



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

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

OFFICE OF  
PREVENTION, PESTICIDES  
AND TOXIC SUBSTANCES

Date: November 13, 2000

**MEMORANDUM**

Subject: **Thiamethoxam** - Dietary Exposure and Risk Analysis for the Section 3 Seed Treatment Uses on Canola, Barley, Cotton, Sorghum, and Wheat with a Separate Analysis for the Use on Canola Seed.  
DP Barcode: D270314  
Petitions: PP9F5046 and PP9F5051  
PC Code: 060109

From: Michael Doherty, Chemist *Michael A. Doherty*  
Registration Action Branch 2  
Health Effects Division (7509C)

Through: Richard Loranger, Branch Senior Scientist *R. Loranger*  
Registration Action Branch 2  
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To: Michael Doherty, Chemist  
Registration Action Branch 2  
Health Effects Division (7509C)

**Requested Action**

Provide acute (Tier 1), chronic (Tier 3), and cancer (Tier 3) analyses to estimate the dietary (food only) exposure and risk resulting from the use of the insecticide thiamethoxam as a seed treatment for canola, barley, cotton, sorghum, and wheat, including separate analyses for the use on canola. The anticipated residue for the chronic and cancer analyses are provided in the memorandum from G. J. Herndon (5/17/00, DP Barcode D265607) and are summarized in the previous dietary exposure assessment for thiamethoxam (M. Doherty, 8/28/00, DP Barcode D268606).

## Executive Summary

Based on conservative estimates of acute dietary (food only) exposure and refined estimates of chronic (food only) exposure, acute, chronic, and cancer risk estimates for the seed treatment uses of thiamethoxam are below HED's level of concern for all population subgroups. Likewise, the risks estimates associated with the use of thiamethoxam as a seed treatment for canola only are below HED's level of concern for all population subgroups. The acute, chronic, and cancer risk estimates associated with the requested seed treatment uses as well as those from the use of thiamethoxam on canola seed only are summarized in Table 1.

<b>Table 1. Summary of Dietary (Food Only) Risk Estimates Associated with Thiamethoxam as a Seed Treatment</b>		
Exposure/Risk Scenario	Highest Risk Estimate (Population)	
	Barley, Canola, Cotton, Sorghum, and Wheat Seed Treatment Uses	Canola Seed Treatment Use
Acute dietary	2% aPAD (Children 1-6 years old)	< 1% aPAD (Children 1-6 years old)
Chronic dietary	1% cPAD (Children 1-6 years old)	< 1% cPAD (All population subgroups)
Cancer dietary	$4.1 \times 10^{-8}$ (General U.S. Population)	$9.4 \times 10^{-10}$ (General U.S. Population)

## Toxicological and FQPA Considerations

On March 23, 2000, the HED's Hazard Identification Assessment Review Committee (HIARC) met to evaluate the toxicological database and select endpoints, as appropriate, for thiamethoxam risk assessment. Table 2 summarizes the findings of the HIARC as relates to dietary exposure. In meetings on April 3, 2000 and April 24, 2000, HED's FQPA Safety Factor Committee determined that for thiamethoxam the additional safety factor to account for enhanced sensitivity of infants and children should be retained at 10x for all population groups. This decision was based on a data gap in the toxicology database for thiamethoxam for a developmental neurotoxicity study and since quantitative evidence of increased susceptibility to the young following pre-/postnatal exposure to thiamethoxam is suggested in the 2-generation reproduction study in rats. Additionally, there is concern for the lack of key measurements in the 2-generation reproduction study that could further characterize the testicular effects observed in this study. On April 5, 2000, the Cancer Assessment Review Committee (CARC) met to evaluate the carcinogenic potential of thiamethoxam. The Committee classified thiamethoxam as "likely to be carcinogenic to humans" by the oral route based on the occurrence of both

benign and malignant hepatocellular tumors in both sexes of mice and recommended a linear low-dose ( $Q_1^*$ ) extrapolation approach for the quantification of human cancer risk based on the most potent of the liver tumors in mice.

