1.5	4.5	4.5	N/A	330	33	11	11	N/A
1	1.658	8.292	0.095	0.95	2.8	2.8	N/A	530	53	18	18	N/A
2	1.038	5.190	0.059	0.59	1.8	1.8	N/A	840	84	28	28	N/A
3	0.650	3.248	0.037	0.37	1.1	1.1	N/A	1300	130	45	45	N/A
4	0.407	2.033	0.023	0.23	0.70	0.70	N/A	2200	220	72	72	N/A
5	0.254	1.272	0.015	0.15	0.44	0.44	N/A	3400	340	110	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Vetch
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

0	3.950	5.197	N/A	0.059	0.89	1.5	N/A	N/A	840	56	34	N/A
1	2.204	2.901	N/A	0.033	0.50	0.83	N/A	N/A	1500	100	60	N/A
2	1.230	1.619	N/A	0.019	0.28	0.46	N/A	N/A	2700	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Wild rice
Application Rate of Crop (lb ai/A):	1.25

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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0	3.950	5.197	N/A	0.059	0.89	1.5	N/A	N/A	840	56	34	N/A
1	2.204	2.901	N/A	0.033	0.50	0.83	N/A	N/A	1500	100	60	N/A
2	1.230	1.619	N/A	0.019	0.28	0.46	N/A	N/A	2700	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/05/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vegetable, root
Specific Crop Considered:	Yams
Application Rate of Crop (lb ai/A):	1.56

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	300	140 - 290	Irrigation, Scouting, Thinning, Weeding (hand), Pruning (hand)
Medium	1500	486 - 2,760	Irrigation, Scouting
High	2500	486 - 2,760	Harvest (hand), Thinning
Very High	N/A	N/A	N/A

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0	3.950	6.486	N/A	0.22	1.1	1.9	N/A	N/A	220	45	27	N/A
1	2.204	3.620	N/A	0.12	0.62	1.0	N/A	N/A	400	81	48	N/A
2	1.230	2.020	N/A	0.069	0.35	0.58	N/A	N/A	720	140	87	N/A
3	0.687	1.128	N/A	0.039	0.19	0.32	N/A	N/A	1300	260	160	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Attachment 2 Cont'd.

Postapplication Risk (EC, WP and RTU formulations)

- 12 pages
- Covers nonfood crop use sites and application rates for emulsifiable concentrates, wettable powders and ready-to-use formulations.
- Detailed exposure and risk information is presented for each individual crop and application rate, including the residue levels, exposure and risk estimates leading up to the "day after treatment" at which the target MOE of 100 is reached.

Note: The "high" and "very high" contact activities assessed for a few crops may rarely occur. During the mitigation phase of the reregistration process, the relevance of REIs estimated for these activities should be discussed.

Table 1. Crop Groupings: Selected Transfer Coefficients, Treated Crops, and Rates

Flowers, cut	400 TBD	110 TBD	Ornamentals (flowers, shrubs, flowering plants, nursery stock, and wood plants)	2.5
Trees, fruit, evergreen	3000 2,177 - 3,688	1000 197 - 2,302	Pine trees (Pine seed orchards, Christmas trees, Slash pine plantations, shrubs, shade trees, forest trees)	2.5

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova or found on end use product labels.

Table 2. Short- and Intermediate-term Post Application Assessment for Malathion Treated Agricultural Crops (including ornamentals)

0	830

Footnote:

1. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
2. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
3. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

Table 2. Short- and Intermediate-term Post Application Assessment for Malathion Treated Agricultural Crops (including ornamentals)

0	790	83
1	-	130

Footnote:

1. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
2. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
3. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

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Table 2. Short- and Intermediate-term Post Application Assessment for Malathion Treated Agricultural Crops (including ornamentals)

0	490	28
1	-	44
2	-	70
3	-	110

Footnote:

1. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
2. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
3. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

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Table 2. Short- and Intermediate-term Post Application Assessment for Malathion Treated Agricultural Crops (including ornamentals)

0	220	28
1	-	44
2	-	70
3	-	110

Footnote:

1. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
2. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
3. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

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Table 2. Short- and Intermediate-term Post Application Assessment for Malathion Treated Agricultural Crops (including ornamentals)

