

US EPA ARCHIVE DOCUMENT



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

MEMORANDUM

DATE: 11/3/99

SUBJECT: 99CA048. SECTION 18 SPECIFIC EXEMPTION FOR THE USE OF
PARAQUAT ON ARTICHOKEs.

DP Barcode: D259260
Chemical#: 061603
Submission#: S567532
Class: Herbicide
40 CFR: 180.205

Caswell#: 634
PRAT Case#: 292277
Trade Name: Gramoxone Extra
EPA Reg#: 10182-280
MRID: None

TO: B. Madden/R. Forrest, PM Team 5
RD (7505C)

FROM: William Cutchin, Chemist
RAB2/HED (7509C)

A handwritten signature in cursive script that reads "William Cutchin".

THRU: Donna Davis, Branch Chief
RAB2/HED (7509C)

Summary and Tolerances

Using conservative assumptions, occupational exposure and aggregate risk estimates do not exceed HED's level of concern. This Section 18 exemption should not pose an unacceptable aggregate risk to infants, children, or adults. Therefore, HED has no objection to the issuance of this Section 18 exemption for the use of paraquat on artichokes in California.

A time-limited tolerance for residues of paraquat should be established at 0.05 ppm on artichokes to support this Section 18 exemption.

Toxicological Considerations

Table 1. Summary Toxicological Endpoints			
Parameter		Endpoint, mg/kg/day	Remarks
Dietary	Acute	0.03 (aRfD)	Based on delayed ossification of the forelimb and hindlimb digits - developmental study in rats. NOAEL = 3 mg/kg/day, UF = 100
	Chronic	0.0045 (RfD)	Based on one year study in dogs (MRID No. 00132474) with the systemic NOAEL of 15 ppm (0.45 mg/kg/day) and the uncertainty factor (UF) of 100. Chronic pneumonitis was observed at the next dose of paraquat tested, 30 ppm (0.93 mg/kg/day, expressed as paraquat cation) [RfD Committee, 7/20/95].
Non-dietary	Short- and Intermediate term	3.0	NOAEL of 3.0 mg/kg/day from the developmental toxicity studies (MRID No. 00113714, 43964701) in rats. At the maternal LEL of 5.0 mg/kg/day, there were unscheduled deaths, thin and hunched appearance, decreased body weight gain, and histological changes in the lungs and kidneys.
	Chronic	0.45	NOAEL of 0.45 mg/kg/day from a 1-year feeding study [MRID#: 00132474] in dogs. The LOEL of 1 mg/kg/day was based on the severity and extent of chronic pneumonitis in males and females. However, chronic MOE calculations are not required, since a chronic exposure scenario does not exist for this Section 18 use.
Cancer		None	Classified Group E - No evidence of carcinogenicity in humans RED 8/97

Table 2. Summary of Food Quality Protection Act Considerations.		
Consideration	Decision	Remarks
FQPA Safety Factor	Remove 10X	RED 8/97, reconfirmed at ad hoc HIARC (11/4/99) for this Section 18 only.

OTHER CONSIDERATIONS

Table 3. Summary of Crisis Exemption Use Patterns.	
Action	99CA0048
Application Dates	9/1/99 - 4/30/00
State	California
Counties	Monterey, San Mateo, and Santa Cruz
Crop	Artichokes
Pest	Chickweed, mustard, Bermuda buttercup, grasses, and older weeds

Table 3. Summary of Crisis Exemption Use Patterns.	
Action	99CA0048
Formulation	Gramoxone Extra Herbicide
# of Applications	3
Rate	0.4 - 1.0 lb ai/A/appl., max. of 1.0 lb ai/A/yr
Acreage	6,000
Application Interval	None Specified
Pre-harvest Interval	1 days
Other	Appl. may continue through bud production

Table 4. Metabolism in Plants and Animals		
Group	Residue(s) of Concern	Remarks
Plants	Paraquat <i>per se</i>	Adequately understood. Specified in 40 CFR 180.205.
Animals	Paraquat <i>per se</i>	Adequately understood. Specified in 40 CFR 180.205.

Table 5. Summary of Analytical Enforcement Methods		
Matrix	Method	Remarks
Plants	Method I of PAM, Vol. II (spectrophotometric)	Adequate. LOD = 0.01-0.06
Animals	Method IA of PAM, Vol. II (spectrophotometric)	Adequate. LOD = 0.005 ppm

Table 6. Residue Chemistry: Tolerances in Regulable Agricultural Commodities ¹		
Commodity	Tolerance, ppm	Remarks
Artichokes	0.05	Artichokes. (PP#1E4019, DP Barcode: D169176, J. Morales, 11/7/91)

¹ See Tables 8 - 11 for further details.

Rotational Crop Restrictions

Artichokes are a perennial crop and are not normally rotated; therefore, a discussion of rotational crop requirements is not germane to this petition.

International Residue Limits

There are no Codex, Canadian, or Mexican MRLs for paraquat on artichokes; therefore, there are

no issues of international harmonization associated with this action.

Drinking Water - (RED 8/97).

Paraquat dichloride binds strongly to soil clay particles and it did not leach from the surface in terrestrial field dissipation studies. There were, however, detections of paraquat in drinking water wells from two states cited in the Pesticides in Ground Water Database(1991). These detections are not considered to be representative of normal paraquat use. Therefore, paraquat is not expected to be a groundwater contaminant or concern based on normal use patterns.

Due to its persistent nature, paraquat could potentially be found in surface water systems associated with soil particles carried by erosion, however, paraquat is immobile in most soils, and at very high application rates (50-1000X), there was no desorption of paraquat from soils. Therefore, based on paraquat's normal use patterns and unique environmental fate characteristics, exposures to paraquat in drinking water are not expected to be obtained from surface water sources

AGGREGATE RISK ASSESSMENT

Acute and Chronic. In performing this risk assessment, HED has:

- Assumed 100% of commodities having paraquat tolerances contain residues of paraquat at the tolerance level and 100% of the crop treated.
- No paraquat residues are expected in drinking water.
- Made no attempt to incorporate cumulative risk from exposure to multiple chemicals.

Both the acute and chronic assessments should be viewed as conservative. Further refinement, using anticipated residue levels and crop treated data, would result in lower exposure rates.

Short- and Intermediate-term

Since there are currently no residential uses for paraquat, there is no short- or intermediate-term exposure scenario. Therefore, no short- or intermediate-term risk assessment is required.