<b>Table 2. Summary of Dietary Toxicological Doses and Endpoints for Thiamethoxam</b>			
<b>Exposure Scenario</b>	<b>Dose (mg/kg/day)</b>	<b>Endpoint</b>	<b>Study</b>
Acute Dietary (General Population including Infants & Children)	NOAEL= 100 UF = 100 FQPA SF = 10	Drooped palpebral closure, lower rectal temperature, increased forelimb grip strength, decreased locomotor activity at 500 mg/kg	Acute neurotoxicity - rat
	Acute RfD = 1 mg/kg Acute Population-Adjusted Dose = 0.1 mg/kg		
Chronic Dietary	NOAEL = 0.6 UF = 100 FQPA SF = 10	Increased incidence and severity of tubular atrophy in testes at $\geq$ 1.8 mg/kg/day	2-Generation reproduction study - rat
	Chronic RfD = 0.006 mg/kg/day Chronic Population-Adjusted Dose = 0.0006 mg/kg/day		
Cancer	$Q_1^* = 0.0377$ (mg/kg/day) <sup>-1</sup>	Benign and malignant hepatocellular tumors in both sexes of mice	18-month carcinogenicity study in Tif:MAG(SPF) mice

### Residue Information

For the Tier 1 acute analysis, tolerance-level residues were used with the assumption that 100% of the requested crops would be treated. The requested tolerances range from 0.02 ppm to 0.8 ppm. A full listing of the acute residue parameters is included in Attachment 1 for all seed treatments and Attachment 2 for the canola seed treatment. Due to a residue chemistry deficiency regarding the analytical method for the analysis of thiamethoxam in ruminant liver, the residue level in liver has been set higher than the proposed tolerance (0.13 ppm vs. 0.02 ppm; memo, G. J. Herndon, DP Barcode D265079, 5/8/00).

The chronic and cancer dietary exposure analyses are refined to a Tier-3 level, incorporating chronic anticipated residues (memo, G. J. Herndon, DP Barcode D265607, 5/17/00) and projected % market share information (8/23/2000 e-mail from Neil Anderson and summarized in the previous dietary exposure analysis for thiamethoxam: M. Doherty, 8/28/00, D268606). The complete listing of the input parameters for the chronic and cancer analyses is given in Attachment 3 for all seed treatments and Attachment 4 for the canola seed treatment.

When the use as a canola seed treatment is isolated from the other requested seed treatment uses, quantifiable secondary residues in livestock commodities are not expected [i.e.,

40 CFR 180.6(a)(3)] (G. J. Herndon, 3/3/00, D252021); therefore, residues for meat and milk commodities are not included in the analyses that are limited to the use of thiamethoxam as a canola seed treatment.

### **Consumption Data**

HED conducts dietary risk assessments using the Dietary Exposure Evaluation Model (DEEM™), which incorporates consumption data generated in USDA's Continuing Surveys of Food Intakes by Individuals (CSFII), 1989-1992. For this acute dietary risk assessment, the entire distribution of single day food consumption events is combined with a single residue level (deterministic analysis) to obtain a distribution of exposure in mg/kg/day. For chronic and cancer dietary risk assessments, the three-day average of consumption for each sub-population is combined with residues in commodities to determine average exposure in mg/kg/day.

HED notes that there is a degree of uncertainty in extrapolating exposures for certain population subgroups which may not be sufficiently represented in the consumption surveys, (e.g., nursing and non-nursing infants or Hispanic females). Therefore, risks estimated for these subpopulations were included in representative populations having sufficient numbers of survey respondents (e.g., all infants or females, 13-50 years).

### **Results and Discussion**

*Acute Analyses.* Results of the acute dietary exposure analyses are summarized in Table 3. The acute dietary (food only) risk estimates are below HED's level of concern for all population subgroups. Risk estimates are rounded to the nearest whole number. DEEM outputs for these acute analyses are included as attachments 5 and 6.

*Chronic Analyses.* Results of the chronic dietary exposure analyses are summarized in Table 4. The chronic dietary (food only) risk estimates are below HED's level of concern for all population subgroups. Risk estimates are rounded to the nearest whole number. DEEM outputs for these chronic analyses are included as attachments 7 and 8.