0	12
1	19
2	28
3	43
4	65
5	98
6	150

Footnote:

1. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
2. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
3. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

Table 3. Summary of 'Days After Treatment' to Reach the Target MOE for Short-/Intermediate-term Exposure

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] High
Flowers, cut	Ornamentals (flowers, shrubs, flowering plants, nursery stock, and wood plants)	2.5	N/A	0	0	0	6
Trees, fruit, evergreen	Pine trees (Pine seed orchards, Christmas trees, Slash pine plantations, shrubs, shade trees, forest trees)	2.5	0	1	3	3	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

Occupational Post-Application Risk Assessment Calculator (12/7/01)

Chemical:	Malathion
Reason:	TC Policy 3.1
Date:	11/06/02
Assessor:	Seyed Tadayon

Applicable TC Groups:
Flowers, cut
Trees, fruit, evergreen

[Note: Only applicable TCGroups are included above.]

DFR/TTR Data Defaults:

Initial Percent of Rate as DFR (%):	20
Dissipation Rate per day (%):	10
Initial Percent of Rate as TTR (%):	5
Dissipation Rate per day (%):	10

Toxicology & Exposure Factor Inputs:

Uncertainty Factor:	
Adult Exposure Duration (hrs/day):	
Dermal Abs. (%):	100
Short-term NOAEL (mg/kg/day):	50
Source of Short-term NOAEL:	
Adult Body Weight (kg):	N/A
Intermediate-term NOAEL (mg/kg/day):	50
Source of Intermediate-term NOAEL:	
Adult Body Weight (kg):	70

Note: If a dermal administration toxicity study is the source of the endpoint used for risk assessment, then the dermal absorption factor is set to 100% to satisfy the calculations in this program.

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Flowers, cut
Specific Crop Considered:	Ornamentals (flowers, shrubs, flowering plants, nursery stock, and wood plants)
Application Rate of Crop (lb ai/A):	2.5

DFR Data Summary

Source:	454695-01
Slope of Semilog Regression:	-0.41401
Day 0 Concentration (ug/cm):	2.63
Study Application Rate (lb ai/A):	1.3
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	110	TBD	Pruning, Tying
Medium	175	TBD	Pinching (hand)
High	400	TBD	Harvest (hand), Replanting
Very High	7000	N/A	Cut flowers

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0	2.630	5.058	N/A	0.064	0.10	0.23	4.0	N/A	790	490	220	12
1	1.738	3.343	N/A	0.042	0.067	0.15	2.7	N/A	1200	750	330	19
2	1.149	2.210	N/A	0.028	0.044	0.10	1.8	N/A	1800	1100	490	28
3	0.760	1.461	N/A	0.018	0.029	0.067	1.2	N/A	2700	1700	750	43
4	0.502	0.965	N/A	0.012	0.019	0.044	0.77	N/A	4100	2600	1100	65
5	0.332	0.638	N/A	0.0080	0.013	0.029	0.51	N/A	6200	3900	1700	98
6	0.219	0.422	N/A	0.0053	0.0084	0.019	0.34	N/A	9400	5900	2600	150

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, evergreen
Specific Crop Considered:	Pine trees (Pine seed orchards, Christmas trees, Slash pine plantations, shrubs, shade trees, forest trees)
Application Rate of Crop (lb ai/A):	2.5

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Irrigation, Scouting, Weeding (hand), Thinning
Medium	3000	1,121 - 4,929	Pruning (cones), Pruning (hand), Thinning, Seed Cone Harvesting
High	3000	2,177 - 3,688	Bagging Fruit, Hand Labor (misc.), Harvest (hand), Pollination, Staking, Topping, Training, Thinning, Tying
Very High	N/A	N/A	N/A

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	2.650	5.300	0.061	0.61	1.8	1.8	N/A	830	83	28	28	N/A
1	1.658	3.317	0.038	0.38	1.1	1.1	N/A	1300	130	44	44	N/A
2	1.038	2.076	0.024	0.24	0.71	0.71	N/A	2100	210	70	70	N/A
3	0.650	1.299	0.015	0.15	0.45	0.45	N/A	3400	340	110	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Attachment 2a.

