

Clothianidin

Dietary Exposure and Risk Assessment
PC Code 044309

DP Number 343102



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

MEMORANDUM

DATE: 16 October 2007

SUBJECT: **Clothianidin. Acute and Chronic Aggregate Dietary (Food and Drinking Water) Exposure and Risk Assessments for the Section 3 Registration Action for Food/Feed Use of the Insecticide as a Seed Treatment on Sugar Beet.**

PC Code: 044309
DP Number: 343102

Decision Number: 372786

REVIEWER: William T. Drew, Chemist *WTDrew*
Registration Action Branch 2
Health Effects Division (7509P)

THROUGH: Thurston Morton, Chemist *Thurston Morton*
Sarah Winfield, Biologist *SW*
Dietary Exposure Science Advisory Council (DESAC)
Health Effects Division (7509P)
and
Michael Doherty, PhD, Senior Scientist *Michael Doherty*
Registration Action Branch 2
Health Effects Division (7509P)

TO: Kelly Schumacher, Toxicologist
Registration Action Branch 2
Health Effects Division (7509P)
and
Kable Davis/Venus Eagle, RM Team 1
Insecticide Branch
Registration Division (7505P)

OCT 31 REC'D 2007
File
SH

Executive Summary

Acute and chronic aggregate dietary (food and drinking water) exposure and risk assessments were conducted using the Dietary Exposure Evaluation Model software with the Food Commodity Intake Database (DEEM-FCID™), Version 2.03, which uses food consumption data from the US Department of Agriculture's Continuing Surveys of Food Intakes by Individuals (CSFII), collected from 1994 to 1996, and 1998. These analyses were performed to support the Section 3 request for clothianidin use on sugar beets. Clothianidin is a major metabolite of the active ingredient thiamethoxam, and residues of clothianidin coming from thiamethoxam were accounted for in these assessments. All registered, pending, and proposed uses of thiamethoxam, as of the date of this memorandum, are included in these assessments.

Since the acute dietary exposure scenario is concerned with high-end, one-day exposures, the acute assessment is based on maximum residues of clothianidin observed in clothianidin and thiamethoxam field trials (combined maximum residues, if both compounds are registered/proposed on the same crop), and assumes 100% crop treated (%CT). Alternatively, the chronic dietary exposure scenario is concerned with repeated exposure over a longer term. Therefore, the chronic assessment is based on average residues from clothianidin and thiamethoxam field trials; it also assumes 100%CT. Two separate chronic exposure assessments were conducted: one utilizes average residues from clothianidin field trials, while the other utilizes average clothianidin residues observed in thiamethoxam field trials. The exposure estimates from these two assessments were subsequently combined (summed) to conservatively estimate potential dietary exposure to clothianidin from both clothianidin and thiamethoxam sources. The assumption of 100%CT in these analyses (acute and chronic) results in a potential "double counting" of clothianidin arising from thiamethoxam on crops that have registered and/or proposed uses of both compounds because clothianidin and thiamethoxam are not expected to be used on the same crop. Therefore, this method of accounting for thiamethoxam's involvement in clothianidin exposure probably overestimates that particular contribution to total exposure. The empirical processing factor for apple juice was used for apple and pear juice, empirical processing factors were used for grape juice and raisins, and the empirical processing factor for sugar beet molasses was also used. Otherwise, DEEM default processing factors were used. The analyses included direct incorporation of estimated clothianidin residues in drinking water. For water, the highest acute estimate from conservative models was used for both the acute and the chronic dietary exposure analyses.

Based on these highly conservative assumptions, acute dietary risk estimates at the 95th percentile of exposure are less than or equal to 45% of the acute population-adjusted dose (aPAD) for all population subgroups. Children 1 to 2 years of age are the most highly-exposed subgroup, utilizing 45% of the aPAD, while the general US population utilizes 11% of the aPAD. Chronic dietary risk estimates are less than or equal to 16% of the chronic population-adjusted dose (cPAD) for all population subgroups. Children 1 to 2 years of age are again the most highly-exposed subgroup, utilizing 16% of the cPAD, while the general US population utilizes 5% of the cPAD. Generally, HED is concerned when risk estimates exceed 100% of the PAD; therefore, all acute and chronic dietary risk estimates are below HED's level of concern (LOC). Clothianidin has been classified as "not likely to be" carcinogenic; therefore, cancer risk is not of concern.

Dietary Exposure and Risk Assessment
PC Code 044309

Clothianidin

DP Number 343102

1. Introduction

Dietary risk assessment incorporates both exposure and toxicity of a given pesticide. For acute and chronic assessments, the risk is expressed as a percentage of a maximum acceptable dose (the dose which HED has concluded will result in no unreasonable adverse health effects). This dose is referred to as the population adjusted dose (PAD). The PAD is equivalent to the point of departure (POD), such as the NOAEL or LOAEL, divided by the requisite uncertainty and/or safety factors.