*Cancer Analyses.* The cancer risk estimate associated with the use of thiamethoxam as a seed treatment for barley, canola, cotton, sorghum, and wheat is  $4.1 \times 10^{-8}$  for the U.S. population, based on an exposure estimate of 0.000001 mg/kg/day. The risk estimate from the use of thiamethoxam on canola seed only is  $9.4 \times 10^{-10}$  for the U.S. population. The chronic exposure estimate for the canola seed treatment use is less than the level of precision reported by the DEEM software and is listed as 0.000000 mg/kg/day. The above cancer risk estimates are less than HED's level of concern (generally  $1 \times 10^{-6}$ ). DEEM outputs for these cancer analyses are included as attachments 9 and 10.

<b>Table 3. Summary of Tier 1 Acute Dietary (Food Only) Exposure and Risk Estimates<sup>1</sup> Associated with the Use of Thiamethoxam as a Seed Treatment.</b>				
Population Subgroup	Use: Barley, Canola, Cotton, Sorghum, and Wheat		Use: Canola only	
	Exposure, mg/kg	Risk, % aPAD	Exposure, mg/kg	Risk, % aPAD
General U.S. Population	0.000632	1	0.000001	<1
All Infants	0.001372	1	0.000000	<1
Children 1-6 years old	0.001512	2	0.000001	<1
Children 7-12 years old	0.000750	1	0.000001	<1
Females 13-50 years old	0.000289	<1	0.000001	<1
Males 13-19 years old	0.000483	<1	0.000001	<1
Males 20+ years old	0.000282	<1	0.000001	<1
Seniors 55+ years old	0.000243	<1	0.000000	<1

<sup>1</sup> Exposure and risk estimates are at the 95<sup>th</sup> percentile of exposure. Risk estimates are rounded to the nearest whole number. Exposure estimates reported as zero are estimates that occur at a level below the precision of the DEEM software.

<b>Table 4. Summary of Tier 3 Chronic Dietary (Food Only) Exposure and Risk Estimates<sup>1</sup> Associated with the Use of Thiamethoxam as a Seed Treatment.</b>				
Population Subgroup	Use: Barley, Canola, Cotton, Sorghum, and Wheat		Use: Canola only	
	Exposure, mg/kg/day	Risk, % cPAD	Exposure, mg/kg/day	Risk, % cPAD
General U.S. Population	0.000001	<1	0.000000	<1
All Infants	0.000001	<1	0.000000	<1
Children 1-6 years old	0.000003	1	0.000000	<1
Children 7-12 years old	0.000002	<1	0.000000	<1
Females 13-50 years old	0.000001	<1	0.000000	<1
Males 13-19 years old	0.000001	<1	0.000000	<1
Males 20+ years old	0.000001	<1	0.000000	<1
Seniors 55+ years old	0.000001	<1	0.000000	<1

<sup>1</sup> Risk estimates are rounded to the nearest whole number. Exposure estimates reported as zero are estimates that occur at a level below the precision of the DEEM software.

cc: RAB2 Reading File, L. Richardson

Attachment 1. Inputs for the Tier 1 acute dietary exposure assessment for all seed treatments with thiamethoxam.