Postapplication Risk (ULV formulations)

- 64 pages
- Covers use sites and application rates for ultra-low volume formulations.
- Detailed exposure and risk information is presented for each individual crop and application rate, including the residue levels, exposure and risk estimates leading up to the "day after treatment" at which the target MOE of 100 is reached.

Note: The "high" and "very high" contact activities assessed for a few crops may rarely occur. During the mitigation phase of the reregistration process, the relevance of REIs estimated for these activities should be discussed.

Table 1. Crop Groupings: Selected Transfer Coefficients, Treated Crops, and Rates (ULV fomulation)

Berry, low	1500 400 - 1,800	400 400 - 1,800	Blueberries (lowbush)	0.76
Field / row crops, low / medium	2500 486 - 2,760	100 TBD	Alfalfa, Barley, Beans (dry), Beans (string), Clover, Cotton, Grasses (forage, hay), Lespedeza, Lupine, Oats, Rice, Rye, Vetch, Wheat (spring), Wheat (winter), Wild rice	0.61 to 1.22
Field / row crops, tall	1000 418 - 1,980	100 TBD	Corn (all types), Sorghum	0.61
Trees, fruit, deciduous	3000 1,421 - 4,393	1000 197 - 2,302	Cherries	1.22
Trees, fruit, evergreen	3000 2,177 - 3,688	1000 197 - 2,302	Grapefruit, Kumquat, Lemons, Lime, Oranges, Tangelo, Tangerine	0.18 to 0.92
Vine / trellis (w/o girdling)	5000 TBD	500 197 - 2,302	Blueberries (highbush)	0.76

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.

Table 2. Short- and Intermediate-term Post Application Assessment for Malathion (ULV) Treated Agricultural Crops (including ornamentals)

0	1700	2200

Footnote:

1. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
2. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
3. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

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Table 2. Short- and Intermediate-term Post Application Assessment for Malathion (ULV) Treated Agricultural Crops (including ornamentals)

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	2200	860	1700	170	220	1800

Footnote:

1. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
2. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
3. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

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Table 2. Short- and Intermediate-term Post Application Assessment for Malathion (ULV) Treated Agricultural Crops (including ornamentals)

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	57	430	75	880
1	100	-	120	-

Footnote:

1. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
2. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
3. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

Table 2. Short- and Intermediate-term Post Application Assessment for Malathion (ULV) Treated Agricultural Crops (including ornamentals)

0	590	34	170	56	75	180
1	-	62	-	90	120	-
2	-	110	-	140	-	-

Footnote:

1. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
2. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
3. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

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Table 2. Short- and Intermediate-term Post Application Assessment for Malathion (ULV) Treated Agricultural Crops (including ornamentals)

[illegible]	[illegible]	[illegible]
0	10	56
1	18	90
2	33	140
4	100	-

Footnote:

1. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
2. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
3. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

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Table 3. Summary of 'Days After Treatment' to Reach the Target MOE for Short-/Intermediate-term Exposure (ULV formulation)

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Berry, low	Blueberries (lowbush)	0.76	N/A	0	N/A	0	N/A
Field / row crops, low / medium	Alfalfa, Barley, Beans (dry), Beans (string), Cotton, Rice, Wheat (spring), Wheat (winter), Clover, Grasses (forage, hay), Lespedeza, Lupine, Oats, Rye, Vetch, Wild rice	0.61 - 1.22	N/A	0	0 - 1	1 - 2	N/A
Field / row crops, tall	Corn (all types), Sorghum	0.61	N/A	0	0	0	4
Trees, fruit, deciduous	Cherries	1.22	0	0	N/A	2	2
Trees, fruit, evergreen	Grapefruit, Lemons, Oranges, Kumquat, Lime, Tangelo, Tangerine	0.18 - 0.92	0	0	0 - 1	0 - 1	N/A
Vine / trellis (w/o girdling)	Blueberries (highbush)	0.76	N/A	0	0	0	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d) where the absorbed dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).

Occupational Post-Application Risk Assessment Calculator (12/7/01)

Chemical:	Malathion (ULV)
Reason:	TC Policy 3.1
Date:	11/06/02
Assessor:	Seyed Tadayon

Applicable TC Groups:
Berry, low
Field / row crops, low / medium
Field / row crops, tall
Trees, fruit, deciduous
Trees, fruit, evergreen
Vine / trellis (w/o girdling)

[Note: Only applicable TCGroups are included above.]