Table 7. Computation of Aggregate Exposure and Risk.				
Risk and Population¹	Exposure, mg/kg/day			% PAD^{3,4}
	Food²	Non-dietary	Total	
Acute⁵				
- U.S. Pop. (48 states)	0.0038	N/A	0.0038	13
- All Infants (<1 yr)	0.0048	N/A	0.0048	16
- Nursing infants (<1 yr)	0.0042	N/A	0.0042	14
- Non-nursing Infants (<1 yr)	0.0050	N/A	0.0050	17
- Children (1-6 yr)	0.0068	N/A	0.0068	23
- Children (6-12 yr)	0.0049	N/A	0.0049	16
- Females (13+, nursing)	0.0036	N/A	0.0036	12
- Males (13-19 yr)	0.0039	N/A	0.0039	13
Short-term	Risk Assessment Not Needed (No Residential Exposure)			
Intermediate-term	Risk Assessment Not Needed (No Residential Exposure)			
Chronic				
- U.S. Pop. (48 states)	0.0014	None	0.0014	31
- U.S. Pop. (Autumn)	0.0014	None	0.0014	32
- U.S. Pop. (Winter)	0.0014	None	0.0014	32
- Northeast Region	0.0014	None	0.0014	32
- Midwest Region	0.0015	None	0.0015	32
- Non-Hispanic Blacks	0.0014	None	0.0014	32
- Non-Hispanic, Not Black or White	0.0016	None	0.0016	35
- All Infants (<1 yr)	0.0020	None	0.0020	44
- Nursing infants (<1 yr)	0.0008	None	0.0008	18
- Non-nursing Infants (<1 yr)	0.0025	None	0.0025	55
- Children (1-6 yr)	0.0031	None	0.0034	69
- Children (6-12 yr)	0.0022	None	0.0022	48
- Females (13+, nursing)	0.0015	None	0.0015	32
- Males (13-19 yr)	0.0015	None	0.0015	34

¹ Exposure groups shown are DEEM populations consisting of the U.S. population (48 states), any special subgroups of concern (in this case, none), and any subgroups whose exposure is greater than that of the U.S. population (48 states).

² See attached DEEM dietary analysis.

³ % RfD = Total Exposure ÷ Reference Dose (RfD) × 100.

⁴ % PAD = Percent FQPA Population-adjusted Dose = % RfD × FQPA population-specific safety factor.

⁵ Exposure at 95th percentile

5

SUPPLEMENTAL INFORMATION

SUMMARY OF PROPOSED USE AND FIELD TRIAL DATA

Table 8. Residue Consideration Summary Table – 99CA048		
Parameter	Proposed Use	Residue Data
Chemical	Paraquat	Paraquat
Formulation	Gramoxone Extra Herbicide	Gramoxone Extra Herbicide
Crop	Artichokes	Artichokes
Type Application	Ground (20-100 gpa)	Ground (20-100 gpa)
# Applications	3	3
Timing	Start spray when plants are 1-2 ft tall continue through bud production.	Start spray when plants are 2 ft tall.
Rate/application	0.4 - 1.0 lb ai/A	0.4 - 1.0 lb ai/A
Rate/year	1.0 lb ai/A	1.0 lb ai/A
Maximum Residue	Not Applicable	0.05 ppm (1 lb ai/A , 1-day PHI)
Restrictions	<ul style="list-style-type: none">• 1-day PHI• Do not apply through any type of irrigation system.	<ul style="list-style-type: none">• 1-day PHI
Residue Data Source	Not Applicable	PP1E4019, DP Barcode: D169176, MRID 420161-01, J. Morales, 11/7/91
Performing Lab	Not Applicable	Eastern Research Center, ICI Americas, Inc..

DETERMINATION OF ANIMAL RESIDUES

Animal Feedstuffs Considerations. There are no artichoke animal feed items of regulatory interest; therefore, a discussion of paraquat residues in animal commodities is not germane to this action.

ADDITIONAL INFORMATION

Progress Toward Registration. IR-4 has submitted field trial data for artichokes. The petition, 1E4019, is in reject status pending additional field trial data.

Attachments: IRL Status Sheet
DEEM Input file, Acute, Chronic

cc: RAB2 Reading File, W. Cutchin, Caswell File

RDI:Branch Chief(D. Davis):11/4/99

6

INTERNATIONAL RESIDUE LIMIT STATUS

Chemical Name: paraquat	Common Name:	<input checked="" type="checkbox"/> Proposed tolerance <input type="checkbox"/> Reevaluated tolerance <input type="checkbox"/> Other	Date: 9/20/99
----------------------------	--------------	--	---------------

Codex Status (Maximum Residue Limits)	U. S. Tolerances
<input type="checkbox"/> No Codex proposal step 6 or above <input type="checkbox"/> No Codex proposal step 6 or above for the crops requested	Petition Number: 99CA048 DP Barcode:D259260 Other Identifier:061603
Residue definition (step 8/CXL): paraquat cation (generally available as dichloride). ADI and MRLs based on data resulting from the use of paraquat dichloride.	Reviewer/Branch:Cutchin/RAB2
	Residue definition: paraquat dichloride

Crop (s)	MRL (mg/kg)	Crop(s)	Tolerance (ppm)
vegetables (except as otherwise listed)	0.05 at or about the limit of determination	Artichokes	0.05

Limits for Canada	Limits for Mexico
<input checked="" type="checkbox"/> No Limits (0.1 ppm default may apply) <input type="checkbox"/> No Limits for the crops requested	No Limits <input checked="" type="checkbox"/> No Limits for artichoke
Residue definition:	Residue definition: Source lists only paraquat without further remarks

Crop(s)	MRL (mg/kg)	Crop(s)	MRL (mg/kg)