Filename: 060109 Seed Acute.RS7

Chemical: Thiamethoxam

RfD(Chronic): .0006 mg/kg bw/day NOEL(Chronic): 0 mg/kg bw/day

RfD(Acute): .1 mg/kg bw/day NOEL(Acute): 0 mg/kg bw/day Q\* = .0377

Date created/last modified: 05-23-2000/08:49:06/8

Program ver. 7.075

Comment: RfD values are PADs and reflect the 10X FQPA Safety Factor

Food Code	Crop Grp	Food Name	Def Res (ppm)	Adj. Factors #1	Adj. Factors #2	Comment
301	O	Canola oil (rape seed oil)	0.020000	1.000	1.000	
291	O	Cottonseed-meal	0.050000	1.000	1.000	
290	O	Cottonseed-oil	0.020000	1.000	1.000	
323	M	Beef-dried	0.020000	1.920	1.000	
325	M	Beef-kidney	0.020000	1.000	1.000	
327	M	Beef-lean (fat/free) w/o bones	0.020000	1.000	1.000	
326	M	Beef-liver	0.130000	1.000	1.000	
321	M	Beef-meat byproducts	0.020000	1.000	1.000	
322	M	Beef-other organ meats	0.020000	1.000	1.000	
331	M	Goat-kidney	0.020000	1.000	1.000	
333	M	Goat-lean (fat/free) w/o bone	0.020000	1.000	1.000	
332	M	Goat-liver	0.130000	1.000	1.000	
328	M	Goat-meat byproducts	0.020000	1.000	1.000	
329	M	Goat-other organ meats	0.020000	1.000	1.000	
334	M	Horsemeat	0.020000	1.000	1.000	
339	M	Sheep-kidney	0.020000	1.000	1.000	
341	M	Sheep-lean (fat free) w/o bone	0.020000	1.000	1.000	
340	M	Sheep-liver	0.130000	1.000	1.000	
336	M	Sheep-meat byproducts	0.020000	1.000	1.000	
337	M	Sheep-other organ meats	0.020000	1.000	1.000	
429	M	Veal-dried	0.020000	1.920	1.000	
426	M	Veal-kidney	0.020000	1.000	1.000	
425	M	Veal-lean (fat free) w/o bones	0.020000	1.000	1.000	
427	M	Veal-liver	0.130000	1.000	1.000	
430	M	Veal-meat byproducts	0.020000	1.000	1.000	
428	M	Veal-other organ meats	0.020000	1.000	1.000	
398	D	Milk-based water	0.020000	1.000	1.000	
319	D	Milk-fat solids	0.020000	1.000	1.000	
318	D	Milk-nonfat solids	0.020000	1.000	1.000	
320	D	Milk sugar (lactose)	0.020000	1.000	1.000	
265	15	Barley	0.020000	1.000	1.000	
275	15	Sorghum (including milo)	0.020000	1.000	1.000	
278	15	Wheat-bran	0.020000	1.000	1.000	
279	15	Wheat-flour	0.020000	1.000	1.000	
277	15	Wheat-germ	0.020000	1.000	1.000	
437	15	Wheat-germ oil	0.020000	1.000	1.000	
276	15	Wheat-rough	0.020000	1.000	1.000	

Attachment 2. Inputs for the Tier 1 acute dietary exposure assessment for the canola seed treatment use of thiamethoxam.

Filename: 060109 Canola Acute.RS7  
Chemical: Thiamethoxam  
RfD(Chronic): .0006 mg/kg bw/day NOEL(Chronic): 0 mg/kg bw/day  
RfD(Acute): .1 mg/kg bw/day NOEL(Acute): 0 mg/kg bw/day Q\*= .0377  
Date created/last modified: 11-05-2000/21:06:09/8 Program ver. 7.075  
Comment: RfD Values are PADs and reflect the incorporation of the 10x FQPA SF

Food Code	Crop Grp	Food Name	Def Res (ppm)	Adj.Factors #1	Adj.Factors #2	Comment
301	0	Canola oil (rape seed oil)	0.020000	1.000	1.000	



Attachment 3. Inputs for the Tier 3 chronic dietary exposure assessment for all seed treatments with thiamethoxam.

Filename: 060109 Seed Chronic.RS7  
 Chemical: Thiamethoxam  
 RfD(Chronic): .0006 mg/kg bw/day NOEL(Chronic): 0 mg/kg bw/day  
 RfD(Acute): .1 mg/kg bw/day NOEL(Acute): 0 mg/kg bw/day Q\* = .0377  
 Date created/last modified: 11-06-2000/19:55:53/8 Program ver. 7.075  
 Comment: RfD Values are PADs and reflect the incorporation of the 10x FQPA SF