DFR/TTR Data Defaults:

Initial Percent of Rate as DFR (%):	20
Dissipation Rate per day (%):	10
Initial Percent of Rate as TTR (%):	5
Dissipation Rate per day (%):	10

Toxicology & Exposure Factor Inputs:

Uncertainty Factor:	
Adult Exposure Duration (hrs/day):	
Dermal Abs. (%):	100
Short-term NOAEL (mg/kg/day):	50
Source of Short-term NOAEL:	
Adult Body Weight (kg):	N/A
Intermediate-term NOAEL (mg/kg/day):	50
Source of Intermediate-term NOAEL:	
Adult Body Weight (kg):	70

Note: If a dermal administration toxicity study is the source of the endpoint used for risk assessment, then the dermal absorption factor is set to 100% to satisfy the calculations in this program.

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Alfalfa
Application Rate of Crop (lb ai/A):	0.61

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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0	3.950	2.536	N/A	0.029	0.43	0.72	N/A	N/A	1700	110	69	N/A
1	2.204	1.416	N/A	0.016	0.24	0.40	N/A	N/A	3100	210	120	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Barley
Application Rate of Crop (lb ai/A):	0.61

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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0	3.950	2.536	N/A	0.029	0.43	0.72	N/A	N/A	1700	110	69	N/A
1	2.204	1.416	N/A	0.016	0.24	0.40	N/A	N/A	3100	210	120	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Beans (dry)
Application Rate of Crop (lb ai/A):	0.61

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

0	3.950	2.536	N/A	0.029	0.43	0.72	N/A	N/A	1700	110	69	N/A
1	2.204	1.416	N/A	0.016	0.24	0.40	N/A	N/A	3100	210	120	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Beans (string)
Application Rate of Crop (lb ai/A):	0.61

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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0	3.950	2.536	N/A	0.029	0.43	0.72	N/A	N/A	1700	110	69	N/A
1	2.204	1.416	N/A	0.016	0.24	0.40	N/A	N/A	3100	210	120	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Vine / trellis (w/o girdling)
Specific Crop Considered:	Blueberries (highbush)
Application Rate of Crop (lb ai/A):	0.76

DFR Data Summary

Source:	451382-01
Slope of Semilog Regression:	-0.39231
Day 0 Concentration (ug/cm):	1.24
Study Application Rate (lb ai/A):	1.9
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	500	197 - 2,302	Irrigation, Weeding (hand), Scouting, Hedging
Medium	1000	197 - 2,302	Scouting, Training, Tying
High	5000	TBD	Harvest (hand), Pruning (hand), Training, Tying, Thinning, Leaf Pulling
Very High	N/A	N/A	N/A

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0	1.240	0.496	N/A	0.028	0.057	0.28	N/A	N/A	1800	880	180	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Berry, low
Specific Crop Considered:	Blueberries (lowbush)
Application Rate of Crop (lb ai/A):	0.76

DFR Data Summary

Source:	451382-01
Slope of Semilog Regression:	-0.39231
Day 0 Concentration (ug/cm):	1.24
Study Application Rate (lb ai/A):	1.9
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	400	400 - 1,800	Scouting, Weeding (hand), Irrigation, Pruning (hand), Thinning, Harvest (hand) (raking), Pruning (hand) (shears), Mulching
Medium	N/A	N/A	N/A
High	1500	400 - 1,800	Harvest (hand), Pruning (hand), Pinching, Training
Very High	N/A	N/A	N/A

0	1.240	0.496	N/A	0.023	N/A	0.085	N/A	N/A	2200	N/A	590	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, deciduous
Specific Crop Considered:	Cherries
Application Rate of Crop (lb ai/A):	1.22

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Scouting, Weeding (hand), Irrigation
Medium	N/A	N/A	N/A
High	3000	1,421 - 4,393	Harvest (hand), Propping, Pruning (hand), Training, Tying
Very High	3000	2,177 - 3,688	Thinning