Notes/Special Instructions:
F. Ives 9/21/99

.....
.....
Rev. 1998

8

Filename: D:\working\paraquat\061603.r96

Chemical name: Paraquat

RfD(Chronic): .0045 mg/kg bw/day NOEL(Chronic): 0 mg/kg bw/day

RfD(Acute): .03 mg/kg bw/day NOEL(Acute): 0 mg/kg bw/day

Date created/last modified: 09-21-1999/08:23:10/8

Program ver. 6.77

Comment: FQPA 1x

Food Code	Crop Grp	Food Name	RESIDUE (ppm)	RDF #	Adj.Factors #1	#2	Comment
98	0	Acerola	0.050000	0	1.000	1.000	
248	0	Alfalfa sprouts	5.000000	0	1.000	1.000	
40	14	Almonds	0.050000	0	1.000	1.000	
52	11	Apples	0.050000	0	1.000	1.000	
53	11	Apples-dried	0.050000	0	8.000	1.000	
54	11	Apples-juice/cider	0.050000	0	1.300	1.000	
377	11	Apples-juice-concentrate	0.050000	0	3.900	1.000	
410	12	Apricot juice	0.050000	0	1.000	1.000	
59	12	Apricots	0.050000	0	1.000	1.000	
60	12	Apricots-dried	0.050000	0	6.000	1.000	
181	0	Artichokes-globe	0.050000	0	1.000	1.000	New 99
Full comment: New 99CA048							
260	0	Asparagus	0.500000	0	1.000	1.000	
70	0	Avocados	0.050000	0	1.000	1.000	
497	9B	Balsam.pear	0.050000	0	1.000	1.000	
72	0	Bananas	0.050000	0	1.000	1.000	
73	0	Bananas-dried	0.050000	0	3.900	1.000	
378	0	Bananas-juice	0.050000	0	1.000	1.000	
265	15	Barley	0.050000	0	1.000	1.000	
258	6C	Beans-dry-blackeye peas/cowpea	0.300000	0	1.000	1.000	
249	6C	Beans-dry-broadbeans	0.300000	0	1.000	1.000	
259	6C	Beans-dry-garbanzo/chick pea	0.300000	0	1.000	1.000	
227	6C	Beans-dry-great northern	0.300000	0	1.000	1.000	
256	6C	Beans-dry-hyacinth	0.300000	0	1.000	1.000	
228	6C	Beans-dry-kidney	0.300000	0	1.000	1.000	
229	6C	Beans-dry-lima	0.300000	0	1.000	1.000	
230	6C	Beans-dry-navy (pea)	0.300000	0	1.000	1.000	
231	6C	Beans-dry-other	0.300000	0	1.000	1.000	
251	6C	Beans-dry-pigeon beans	0.300000	0	1.000	1.000	
232	6C	Beans-dry-pinto	0.300000	0	1.000	1.000	
250	6B	Beans-succulent-broadbeans	0.050000	0	1.000	1.000	
234	6A	Beans-succulent-green	0.050000	0	1.000	1.000	
257	6	Beans-succulent-hyacinth	0.050000	0	1.000	1.000	
233	6B	Beans-succulent-lima	0.050000	0	1.000	1.000	
235	6A	Beans-succulent-other	0.050000	0	1.000	1.000	
236	6A	Beans-succulent-yellow/wax	0.050000	0	1.000	1.000	
253	6	Beans-unspecified	0.050000	0	1.000	1.000	
51	14	Beech-nuts	0.050000	0	1.000	1.000	
323	M	Beef-dried	0.050000	0	1.920	1.000	
324	M	Beef-fat w/o bones	0.050000	0	1.000	1.000	
325	M	Beef-kidney	0.300000	0	1.000	1.000	
327	M	Beef-lean (fat/free) w/o bones	0.050000	0	1.000	1.000	
326	M	Beef-liver	0.050000	0	1.000	1.000	
321	M	Beef-meat byproducts	0.050000	0	1.000	1.000	
322	M	Beef-other organ meats	0.050000	0	1.000	1.000	
197	1AB	Beets-garden-roots	0.500000	0	1.000	1.000	
165	2	Beets-garden-tops(greens)	0.500000	0	1.000	1.000	
152	9B	Bitter melon	0.050000	0	1.000	1.000	
1	13A	Blackberries	0.050000	0	1.000	1.000	
380	13A	Blackberries-juice	0.050000	0	1.000	1.000	
7	13B	Blueberries	0.050000	0	1.000	1.000	
2	13A	Boysenberries	0.050000	0	1.000	1.000	
41	14	Brazil nuts	0.050000	0	1.000	1.000	
168	5A	Broccoli	0.050000	0	1.000	1.000	
49	14	Butter nuts	0.050000	0	1.000	1.000	
170	5A	Cabbage-green and red	0.050000	0	1.000	1.000	
383	5B	Cabbage-savoy	0.050000	0	1.000	1.000	
198	1AB	Carrots	0.050000	0	1.000	1.000	

143	9A	Casabas	0.050000	0	1.000	1.000
42	14	Cashews	0.050000	0	1.000	1.000
222	1CD	Cassava (yuca blanca)	0.050000	0	1.000	1.000
171	5A	Cauliflower	0.050000	0	1.000	1.000
61	12	Cherries	0.050000	0	1.000	1.000
62	12	Cherries-dried	0.050000	0	4.000	1.000
63	12	Cherries-juice	0.050000	0	1.500	1.000
43	14	Chestnuts	0.050000	0	1.000	1.000
386	9B	Christophine	0.050000	0	1.000	1.000
20	10	Citrus citron	0.050000	0	1.000	1.000
112	0	Coffee	0.050000	0	1.000	1.000
172	5B	Collards	0.050000	0	1.000	1.000
267	15	Corn grain-bran	0.050000	0	1.000	1.000
266	15	Corn grain-endosperm	0.050000	0	1.000	1.000
289	15	Corn grain-oil	0.050000	0	1.000	1.000
268	15	Corn grain/sugar/hfcs	0.050000	0	1.500	1.000
388	15	Corn grain/sugar-molasses	0.050000	0	1.500	1.000
237	15	Corn/pop	0.050000	0	1.000	1.000
238	15	Corn/sweet	0.050000	0	1.000	1.000
291	0	Cottonseed-meal	0.500000	0	1.000	1.000
290	0	Cottonseed-oil	0.500000	0	1.000	1.000
8	0	Cranberries	0.050000	0	1.000	1.000
9	0	Cranberries-juice	0.050000	0	1.100	1.000
389	0	Cranberries-juice-concentrate	0.050000	0	3.300	1.000
144	9A	Crenshaws	0.050000	0	1.000	1.000
148	9B	Cucumbers	0.050000	0	1.000	1.000
10	13B	Currants	0.050000	0	1.000	1.000
3	13A	Dewberries	0.050000	0	1.000	1.000
154	8	Eggplant	0.050000	0	1.000	1.000
364	P	Eggs-white only	0.010000	0	1.000	1.000
363	P	Eggs-whole	0.010000	0	1.000	1.000
365	P	Eggs-yolk only	0.010000	0	1.000	1.000
11	13B	Elderberries	0.050000	0	1.000	1.000
78	0	Figs	0.050000	0	1.000	1.000
44	14	Filberts (hazelnuts)	0.050000	0	1.000	1.000
330	M	Goat-fat w/o bone	0.050000	0	1.000	1.000
331	M	Goat-kidney	0.300000	0	1.000	1.000
333	M	Goat-lean (fat/free) w/o bone	0.050000	0	1.000	1.000
332	M	Goat-liver	0.050000	0	1.000	1.000
328	M	Goat-meat byproducts	0.050000	0	1.000	1.000
329	M	Goat-other organ meats	0.050000	0	1.000	1.000
12	13B	Gooseberries	0.050000	0	1.000	1.000
23	10	Grapefruit-juice	0.050000	0	2.100	1.000
441	10	Grapefruit-juice-concentrate	0.050000	0	8.260	1.000
448	10	Grapefruit peel	0.050000	0	1.000	1.000
22	10	Grapefruit-peeled fruit	0.050000	0	1.000	1.000
164	8	Groundcherries	0.050000	0	1.000	1.000
287	6C	Guar beans	0.500000	0	1.000	1.000
393	0	Guava-juice	0.050000	0	1.000	1.000
79	0	Guava	0.050000	0	1.000	1.000
45	14	Hickory nuts	0.050000	0	1.000	1.000
125	0	Hops	0.200000	0	1.000	1.000
334	M	Horsemeat	0.050000	0	1.000	1.000
16	13B	Huckleberries	0.050000	0	1.000	1.000
97	0	Kiwi fruit	0.050000	0	1.000	1.000
24	10	Kumquats	0.050000	0	1.000	1.000
28	10	Lemons-juice	0.050000	0	2.000	1.000
442	10	Lemons-juice-concentrate	0.050000	0	11.400	1.000
27	10	Lemons-peel	0.050000	0	1.000	1.000
26	10	Lemons-peeled fruit	0.050000	0	1.000	1.000
243	6C	Lentils	0.300000	0	1.000	1.000
182	4A	Lettuce-unspecified	0.050000	0	1.000	1.000
176	4A	Lettuce-leafy varieties	0.050000	0	1.000	1.000
192	4A	Lettuce-head varieties	0.050000	0	1.000	1.000
32	10	Limes-juice	0.050000	0	2.000	1.000
443	10	Limes-juice-concentrate	0.050000	0	6.000	1.000
31	10	Limes-peel	0.050000	0	1.000	1.000
30	10	Limes-peeled fruit	0.050000	0	1.000	1.000

