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TOXIC SUBSTANCES

May 5, 1998

MEMORANDUM

SUBJECT: Ethoprop (Ethoprophos). List A Reregistration Case No. 0106/Chemical ID No. 041101. Acute and Chronic Dietary Risk Analyses for the HED RED Chapter. No MRID #. DP Barcode No. D245749.

FROM: Christina B. Swartz, Chemist  
Reregistration Branch 1  
Health Effects Division (7509C)

*Christina B. Swartz*

THRU: Whang Phang, Ph.D., Branch Senior Scientist  
Reregistration Branch 1  
Health Effects Division (7509C)

*Whang Phang*

TO: Kit Farwell  
Reregistration Branch 1  
Health Effects Division (7509C)

**Action Requested**

In conjunction with the completion of the HED Reregistration Eligibility Decision (RED) document for the active ingredient ethoprop (ethoprophos), anticipated residues have been generated for assessing acute and chronic (cancer and non-cancer) dietary exposure and concomitant dietary risk. Acute and chronic (cancer and non-cancer) dietary risk assessments are requested, using the Dietary Risk Evaluation System (DRES).

**Summary of Pertinent Toxicological Information**

The following documents were provided as background information for the purpose of conducting dietary risk assessments: HED RfD/Peer Review Committee report dated 4/24/97; Toxicology Endpoint Selection Document (6/3/96); FQPA Requirement, Report of the Hazard Identification Assessment Review Committee (11/10/97); Report of the Cancer Assessment Review Committee (10/2/97); Report of the HED Metabolism Committee (2/6/98).

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Using a weight-of-evidence approach, the RfD Committee recommended the RfD for ethoprop based on combined chronic and subchronic toxicity studies in dogs. The no observable effect level (NOEL) for plasma cholinesterase inhibition in dogs is 0.01 mg/kg/day. The reference dose (RfD) chosen by HEDs RfD/Peer Review Committee is 0.0001 mg/kg/day, based on the NOEL of 0.01 ppm, and uncertainty factors of 10 for inter-species extrapolation and 10 for intra-species variability.

The acute dietary endpoint chosen for risk assessment was established in a subchronic toxicity study in dogs; the NOEL was 0.025 mg/kg/day for plasma cholinesterase inhibition, and the LOEL (lowest observable effect level) was 0.075 mg/kg/day.

Based on the available toxicity data for ethoprop, HED has concluded that the 10X factor to account for extra sensitivity of infants and children (as required by FQPA) can be removed. For acute dietary risk assessment, a margin of exposure of 100 is adequately protective. For chronic exposure, an uncertainty factor of 100 is considered to ensure adequate protection for infants and children.

Ethoprop is considered to be a "likely" human carcinogen by HEDs Cancer Science Assessment Committee; using the linear low-dose approach a Q1\* (cancer potency factor) of 0.0281 was determined, based on occurrence of pheochromocytomas and C-cell carcinomas in rats, and on evidence of clastogenicity during in vitro mutagenicity testing.

### **Residue Information**

The HED Metabolism Committee concluded the following with respect to dietary risk assessments:

The residues of concern for chronic non-cancer dietary risk assessments are parent and metabolites II and III: ethoprop, SME [O-ethyl-S-methyl-S-propylphosphorodithioate] and OME [O-ethyl-O-methyl-S-propylphosphorothioate].

For cancer risk assessment, the residues of concern in rats are parent and metabolites II, III and IV: ethoprop, SME, OME and M1 [O-ethyl-S-propylphosphorothioate]. For cancer risk assessment, the residues of concern in water are ethoprop, SME, OME, M1 and S,S-dipropylphosphorodithioate.

Tolerances for ethoprop residues in plant commodities are currently expressed in terms of ethoprop per se [40 CFR §180.262 (a) and (b)]. For all commodities except mushroom and okra, the tolerances are set at 0.02 ppm with a (N), or negligible residue notation; tolerances for residues in mushroom and okra are established at 0.02 ppm. Residue data available for tolerance assessment and dietary exposure assessment include either parent alone or parent and metabolite IV. Therefore, HED has concluded that tolerances will be reassessed based on combined residues of parent and metabolite IV, and making conservative assumptions with respect to levels of metabolites II and III based on metabolism study data.

An anticipated residue assessment was conducted by HED/C&B1 (refer to the S. Piper memoranda dated 4/23/98 and 4/29/98), in which anticipated residues were determined for numerous

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commodities to be used in acute, chronic (non-cancer) and chronic (cancer) DRES runs. No anticipated residues were determined for mushroom, okra, or soybeans, since uses on these commodities are not being supported by the registrant. Concentration factors were incorporated into the anticipated residues. In order to further refine the analysis, % of crop treated data were supplied by BEAD (4/11/95); if no data were available, 100 % crop treated was assumed. The refinement for % crop treated was not incorporated into the anticipated residues; this refinement was therefore applied in the DRES run. Table 1 summarizes the anticipated residues and % crop treated data incorporated into acute, chronic non-cancer and chronic/cancer dietary risk assessments:

Table 1. Ethoprop Anticipated Residues for Acute and Chronic Non-Cancer Dietary Exposure							
RAC	Food Items	Tolerance		Anticipated Residues			% Crop Treated <sup>3</sup>
		Established <sup>1</sup>	Pending <sup>2</sup>	Chronic /Cancer AR	Chronic AR	Acute AR	
Bananas		0.02	0.04	0.084	0.072	0.212	100.0*
Beans, Lima		0.02	0.02	0.008	0.007	0.064	4.00
Beans, Snap		0.02	0.2	0.063	0.054	0.710	4.00
Cabbage		0.02	0.05	0.071	0.061	0.249	1.00
Corn, Sweet		0.02		0.002	0.002	0.106	2.00
Corn, Grain	starch, refined oil, grits, meal & flour	0.02		0.002	0.002	0.106	2.00
Cucumbers		0.02	0.1	0.099	0.085	0.429	1.00
Peanuts(nutmeat)		0.02		0.137	0.117	0.583	2.00
	meal			0.002	0.002	0.106	2.00
	oil, refined			0.025	0.022	0.064	2.00
Pineapples		0.02	0.02	0.042	0.036	0.106	100.0*
	juice			0.042	0.036	0.106	100.0*
Potatoes		0.02		0.002	0.002	0.106	7.00
	granules/flakes, chips peel, wet			0.002	0.002	0.106	7.00
Sugarcane		0.02		0.002	0.002	0.106	5.00
	molasses, sugar refined			0.002	0.002	0.106	5.00
Sweet Potatoes		0.02		0.002	0.002	0.106	15.00

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- <sup>1</sup> 40CFR 180.262: Tolerance established on parent only.  
<sup>2</sup> Tolerances are reassessed for parent + Metabolite IV (See RED Chapter, section 18).  
<sup>3</sup> BEAD (4/11/95) supplied the estimates of % crop treated.  
 \* 100% crop treated was assumed in the absence of % crop treated data.

## Results

A DRES chronic exposure analysis was performed using anticipated residues and percent crop treated data to determine the anticipated residue contribution (ARC) for the general U.S. population and 22 population subgroups. Although the theoretical maximum residue contribution (TMRC) was also determined for the same population subgroups, it is not reported herein since anticipated residues are higher than the established tolerances. In addition, a chronic/cancer assessment was conducted, also using anticipated residues and percent crop treated data. An acute DRES run was conducted using the anticipated residues provided by CEB1. The acute analysis estimates the distribution of single-day exposures for the overall US population and various population subgroups. The Margin of Exposure (MOE) is the relationship between the high end exposure and the NOEL (the highest dose at which no effects were observed in a toxicity study). For ethoprop, the HAZID Committee has determined that an MOE of 100 or more would be appropriate for acute dietary exposure.

Table 2 summarizes the results of acute and chronic (non-cancer) dietary risk analyses for ethoprop. The carcinogenic dietary risk for the general US population is calculated to be  $0.69 \times 10^{-6}$  (EPA does not calculate cancer risk for specific population subgroups); refer to Table 4 for the DRES printout for cancer risk. This cancer risk is below the one in a million risk that the EPA generally considers to be negligible.

Table 2. Summary of Acute and Chronic (Non-Cancer) Dietary Risk for Ethoprop.			
Population Subgroup	Acute Risk (MOE Approach): MOE = <sup>1</sup>	Acute Risk (RfD Approach): %RfD = <sup>2</sup>	Chronic Risk, %RfD <sup>3</sup>
General US Population	5	2,000	20.99
Infants (<1 Year)	1.7	6,000	71.08
Non-Nursing Infants (<1 year old)	--	--	97.60
Children (1-6 years)	2.5	4,000	65.45
Females 13+	8.3	1,200	--
Males 13+	8.3	1,200	--

- <sup>1</sup> The MOE is the Margin of Exposure, or the NOEL (established for acute dietary risk assessment) divided by the high end exposure. Refer to Table 5 for details of acute dietary risk analysis.