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	2.650	2.586	0.030	0.30	N/A	0.89	0.89	1700	170	N/A	56	56
1	1.658	1.619	0.018	0.18	N/A	0.55	0.55	2700	270	N/A	90	90
2	1.038	1.013	0.012	0.12	N/A	0.35	0.35	4300	430	N/A	140	140

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, tall
Specific Crop Considered:	Corn (all types)
Application Rate of Crop (lb ai/A):	0.61

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Scouting, Weeding (hand)
Medium	400	418 - 1,980	Scouting
High	1000	418 - 1,980	Irrigation, Scouting, Weeding (hand)
Very High	17000	6,748 - 25,254	Detasseling, Harvest (hand)

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0	3.950	2.536	N/A	0.029	0.12	0.29	4.9	N/A	1700	430	170	10
1	2.204	1.416	N/A	0.016	0.065	0.16	2.8	N/A	3100	770	310	18
2	1.230	0.790	N/A	0.0090	0.036	0.090	1.5	N/A	5500	1400	550	33
3	0.687	0.441	N/A	0.0050	0.020	0.050	0.86	N/A	9900	2500	990	58
4	0.383	0.246	N/A	0.0028	0.011	0.028	0.48	N/A	18000	4400	1800	100

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Cotton
Application Rate of Crop (lb ai/A):	1.22

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

0	3.950	5.073	N/A	0.058	0.87	1.4	N/A	N/A	860	57	34	N/A
1	2.204	2.831	N/A	0.032	0.49	0.81	N/A	N/A	1500	100	62	N/A
2	1.230	1.580	N/A	0.018	0.27	0.45	N/A	N/A	2800	180	110	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, evergreen
Specific Crop Considered:	Grapefruit
Application Rate of Crop (lb ai/A):	0.18

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Irrigation, Scouting, Weeding (hand), Thinning
Medium	3000	1,121 - 4,929	Pruning (cones), Pruning (hand), Thinning, Seed Cone Harvesting
High	3000	2,177 - 3,688	Bagging Fruit, Hand Labor (misc.), Harvest (hand), Pollination, Staking, Topping, Training, Thinning, Tying
Very High	N/A	N/A	N/A

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												Very High
0	2.650	0.382	0.0044	0.044	0.13	0.13	N/A	11000	1100	380	380	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, evergreen
Specific Crop Considered:	Lemons
Application Rate of Crop (lb ai/A):	0.18

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Irrigation, Scouting, Weeding (hand), Thinning
Medium	3000	1,121 - 4,929	Pruning (cones), Pruning (hand), Thinning, Seed Cone Harvesting
High	3000	2,177 - 3,688	Bagging Fruit, Hand Labor (misc.), Harvest (hand), Pollination, Staking, Topping, Training, Thinning, Tying
Very High	N/A	N/A	N/A

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0	2.650	0.382	0.0044	0.044	0.13	0.13	N/A	11000	1100	380	380	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, evergreen
Specific Crop Considered:	Oranges
Application Rate of Crop (lb ai/A):	0.18

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Irrigation, Scouting, Weeding (hand), Thinning
Medium	3000	1,121 - 4,929	Pruning (cones), Pruning (hand), Thinning, Seed Cone Harvesting
High	3000	2,177 - 3,688	Bagging Fruit, Hand Labor (misc.), Harvest (hand), Pollination, Staking, Topping, Training, Thinning, Tying
Very High	N/A	N/A	N/A

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0	2.650	0.382	0.0044	0.044	0.13	0.13	N/A	11000	1100	380	380	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Rice
Application Rate of Crop (lb ai/A):	0.61

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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0	3.950	2.536	N/A	0.029	0.43	0.72	N/A	N/A	1700	110	69	N/A
1	2.204	1.416	N/A	0.016	0.24	0.40	N/A	N/A	3100	210	120	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, tall
Specific Crop Considered:	Sorghum
Application Rate of Crop (lb ai/A):	0.61

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Scouting, Weeding (hand)
Medium	400	418 - 1,980	Scouting
High	1000	418 - 1,980	Irrigation, Scouting, Weeding (hand)
Very High	17000	6,748 - 25,254	Detasseling, Harvest (hand)