4	13A	Loganberries	0.050000	0	1.000	1.000
46	14	Macadamia nuts (bush nuts)	0.050000	0	1.000	1.000
141	9A	Melons-cantaloupes-juice	0.050000	0	1.000	1.000
142	9A	Melons-cantaloupes-pulp	0.050000	0	1.000	1.000
145	9A	Melons-honeydew	0.050000	0	1.000	1.000
146	9A	Melons-persian	0.050000	0	1.000	1.000
398	D	Milk-based water	0.010000	0	1.000	1.000
319	D	Milk-fat solids	0.010000	0	1.000	1.000
318	D	Milk-nonfat solids	0.010000	0	1.000	1.000
320	D	Milk sugar (lactose)	0.010000	0	1.000	1.000
64	12	Nectarines	0.050000	0	1.000	1.000
399	15	Oats-bran	0.050000	0	1.000	1.000
269	15	Oats	0.050000	0	1.000	1.000
397	9B	Okra/chinese (luffa)	0.050000	0	1.000	1.000
82	0	Olives	0.050000	0	1.000	1.000
300	0	Olive oil	0.050000	0	1.000	1.000
206	3	Onions-dehydrated or dried	0.050000	0	9.000	1.000
205	3	Onions-dry-bulb (cipollini)	0.050000	0	1.000	1.000
262	3	Onions-green	0.050000	0	1.000	1.000
36	10	Oranges-juice	0.050000	0	1.800	1.000
33	10	Oranges-juice-concentrate	0.050000	0	6.700	1.000
35	10	Oranges-peel	0.050000	0	1.000	1.000
34	10	Oranges-peeled fruit	0.050000	0	1.000	1.000
85	0	Papayas-dried	0.050000	0	1.800	1.000
86	0	Papayas-juice	0.050000	0	1.500	1.000
84	0	Papayas-pulp	0.050000	0	1.000	1.000
139	8	Paprika	0.050000	0	1.000	1.000
401	0	Passion fruit-juice	0.200000	0	1.000	1.000
92	0	Passion fruit (granadilla)	0.200000	0	1.000	1.000
65	12	Peaches	0.050000	0	1.000	1.000
66	12	Peaches-dried	0.050000	0	7.000	1.000
402	12	Peaches-juice	0.050000	0	1.000	1.000
403	0	Peanuts-butter	0.050000	0	1.890	1.000
940	0	Peanuts-hulled	0.050000	0	1.000	1.000
293	0	Peanuts-oil	0.050000	0	1.000	1.000
56	11	Pears	0.050000	0	1.000	1.000
57	11	Pears-dried	0.050000	0	6.250	1.000
404	11	Pears-juice	0.050000	0	1.000	1.000
240	6C	Peas (garden)-dry	0.050000	0	1.000	1.000
241	6AB	Peas (garden)-green	0.050000	0	1.000	1.000
405	6B	Peas-succulent/blackeye/cowpea	0.050000	0	1.000	1.000
47	14	Pecans	0.050000	0	1.000	1.000
310	0	Peppermint	0.500000	0	1.000	1.000
311	0	Peppermint-oil	0.500000	0	1.000	1.000
156	8	Peppers-chilli incl jalapeno	0.050000	0	1.000	1.000
157	8	Peppers-other	0.050000	0	1.000	1.000
155	8	Peppers-sweet(garden)	0.050000	0	1.000	1.000
158	8	Pimientos	0.050000	0	1.000	1.000
90	0	Pineapples-dried	0.050000	0	5.000	1.000
91	0	Pineapples-juice	0.050000	0	1.700	1.000
406	0	Pineapples-juice-concentrate	0.050000	0	6.300	1.000
89	0	Pineapples-peeled fruit	0.050000	0	1.000	1.000
50	0	Pistachio nuts	0.050000	0	1.000	1.000
480	0	Plantains-green	0.050000	0	1.000	1.000
94	0	Plantains-ripe	0.050000	0	1.000	1.000
481	0	Plantains-dried	0.050000	0	3.900	1.000
67	12	Plums (damsons)	0.050000	0	1.000	1.000
68	12	Plums-prunes (dried)	0.050000	0	5.000	1.000
69	12	Plums/prune-juice	0.050000	0	1.400	1.000
344	M	Pork-fat w/o bone	0.050000	0	1.000	1.000
345	M	Pork-kidney	0.300000	0	1.000	1.000
347	M	Pork-lean (fat free) w/o bone	0.050000	0	1.000	1.000
346	M	Pork-liver	0.050000	0	1.000	1.000
342	M	Pork-meat byproducts	0.050000	0	1.000	1.000
210	1C	Potatoes/white-dry	0.500000	0	6.500	1.000
209	1C	Potatoes/white-peeled	0.500000	0	1.000	1.000
211	1C	Potatoes/white-peel only	0.500000	0	1.000	1.000
208	1C	Potatoes/white-unspecified	0.500000	0	1.000	1.000