- <sup>2</sup> The %RfD for acute risk is equivalent to the high end exposure divided by the RfD X 100, where the RfD is the reference dose divided by the safety factor of 100X (10X for intra-species extrapolation and 10X for inter-species variability). Refer to Table 5 for details of acute dietary risk analysis.
- <sup>3</sup> Refer to Table 3 for the details of the chronic non-cancer DRES run.

## Discussion

The margins of exposure calculated for infants <1 year, children 1-6, and females and males 13+ and for the general US population are below what the Agency considers protective for acute dietary risk associated with exposure to ethoprop. Using the RfD approach, the %RfD consumed by acute dietary exposure should be less than 100; the %RfD values calculated for acute dietary exposure to ethoprop are all greater than or equal to 1,200. The calculated acute dietary risk for ethoprop exceeds the Agency's level of concern using a deterministic approach for anticipated residues and consumption data generated in the 1977-78 USDA Nationwide Food Consumption Survey (NFCS).

Chronic dietary risk for ethoprop is below the Agency's level of concern. The most highly exposed population subgroup, based on the results of the DRES analysis, is non-nursing infants (<1 year old), for which 97.6% of the RfD is consumed. Chronic carcinogenic dietary risk is below the Agency's one in a million level of concern, at  $0.7 \times 10^{-6}$ .

For risk characterization purposes, it should be noted that for chronic non-cancer exposure, approximately 95% of the RfD for non-nursing infants (<1 year) is consumed by bananas/plantains. In addition, the cancer risk for bananas/plantains is approximately  $0.66 \times 10^{-6}$ . Acute dietary risk estimates for individual commodities cannot be determined using currently available tools.

Secondary Review:

DRES SAC Review (C. Lang and B. Steinwand):05/05/98

cc: Reviewer, C. Swartz; DRES file; List A Rereg. File

7509C:CSwartz:RRB1:CM2:Rm 804F:703 305 5877:05/04/98

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Table 3: Chronic Non-Cancer Dietary Risk

ANTICIPATED RESIDUE INFORMATION FOR CASHELL NUMBER 434C

DATE: 05/01/98

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CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Ethioprop (Ethioprothos) Caswell #434C CAS No. 13194-48-4 A.I. CODE: 041101 CFR No. 180.262	1yr feeding-dog NOEL = 0.0100 mg/kg LEL = 0.0250-mg/kg 0.00 ppm ONCD: likely	Decreased plasma Che	PADI UF -->100 OPP RfD = 0.000100 EPA RfD = 0.000100 Q* = 0.02810		

FOOD CODE	FOOD	FOOD FORM	PET.#	TOLERANCE (ppm)	ANTICIPATED RESIDUE (ppm)	AR STATISTIC TYPE	% CROP TREATED	RES. VALUE USED IN TAS RUN (ppm)
06002AA	BANANAS-UNSPEC	22 COOKED-FRESH-BAKED	0F0959	P 0.020000	0.072000		100.00	0.072000
06002AB	BANANAS-FRESH	10 RAW-FRESH OR NFS	0F0959	P 0.020000	0.072000		100.00	0.072000
06002AB	BANANAS-FRESH	21 COOKED-NFS	0F0959	P 0.020000	0.072000		100.00	0.072000
06002AB	BANANAS-FRESH	31 COOKED-FRESH OR CANNED	0F0959	P 0.020000	0.072000		100.00	0.072000
06002DA	BANANAS-DRIED	10 RAW-FRESH OR NFS	0F0959	P 0.020000	0.072000		100.00	0.072000
06002DA	BANANAS-DRIED	21 COOKED-NFS	0F0959	P 0.020000	0.072000		100.00	0.072000
06013AA	PINEAPPLE-PULP	10 RAW-FRESH OR NFS	0F0959	P 0.020000	0.036000		100.00	0.036000
06013AA	PINEAPPLE-PULP	21 COOKED-NFS	0F0959	P 0.020000	0.036000		100.00	0.036000
06013AA	PINEAPPLE-PULP	31 COOKED-FRESH OR CANNED	0F0959	P 0.020000	0.036000		100.00	0.036000
06013DA	PINEAPPLE-DRIED	10 RAW-FRESH OR NFS	0F0959	P 0.020000	0.036000		100.00	0.036000
06013JA	PINEAPPLE-JUICE	10 RAW-FRESH OR NFS	0F0959	P 0.020000	0.036000		100.00	0.036000
06013JA	PINEAPPLE-JUICE	15 RAW-FRESH OR CANNED	0F0959	P 0.020000	0.036000		100.00	0.036000
06013JA	PINEAPPLE-JUICE	21 COOKED-NFS	0F0959	P 0.020000	0.036000		100.00	0.036000
06013JA	PINEAPPLE-JUICE	31 COOKED-FRESH OR CANNED	0F0959	P 0.020000	0.072000		100.00	0.072000
06016AA	PLANTAINS	21 COOKED-NFS	0F0959	P 0.020000	0.072000		100.00	0.072000
06016AA	PLANTAINS	23 COOKED-FRESH-BOILED	0F0959	P 0.020000	0.072000		100.00	0.072000
06016AA	PLANTAINS	25 COOKED-FRESH-FRIED	0F0959	P 0.020000	0.085000		1.00	0.000850
10010AA	CUCUMBERS	10 RAW-FRESH OR NFS	5F1568	P 0.020000	0.085000		1.00	0.000850
10010AA	CUCUMBERS	11 RAW-FRESH-PICKLED, CORNED, OR CURED	5F1568	P 0.020000	0.085000		1.00	0.000850
10010AA	CUCUMBERS	21 COOKED-NFS	5F1568	P 0.020000	0.061000		1.00	0.000610
13007AA	CABBAGE	11 RAW-FRESH OR NFS	2F1250	P 0.020000	0.061000		1.00	0.000610
13007AA	CABBAGE	11 RAW-FRESH-PICKLED, CORNED, OR CURED	2F1250	P 0.020000	0.061000		1.00	0.000610
13007AA	CABBAGE	21 COOKED-NFS	2F1250	P 0.020000	0.061000		1.00	0.000610
13010AA	CABBAGE-CHINESE	10 RAW-FRESH OR NFS	2F1250	P 0.020000	0.061000		1.00	0.000610
13010AA	CABBAGE-CHINESE	21 COOKED-NFS	2F1250	P 0.020000	0.061000		1.00	0.000610
14013AA	POTATO(MH)-WHOLE	10 RAW-FRESH OR NFS	5F1568	P 0.020000	0.000140		7.00	0.000140
14013AA	POTATO(MH)-WHOLE	21 COOKED-NFS	5F1568	P 0.020000	0.000140		7.00	0.000140
14013AA	POTATO(MH)-WHOLE	22 COOKED-FRESH-BAKED	5F1568	P 0.020000	0.000140		7.00	0.000140
14013AA	POTATO(MH)-WHOLE	22 COOKED-FRESH-BAKED	5F1568	P 0.020000	0.000140		7.00	0.000140
14013AB	POTATO(MH)-UNPEE	21 COOKED-NFS	5F1568	P 0.020000	0.000140		7.00	0.000140
14013AC	POTATO(MH)-PULP	22 COOKED-FRESH-BAKED	5F1568	P 0.020000	0.000140		7.00	0.000140
14013AC	POTATO(MH)-PULP	23 COOKED-FRESH-BOILED	5F1568	P 0.020000	0.000140		7.00	0.000140
14013AC	POTATO(MH)-PULP	25 COOKED-FRESH-FRIED	5F1568	P 0.020000	0.000140		7.00	0.000140
14013DA	POTATO(MH)-DRI	10 RAW-FRESH OR NFS	5F1568	P 0.020000	0.000140		7.00	0.000140
14013DA	POTATO(MH)-DRI	31 COOKED-FRESH OR CANNED	5F1568	P 0.020000	0.000140		7.00	0.000140
14013HA	POTATO(MH)-PEEL	22 COOKED-FRESH-BAKED	5F1568	P 0.020000	0.000140		7.00	0.000140
14018AA	SWEETPOTATOES	21 COOKED-NFS	0F0872	P 0.020000	0.000300		15.00	0.000300
14018AA	SWEETPOTATOES	31 COOKED-FRESH OR CANNED	0F0872	P 0.020000	0.000300		15.00	0.000300
14018AA	SWEETPOTATOES	51 COOKED-CANNED	0F0872	P 0.020000	0.000300		15.00	0.000300
15001AC	BEANS-DRY-LIMA	21 COOKED-NFS	5F1568	P 0.020000	0.007000		4.00	0.000280

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# ANTICIPATED RESIDUE INFORMATION FOR CASSELL NUMBER 434C

DATE: 05/01/98

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CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES		DATA GAPS/COMMENTS	STATUS
			PA01	UF		
Ethoprop (Ethoprophos) Cassell #434C CAS No. 13194-48-4 A.I. CODE: 041101 CFR No. 180.262	1yr feeding-dog NOEL= 0.0100 mg/kg LEL= 0.0250 mg/kg 0.00 ppm	Decreased plasma Che	OPP RTD= 0.000100 EPA RTD= 0.000100	0.02810		
	ONCO: likely					