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0	3.950	2.536	N/A	0.029	0.12	0.29	4.9	N/A	1700	430	170	10
1	2.204	1.416	N/A	0.016	0.065	0.16	2.8	N/A	3100	770	310	18
2	1.230	0.790	N/A	0.0090	0.036	0.090	1.5	N/A	5500	1400	550	33
3	0.687	0.441	N/A	0.0050	0.020	0.050	0.86	N/A	9900	2500	990	58
4	0.383	0.246	N/A	0.0028	0.011	0.028	0.48	N/A	18000	4400	1800	100

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Wheat (spring)
Application Rate of Crop (lb ai/A):	0.61

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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0	3.950	2.536	N/A	0.029	0.43	0.72	N/A	N/A	1700	110	69	N/A
1	2.204	1.416	N/A	0.016	0.24	0.40	N/A	N/A	3100	210	120	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Wheat (winter)
Application Rate of Crop (lb ai/A):	0.61

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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0	3.950	2.536	N/A	0.029	0.43	0.72	N/A	N/A	1700	110	69	N/A
1	2.204	1.416	N/A	0.016	0.24	0.40	N/A	N/A	3100	210	120	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

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Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Clover
Application Rate of Crop (lb ai/A):	0.61

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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0	3.950	2.536	N/A	0.029	0.43	0.72	N/A	N/A	1700	110	69	N/A
1	2.204	1.416	N/A	0.016	0.24	0.40	N/A	N/A	3100	210	120	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Grasses (forage, hay)
Application Rate of Crop (lb ai/A):	0.92

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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												Very High
0	3.950	3.825	N/A	0.044	0.66	1.1	N/A	N/A	1100	76	46	N/A
1	2.204	2.135	N/A	0.024	0.37	0.61	N/A	N/A	2000	140	82	N/A
2	1.230	1.191	N/A	0.014	0.20	0.34	N/A	N/A	3700	240	150	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, evergreen
Specific Crop Considered:	Kumquat
Application Rate of Crop (lb ai/A):	0.92

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Irrigation, Scouting, Weeding (hand), Thinning
Medium	3000	1,121 - 4,929	Pruning (cones), Pruning (hand), Thinning, Seed Cone Harvesting
High	3000	2,177 - 3,688	Bagging Fruit, Hand Labor (misc.), Harvest (hand), Pollination, Staking, Topping, Training, Thinning, Tying
Very High	N/A	N/A	N/A

0	2.650	1.950	0.022	0.22	0.67	0.67	N/A	2200	220	75	75	N/A
1	1.658	1.221	0.014	0.14	0.42	0.42	N/A	3600	360	120	120	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

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Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Lespedeza
Application Rate of Crop (lb ai/A):	0.61

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

												Very High
0	3.950	2.536	N/A	0.029	0.43	0.72	N/A	N/A	1700	110	69	N/A
1	2.204	1.416	N/A	0.016	0.24	0.40	N/A	N/A	3100	210	120	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, evergreen
Specific Crop Considered:	Lime
Application Rate of Crop (lb ai/A):	0.18

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Irrigation, Scouting, Weeding (hand), Thinning
Medium	3000	1,121 - 4,929	Pruning (cones), Pruning (hand), Thinning, Seed Cone Harvesting
High	3000	2,177 - 3,688	Bagging Fruit, Hand Labor (misc.), Harvest (hand), Pollination, Staking, Topping, Training, Thinning, Tying
Very High	N/A	N/A	N/A

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0	2.650	0.382	0.0044	0.044	0.13	0.13	N/A	11000	1100	380	380	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Lupine
Application Rate of Crop (lb ai/A):	0.61

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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0	3.950	2.536	N/A	0.029	0.43	0.72	N/A	N/A	1700	110	69	N/A
1	2.204	1.416	N/A	0.016	0.24	0.40	N/A	N/A	3100	210	120	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Oats
Application Rate of Crop (lb ai/A):	0.61

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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0	3.950	2.536	N/A	0.029	0.43	0.72	N/A	N/A	1700	110	69	N/A
1	2.204	1.416	N/A	0.016	0.24	0.40	N/A	N/A	3100	210	120	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Rye
Application Rate of Crop (lb ai/A):	0.61