For acute and non-cancer chronic exposures, HED is concerned when estimated dietary risk exceeds 100% of the PAD. HED is generally concerned when estimated cancer risk exceeds one in one million. References which discuss the acute and chronic risk assessments in more detail are available on the EPA pesticides web site, *Available Information on Assessing Exposure from Pesticides, A User's Guide* (6/21/2000), which can be accessed via the web link <http://www.epa.gov/fedrgstr/EPA-PEST/2000/July/Day-12/6061.pdf> (or see SOP 99.6, dated 8/20/1999).

The most recent dietary risk assessment for clothianidin was conducted by Michael Doherty (D326758; 9/13/2006). That assessment included tolerance-level residues (0.02 ppm) for sugar beets and sugar beet molasses, supporting the erstwhile requested Section 18 registration of clothianidin for use as a seed treatment on sugar beets.

2. Residue Information

Tolerances have been established for both clothianidin (40CFR §180.586) and thiamethoxam (40CFR §180.565) on a variety of commodities. This assessment appends the previous assessment to include residue estimates for the requested Section 3 registration of clothianidin for use as a seed treatment on sugar beets. The residue of concern for both tolerance enforcement and risk assessment is the parent compound, clothianidin. These assessments include residues of clothianidin arising from clothianidin uses, along with those that may result from use of thiamethoxam. Both the acute and chronic assessments assumed 100%CT for both compounds. For crops with registered uses of both clothianidin and thiamethoxam, the assumption of 100%CT results in a "double counting" of clothianidin coming from thiamethoxam, since a given crop would not be treated with both compounds. Default processing factors from DEEM 7.81 were used in the analyses, with the exception of apple and pear juices, for which an empirical factor of 0.14 (versus the default factor of 1.3) was used; corn syrup, for which an empirical factor of 1.0 was used; sugar beet molasses, for which an empirical factor of 2.9 was used; and grape juice/wine and raisins, for which factors of 2.1 and 2.5, respectively, were used. The factor of 2.1 for grape juice/wine is greater than the theoretical processing factor (1.2), and was retained in these assessments as an added conservatism. The factor of 2.9 for sugar beet molasses was incorporated in the molasses residues entered into DEEM-FCID (for both acute and chronic analyses) instead of being entered as Adjustment Factor #1. Adjustment Factor #2 was not used in these dietary analyses. A complete listing of the residues and processing factors used in the acute dietary analysis is included in Attachment 1. A complete listing of the residues and processing factors used in the chronic dietary analysis of clothianidin arising from clothianidin use is included in Attachment 2, and a complete listing of

Clothianidin

Dietary Exposure and Risk Assessment
PC Code 044309

DP Number 343102

the residues and processing factors used in the chronic dietary analysis of clothianidin arising from thiamethoxam use is included in Attachment 3.

The HED SOP for translating residue data from representative commodities to other members of crop groups was used as needed (SOP 2000.1). Residues of clothianidin in livestock commodities (such as meat and milk) are not likely to be affected by the newly requested use. Residue estimates for meat and milk are therefore equal to those in the most recent dietary exposure assessment for clothianidin (D326758; Michael Doherty; 9/13/2006), which (by the same rationale) were taken from the previous clothianidin dietary assessment (D304498; William Cutchin; 7/12/2004). The clothianidin residues in animal commodities are anticipated residues derived from the results of livestock feeding studies, and the theoretical dietary burdens of clothianidin to livestock. These residues are not listed in Table 1 (below). Residue estimates for drinking water were provided by EFED (D313414, D313415; Michael Barrett; 8/23/2005), and were incorporated directly into the dietary assessments.

The acute assessment is highly conservative and assumes that all crops with existing or currently requested uses of either clothianidin or thiamethoxam bear residues of clothianidin (in other words, 100%CT). Clothianidin residues resulting from use of clothianidin are assumed to be at the maximum level observed in crop field trials. For commodities with thiamethoxam uses, the thiamethoxam contribution to clothianidin exposure has been estimated by adding the maximum clothianidin residue observed in thiamethoxam field trials to the maximum clothianidin level observed in clothianidin field trials. In both cases, values reported as below the LOQ (0.010 ppm) were assumed to be half the LOQ (0.005 ppm). The residue estimates used for crop commodities in the acute assessment are summarized in Table 1, below.

The chronic assessment is moderately refined, and makes use of average residue values from the clothianidin and thiamethoxam field trials. The chronic assessment also assumes 100%CT. Due to the linear nature of chronic assessment results (the exposure estimates are additive), separate analyses were conducted for residues of clothianidin resulting from clothianidin application, and residues of clothianidin resulting from thiamethoxam application. The resulting exposure estimates from these two analyses were then added to obtain aggregate chronic dietary exposure estimates. As with the acute assessment, values reported as below the LOQ were assumed to be at 0.005 ppm ($\frac{1}{2}$ LOQ). The residue estimates used for crop commodities in the chronic assessments are summarized in Table 1, below.