Food Crop		Food Name	Def Res (ppm)	Adj. Factors		Comment
Code	Grp			#1	#2	
301	O	Canola oil (rape seed oil)	0.010000	1.000	0.550	
291	O	Cottonseed-meal	0.016000	0.150	0.200	
290	O	Cottonseed-oil	0.016000	0.100	0.200	
323	M	Beef-dried	0.000043	1.920	1.000	
325	M	Beef-kidney	0.000032	1.000	1.000	
327	M	Beef-lean (fat/free) w/o bones	0.000043	1.000	1.000	
326	M	Beef-liver	0.001800	1.000	1.000	
321	M	Beef-meat byproducts	0.000032	1.000	1.000	
322	M	Beef-other organ meats	0.000032	1.000	1.000	
331	M	Goat-kidney	0.000032	1.000	1.000	
333	M	Goat-lean (fat/free) w/o bone	0.000043	1.000	1.000	
332	M	Goat-liver	0.001800	1.000	1.000	
328	M	Goat-meat byproducts	0.000032	1.000	1.000	
329	M	Goat-other organ meats	0.000032	1.000	1.000	
334	M	Horsemeat	0.000043	1.000	1.000	
339	M	Sheep-kidney	0.000032	1.000	1.000	
341	M	Sheep-lean (fat free) w/o bone	0.000043	1.000	1.000	
340	M	Sheep-liver	0.001800	1.000	1.000	
336	M	Sheep-meat byproducts	0.000032	1.000	1.000	
337	M	Sheep-other organ meats	0.000032	1.000	1.000	
429	M	Veal-dried	0.000043	1.920	1.000	
426	M	Veal-kidney	0.000032	1.000	1.000	
425	M	Veal-lean (fat free) w/o bones	0.000043	1.000	1.000	
427	M	Veal-liver	0.001800	1.000	1.000	
430	M	Veal-meat byproducts	0.000032	1.000	1.000	
428	M	Veal-other organ meats	0.000032	1.000	1.000	
398	D	Milk-based water	0.000098	1.000	1.000	
319	D	Milk-fat solids	0.000098	1.000	1.000	
318	D	Milk-nonfat solids	0.000098	1.000	1.000	
320	D	Milk sugar (lactose)	0.000098	1.000	1.000	
265	15	Barley	0.010000	1.000	0.010	
275	15	Sorghum (including milo)	0.020000	1.000	0.090	
278	15	Wheat-bran	0.010000	1.000	0.020	
279	15	Wheat-flour	0.010000	1.000	0.020	
277	15	Wheat-germ	0.010000	1.000	0.020	
437	15	Wheat-germ oil	0.010000	1.000	0.020	
276	15	Wheat-rough	0.010000	1.000	0.020	

Attachment 4. Inputs for the Tier 3 chronic dietary assessment for the canola seed treatment use of thiamethoxam.

Filename: 060109 Canola Chronic.RS7

Chemical: Thiamethoxam

RfD(Chronic): .0006 mg/kg bw/day NOEL(Chronic): 0 mg/kg bw/day

RfD(Acute): .1 mg/kg bw/day NOEL(Acute): 0 mg/kg bw/day Q\*= .0377

Date created/last modified: 11-05-2000/21:04:06/8 Program ver. 7.075

Comment: RfD Values are PADs and reflect the incorporation of the 10x FQPA SF

Food Crop			Def Res	Adj. Factors		Comment
Code	Grp	Food Name	(ppm)	#1	#2	
301	0	Canola oil (rape seed oil)	0.010000	1.000	0.550	

Attachment 5. Results summary for the Tier 1 acute dietary exposure assessment for all seed treatment uses of thiamethoxam.

U.S. Environmental Protection Agency  
 DEEM ACUTE analysis for THIAMETHOXAM  
 Residue file: 060109 Seed Acute.RS7  
 Analysis Date: 11-06-2000/20:03:44  
 Run Comment: "RfD values are PADs and reflect the 10X FQPA Safety Factor"

Ver. 7.075  
 (1994-96 data)  
 Adjustment factor #2 NOT used.  
 Residue file dated: 11-06-2000/19:51:09/8  
 Daily totals for food and foodform consumption used.

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 Summary calculations (per capita):