FOOD CODE	FOOD	FOOD FORM	PET.#	TOLERANCE (ppm)	ANTICIPATED RESIDUE (ppm)	AR STATISTIC TYPE	% CROP TREATED	RES. VALUE USED IN TAS RUN (ppm)
15002AA	BEANS-SUCC-LIMA	10 RAW-FRESH OR NFS	5F1568	P 0.020000	0.007000		4.00	0.000280
15002AA	BEANS-SUCC-LIMA	21 COOKED-NFS	5F1568	P 0.020000	0.007000		4.00	0.000280
15003AA	BEANS-SUCC-GREEN	21 COOKED-NFS	5F1568	P 0.020000	0.054000		4.00	0.002160
15005AA	CORN,SWEET	10 RAW-FRESH OR NFS	9F0750	P 0.020000	0.002000		2.00	0.000040
15005AA	CORN,SWEET	21 COOKED-NFS	9F0750	P 0.020000	0.002000		2.00	0.000040
15005AA	CORN,SWEET	31 COOKED-FRESH OR CANNED	9F0750	P 0.020000	0.002000		2.00	0.000040
15006AA	PEANUTS-WHOLE	10 RAW-FRESH OR NFS	0F0872	P 0.020000	0.117000		2.00	0.002340
15006AA	PEANUTS-WHOLE	21 COOKED-NFS	0F0872	P 0.020000	0.117000		2.00	0.002340
15006AA	PEANUTS-WHOLE	22 COOKED-FRESH-BAKED	0F0872	P 0.020000	0.117000		2.00	0.002340
24002EA	CORN, GRAIN-ENDO	10 RAW-FRESH OR NFS	NOPE1#	P 0.020000	0.002000		2.00	0.000040
24002EA	CORN, GRAIN-ENDO	21 COOKED-NFS	NOPE1#	P 0.020000	0.002000		2.00	0.000040
24002EA	CORN, GRAIN-ENDO	22 COOKED-FRESH-BAKED	NOPE1#	P 0.020000	0.002000		2.00	0.000040
24002EA	CORN, GRAIN-ENDO	23 COOKED-FRESH-BOILED	NOPE1#	P 0.020000	0.002000		2.00	0.000040
24002EA	CORN, GRAIN-ENDO	00 NOT SPECIFIED (NO CONSUMPTION)	NOPE1#	P 0.020000	0.002000		2.00	0.000040
24002SA	CORN SUGAR	10 RAW-FRESH OR NFS	NOPE1#	P 0.020000	0.002000		2.00	0.000040
24002SA	CORN SUGAR	21 COOKED-NFS	NOPE1#	P 0.020000	0.002000		2.00	0.000040
24002SA	CORN SUGAR	22 COOKED-FRESH-BAKED	NOPE1#	P 0.020000	0.002000		2.00	0.000040
25003SA	CANE SUGAR	10 RAW-FRESH OR NFS	2F1204	P 0.020000	0.002000		5.00	0.000100
25003SA	CANE SUGAR	21 COOKED-NFS	2F1204	P 0.020000	0.002000		5.00	0.000100
25003SA	CANE SUGAR	22 COOKED-FRESH-BAKED	2F1204	P 0.020000	0.002000		5.00	0.000100
25003SA	CANE SUGAR	31 COOKED-FRESH OR CANNED	2F1204	P 0.020000	0.002000		5.00	0.000100
25003SB	SUGAR-HOLASSES	10 RAW-FRESH OR NFS	2F1204	P 0.020000	0.002000		5.00	0.000100
25003SB	SUGAR-HOLASSES	21 COOKED-NFS	2F1204	P 0.020000	0.002000		5.00	0.000100
25003SB	SUGAR-HOLASSES	22 COOKED-FRESH-BAKED	2F1204	P 0.020000	0.002000		5.00	0.000100
25003SB	SUGAR-HOLASSES	31 COOKED-FRESH OR CANNED	2F1204	P 0.020000	0.002000		5.00	0.000100
270020A	CORN, GRAIN-OIL	18 PROCESSED OIL	NOPE1#	P 0.020000	0.002000		2.00	0.000040
270070A	PEANUTS-OIL	18 PROCESSED OIL	0F0872	P 0.020000	0.022000		2.00	0.000440

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## TOLERANCE ASSESSMENT SYSTEM ROUTINE CHRONIC ANALYSIS

DATE: 05/01/98

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CHEMICAL INFORMATION		STUDY TYPE		EFFECTS		REFERENCE DOSES		DATA GAPS/COMMENTS		STATUS					
Ethioprop (Ethioprophos) Caswell #434C CAS No. 13194-48-4 A.I. CODE: 041101 CFR No. 180.262		1yr feeding-dog NOEL= 0.0100 mg/kg 0.00 ppm LEL= 0.0250 mg/kg 0.00 ppm ONCO: likely		Decreased plasma ChE		PADI UF -->100 OPP RfD= 0.000100 EPA RfD= 0.000100 Q*: 0.02810									
POPULATION SUBGROUP		TOTAL TMRC (MG/KG BODY WEIGHT/DAY)		CURRENT TMRC*		NEW TMRC**		NEW TMRC AS PERCENT OF RFD		DIFFERENCE AS PERCENT OF RFD		EFFECT OF ANTICIPATED RESIDUES			
												ARC		XRFD	
U.S. POPULATION - 48 STATES		0.000073		0.000073		0.000073		73.365000		0.000000		0.000021		20.99400	
U.S. POPULATION - SPRING SEASON		0.000071		0.000071		0.000071		71.198000		0.000000		0.000020		19.86300	
U.S. POPULATION - SUMMER SEASON		0.000075		0.000075		0.000075		75.054000		0.000000		0.000021		21.36100	
U.S. POPULATION - FALL SEASON		0.000074		0.000074		0.000074		73.878000		0.000000		0.000021		20.68800	
U.S. POPULATION - WINTER SEASON		0.000073		0.000073		0.000073		73.346000		0.000000		0.000022		22.08400	
NORTHEAST REGION		0.000067		0.000067		0.000067		67.007000		0.000000		0.000021		21.23800	
NORTH CENTRAL REGION		0.000076		0.000076		0.000076		75.549000		0.000000		0.000019		19.23800	
SOUTHERN REGION		0.000077		0.000077		0.000077		77.370000		0.000000		0.000018		18.17000	
WESTERN REGION		0.000072		0.000072		0.000072		71.804000		0.000000		0.000028		28.16100	
HISPANICS		0.000076		0.000076		0.000076		76.440000		0.000000		0.000032		32.42400	
NON-HISPANIC WHITES		0.000073		0.000073		0.000073		72.806000		0.000000		0.000021		21.01900	
NON-HISPANIC BLACKS		0.000076		0.000076		0.000076		75.514000		0.000000		0.000014		14.12900	
NON-HISPANIC OTHERS		0.000074		0.000074		0.000074		73.574000		0.000000		0.000033		32.63400	
NURSING INFANTS (< 1 YEAR OLD)		0.000060		0.000060		0.000060		60.051000		0.000000		0.000071		71.08100	
NON-NURSING INFANTS (< 1 YEAR OLD)		0.000161		0.000161		0.000161		161.251000		0.000000		0.000098		97.60000	
FEMALES (13+ YEARS, PREGNANT)		0.000049		0.000049		0.000049		49.166000		0.000000		0.000013		13.06500	
FEMALES 13+ YEARS, NURSING		0.000054		0.000054		0.000054		54.379000		0.000000		0.000015		14.54300	
CHILDREN (1-6 YEARS OLD)		0.000162		0.000162		0.000162		162.463000		0.000000		0.000065		65.45300	
CHILDREN (7-12 YEARS OLD)		0.000114		0.000114		0.000114		114.444000		0.000000		0.000028		28.07300	
MALES (13-19 YEARS OLD)		0.000076		0.000076		0.000076		76.092000		0.000000		0.000014		13.71600	
FEMALES (13-19 YEARS OLD, NOT PREG. OR NURSING)		0.000065		0.000065		0.000065		65.428000		0.000000		0.000012		12.17500	
MALES (20 YEARS AND OLDER)		0.000056		0.000056		0.000056		55.856000		0.000000		0.000013		13.15600	
FEMALES (20 YEARS AND OLDER, NOT PREG. OR NURS)		0.000051		0.000051		0.000051		50.510000		0.000000		0.000014		13.84200	

\*Current TMRC does not include new or pending tolerances.  
\*\*New TMRC includes new, pending, and published tolerances.