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

0	3.950	2.536	N/A	0.029	0.43	0.72	N/A	N/A	1700	110	69	N/A
1	2.204	1.416	N/A	0.016	0.24	0.40	N/A	N/A	3100	210	120	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, evergreen
Specific Crop Considered:	Tangelo
Application Rate of Crop (lb ai/A):	0.18

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Irrigation, Scouting, Weeding (hand), Thinning
Medium	3000	1,121 - 4,929	Pruning (cones), Pruning (hand), Thinning, Seed Cone Harvesting
High	3000	2,177 - 3,688	Bagging Fruit, Hand Labor (misc.), Harvest (hand), Pollination, Staking, Topping, Training, Thinning, Tying
Very High	N/A	N/A	N/A

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0	2.650	0.382	0.0044	0.044	0.13	0.13	N/A	11000	1100	380	380	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Trees, fruit, evergreen
Specific Crop Considered:	Tangerine
Application Rate of Crop (lb ai/A):	0.18

DFR Data Summary

Source:	451382-02
Slope of Semilog Regression:	-0.46867
Day 0 Concentration (ug/cm):	2.65
Study Application Rate (lb ai/A):	1.25
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	100	TBD	Propping
Low	1000	197 - 2,302	Irrigation, Scouting, Weeding (hand), Thinning
Medium	3000	1,121 - 4,929	Pruning (cones), Pruning (hand), Thinning, Seed Cone Harvesting
High	3000	2,177 - 3,688	Bagging Fruit, Hand Labor (misc.), Harvest (hand), Pollination, Staking, Topping, Training, Thinning, Tying
Very High	N/A	N/A	N/A

0	2.650	0.382	0.0044	0.044	0.13	0.13	N/A	11000	1100	380	380	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Vetch
Application Rate of Crop (lb ai/A):	0.61

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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0	3.950	2.536	N/A	0.029	0.43	0.72	N/A	N/A	1700	110	69	N/A
1	2.204	1.416	N/A	0.016	0.24	0.40	N/A	N/A	3100	210	120	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
3. DAT = Days after treatment; DAT0 = On the day of treatment, after sprays have dried; assumed approximately 12 hours.
4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

Occupational Post-Application Risk Assessment Calculator (12/7/01) (cont.) (1, 2)
Short- and Intermediate-term Results

Chemical:	Malathion (ULV)
Date:	11/06/02
Assessor:	Seyed Tadayon
Transfer Coefficient Group:	Field / row crops, low / medium
Specific Crop Considered:	Wild rice
Application Rate of Crop (lb ai/A):	0.61

DFR Data Summary

Source:	454919-02
Slope of Semilog Regression:	-0.58322
Day 0 Concentration (ug/cm):	3.95
Study Application Rate (lb ai/A):	0.95
Limit of Quantification (ug/cm2):	0

Exposure Inputs Summary

Very Low	N/A	N/A	N/A
Low	100	TBD	Irrigation, Scouting, Weeding (hand), Thinning
Medium	1500	486 - 2,760	Irrigation, Scouting, Weeding (hand)
High	2500	486 - 2,760	Harvest (hand)
Very High	N/A	N/A	N/A

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0	3.950	2.536	N/A	0.029	0.43	0.72	N/A	N/A	1700	110	69	N/A
1	2.204	1.416	N/A	0.016	0.24	0.40	N/A	N/A	3100	210	120	N/A

Footnote:

1. Crop groupings and transfer coefficients from Science Advisory Council for Exposure: Policy Memo #003.1 'Agricultural Transfer Coefficients', August 17, 2000.
2. Maximum label rates from residue field trial studies and supported by the primary producer, Cheminova, or found on end use product labels.
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4. The absorbed dermal dose = DFR (ug/cm2) x TC (cm2/hr) x conversion factor (1 mg/1,000 ug) x exposure time (hrs) x dermal absorption / body weight (kg).
5. MOE = Dermal toxicity endpoint (mg/kg-day)/absorbed dermal dose (mg/kg-d).

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057452

Chemical:	**Malathion**
PC Code:	**057701**
HED File Code	**12000 Exposure Reviews**
Memo Date:	**11/08/2002**
File ID:	**DPD286796**
Accession Number:	**412-03-0019**

HED Records Reference Center
01/17/2003