	95th Percentile		99th Percentile		99.9th Percentile	
	Exposure	% aRfD	Exposure	% aRfD	Exposure	% aRfD
U.S. Population:	0.000632	0.63	0.001235	1.24	0.002372	2.37
U.S. Population (spring season):	0.000630	0.63	0.001214	1.21	0.002299	2.30
U.S. Population (summer season):	0.000610	0.61	0.001224	1.22	0.002373	2.37
U.S. Population (autumn season):	0.000668	0.67	0.001339	1.34	0.002474	2.47
U.S. Population (winter season):	0.000610	0.61	0.001150	1.15	0.002285	2.28
Northeast region:	0.000630	0.63	0.001259	1.26	0.002643	2.64
Midwest region:	0.000650	0.65	0.001230	1.23	0.002271	2.27
Southern region:	0.000588	0.59	0.001200	1.20	0.002398	2.40
Western region:	0.000665	0.66	0.001271	1.27	0.002282	2.28
Hispanics:	0.000765	0.77	0.001504	1.50	0.002385	2.38
Non-hispanic whites:	0.000611	0.61	0.001188	1.19	0.002293	2.29
Non-hispanic blacks:	0.000618	0.62	0.001233	1.23	0.003204	3.20
Non-hisp/non-white/non-black:	0.000665	0.67	0.001340	1.34	0.002500	2.50
All infants:	0.001372	1.37	0.002712	2.71	0.004098	4.10
Nursing infants (<1 yr old):	0.000332	0.33	0.001651	1.65	0.002719	2.72
Non-nursing infants (<1 yr old):	0.001507	1.51	0.002836	2.84	0.004094	4.09
Children 1-6 yrs:	0.001512	1.51	0.002284	2.28	0.003471	3.47
Children 7-12 yrs:	0.000750	0.75	0.000988	0.99	0.001333	1.33



U.S. Environmental Protection Agency

Ver. 7.075

DEEM ACUTE analysis for THIAMETHOXAM

(1994-96 data)

Residue file: 060109 Seed Acute.RS7

Adjustment factor #2 NOT used.

Analysis Date: 11-06-2000/20:03:44

Residue file dated: 11-06-2000/19:51:09/8

Daily totals for food and foodform consumption used.

Run Comment: "RfD values are PADs and reflect the 10X FQPA Safety Factor"

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Summary calculations:

	95th Percentile		99th Percentile		99.9th Percentile	
	Exposure	% aRfD	Exposure	% aRfD	Exposure	% aRfD
Females 13+ (preg/not nursing):						
	0.000403	0.40	0.000622	0.62	0.000707	0.71
Females 13+ (nursing):						
	0.000378	0.38	0.000510	0.51	0.000577	0.58
Females 13-19 (not preg or nursing):						
	0.000371	0.37	0.000603	0.60	0.000858	0.86
Females 20+ (not preg or nursing):						
	0.000257	0.26	0.000370	0.37	0.000567	0.57
Females 13-50 yrs:						
	0.000289	0.29	0.000452	0.45	0.000755	0.76
Males 13-19 yrs:						
	0.000483	0.48	0.000673	0.67	0.001231	1.23
Males 20+ yrs:						
	0.000282	0.28	0.000416	0.42	0.000682	0.68
Seniors 55+:						
	0.000243	0.24	0.000351	0.35	0.000628	0.63

Attachment 6. Results summary for the Tier 1 acute dietary exposure assessment for the canola seed treatment use of thiamethoxam.

U.S. Environmental Protection Agency  
 DEEM ACUTE analysis for THIAMETHOXAM  
 Residue file: 060109 Canola Acute.RS7  
 Analysis Date: 11-06-2000/20:02:46  
 Daily totals for food and foodform consumption used.  
 Run Comment: "RfD Values are PADs and reflect the incorporation of the 10x FQP

Ver. 7.075

(1989-92 data)

Adjustment factor #2 NOT used.

Residue file dated: 11-05-2000/21:06:09/8

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Summary calculations (per capita):

	95th Percentile		99th Percentile		99.9th Percentile	
	Exposure	% aRfD	Exposure	% aRfD	Exposure	% aRfD
U.S. Population:	0.000001	0.00	0.000002	0.00	0.000004	0.00
U.S. Population (spring season):	0.000001	0.00	0.000002	0.00	0.000005	0.01
U.S. Population (summer season):	0.000001	0.00	0.000002	0.00	0.000004	0.00
U.S. Population (autumn season):	0.000001	0.00	0.000002	0.00	0.000006	0.01
U.S. Population (winter season):	0.000001	0.00	0.000002	0.00	0.000004	0.00
Northeast region:	0.000000	0.00	0.000001	0.00	0.000003	0.00
Midwest region:	0.000001	0.00	0.000002	0.00	0.000004	0.00
Southern region:	0.000001	0.00	0.000002	0.00	0.000004	0.00
Western region:	0.000001	0.00	0.000002	0.00	0.000006	0.01
Hispanics:	0.000001	0.00	0.000001	0.00	0.000004	0.00
Non-hispanic whites:	0.000001	0.00	0.000002	0.00	0.000004	0.00
Non-hispanic blacks:	0.000001	0.00	0.000002	0.00	0.000007	0.01
Non-hisp/non-white/non-black:	0.000001	0.00	0.000002	0.00	0.000006	0.01
All infants:	0.000000	0.00	0.000001	0.00	0.000003	0.00
Nursing infants (<1 yr old):	0.000000	0.00	0.000000	0.00	0.000001	0.00
Non-nursing infants (<1 yr old):	0.000000	0.00	0.000002	0.00	0.000003	0.00
Children 1-6 yrs:	0.000001	0.00	0.000003	0.00	0.000009	0.01
Children 7-12 yrs:	0.000001	0.00	0.000003	0.00	0.000005	0.01