## TOLERANCE ASSESSMENT SYSTEM ROUTINE CHRONIC ANALYSIS

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CHEMICAL INFORMATION		STUDY TYPE		EFFECTS		REFERENCE DOSES		DATA GAPS/COMMENTS		STATUS	
Ethioprop (Ethiophros)		1yr feeding-dog		Decreased plasma ChE		PAD1 UF -->100 OPP RfD= 0.000100 EPA RfD= 0.000100					
Caswell #434C		NOEL=									
CAS NO. 13196-48-4		0.0100 mg/kg									
A.I. CODE: 061101		0.00 ppm									
CFR No. 180.262		LEL= 0.0250 mg/kg									
		0.00 ppm									
		OMCO: likely				Q*: 0.02810					

## COMMODITY CONTRIBUTION BY RAC FOR: NON-NURSING INFANTS (&lt; 1 YEAR OLD)

FOOD CODE	FOODNAME/FOODFORM	TOLERANCE (PPM)		TMRG TYPE (UG/KG/DAY)	TMRG	XAFD	ANTICIPATED RESIDUE (PPM)		ARC (UG/KG/DAY)	XAFD
06002AA	BANANAS-UNSPECIFIED	0.020	P	0.000081	0.081		0.07200	0.000292	0.292	
	22 COOKED-FRESH-BAKED									
06002AB	BANANAS-FRESH	0.020	P	0.020221	20.221		0.07200	0.028649	28.649	
	10 RAW-FRESH OR NFS						0.07200	0.000163	0.163	
	21 COOKED-NFS						0.07200	0.043983	43.983	
06002DA	BANANAS-DRIED	0.020	P	0.001373	1.373		0.07200	0.000196	0.196	
	10 RAW-FRESH OR NFS						0.07200	0.004747	4.747	
06013AA	PINEAPPLE-FRESH, PULP	0.020	P	0.002094	2.094		0.03600	0.000490	0.490	
	21 COOKED-NFS						0.03600	0.000000	0.000	
06013DA	PINEAPPLE-DRIED	0.020	P	0.000000	0.000		0.03600	0.003279	3.279	
	31 COOKED-FRESH OR CANNED						0.03600	0.000000	0.000	
06013JA	PINEAPPLE-FRESH, JUICE	0.020	P	0.007499	7.499		0.03600	0.000000	0.000	
	10 RAW-FRESH OR NFS						0.03600	0.003638	3.638	
	15 RAW-FRESH OR CANNED						0.03600	0.000000	0.000	
	21 COOKED-NFS						0.03600	0.009861	9.861	
06016AA	PLANTAINS	0.020	P	0.000000	0.000		0.07200	0.000000	0.000	
	21 COOKED-NFS						0.07200	0.000000	0.000	
	23 COOKED-FRESH-BOILED						0.07200	0.000000	0.000	
25003SA	CANE SUGAR	0.020	P	0.017098	17.098		0.07200	0.000000	0.000	
	10 RAW-FRESH OR NFS						0.00010	0.000003	0.003	
	21 COOKED-NFS						0.00010	0.000029	0.029	
	22 COOKED-FRESH-BAKED						0.00010	0.000007	0.007	
	31 COOKED-FRESH OR CANNED						0.00010	0.000046	0.046	
25003SB	SUGAR-MOLASSES	0.020	P	0.000140	0.140		0.00010	0.000000	0.000	
	10 RAW-FRESH OR NFS						0.00010	0.000000	0.000	
	21 COOKED-NFS						0.00010	0.000001	0.001	
	22 COOKED-FRESH-BAKED						0.00010	0.000000	0.000	
	31 COOKED-FRESH OR CANNED						0.00010	0.000000	0.000	
CROP GROUP TOTALS FOR UNSPECIFIED:					0.048506	48.506		0.095384	95.384	

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## TOLERANCE ASSESSMENT SYSTEM ROUTINE CHRONIC ANALYSIS

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CHEMICAL INFORMATION		STUDY TYPE		EFFECTS		REFERENCE DOSES		DATA GAPS/COMMENTS		STATUS	
Ethioprop (Ethioprothos)		1yr feeding-dog		Decreased plasma Che		PAD1 UF -->100 OPP RfD= 0.000100 EPA RfD= 0.000100					
Caswell #434C		NOEL= 0.0100 mg/kg									
CAS No. 13194-48-4		0.00 ppm									
A.I. CODE: 041101		LEL= 0.0250 mg/kg									
CFR No. 180.262		0.00 ppm									
		ONCO: likely				Q <sup>+</sup> : 0.02810					

## COMMODITY CONTRIBUTION BY RAC FOR: NON-NURSING INFANTS (&lt; 1 YEAR OLD)

FOOD CODE	FOODNAME/FOODFORM	TOLERANCE (PPH)		TMRC (UG/KG/DAY)	%RFD	ANTICIPATED RESIDUE (PPH)		ARC (UG/KG/DAY)	%RFD
		TYPE							
14013AA	POTATOES(WHITE)-WHOLE	0.020	P	0.005536	5.536	0.00014	0.000008	0.008	0.008
	10 RAW-FRESH OR NFS					0.00014	0.000009	0.009	
	21 COOKED-NFS					0.00014	0.000022	0.022	
14013AB	22 COOKED-FRESH-BAKED	0.020	P	0.000000	0.000	0.00014	0.000000	0.000	0.000
	POTATOES(WHITE)-UNSPECIFIED					0.00014	0.000012	0.012	0.012
	22 COOKED-FRESH-BAKED					0.00014	0.000078	0.078	0.078
14013AC	POTATOES(WHITE)-PEELED	0.020	P	0.015850	15.850	0.00014	0.000007	0.007	0.007
	21 COOKED-NFS					0.00014	0.000013	0.013	0.013
	22 COOKED-FRESH-BAKED					0.00014	0.000012	0.012	0.012
	23 COOKED-FRESH-BOILED					0.00014	0.000078	0.078	0.078
	25 COOKED-FRESH-FRIED					0.00014	0.000007	0.007	0.007
14013DA	POTATOES(WHITE)-DRY	0.020	P	0.006513	6.513	0.00014	0.000002	0.002	0.002
	10 RAW-FRESH OR NFS					0.00014	0.000043	0.043	0.043
	31 COOKED-FRESH OR CANNED					0.00014	0.000000	0.000	0.000
14013HA	POTATOES(WHITE)-PEEL ONLY	0.020	P	0.000000	0.000	0.00014	0.000000	0.000	0.000
	22 COOKED-FRESH-BAKED					0.00014	0.000000	0.000	0.000
14018AA	SWEETPOTATOES (INCLUDING YAMS)	0.020	P	0.005747	5.747	0.00030	0.000007	0.007	0.007
	21 COOKED-NFS					0.00030	0.000078	0.078	0.078
	31 COOKED-FRESH OR CANNED					0.00030	0.000001	0.001	0.001
	51 COOKED-CANNED					0.00030	0.000001	0.001	0.001
CROP GROUP TOTALS FOR ROOT AND TUBER VEGETABLES:				0.033646	33.646	0.000280		0.280	0.280
13007AA	CABBAGE-GREEN AND RED	0.020	P	0.000382	0.382	0.00061	0.000000	0.000	0.000
	10 RAW-FRESH OR NFS					0.00061	0.000000	0.000	0.000
	11 RAW-FRESH-PICKLED, CORNED, OR CURED					0.00061	0.000012	0.012	0.012
	21 COOKED-NFS					0.00061	0.000000	0.000	0.000
13010AA	CABBAGE-CHINESE/CELERY, INC. BOK CHOY	0.020	P	0.000000	0.000	0.00061	0.000000	0.000	0.000
	10 RAW-FRESH OR NFS					0.00061	0.000000	0.000	0.000
	21 COOKED-NFS					0.00061	0.000000	0.000	0.000
CROP GROUP TOTALS FOR BRASSICA (COLE) LEAFY VEGETABLES:				0.000382	0.382	0.000012		0.012	0.012
15001AC	BEANS-DRY-LIMA	0.020	P	0.000000	0.000	0.00028	0.000000	0.000	0.000
	21 COOKED-NFS					0.00028	0.000000	0.000	0.000
15002AA	BEANS-SUCULENT-LIMA	0.020	P	0.000816	0.816	0.00028	0.000000	0.000	0.000
	10 RAW-FRESH OR NFS					0.00028	0.000011	0.011	0.011
	21 COOKED-NFS					0.00028	0.000011	0.011	0.011
15003AA	BEANS-SUCULENT-GREEN	0.020	P	0.016401	16.401	0.00216	0.001771	1.771	1.771
	21 COOKED-NFS					0.00216	0.001771	1.771	1.771
15006AA	PEANUTS-WHOLE	0.020	P	0.000562	0.562	0.00234	0.000000	0.000	0.000
	10 RAW-FRESH OR NFS					0.00234	0.000000	0.000	0.000

## TOLERANCE ASSESSMENT SYSTEM ROUTINE CHRONIC ANALYSIS

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CHEMICAL INFORMATION	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Ethioprop (Ethioprofos) Caswell #434C CAS No. 13194-48-4 A.I. CODE: 041101 CFR No. 180.262	1yr feeding-dog NOEL = 0.0100 mg/kg 0.00 ppm LEL = 0.0250 mg/kg 0.00 ppm ONCO: likely	Decreased plasma Che	PADI Uf --> 100 OPP RfD = 0.000100 EPA RfD = 0.000100 Q*: 0.02810		