11

207	1C	Potatoes/white-whole	0.500000	0	1.000	1.000
362	P	Poultry-other-fat w/o bones	0.010000	0	1.000	1.000
361	P	Poultry-other-giblets(liver)	0.010000	0	1.000	1.000
360	P	Poultry-other-lean (fat free) w/	0.010000	0	1.000	1.000
149	9B	Pumpkin	0.050000	0	1.000	1.000
5	13A	Raspberries	0.050000	0	1.000	1.000
185	4B	Rhubarb	0.050000	0	1.000	1.000
408	15	Rice-bran	0.050000	0	1.000	1.000
271	15	Rice-milled (white)	0.050000	0	1.000	1.000
270	15	Rice-rough (brown)	0.050000	0	1.000	1.000
409	15	Rice-wild	0.050000	0	1.000	1.000
274	15	Rye-flour	0.050000	0	1.000	1.000
273	15	Rye-germ	0.050000	0	1.000	1.000
272	15	Rye-rough	0.050000	0	1.000	1.000
295	O	Safflower-oil	0.050000	0	1.000	1.000
294	O	Safflower-seed	0.050000	0	1.000	1.000
338	M	Sheep-fat w/o bone	0.050000	0	1.000	1.000
339	M	Sheep-kidney	0.300000	0	1.000	1.000
341	M	Sheep-lean (fat free) w/o bone	0.050000	0	1.000	1.000
340	M	Sheep-liver	0.050000	0	1.000	1.000
336	M	Sheep-meat byproducts	0.050000	0	1.000	1.000
337	M	Sheep-other organ meats	0.050000	0	1.000	1.000
275	15	Sorghum (including milo)	0.050000	0	1.000	1.000
312	O	Spearmint	0.500000	0	1.000	1.000
313	O	Spearmint-oil	0.500000	0	1.000	1.000
150	9B	Squash-summer	0.050000	0	1.000	1.000
415	9B	Squash-spaghetti	0.050000	0	1.000	1.000
151	9B	Squash-winter	0.050000	0	1.000	1.000
17	O	Strawberries	0.250000	0	1.000	1.000
416	O	Strawberries-juice	0.250000	0	1.000	1.000
283	O	Sugar-cane	0.500000	0	1.000	1.000
284	O	Sugar-cane/molasses	0.500000	0	1.000	1.000
298	O	Sunflower-oil	2.000000	0	1.000	1.000
417	O	Sunflower-seeds	2.000000	0	1.000	1.000
218	1CD	Sweet potatoes (incl yams)	0.050000	0	1.000	1.000
418	2	Sweet potatos-leaves	0.050000	0	1.000	1.000
37	10	Tangelos	0.050000	0	1.000	1.000
38	10	Tangerines	0.050000	0	1.000	1.000
39	10	Tangerines-juice	0.050000	0	2.300	1.000
420	10	Tangerines-juice-concentrate	0.050000	0	7.350	1.000
163	8	Tomatoes-catsup	0.050000	0	2.500	1.000
423	8	Tomatoes-dried	0.050000	0	14.300	1.000
160	8	Tomatoes-juice	0.050000	0	1.500	1.000
162	8	Tomatoes-paste	0.050000	0	5.400	1.000
161	8	Tomatoes-puree	0.050000	0	3.300	1.000
159	8	Tomatoes-whole	0.050000	0	1.000	1.000
219	1AB	Turnips-roots	0.050000	0	1.000	1.000
188	2	Turnips-tops	0.050000	0	1.000	1.000
431	14	Walnut oil	0.050000	0	1.000	1.000
48	14	Walnuts	0.050000	0	1.000	1.000
147	9A	Watermelon	0.050000	0	1.000	1.000
436	9A	Watermelon-juice	0.050000	0	1.000	1.000
278	15	Wheat-bran	0.050000	0	1.000	1.000
279	15	Wheat-flour	0.050000	0	1.000	1.000
277	15	Wheat-germ	0.050000	0	1.000	1.000
437	15	Wheat-germ oil	0.050000	0	1.000	1.000
276	15	Wheat-rough	0.050000	0	1.000	1.000
439	9B	Wintermelon	0.050000	0	1.000	1.000
6	13A	Youngberries	0.050000	0	1.000	1.000

U.S. Environmental Protection Agency
 DEEM ACUTE analysis for PARAQUAT
 Residue file: 061603.r96
 Analysis Date: 10-27-1999/13:50:45
 Acute Reference Dose (aRfD) = 0.030000 mg/kg body-wt/day
 Run Comment: FQPA 1x

Ver. 6.78
 (1989-92 data)

Adjustment factor #2 NOT used.

Residue file dated: 10-27-1999/13:45:06/8

=====

Summary calculations:

	95th Percentile		99th Percentile		99.9th Percentile	
	Exposure	% aRfD	Exposure	% aRfD	Exposure	% aRfD
U.S. pop - all seasons:	0.003794	12.65	0.006295	20.98	0.010714	35.71
All infants (<1 year):	0.004756	15.85	0.009128	30.43	0.015794	52.65
Nursing infants (<1 year):	0.004179	13.93	0.006950	23.17	0.015821	52.74
Non-nursing infants (<1 yr):	0.004949	16.50	0.009200	30.67	0.012155	40.52
Children (1-6 years):	0.006800	22.67	0.010509	35.03	0.014071	46.90
Children (7-12 years):	0.004915	16.38	0.007954	26.51	0.011139	37.13
Females (13+/preg/not nsg):	0.002263	7.54	0.003045	10.15	0.004450	14.83
Females (13+/nursing):	0.003583	11.94	0.005865	19.55	0.006730	22.43
Females (13-19 yrs/np/nn):	0.003025	10.08	0.004576	15.25	0.006897	22.99
Females (20+ years/np/nn):	0.002397	7.99	0.003558	11.86	0.006668	22.23
Females (13-50 years):	0.002552	8.51	0.003941	13.14	0.007222	24.07
Males (13-19 years):	0.003857	12.86	0.005994	19.98	0.010629	35.43
Males (20+ years):	0.002596	8.65	0.003947	13.16	0.005658	18.86

13

U.S. Environmental Protection Agency
 DEEM ACUTE analysis for PARAQUAT
 Residue file: 061603.r96
 Analysis Date: 10-27-1999/13:50:45
 Acute Reference Dose (aRfD) = 0.030000 mg/kg body-wt/day
 Run Comment: FQPA 1x

Ver. 6.78
 (1989-92 data)
 Adjustment factor #2 NOT used.
 Residue file dated: 10-27-1999/13:45:06/8

=====

U.S. pop - all seasons -----	Daily Exposure Analysis 1/ (mg/kg body-weight/day)	
	per Capita	per User

Mean	0.001397	0.001401
Standard Deviation	0.001257	0.001256
Standard Error	0.000007	0.000007
Percent of aRfD	4.66	4.67

Percent of Person-Days that are User-Days = 99.75%

Estimated percentile of user-days exceeding calculated exposure
 in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD

10.00	0.000348	1.16	90.00	0.002817	9.39
20.00	0.000516	1.72	95.00	0.003796	12.65
30.00	0.000678	2.26	97.50	0.004765	15.88
40.00	0.000856	2.85	99.00	0.006298	20.99
50.00	0.001063	3.54	99.50	0.007773	25.91
60.00	0.001296	4.32	99.75	0.009127	30.42
70.00	0.001593	5.31	99.90	0.010717	35.72
80.00	0.002006	6.69			

Estimated percentile of per-capita days exceeding calculated exposure
 in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD

10.00	0.000341	1.14	90.00	0.002815	9.38
20.00	0.000512	1.71	95.00	0.003794	12.65
30.00	0.000675	2.25	97.50	0.004763	15.88
40.00	0.000854	2.85	99.00	0.006295	20.98
50.00	0.001060	3.53	99.50	0.007770	25.90
60.00	0.001294	4.31	99.75	0.009123	30.41
70.00	0.001591	5.30	99.90	0.010714	35.71
80.00	0.002004	6.68			

 1/ Analysis based on all three-day participant records in CSFII 1989-92 survey.