U.S. Environmental Protection Agency  
 DEEM ACUTE analysis for THIAMETHOXAM  
 Residue file: 060109 Canola Acute.RS7  
 Analysis Date: 11-06-2000/20:02:46  
 Daily totals for food and foodform consumption used.  
 Run Comment: "RfD Values are PADs and reflect the incorporation of the 10x FQP

Ver. 7.075  
 (1989-92 data)  
 Adjustment factor #2 NOT used.

Residue file dated: 11-05-2000/21:06:09/8

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Summary calculations:

	95th Percentile		99th Percentile		99.9th Percentile	
	Exposure	% aRfD	Exposure	% aRfD	Exposure	% aRfD
Females 13+ (preg/not nursing):	0.000001	0.00	0.000002	0.00	0.000006	0.01
Females 13+ (nursing):	0.000001	0.00	0.000001	0.00	0.000003	0.00
Females 13-19 (not preg or nursing):	0.000000	0.00	0.000002	0.00	0.000002	0.00
Females 20+ (not preg or nursing):	0.000000	0.00	0.000001	0.00	0.000003	0.00
Females 13-50 yrs:	0.000001	0.00	0.000001	0.00	0.000003	0.00
Males 13-19 yrs:	0.000001	0.00	0.000003	0.00	0.000017	0.02
Males 20+ yrs:	0.000001	0.00	0.000001	0.00	0.000003	0.00
Seniors 55+:	0.000000	0.00	0.000001	0.00	0.000003	0.00
Pacific:	0.000000	0.00	0.000002	0.00	0.000008	0.01



Attachment 7. Results summary for the Tier 3 chronic dietary exposure assessment for all seed treatment uses of thiamethoxam.

U.S. Environmental Protection Agency  
 DEEM Chronic analysis for THIAMETHOXAM  
 Residue file name: 060109 Seed Chronic.RS7

Ver. 7.075  
 (1989-92 data)

Adjustment factor #2 used.

Analysis Date 11-06-2000/20:01:16 Residue file dated: 11-06-2000/19:58:52/8

Reference dose (RfD, Chronic) = .0006 mg/kg bw/day

COMMENT 1: RfD Values are PADs and reflect the incorporation of the 10x FQPA SF

-----  
 Total exposure by population subgroup  
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Population Subgroup	Total Exposure	
	mg/kg body wt/day	Percent of Rfd
U.S. Population (total)	0.000001	0.2%
U.S. Population (spring season)	0.000001	0.2%
U.S. Population (summer season)	0.000001	0.2%
U.S. Population (autumn season)	0.000001	0.2%
U.S. Population (winter season)	0.000001	0.2%
Northeast region	0.000001	0.2%
Midwest region	0.000001	0.2%
Southern region	0.000001	0.2%
Western region	0.000001	0.2%
Hispanics	0.000001	0.2%
Non-hispanic whites	0.000001	0.2%
Non-hispanic blacks	0.000001	0.2%
Non-hisp/non-white/non-black	0.000001	0.2%
All infants (< 1 year)	0.000001	0.2%
Nursing infants	0.000000	0.0%
Non-nursing infants	0.000002	0.3%
Children 1-6 yrs	0.000003	0.6%
Children 7-12 yrs	0.000002	0.3%
Females 13-19 (not preg or nursing)	0.000001	0.2%
Females 20+ (not preg or nursing)	0.000001	0.1%
Females 13-50 yrs	0.000001	0.1%
Females 13+ (preg/not nursing)	0.000001	0.2%
Females 13+ (nursing)	0.000001	0.2%
Males 13-19 yrs	0.000001	0.2%
Males 20+ yrs	0.000001	0.1%
Seniors 55+	0.000001	0.1%
Pacific Region	0.000001	0.2%

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Attachment 8. Results summary for the Tier 3 chronic dietary exposure assessment for the canola seed treatment use of thiamethoxam.