## COMMODITY CONTRIBUTION BY RAC FOR: NON-NURSING INFANTS (&lt; 1 YEAR OLD)

FOOD CODE	FOODNAME/FOODFORM	TOLERANCE (PPM)	THRC (UG/KG/DAY)	%RFD	ANTICIPATED RESIDUE (PPM)	ARC (UG/KG/DAY)	%RFD
270070A	21 COOKED-NFS 22 COOKED-FRESH-BAKED PEANUTS-OIL 18 PROCESSED OIL	0.020	0.000024	0.024	0.00234 0.00234 0.00064	0.000058 0.000008 0.000001	0.058 0.008 0.001
CROP GROUP TOTALS FOR LEGUME VEGETABLES:			0.017803	17.803		0.001849	1.849
100100A	CUCUMBERS 10 RAW-FRESH OR NFS 11 RAW-FRESH-PICKLED, CORNED, OR CURED 21 COOKED-NFS	0.020	0.000511	0.511	0.00085 0.00085 0.00085	0.000021 0.000000 0.000000	0.021 0.000 0.000
CROP GROUP TOTALS FOR FRUITING VEGETABLES (CUCURBITIS):			0.000511	0.511		0.000021	0.021
150050A	CORN, SWEET 10 RAW-FRESH OR NFS 21 COOKED-NFS 31 COOKED-FRESH OR CANNED	0.020	0.008177	8.177	0.00004 0.00004 0.00004	0.000000 0.000006 0.000010	0.000 0.006 0.010
240020A	CORN, GRAIN-ENDOSPERM 10 RAW-FRESH OR NFS 21 COOKED-NFS 22 COOKED-FRESH-BAKED 23 COOKED-FRESH-BOILED	0.020	0.005649	5.649	0.00004 0.00004 0.00004 0.00004	0.000000 0.000007 0.000002 0.000002	0.000 0.007 0.002 0.002
240020A	CORN, GRAIN-BRAN 00 NOT SPECIFIED (NO CONSUMPTION)	0.020	0.000000	0.000	0.00004	0.000000	0.000
240020A	CORN SUGAR 10 RAW-FRESH OR NFS 21 COOKED-NFS 22 COOKED-FRESH-BAKED	0.020	0.013651	13.651	0.00004 0.00004 0.00004	0.000000 0.000027 0.000000	0.000 0.027 0.000
270020A	CORN, GRAIN-OIL 18 PROCESSED OIL	0.020	0.000242	0.242	0.00004	0.000000	0.000
CROP GROUP TOTALS FOR CEREAL GRAINS:			0.027719	27.719		0.000054	0.054

GRAND TOTALS FOR NON-NURSING INFANTS (&lt; 1 YEAR OLD)

0.128567 128.567

0.097600

97.600

TOLERANCE TYPE: N=NEW, A=PENDING, P=PUBLISHED  
THRC=THEORETICAL MAXIMUM RESIDUE CONTRIBUTION  
ARC = ANTICIPATED RESIDUE CONTRIBUTION  
RFD = REFERENCE DOSE

# Table 4: Chronic (Cancer) Dietary Risk

ANTICIPATED RESIDUE INFORMATION FOR CASSELL NUMBER 434C

DATE: 05/01/98

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CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Ethoprop (Ethoprophos) Casell #434C CAS No. 13194-48-4 A.I. CODE: 041101 CFR No. 180.262	1-yr feeding-dog NOEL = 0.0100 mg/kg LEL = 0.00 ppm 0.0250 mg/kg 0.00 ppm ONCO: likely	Decreased plasma ChE	PD1 UF --> 100 OPP RfD = 0.000100 EPA RfD = 0.000100 Q* = 0.02810		

FOOD CODE	FOOD	FOOD FORH	PET.#	TOLERANCE (ppm)	ANTICIPATED RESIDUE (ppm)	AR STATISTIC TYPE	% CROP TREATED	RES. VALUE USED IN TAS RUN (ppm)
06002AA	BANANAS-UNSPEC	22 COOKED-FRESH-BAKED	0F0959	P 0.020000	0.084000		100.00	0.084000
06002AB	BANANAS-FRESH	10 RAW-FRESH OR NFS	0F0959	P 0.020000	0.084000		100.00	0.084000
06002AB	BANANAS-FRESH	21 COOKED-NFS	0F0959	P 0.020000	0.084000		100.00	0.084000
06002AB	BANANAS-FRESH	31 COOKED-FRESH OR CANNED	0F0959	P 0.020000	0.084000		100.00	0.084000
06002DA	BANANAS-DRIED	10 RAW-FRESH OR NFS	0F0959	P 0.020000	0.084000		100.00	0.084000
06002DA	BANANAS-DRIED	21 COOKED-NFS	0F0959	P 0.020000	0.084000		100.00	0.084000
06013AA	PINEAPPLE-PULP	10 RAW-FRESH OR NFS	0F0959	P 0.020000	0.042000		100.00	0.042000
06013AA	PINEAPPLE-PULP	21 COOKED-NFS	0F0959	P 0.020000	0.042000		100.00	0.042000
06013AA	PINEAPPLE-PULP	31 COOKED-FRESH OR CANNED	0F0959	P 0.020000	0.042000		100.00	0.042000
06013AA	PINEAPPLE-DRIED	10 RAW-FRESH OR NFS	0F0959	P 0.020000	0.042000		100.00	0.042000
06013AA	PINEAPPLE-JUICE	10 RAW-FRESH OR NFS	0F0959	P 0.020000	0.042000		100.00	0.042000
06013AA	PINEAPPLE-JUICE	15 RAW-FRESH OR CANNED	0F0959	P 0.020000	0.042000		100.00	0.042000
06013AA	PINEAPPLE-JUICE	21 COOKED-NFS	0F0959	P 0.020000	0.042000		100.00	0.042000
06013AA	PINEAPPLE-JUICE	31 COOKED-FRESH OR CANNED	0F0959	P 0.020000	0.042000		100.00	0.042000
06016AA	PLANTAINS	21 COOKED-NFS	0F0959	P 0.020000	0.084000		100.00	0.084000
06016AA	PLANTAINS	23 COOKED-FRESH-BOILED	0F0959	P 0.020000	0.084000		100.00	0.084000
06016AA	PLANTAINS	25 COOKED-FRESH-FRIED	0F0959	P 0.020000	0.084000		100.00	0.084000
10010AA	CUCUMBERS	10 RAW-FRESH OR NFS	5F1568	P 0.020000	0.099000		1.00	0.000990
10010AA	CUCUMBERS	11 RAW-FRESH-PICKLED, CORNED, OR CURED	5F1568	P 0.020000	0.099000		1.00	0.000990
10010AA	CUCUMBERS	21 COOKED-NFS	5F1568	P 0.020000	0.071000		1.00	0.000710
13007AA	CABBAGE	10 RAW-FRESH OR NFS	2F1250	P 0.020000	0.071000		1.00	0.000710
13007AA	CABBAGE	11 RAW-FRESH-PICKLED, CORNED, OR CURED	2F1250	P 0.020000	0.071000		1.00	0.000710
13007AA	CABBAGE	21 COOKED-NFS	2F1250	P 0.020000	0.071000		1.00	0.000710
13010AA	CABBAGE-CHINESE	10 RAW-FRESH OR NFS	2F1250	P 0.020000	0.071000		1.00	0.000710
13010AA	CABBAGE-CHINESE	21 COOKED-NFS	2F1250	P 0.020000	0.071000		1.00	0.000710
14013AA	POTATO(UH)-WHOLE	10 RAW-FRESH OR NFS	5F1568	P 0.020000	0.002000		7.00	0.000140
14013AA	POTATO(UH)-WHOLE	21 COOKED-NFS	5F1568	P 0.020000	0.002000		7.00	0.000140
14013AA	POTATO(UH)-WHOLE	22 COOKED-FRESH-BAKED	5F1568	P 0.020000	0.002000		7.00	0.000140
14013AA	POTATO(UH)-WHOLE	22 COOKED-FRESH-BAKED	5F1568	P 0.020000	0.002000		7.00	0.000140
14013AB	POTATO(UH)-UNSPEC	22 COOKED-FRESH-BAKED	5F1568	P 0.020000	0.002000		7.00	0.000140
14013AC	POTATO(UH)-PULP	21 COOKED-NFS	5F1568	P 0.020000	0.002000		7.00	0.000140
14013AC	POTATO(UH)-PULP	22 COOKED-FRESH-BAKED	5F1568	P 0.020000	0.002000		7.00	0.000140
14013AC	POTATO(UH)-PULP	23 COOKED-FRESH-BOILED	5F1568	P 0.020000	0.002000		7.00	0.000140
14013AC	POTATO(UH)-PULP	25 COOKED-FRESH-FRIED	5F1568	P 0.020000	0.002000		7.00	0.000140
14013DA	POTATO(UH)-DRY	10 RAW-FRESH OR NFS	5F1568	P 0.020000	0.002000		7.00	0.000140
14013DA	POTATO(UH)-DRY	31 COOKED-FRESH OR CANNED	5F1568	P 0.020000	0.002000		7.00	0.000140
14013HA	POTATO(UH)-PEEL	22 COOKED-FRESH-BAKED	5F1568	P 0.020000	0.002000		7.00	0.000140
14018AA	SHEETPOTATOES	21 COOKED-NFS	0F0872	P 0.020000	0.002000		15.00	0.000300
14018AA	SHEETPOTATOES	31 COOKED-FRESH OR CANNED	0F0872	P 0.020000	0.002000		15.00	0.000300
14018AA	SHEETPOTATOES	51 COOKED-NFS	0F0872	P 0.020000	0.002000		15.00	0.000300
15001AC	BEANS-DRY-LIMA	21 COOKED-NFS	5F1568	P 0.020000	0.008000		4.00	0.000320