14

All infants (<1 year)

Daily Exposure Analysis
(mg/kg body-weight/day)
per Capita per User

Mean	0.001975	0.002186
Standard Deviation	0.001837	0.001809
Standard Error	0.000075	0.000078
Percent of aRfD	6.58	7.29

Percent of Person-Days that are User-Days = 90.35%

Estimated percentile of user-days exceeding calculated exposure
in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
10.00	0.000216	0.72	90.00	0.004129	13.76
20.00	0.000388	1.29	95.00	0.004831	16.10
30.00	0.001106	3.69	97.50	0.006214	20.71
40.00	0.001737	5.79	99.00	0.009352	31.17
50.00	0.001985	6.62	99.50	0.010711	35.70
60.00	0.002314	7.71	99.75	0.011419	38.06
70.00	0.002834	9.45	99.90	0.016129	53.76
80.00	0.003410	11.37			

Estimated percentile of per-capita days exceeding calculated exposure
in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
10.00	0.000008	0.03	90.00	0.004052	13.51
20.00	0.000241	0.80	95.00	0.004756	15.85
30.00	0.000569	1.90	97.50	0.006066	20.22
40.00	0.001332	4.44	99.00	0.009128	30.43
50.00	0.001852	6.17	99.50	0.010566	35.22
60.00	0.002173	7.24	99.75	0.011344	37.81
70.00	0.002667	8.89	99.90	0.015794	52.65
80.00	0.003287	10.96			

U.S. Environmental Protection Agency
 DEEM ACUTE analysis for PARAQUAT
 Residue file: 061603.r96
 Analysis Date: 10-27-1999/13:50:45
 Acute Reference Dose (aRfD) = 0.030000 mg/kg body-wt/day

Ver. 6.78
 (1989-92 data)
 Adjustment factor #2 NOT used.

Nursing infants (<1 year)	Daily Exposure Analysis (mg/kg body-weight/day)	
	per Capita	per User
Mean	0.000814	0.001207
Standard Deviation	0.001759	0.002029
Standard Error	0.000142	0.000218
Percent of aRfD	2.71	4.02

Percent of Person-Days that are User-Days = 67.43%

Estimated percentile of user-days exceeding calculated exposure
 in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
10.00	0.000116	0.39	90.00	0.003800	12.67
20.00	0.000251	0.84	95.00	0.004533	15.11
30.00	0.000285	0.95	97.50	0.006122	20.41
40.00	0.000322	1.07	99.00	0.007343	24.48
50.00	0.000395	1.32	99.50	0.012704	42.35
60.00	0.000756	2.52	99.75	0.014920	49.73
70.00	0.000821	2.74	99.90	0.016249	54.16
80.00	0.001396	4.65			

Estimated percentile of per-capita days exceeding calculated exposure
 in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
10.00	0.000000	0.00	90.00	0.002639	8.80
20.00	0.000000	0.00	95.00	0.004179	13.93
30.00	0.000000	0.00	97.50	0.005355	17.85
40.00	0.000130	0.43	99.00	0.006950	23.17
50.00	0.000271	0.90	99.50	0.010114	33.71
60.00	0.000327	1.09	99.75	0.013849	46.16
70.00	0.000594	1.98	99.90	0.015821	52.74
80.00	0.000841	2.80			

16

U.S. Environmental Protection Agency
 DEEM ACUTE analysis for PARAQUAT
 Residue file: 061603.r96
 Analysis Date: 10-27-1999/13:50:45
 Acute Reference Dose (aRfD) = 0.030000 mg/kg body-wt/day

Ver. 6.78
 (1989-92 data)
 Adjustment factor #2 NOT used.
 Residue file dated: 10-27-1999/13:45:06/8

=====

Non-nursing infants (<1 yr)	Daily Exposure Analysis (mg/kg body-weight/day)	
	per Capita	per User
Mean	0.002463	0.002463
Standard Deviation	0.001639	0.001639
Standard Error	0.000077	0.000077
Percent of aRfD	8.21	8.21

Percent of Person-Days that are User-Days =100.00%

Estimated percentile of user-days exceeding calculated exposure
 in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
10.00	0.000288	0.96	90.00	0.004140	13.80
20.00	0.001428	4.76	95.00	0.004949	16.50
30.00	0.001821	6.07	97.50	0.006316	21.05
40.00	0.002025	6.75	99.00	0.009200	30.67
50.00	0.002242	7.47	99.50	0.010259	34.20
60.00	0.002547	8.49	99.75	0.010926	36.42
70.00	0.003065	10.22	99.90	0.012155	40.52
80.00	0.003490	11.63			

Estimated percentile of per-capita days exceeding calculated exposure
 in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
10.00	0.000288	0.96	90.00	0.004140	13.80
20.00	0.001428	4.76	95.00	0.004949	16.50
30.00	0.001821	6.07	97.50	0.006316	21.05
40.00	0.002025	6.75	99.00	0.009200	30.67
50.00	0.002242	7.47	99.50	0.010259	34.20
60.00	0.002547	8.49	99.75	0.010926	36.42
70.00	0.003065	10.22	99.90	0.012155	40.52
80.00	0.003490	11.63			

U.S. Environmental Protection Agency
 DEEM ACUTE analysis for PARAQUAT
 Residue file: 061603.r96
 Analysis Date: 10-27-1999/13:50:45
 Acute Reference Dose (aRfD) = 0.030000 mg/kg body-wt/day

Ver. 6.78
 (1989-92 data)
 Adjustment factor #2 NOT used.
 Residue file dated: 10-27-1999/13:45:06/8

=====

Children (1-6 years)	Daily Exposure Analysis (mg/kg body-weight/day)	
	per Capita	per User
Mean	0.003113	0.003114
Standard Deviation	0.001964	0.001964
Standard Error	0.000032	0.000032
Percent of aRfD	10.38	10.38

Percent of Person-Days that are User-Days = 99.97%

Estimated percentile of user-days exceeding calculated exposure
 in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
10.00	0.001177	3.92	90.00	0.005569	18.56
20.00	0.001562	5.21	95.00	0.006800	22.67
30.00	0.001939	6.46	97.50	0.008409	28.03
40.00	0.002300	7.67	99.00	0.010510	35.03
50.00	0.002630	8.77	99.50	0.011634	38.78
60.00	0.003095	10.32	99.75	0.012209	40.70
70.00	0.003653	12.18	99.90	0.014071	46.90
80.00	0.004384	14.61			

Estimated percentile of per-capita days exceeding calculated exposure
 in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
10.00	0.001174	3.91	90.00	0.005568	18.56
20.00	0.001561	5.20	95.00	0.006800	22.67
30.00	0.001938	6.46	97.50	0.008409	28.03
40.00	0.002299	7.66	99.00	0.010509	35.03
50.00	0.002630	8.77	99.50	0.011633	38.78
60.00	0.003094	10.31	99.75	0.012209	40.70
70.00	0.003653	12.18	99.90	0.014071	46.90
80.00	0.004384	14.61			

U.S. Environmental Protection Agency
 DEEM ACUTE analysis for PARAQUAT
 Residue file: 061603.r96
 Analysis Date: 10-27-1999/13:50:45
 Acute Reference Dose (aRfD) = 0.030000 mg/kg body-wt/day

Ver. 6.78
 (1989-92 data)
 Adjustment factor #2 NOT used.
 Residue file dated: 10-27-1999/13:45:06/8

=====

Children (7-12 years)	Daily Exposure Analysis (mg/kg body-weight/day)	
	per Capita	per User
Mean	0.002155	0.002156
Standard Deviation	0.001488	0.001488
Standard Error	0.000025	0.000025
Percent of aRfD	7.18	7.19

Percent of Person-Days that are User-Days = 99.98%

Estimated percentile of user-days exceeding calculated exposure
 in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
10.00	0.000781	2.60	90.00	0.004012	13.37
20.00	0.001028	3.43	95.00	0.004915	16.38
30.00	0.001267	4.22	97.50	0.006171	20.57
40.00	0.001508	5.03	99.00	0.007954	26.51
50.00	0.001813	6.04	99.50	0.008459	28.20
60.00	0.002111	7.04	99.75	0.010046	33.49
70.00	0.002464	8.21	99.90	0.011140	37.13
80.00	0.003014	10.05			

Estimated percentile of per-capita days exceeding calculated exposure
 in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
10.00	0.000780	2.60	90.00	0.004011	13.37
20.00	0.001028	3.43	95.00	0.004915	16.38
30.00	0.001267	4.22	97.50	0.006171	20.57
40.00	0.001508	5.03	99.00	0.007954	26.51
50.00	0.001812	6.04	99.50	0.008459	28.20
60.00	0.002111	7.04	99.75	0.010045	33.48
70.00	0.002464	8.21	99.90	0.011139	37.13
80.00	0.003014	10.05			

19

Residue file: 061603.r96

Adjustment factor #2 NOT used.