U.S. Environmental Protection Agency  
 DEEM Chronic analysis for THIAMETHOXAM  
 Residue file name: 060109 Canola Chronic.RS7

Ver. 7.075  
 (1989-92 data)

Adjustment factor #2 used.

Analysis Date 11-06-2000/20:00:15 Residue file dated: 11-06-2000/19:56:46/8

Reference dose (RfD, Chronic) = .0006 mg/kg bw/day

COMMENT 1: RfD Values are PADs and reflect the incorporation of the 10x FQPA SF

=====  
 Total exposure by population subgroup  
 =====

Population Subgroup	Total Exposure	
	mg/kg body wt/day	Percent of Rfd
U.S. Population (total)	0.000000	0.0%
U.S. Population (spring season)	0.000000	0.0%
U.S. Population (summer season)	0.000000	0.0%
U.S. Population (autumn season)	0.000000	0.0%
U.S. Population (winter season)	0.000000	0.0%
Northeast region	0.000000	0.0%
Midwest region	0.000000	0.0%
Southern region	0.000000	0.0%
Western region	0.000000	0.0%
Hispanics	0.000000	0.0%
Non-hispanic whites	0.000000	0.0%
Non-hispanic blacks	0.000000	0.0%
Non-hisp/non-white/non-black	0.000000	0.0%
All infants (< 1 year)	0.000000	0.0%
Nursing infants	0.000000	0.0%
Non-nursing infants	0.000000	0.0%
Children 1-6 yrs	0.000000	0.0%
Children 7-12 yrs	0.000000	0.0%
Females 13-19 (not preg or nursing)	0.000000	0.0%
Females 20+ (not preg or nursing)	0.000000	0.0%
Females 13-50 yrs	0.000000	0.0%
Females 13+ (preg/not nursing)	0.000000	0.0%
Females 13+ (nursing)	0.000000	0.0%
Males 13-19 yrs	0.000000	0.0%
Males 20+ yrs	0.000000	0.0%
Seniors 55+	0.000000	0.0%
Pacific Region	0.000000	0.0%

Attachment 9. Results for the Tier 3 cancer dietary exposure assessment for all seed treatment uses of thiamethoxam.

U.S. Environmental Protection Agency  
 DEEM Chronic analysis for THIAMETHOXAM  
 Residue file name: 060109 Seed Chronic.RS7

Ver. 7.075  
 (1989-92 data)

Adjustment factor #2 used.

Analysis Date 11-06-2000/20:01:27      Residue file dated: 11-06-2000/19:58:52/8  
 Q\* = 0.0377

COMMENT 1: RfD Values are PADs and reflect the incorporation of the 10x FQPA SF

=====  
 Total exposure by population subgroup  
 =====

Population Subgroup	Total Exposure	
	mg/kg body wt/day	Lifetime risk (Q*= .0377)
U.S. Population (total)	0.000001	4.08E-08

Attachment 10. Results for the Tier 3 cancer dietary exposure assessment for the canola seed treatment use of thiamethoxam.

U.S. Environmental Protection Agency  
 DEEM Chronic analysis for THIAMETHOXAM  
 Residue file name: 060109 Canola Chronic.RS7

Ver. 7.075  
 (1989-92 data)

Adjustment factor #2 used.

Analysis Date 11-06-2000/20:00:46      Residue file dated: 11-06-2000/19:56:46/8  
 Q\* = 0.0377

COMMENT 1: RfD Values are PADs and reflect the incorporation of the 10x FQPA SF

=====  
 Total exposure by population subgroup  
 =====

Population Subgroup	Total Exposure	
	mg/kg body wt/day	Lifetime risk (Q*= .0377)
U.S. Population (total)	0.000000	9.39E-10

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