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# ANTICIPATED RESIDUE INFORMATION FOR CASWELL NUMBER 434C

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CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES		DATA GAPS/COMMENTS	STATUS
			Decreased plasma ChE	PADI UF -->100 OPR RfD= 0.000100 EPA RfD= 0.000100		
Ethoprop (Ethoprophos) Caswell #434C CAS No. 13194-48-4 A.I. CODE: 041101 CFR No. 180.262	1yr feeding-dog NOEL= 0.0100 mg/kg LEL= 0.0250 mg/kg 0.00 ppm			g*: 0.02810		
ONCO: likely						

FOOD CODE	FOOD	FOOD FORM	PET.#	TOLERANCE (ppm)	ANTICIPATED RESIDUE (ppm)	AR STATISTIC TYPE	% CROP TREATED	RES. VALUE USED IN TAS RUN (ppm)
15002AA	BEANS-SUCC-LIMA	10 RAW-FRESH OR NFS	5F1568	P 0.020000	0.008000		4.00	0.000320
15003AA	BEANS-SUCC-LIMA	21 COOKED-NFS	5F1568	P 0.020000	0.008000		4.00	0.000320
15003AA	BEANS-SUCC-GREEN	21 COOKED-NFS	5F1568	P 0.020000	0.063000		4.00	0.002520
15005AA	CORN, SWEET	10 RAW-FRESH OR NFS	9F0750	P 0.020000	0.002000		2.00	0.000040
15005AA	CORN, SWEET	21 COOKED-NFS	9F0750	P 0.020000	0.002000		2.00	0.000040
15005AA	CORN, SWEET	31 COOKED-FRESH OR CANNED	9F0750	P 0.020000	0.002000		2.00	0.000040
15006AA	PEANUTS-WHOLE	10 RAW-FRESH OR NFS	0F0872	P 0.020000	0.137000		2.00	0.002740
15006AA	PEANUTS-WHOLE	21 COOKED-NFS	0F0872	P 0.020000	0.137000		2.00	0.002740
24002EA	CORN, GRAIN-ENDO	22 COOKED-FRESH-BAKED	0F0872	P 0.020000	0.002000		2.00	0.000040
24002EA	CORN, GRAIN-ENDO	21 COOKED-NFS	NOPE1#	P 0.020000	0.002000		2.00	0.000040
24002EA	CORN, GRAIN-ENDO	22 COOKED-FRESH-BAKED	NOPE1#	P 0.020000	0.002000		2.00	0.000040
24002EA	CORN, GRAIN-ENDO	23 COOKED-FRESH-BOILED	NOPE1#	P 0.020000	0.002000		2.00	0.000040
24002EA	CORN, GRAIN-ENDO	00 NOT SPECIFIED (NO CONSUMPTION)	NOPE1#	P 0.020000	0.002000		2.00	0.000040
24002SA	CORN SUGAR	10 RAW-FRESH OR NFS	NOPE1#	P 0.020000	0.002000		2.00	0.000040
24002SA	CORN SUGAR	21 COOKED-NFS	NOPE1#	P 0.020000	0.002000		2.00	0.000040
24002SA	CORN SUGAR	22 COOKED-FRESH-BAKED	NOPE1#	P 0.020000	0.002000		2.00	0.000040
25003SA	CANE SUGAR	10 RAW-FRESH OR NFS	2F1204	P 0.020000	0.002000		5.00	0.000100
25003SA	CANE SUGAR	21 COOKED-NFS	2F1204	P 0.020000	0.002000		5.00	0.000100
25003SA	CANE SUGAR	22 COOKED-FRESH-BAKED	2F1204	P 0.020000	0.002000		5.00	0.000100
25003SA	CANE SUGAR	31 COOKED-FRESH OR CANNED	2F1204	P 0.020000	0.002000		5.00	0.000100
25003SB	SUGAR-MOLASSES	10 RAW-FRESH OR NFS	2F1204	P 0.020000	0.002000		5.00	0.000100
25003SB	SUGAR-MOLASSES	21 COOKED-NFS	2F1204	P 0.020000	0.002000		5.00	0.000100
25003SB	SUGAR-MOLASSES	22 COOKED-FRESH-BAKED	2F1204	P 0.020000	0.002000		5.00	0.000100
25003SB	SUGAR-MOLASSES	31 COOKED-FRESH OR CANNED	2F1204	P 0.020000	0.002000		5.00	0.000100
270020A	CORN, GRAIN-OIL	18 PROCESSED OIL	NOPE1#	P 0.020000	0.002000		2.00	0.000040
270070A	PEANUTS-OIL	18 PROCESSED OIL	0F0872	P 0.020000	0.025000		2.00	0.000500

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**PAGE: 1**

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## ANTICIPATED

\_\_\_\_\_

## TOLERANCE ASSESSMENT SYSTEM ROUTINE CHRONIC ANALYSIS

DATE: 05/01/98

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## CHEMICAL INFORMATION

Ethioprop (Ethiopropios)