Analysis Date: 10-27-1999/13:50:45

Residue file dated: 10-27-1999/13:45:06/8

Acute Reference Dose (aRfD) = 0.030000 mg/kg body-wt/day

 Females (13+/preg/not nsg)

Daily Exposure Analysis
 (mg/kg body-weight/day)
 per Capita per User

Mean	0.001066	0.001066
Standard Deviation	0.000635	0.000635
Standard Error	0.000032	0.000032
Percent of aRfD	3.55	3.55

Percent of Person-Days that are User-Days =100.00%

 Estimated percentile of user-days exceeding calculated exposure
 in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
-----	-----	-----	-----	-----	-----
10.00	0.000402	1.34	90.00	0.001906	6.35
20.00	0.000513	1.71	95.00	0.002263	7.54
30.00	0.000628	2.09	97.50	0.002613	8.71
40.00	0.000802	2.67	99.00	0.003045	10.15
50.00	0.000956	3.19	99.50	0.003629	12.10
60.00	0.001092	3.64	99.75	0.004070	13.57
70.00	0.001279	4.26	99.90	0.004450	14.83
80.00	0.001591	5.30			

 Estimated percentile of per-capita days exceeding calculated exposure
 in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
-----	-----	-----	-----	-----	-----
10.00	0.000402	1.34	90.00	0.001906	6.35
20.00	0.000513	1.71	95.00	0.002263	7.54
30.00	0.000628	2.09	97.50	0.002613	8.71
40.00	0.000802	2.67	99.00	0.003045	10.15
50.00	0.000956	3.19	99.50	0.003629	12.10
60.00	0.001092	3.64	99.75	0.004070	13.57
70.00	0.001279	4.26	99.90	0.004450	14.83
80.00	0.001591	5.30			

20

Females (13+/nursing)	Daily Exposure Analysis (mg/kg body-weight/day)	
	per Capita	per User
Mean	0.001452	0.001452
Standard Deviation	0.001166	0.001166
Standard Error	0.000080	0.000080
Percent of aRfD	4.84	4.84

Percent of Person-Days that are User-Days =100.00%

Estimated percentile of user-days exceeding calculated exposure in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
10.00	0.000470	1.57	90.00	0.003109	10.36
20.00	0.000580	1.93	95.00	0.003583	11.94
30.00	0.000695	2.32	97.50	0.004103	13.68
40.00	0.000850	2.83	99.00	0.005865	19.55
50.00	0.001008	3.36	99.50	0.006346	21.15
60.00	0.001246	4.15	99.75	0.006586	21.95
70.00	0.001659	5.53	99.90	0.006730	22.43
80.00	0.002374	7.91			

Estimated percentile of per-capita days exceeding calculated exposure in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
10.00	0.000470	1.57	90.00	0.003109	10.36
20.00	0.000580	1.93	95.00	0.003583	11.94
30.00	0.000695	2.32	97.50	0.004103	13.68
40.00	0.000850	2.83	99.00	0.005865	19.55
50.00	0.001008	3.36	99.50	0.006346	21.15
60.00	0.001246	4.15	99.75	0.006586	21.95
70.00	0.001659	5.53	99.90	0.006730	22.43
80.00	0.002374	7.91			

Females (13-19 yrs/np/nn)	Daily Exposure Analysis (mg/kg body-weight/day)	
	per Capita	per User
Mean	0.001270	0.001272
Standard Deviation	0.000915	0.000914
Standard Error	0.000022	0.000022
Percent of aRfD	4.23	4.24

Percent of Person-Days that are User-Days = 99.80%

Estimated percentile of user-days exceeding calculated exposure in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
10.00	0.000391	1.30	90.00	0.002383	7.94
20.00	0.000548	1.83	95.00	0.003027	10.09
30.00	0.000704	2.35	97.50	0.003653	12.18
40.00	0.000886	2.95	99.00	0.004577	15.26
50.00	0.001053	3.51	99.50	0.004934	16.45
60.00	0.001273	4.24	99.75	0.005545	18.48
70.00	0.001521	5.07	99.90	0.006899	23.00
80.00	0.001844	6.15			

Estimated percentile of per-capita days exceeding calculated exposure in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
10.00	0.000384	1.28	90.00	0.002382	7.94
20.00	0.000546	1.82	95.00	0.003025	10.08
30.00	0.000701	2.34	97.50	0.003652	12.17
40.00	0.000884	2.95	99.00	0.004576	15.25
50.00	0.001051	3.50	99.50	0.004933	16.44
60.00	0.001271	4.24	99.75	0.005544	18.48
70.00	0.001519	5.06	99.90	0.006897	22.99
80.00	0.001842	6.14			

22

U.S. Environmental Protection Agency
 DEEM ACUTE analysis for PARAQUAT
 Residue file: 061603.r96
 Analysis Date: 10-27-1999/13:50:45
 Acute Reference Dose (aRfD) = 0.030000 mg/kg body-wt/day

Ver. 6.78
 (1989-92 data)
 Adjustment factor #2 NOT used.
 Residue file dated: 10-27-1999/13:45:06/8

=====

Females (20+ years/np/nn)	Daily Exposure Analysis (mg/kg body-weight/day)	
	per Capita	per User
Mean	0.001006	0.001008
Standard Deviation	0.000750	0.000750
Standard Error	0.000006	0.000006
Percent of aRfD	3.35	3.36

Percent of Person-Days that are User-Days = 99.81%

Estimated percentile of user-days exceeding calculated exposure
 in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
10.00	0.000287	0.96	90.00	0.001933	6.44
20.00	0.000420	1.40	95.00	0.002398	7.99
30.00	0.000547	1.82	97.50	0.002902	9.67
40.00	0.000679	2.26	99.00	0.003559	11.86
50.00	0.000831	2.77	99.50	0.004015	13.38
60.00	0.000997	3.32	99.75	0.004919	16.40
70.00	0.001220	4.07	99.90	0.006670	22.23
80.00	0.001505	5.02			