Caswell #434C

CAS No. 13194-48-4

A.I. CODE: 041101

CFR No. 180.262

## STUDY TYPE

1yr feeding-dog

NOEL= 0.0100 mg/kg

0.00 ppm

LEL= 0.0250 mg/kg

0.00 ppm

## EFFECTS

Decreased plasma CHE

## REFERENCE DOSES

PAD1 UF --&gt;100

OPP RfD= 0.000100

EPA RfD= 0.000100

Q\*: 0.02810

## DATA GAPS/COMMENTS

## STATUS

COMMODITY CONTRIBUTION BY RAC FOR: U.S. POPULATION - 48 STATES

FOOD CODE	FOODNAME/FOODFORM	TOLERANCE (PPM)	TYPE	TMRC (UG/KG/DAY)	%RFD	TMRC ONCO RISK	ANTICIPATED RESIDUE (PPM)	ARC (UG/KG/DAY)	%RFD	ARC ONCO RISK
14013AA	POTATOES(WHITE)-WHOLE	0.020	P	0.006801	6.801	0.00000019111	0.00014	0.000006	0.006	0.00000000017
	10 RAW-FRESH OR NFS						0.00014	0.000021	0.021	0.00000000059
	21 COOKED-NFS						0.00014	0.000020	0.020	0.00000000056
14013AB	POTATOES(WHITE)-UNSPECIFIED	0.020	P	0.000002	0.002	0.00000000006	0.00014	0.000000	0.000	0.00000000000
	22 COOKED-FRESH-BAKED						0.00014	0.000010	0.010	0.00000000028
	22 COOKED-FRESH-BAKED						0.00014	0.000006	0.006	0.00000000017
	22 COOKED-FRESH-BOILED						0.00014	0.000061	0.061	0.00000000171
	25 COOKED-FRESH-FRIED						0.00014	0.000033	0.033	0.00000000093
14013AC	POTATOES(WHITE)-PEELED	0.020	P	0.015685	15.685	0.00000044075	0.00014	0.000000	0.000	0.00000000000
	21 COOKED-NFS						0.00014	0.000006	0.006	0.00000000017
	22 COOKED-FRESH-BAKED						0.00014	0.000001	0.001	0.00000000003
	22 COOKED-FRESH-BAKED						0.00014	0.000000	0.000	0.00000000000
14013DA	POTATOES(WHITE)-DRY	0.020	P	0.000169	0.169	0.00000000475	0.00014	0.000001	0.001	0.00000000003
	10 RAW-FRESH OR NFS						0.00014	0.000001	0.001	0.00000000003
	31 COOKED-FRESH OR CANNED						0.00014	0.000001	0.001	0.00000000003
14013HA	POTATOES(WHITE)-PEEL ONLY	0.020	P	0.000000	0.000	0.00000000000	0.00014	0.000000	0.000	0.00000000000
	22 COOKED-FRESH-BAKED						0.00014	0.000010	0.010	0.00000000028
	22 COOKED-FRESH-BAKED						0.00030	0.000001	0.001	0.00000000003
	31 COOKED-FRESH OR CANNED						0.00030	0.000001	0.001	0.00000000003
14018AA	SHEETPOTATOES (INCLUDING YAMS)	0.020	P	0.000777	0.777	0.00000002185	0.00014	0.000000	0.000	0.00000000000
	21 COOKED-NFS						0.00014	0.000001	0.001	0.00000000003
	31 COOKED-FRESH OR CANNED						0.00014	0.000001	0.001	0.00000000003
	51 COOKED-CANNED						0.00014	0.000001	0.001	0.00000000003
CROP GROUP TOTALS FOR ROOT AND TUBER VEGETABLES:		0.023434		23.434	0.0000005850		0.000171	0.171	0.00000000481	
13007AA	CABBAGE-GREEN AND RED	0.020	P	0.001873	1.873	0.00000005263	0.00071	0.000027	0.027	0.00000000076
	10 RAW-FRESH OR NFS						0.00071	0.000008	0.008	0.00000000022
	11 RAW-FRESH-PICKLED,CORNEED,OR CURED						0.00071	0.000031	0.031	0.00000000087
	21 COOKED-NFS						0.00071	0.000000	0.000	0.00000000000
13010AA	CABBAGE-CHINESE/CELEERY, INC. BOK CHOY	0.020	P	0.000091	0.091	0.00000000256	0.00071	0.000000	0.000	0.00000000000
	10 RAW-FRESH OR NFS						0.00071	0.000003	0.003	0.00000000008
	21 COOKED-NFS						0.00071	0.000000	0.000	0.00000000000
CROP GROUP TOTALS FOR BRASSICA (COLE) LEAFY VEGETABLES:		0.001964		1.964	0.00000005519		0.00069	0.069	0.00000000194	
15001AC	BEANS-DRY-LIMA	0.020	P	0.000160	0.160	0.00000000450	0.00032	0.000003	0.003	0.00000000008
	21 COOKED-NFS						0.00032	0.000000	0.000	0.00000000000
15002AA	BEANS-SUCCULENT-LIMA	0.020	P	0.000513	0.513	0.00000001442	0.00032	0.000000	0.000	0.00000000000
	10 RAW-FRESH OR NFS						0.00032	0.000008	0.008	0.00000000022
	21 COOKED-NFS						0.00032	0.000004	0.004	0.00000000016
15003AA	BEANS-SUCCULENT-GREEN	0.020	P	0.004001	4.001	0.00000011243	0.00252	0.000504	0.504	0.00000001416
	21 COOKED-NFS						0.00252	0.000003	0.003	0.00000000008
15006AA	PEANUTS-WHOLE	0.020	P	0.001392	1.392	0.00000003912	0.00274	0.000003	0.003	0.00000000008
	10 RAW-FRESH OR NFS						0.00274	0.000003	0.003	0.00000000008



## TOLERANCE ASSESSMENT SYSTEM ROUTINE CHRONIC ANALYSIS

DATE: 05/01/98

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CHEMICAL INFORMATION		STUDY TYPE		EFFECTS		REFERENCE DOSES		DATA GAPS/COMMENTS		STATUS	
Etioprop (Etioprophos) Cashell #434C CAS No. 13194-48-4 A.I. CODE: 041101 CFR No. 180.262		1yr feeding-dog NOEL= 0.0100 mg/kg 0.00 ppm LEL= 0.0250 mg/kg 0.00 ppm ONCD: likely		Decreased plasma ChE		PAD1 UF -->100 OP RfD= 0.000100 EPA RfD= 0.000100 Q* 0.02810					

## COMMODITY CONTRIBUTION BY RAC FOR: U.S. POPULATION - 48 STATES

FOOD CODE	FOODNAME/FOODFORM	TOLERANCE (PPM)	TYPE	TMRC (UG/KG/DAY)	%RFD	TMRC ONCD RISK	ANTICIPATED RESIDUE (PPM)	ARC (UG/KG/DAY)	%RFD	ARC ONCD RISK
CROP GROUP TOTALS FOR LEGUME VEGETABLES:										
270070A	21 COOKED-NFS 22 COOKED-FRESH-BAKED PEANUTS-OIL 18 PROCESSED OIL	0.020	P	0.000105	0.105	0.00000000295	0.00274 0.00274 0.00050	0.000176 0.000012 0.000003	0.176 0.012 0.003	0.00000000495 0.00000000034 0.00000000008
CROP GROUP TOTALS FOR LEGUME VEGETABLES:										
10010AA	CUCUMBERS 10 RAW-FRESH OR NFS 11 RAW-FRESH-PICKLED, CORNED, OR CURED 21 COOKED-NFS	0.020	P	0.001442	1.442	0.00000004052	0.00099 0.00099 0.00099	0.000038 0.000031 0.000002	0.038 0.031 0.002	0.00000000107 0.00000000087 0.00000000006
CROP GROUP TOTALS FOR FRUITING VEGETABLES (CUCURBITIS):										
15005AA	CORN, SWEET 10 RAW-FRESH OR NFS 21 COOKED-NFS 31 COOKED-FRESH OR CANNED	0.020	P	0.004734	4.734	0.00000013303	0.00004 0.00004 0.00004	0.000000 0.000008 0.000001	0.000 0.008 0.001	0.00000000000 0.00000000022 0.00000000003
24002EA	CORN, GRAIN-ENDORPERM 10 RAW-FRESH OR NFS 21 COOKED-NFS 22 COOKED-FRESH-BAKED 23 COOKED-FRESH-BOILED	0.020	P	0.003308	3.308	0.00000009295	0.00004 0.00004 0.00004 0.00004 0.00004	0.000000 0.000001 0.000005 0.0000014 0.000001	0.000 0.001 0.005 0.001	0.00000000000 0.00000000003 0.00000000014 0.00000000003
24002HA	CORN, GRAIN-BRAN 00 NOT SPECIFIED (NO CONSUMPTION)	0.020	P	0.000000	0.000	0.00000000000	0.00004	0.000000	0.000	0.00000000000
24002SA	CORN SUGAR 10 RAW-FRESH OR NFS 21 COOKED-NFS 22 COOKED-FRESH-BAKED	0.020	P	0.002915	2.915	0.00000008191	0.00004 0.00004 0.00004	0.000000 0.000005 0.000001	0.000 0.005 0.001	0.00000000000 0.00000000014 0.00000000003
270020A	CORN, GRAIN-OIL 18 PROCESSED OIL	0.020	P	0.000456	0.456	0.00000001281	0.00004	0.000001	0.001	0.00000000003
CROP GROUP TOTALS FOR CEREAL GRAINS:										
		0.011413		11.413	0.00000032071		0.000023	0.023		0.00000000065

GRAND TOTALS FOR U.S. POPULATION - 48 STATES

0.065847 65.847 0.00000185030

0.024452 24.452

0.00000068710

TOLERANCE TYPE: N=NEW; A=PENDING; P=PUBLISHED  
 TMRC=THEORETICAL MAXIMUM RESIDUE CONTRIBUTION  
 ARC = ANTICIPATED RESIDUE CONTRIBUTION  
 RFD = REFERENCE DOSE

Table 5: Acute DRES Run

DETAILED ACUTE ANALYSIS INCLUDING AR'S: ALL STATISTICS BASED ON USERS' DAILY CONSUMPTION  
 \*\*\*\*\*  
 \*NAME: ETHOPROP STUDY RDV NOEL SF STUDY TYPE SPECIES EFF. LEV. CORE GRADE DOC. NO.\*  
 \*CASSELL NO: 434C CFR NO: CFR180.262 A 00000.0001 000000.300 000200 Subchronic Rat Systemic Blank 0000001795\*  
 \*CAS NO: 13194-48-4 SHAUGHNESSY NO: 041101 B 00000.0800 000160.000 000200 Terata Dog Systemic Supplementl 0000001796\*  
 \*STATUS CODES: \*C 00000.0125 000100.000 000200 Subchronic \*  
 \*RDV INFO: The LD value used in this analysis is 0.001 Mg/Kg of BODY WEIGHT/DAY Systemic Minimum 0000001795\*  
 \*FILE INFO: No Tolerance Data Are Used--without User Modifications.  
 \*\*\*\*\*  
 AR DATA: No User Modifications\*  
 \*\*\*\*\*

12:58 Friday, May 1, 1998 17

U.S. POP.--48 STATES

POP. STATES		ESTIMATED % OF POTENTIAL																	MEAN DAILY RESIDUE CONTRIBUTION PER USER-DAY																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																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DETAILED ACUTE ANALYSIS INCLUDING ARIS: ALL STATISTICS BASED ON USERS' DAILY CONSUMPTION 12:58 Friday, May 1, 1998 18

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\*NAME: ETHOPROP STUDY RDV NOEL SF STUDY TYPE SPECIES EFF. LEV. CORE GRADE DOC. NO.\*  
\*CASSELL NO: 434C CFR NO: CFR180.262 A 00000.0001 000000.300 000200 Subchronic Rat Systemic Blank 0000001795\*  
\*CAS NO: 13194-48-4 SHAUGHNESSY NO: 041101 B 00000.0800 000160.000 000200 Terata Rat Systemic Supplementl 0000001796\*  
\*STATUS CODES: C 00000.0125 000100.000 000200 Subchronic Dog Systemic Minimum 0000001795\*  
\*RDV INFO: The LD value used in this analysis is 0.001 Mg/Kg of BODY WEIGHT/DAY  
\*FILE INFO: No Tolerance Data Are Used--Without User Modifications.  
\*\*\*\*\* AR DATA: No User Modifications \*\*\*\*\*

\*\*\*\*\*  
FEMALES(13+ YRS)  
\*\*\*\*\*

ESTIMATED % OF POTENTIAL		MEAN DAILY RESIDUE CONTRIBUTION PER USER-DAY														
PERSON DAYS THAT ARE USER-DAYS		MG/KG BODY WEIGHT/DAY														
TOLERANCES:		AS PERCENT OF RDV														
ANTICIPATED RESIDUES:		ESTIMATED % OF POPULATION USER-DAYS WITH RESIDUE CONTRIBUTION EXCEEDING X TIMES THE RDV, FOR X=														
0	.2	.4	.6	.8	1	1.2	1.4	1.6	1.8	2	3	4	5	10	15	20
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	57	34	22	15	10	7	5	4	3	2	0	0	0	0	0	0

MALES(13+ YRS)  
\*\*\*\*\*

ESTIMATED % OF POTENTIAL		MEAN DAILY RESIDUE CONTRIBUTION PER USER-DAY															
ESTIMATES BASED ON		PERSON DAYS THAT ARE USER-DAYS		MG/KG BODY WEIGHT/DAY		AS PERCENT OF RDV											
TOLERANCES:		0.00		0.000000		0.00											
ANTICIPATED RESIDUES:		99.86		0.000452		45.21											
ESTIMATED % OF POPULATION USER-DAYS WITH RESIDUE CONTRIBUTION EXCEEDING X TIMES THE RDV, FOR X=																	
0		.2	.4	.6	.8	1	1.2	1.4	1.6	1.8	2	3	4	5	10	15	20
TOLERANCES:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANTICIPATED RESIDUES:		100	63	38	24	16	11	8	6	4	3	2	0	0	0	0	0

General US Population

Exposure = RDV x X  
= 0.001 x 5  
High End Exposure = 0.005

MOE = NOEL + Exposure  
= 0.025 mg/kg/day + 0.005 mg/kg/day  
MOE = 5

XRfd = exposure/Rfd x 100  
= 0.005/0.00025 x 100  
= 2,000

18 of 21  
(18)

Infants (<1 year)

Exposure =  $RDV \times X$   
=  $0.001 \times 15$   
High End Exposure = 0.015

MOE = NOEL + Exposure  
=  $0.025 \text{ mg/kg/day} + 0.015 \text{ mg/kg/day}$   
MOE = 1.7

%RfD =  $\text{exposure/RfD} \times 100$   
=  $0.015/0.00025 \times 100$   
= 6,000

Children (1-6 yrs)

Exposure =  $RDV \times X$   
=  $0.001 \times 10$   
High End Exposure = 0.01

MOE = NOEL + Exposure  
=  $0.025 \text{ mg/kg/day} + 0.01 \text{ mg/kg/day}$   
MOE = 2.5

%RfD =  $\text{exposure/RfD} \times 100$   
=  $0.01/0.00025 \times 100$   
= 4,000

Females (13+ yrs)

Exposure =  $RDV \times X$   
=  $0.001 \times 3$   
High End Exposure = 0.003

MOE = NOEL + Exposure  
=  $0.025 \text{ mg/kg/day} + 0.003 \text{ mg/kg/day}$   
MOE = 8.3

%RfD =  $\text{exposure/RfD} \times 100$   
=  $0.003/0.00025 \times 100$   
= 1,200

Males (13+ yrs)

Exposure =  $RDV \times X$   
=  $0.001 \times 3$   
High End Exposure = 0.003

MOE = NOEL + Exposure  
= 0.025 mg/kg/day + 0.003 mg/kg/day  
MOE = 8.3

%RfD = exposure/RfD X 100  
= 0.003/0.00025 X 100  
= 1,200

434C 06002AA22 0.2120  
 BANANAS-UNSPEC  
 434C 06002AB10 0.2120  
 BANANAS-FRESH  
 434C 06002AB21 0.2120  
 BANANAS-FRESH  
 434C 06002AB31 0.2120  
 BANANAS-FRESH  
 434C 06002DA10 0.2120  
 BANANAS-DRIED  
 434C 06002DA21 0.2120  
 BANANAS-DRIED  
 434C 06013AA10 0.1060  
 PINEAPPLE-PULP  
 434C 06013AA21 0.1060  
 PINEAPPLE-PULP  
 434C 06013AA31 0.1060  
 PINEAPPLE-PULP  
 434C 06013DA10 0.1060  
 PINEAPPLE-DRIED  
 434C 06013JA10 0.1060  
 PINEAPPLE-JUICE  
 434C 06013JA15 0.1060  
 PINEAPPLE-JUICE  
 434C 06013JA21 0.1060  
 PINEAPPLE-JUICE  
 434C 06013JA31 0.1060  
 PINEAPPLE-JUICE  
 434C 06016AA21 0.2120 PLANTAINS  
 434C 06016AA23 0.2120 PLANTAINS  
 434C 06016AA25 0.2120 PLANTAINS  
 434C 10010AA10 0.4290 CUCUMBERS  
 434C 10010AA11 0.4290 CUCUMBERS  
 434C 10010AA21 0.4290 CUCUMBERS  
 434C 13007AA10 0.2490 CABBAGE  
 434C 13007AA11 0.2490 CABBAGE  
 434C 13007AA21 0.2490 CABBAGE  
 434C 13010AA10 0.2490  
 CABBAGE-CHINESE  
 434C 13010AA21 0.2490  
 CABBAGE-CHINESE  
 434C 14013AA10 0.1060  
 POTATO(WH)-WHOLE  
 434C 14013AA21 0.1060  
 POTATO(WH)-WHOLE  
 434C 14013AA22 0.1060  
 POTATO(WH)-WHOLE  
 434C 14013AB22 0.1060  
 POTATO(WH)-UNSPEC  
 434C 14013AC21 0.1060  
 POTATO(WH)-PULP  
 434C 14013AC22 0.1060  
 POTATO(WH)-PULP  
 434C 14013AC23 0.1060  
 POTATO(WH)-PULP  
 434C 14013AC25 0.1060  
 POTATO(WH)-PULP  
 434C 14013DA10 0.1060  
 POTATO(WH)-DRY  
 434C 14013DA31 0.1060  
 POTATO(WH)-DRY  
 434C 14013HA22 0.1060  
 POTATO(WH)-PEEL  
 434C 14018AA21 0.1060  
 SWEETPOTATOES  
 434C 14018AA31 0.1060  
 SWEETPOTATOES  
 434C 14018AA51 0.1060

SWEETPOTATOES  
 434C 15001AC21 0.0640  
 BEANS-DRY-LIMA  
 434C 15002AA10 0.0640  
 BEANS-SUCC-LIMA  
 434C 15002AA21 0.0640  
 BEANS-SUCC-LIMA  
 434C 15003AA21 0.7100  
 BEANS-SUCC-GREEN  
 434C 15005AA10 0.1060  
 CORN,SWEET  
 434C 15005AA21 0.1060  
 CORN,SWEET  
 434C 15005AA31 0.1060  
 CORN,SWEET  
 434C 15006AA10 0.5830  
 PEANUTS-WHOLE  
 434C 15006AA21 0.5830  
 PEANUTS-WHOLE  
 434C 15006AA22 0.5830  
 PEANUTS-WHOLE  
 434C 24002EA10 0.1060  
 CORN,GRAIN-ENDO  
 434C 24002EA21 0.1060  
 CORN,GRAIN-ENDO  
 434C 24002EA22 0.1060  
 CORN,GRAIN-ENDO  
 434C 24002EA23 0.1060  
 CORN,GRAIN-ENDO  
 434C 24002HA00 0.1060  
 CORN,GRAIN-BRAN  
 434C 24002SA10 0.1060 CORN  
 SUGAR  
 434C 24002SA21 0.1060 CORN  
 SUGAR  
 434C 24002SA22 0.1060 CORN  
 SUGAR  
 434C 25003SA10 0.1060 CANE  
 SUGAR  
 434C 25003SA21 0.1060 CANE  
 SUGAR  
 434C 25003SA22 0.1060 CANE  
 SUGAR  
 434C 25003SA31 0.1060 CANE  
 SUGAR  
 434C 25003SB10 0.1060  
 SUGAR-MOLASSES  
 434C 25003SB21 0.1060  
 SUGAR-MOLASSES  
 434C 25003SB22 0.1060  
 SUGAR-MOLASSES  
 434C 25003SB31 0.1060  
 SUGAR-MOLASSES  
 434C 27002OA18 0.1060  
 CORN,GRAIN-OIL  
 434C 27007OA18 0.0640  
 PEANUTS-OIL