Estimated percentile of per-capita days exceeding calculated exposure
 in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
10.00	0.000282	0.94	90.00	0.001932	6.44
20.00	0.000418	1.39	95.00	0.002397	7.99
30.00	0.000545	1.82	97.50	0.002901	9.67
40.00	0.000677	2.26	99.00	0.003558	11.86
50.00	0.000830	2.77	99.50	0.004014	13.38
60.00	0.000995	3.32	99.75	0.004918	16.39
70.00	0.001218	4.06	99.90	0.006668	22.23
80.00	0.001504	5.01			

23

U.S. Environmental Protection Agency
 DEEM ACUTE analysis for PARAQUAT
 Residue file: 061603.r96
 Analysis Date: 10-27-1999/13:50:45
 Acute Reference Dose (aRfD) = 0.030000 mg/kg body-wt/day

Ver. 6.78
 (1989-92 data)
 Adjustment factor #2 NOT used.
 Residue file dated: 10-27-1999/13:45:06/8

=====

Females (13-50 years)	Daily Exposure Analysis (mg/kg body-weight/day)	
	per Capita	per User
Mean	0.001063	0.001065
Standard Deviation	0.000809	0.000809
Standard Error	0.000008	0.000008
Percent of aRfD	3.54	3.55

Percent of Person-Days that are User-Days = 99.81%

Estimated percentile of user-days exceeding calculated exposure
 in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
10.00	0.000296	0.99	90.00	0.002034	6.78
20.00	0.000436	1.45	95.00	0.002553	8.51
30.00	0.000564	1.88	97.50	0.003128	10.43
40.00	0.000705	2.35	99.00	0.003942	13.14
50.00	0.000865	2.88	99.50	0.004525	15.08
60.00	0.001059	3.53	99.75	0.005491	18.30
70.00	0.001292	4.31	99.90	0.007224	24.08
80.00	0.001581	5.27			

Estimated percentile of per-capita days exceeding calculated exposure
 in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
10.00	0.000291	0.97	90.00	0.002033	6.78
20.00	0.000433	1.44	95.00	0.002552	8.51
30.00	0.000562	1.87	97.50	0.003127	10.42
40.00	0.000703	2.34	99.00	0.003941	13.14
50.00	0.000864	2.88	99.50	0.004524	15.08
60.00	0.001057	3.52	99.75	0.005489	18.30
70.00	0.001291	4.30	99.90	0.007222	24.07
80.00	0.001579	5.26			

Males (13-19 years)

Daily Exposure Analysis

	(mg/kg body-weight/day)	
	per Capita	per User
Mean	0.001538	0.001538
Standard Deviation	0.001265	0.001265
Standard Error	0.000032	0.000032
Percent of aRfD	5.13	5.13

Percent of Person-Days that are User-Days =100.00%

Estimated percentile of user-days exceeding calculated exposure in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
10.00	0.000478	1.59	90.00	0.002908	9.69
20.00	0.000650	2.17	95.00	0.003857	12.86
30.00	0.000842	2.81	97.50	0.005361	17.87
40.00	0.001046	3.49	99.00	0.005994	19.98
50.00	0.001213	4.04	99.50	0.006786	22.62
60.00	0.001428	4.76	99.75	0.009121	30.40
70.00	0.001691	5.64	99.90	0.010629	35.43
80.00	0.002143	7.14			

Estimated percentile of per-capita days exceeding calculated exposure in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD
10.00	0.000478	1.59	90.00	0.002908	9.69
20.00	0.000650	2.17	95.00	0.003857	12.86
30.00	0.000842	2.81	97.50	0.005361	17.87
40.00	0.001046	3.49	99.00	0.005994	19.98
50.00	0.001213	4.04	99.50	0.006786	22.62
60.00	0.001428	4.76	99.75	0.009121	30.40
70.00	0.001691	5.64	99.90	0.010629	35.43
80.00	0.002143	7.14			

U.S. Environmental Protection Agency
 DEEM ACUTE analysis for PARAQUAT
 Residue file: 061603.r96
 Analysis Date: 10-27-1999/13:50:45
 Acute Reference Dose (aRfD) = 0.030000 mg/kg body-wt/day

Ver. 6.78
 (1989-92 data)
 Adjustment factor #2 NOT used.
 Residue file dated: 10-27-1999/13:45:06/8

=====

----- Males (20+ years) -----	Daily Exposure Analysis (mg/kg body-weight/day)	
	per Capita	per User

Mean	0.001099	0.001100
Standard Deviation	0.000786	0.000785
Standard Error	0.000008	0.000008
Percent of aRfD	3.66	3.67

Percent of Person-Days that are User-Days = 99.93%

Estimated percentile of user-days exceeding calculated exposure
 in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD

10.00	0.000328	1.09	90.00	0.002090	6.97
20.00	0.000475	1.58	95.00	0.002596	8.65
30.00	0.000607	2.02	97.50	0.003168	10.56
40.00	0.000758	2.53	99.00	0.003947	13.16
50.00	0.000917	3.06	99.50	0.004398	14.66
60.00	0.001101	3.67	99.75	0.004891	16.30
70.00	0.001325	4.42	99.90	0.005658	18.86
80.00	0.001611	5.37			

Estimated percentile of per-capita days exceeding calculated exposure
 in mg/kg body-wt/day and corresponding percent of aRfD

Percentile	Exposure	% aRfD	Percentile	Exposure	% aRfD

10.00	0.000326	1.09	90.00	0.002090	6.97
20.00	0.000474	1.58	95.00	0.002596	8.65
30.00	0.000607	2.02	97.50	0.003168	10.56
40.00	0.000757	2.52	99.00	0.003947	13.16
50.00	0.000917	3.06	99.50	0.004397	14.66
60.00	0.001101	3.67	99.75	0.004891	16.30
70.00	0.001324	4.41	99.90	0.005658	18.86
80.00	0.001611	5.37			

Handwritten signature

=====
 Total exposure by population subgroup

Population Subgroup	Total Exposure	
	mg/kg body wt/day	Percent of Rfd
U.S. Population (total)	0.001397	31.1%
U.S. Population (spring season)	0.001374	30.5%
U.S. Population (summer season)	0.001358	30.2%
U.S. Population (autumn season)	0.001439	32.0%
U.S. Population (winter season)	0.001420	31.5%
Northeast region	0.001427	31.7%
Midwest region	0.001448	32.2%
Southern region	0.001362	30.3%
Western region	0.001367	30.4%
Hispanics	0.001378	30.6%
Non-hispanic whites	0.001388	30.8%
Non-hispanic blacks	0.001437	31.9%
Non-hisp/non-white/non-black)	0.001565	34.8%
All infants (< 1 year)	0.001974	43.9%
Nursing infants	0.000813	18.1%
Non-nursing infants	0.002462	54.7%
Children 1-6 yrs	0.003113	69.2%
Children 7-12 yrs	0.002155	47.9%
Females 13-19(not preg or nursing)	0.001270	28.2%
Females 20+ (not preg or nursing)	0.001006	22.4%
Females 13-50 yrs	0.001063	23.6%
Females 13+ (preg/not nursing)	0.001066	23.7%
Females 13+ (nursing)	0.001452	32.3%
Males 13-19 yrs	0.001538	34.2%
Males 20+ yrs	0.001099	24.4%
Seniors 55+	0.001049	23.3%
Pacific Region	0.001341	29.8%