TABLE 1 Summary of Clothianidin Residues (in ppm) Used in the Acute and Chronic Dietary Exposure Assessments.¹						
Crop	Residue Source					
	Thiamethoxam Field Trials		Clothianidin Field Trials		Combined	
	Max.²	Avg.³	Max.⁴	Avg.⁵	Max.⁶	Avg.⁷
Artichoke, globe	0.029	0.022	-	-	0.029	0.022
Barley	0.020	0.008	-	-	0.020	0.008
Barley, grain	0.005	0.005	-	-	0.005	0.005
Bean, dried	0.005	0.005	-	-	0.005	0.005
Bean, succulent	0.005	0.005	-	-	0.005	0.005

Clothianidin

Dietary Exposure and Risk Assessment

PC Code 044309

DP Number 343102

TABLE 1 Summary of Clothianidin Residues (in ppm) Used in the Acute and Chronic Dietary Exposure Assessments.¹						
Crop	Residue Source					
	Thiamethoxam Field Trials		Clothianidin Field Trials		Combined	
	Max.²	Avg.³	Max.⁴	Avg.⁵	Max.⁶	Avg.⁷
Beet, sugar	-	-	0.019	0.011	0.019	0.011
Borage, seed	0.005	0.005	-	-	0.005	0.005
Bushberry, Subgroup 13B	0.050	0.006	-	-	0.050	0.006
Caneberry	0.040	0.020	-	-	0.040	0.020
Canola, seed	0.005	0.005	0.005	0.005	0.010	0.010
Coffee	0.010	0.010	-	-	0.010	0.010
Corn, field, grain	0.005	0.005	0.005	0.005	0.010	0.010
Corn, pop, grain	0.005	0.005	0.005	0.005	0.010	0.010
Corn, sweet, KPCwHR	0.005	0.005	0.005	0.005	0.010	0.010
Cotton, gin byproducts	-	-	0.005	0.005	0.005	0.005
Cotton, undelinted seed	0.005	0.005	0.005	0.005	0.010	0.010
Crambe, seed	0.005	0.005	-	-	0.005	0.005
Cranberry	0.005	0.005	-	-	0.005	0.005
Flax, seed	0.005	0.005	-	-	0.005	0.005
Fruit, pome, Group 11	0.005	0.005	0.199	0.079	0.204	0.084
Fruit, stone, Group 12 - Cherry	0.030	0.009	-	-	0.030	0.009
Fruit, stone, Group 12 - Peach	0.120	0.033	-	-	0.120	0.033
Fruit, stone, Group 12 - Plum	0.020	0.006	-	-	0.020	0.006
Grapes	0.020	0.005	0.278	0.139	0.298	0.144
Hops	0.028	0.026	-	-	0.028	0.026
Juneberry	0.050	0.006	-	-	0.050	0.006
Lingonberry	0.050	0.006	-	-	0.050	0.006
Mustard, seed	0.005	0.005	-	-	0.005	0.005
Pecans	0.005	0.005	-	-	0.005	0.005
Peppermint	0.128	0.094	-	-	0.128	0.094
Potato	0.060	0.005	0.033	0.014	0.093	0.019
Rapeseed, seed	0.005	0.005	-	-	0.005	0.005
Safflower, seed	0.005	0.005	-	-	0.005	0.005
Salal	0.050	0.006	-	-	0.050	0.006
Sorghum, grain, grain	0.005	0.005	0.005	0.005	0.010	0.010
Spearmint	0.128	0.094	-	-	0.128	0.094
Strawberry	0.005	0.005	-	-	0.005	0.005
Sunflower	0.005	0.005	-	-	0.005	0.005
Vegetable, cucurbit, Group 9	0.005	0.005	-	-	0.005	0.005
Vegetable, fruiting, Group 8	0.010	0.005	-	-	0.010	0.005
Vegetable, legume, Group 6	0.005	0.005	-	-	0.005	0.005
Vegetable, root, except sugar beet, Subgroup 1B	0.005	0.005	-	-	0.005	0.005

Dietary Exposure and Risk Assessment
PC Code 044309

Clothianidin

DP Number 343102

TABLE 1 Summary of Clothianidin Residues (in ppm) Used in the Acute and Chronic Dietary Exposure Assessments.¹						
Crop	Residue Source					
	Thiamethoxam Field Trials		Clothianidin Field Trials		Combined	
	Max.²	Avg.³	Max.⁴	Avg.⁵	Max.⁶	Avg.⁷
Vegetable, tuberous and corm, Subgroup 1C (except potato)	0.150	0.046	-	-	0.150	0.046
Vegetables, head/stem brassica, Subgroup 5A	0.040	0.009	-	-	0.040	0.009
Vegetables, leafy brassica, Subgroup 5B - Cabbage	0.020	0.006	-	-	0.020	0.006
Vegetables, leafy brassica, Subgroup 5B - Mustard Greens	0.360	0.116	-	-	0.360	0.116
Vegetables, leafy, Group 4 - Celery	0.020	0.007	-	-	0.020	0.007
Vegetables, leafy, Group 4 - Head Lettuce	0.005	0.005	-	-	0.005	0.005
Vegetables, leafy, Group 4 - Leaf Lettuce	0.040	0.015	-	-	0.040	0.015
Vegetables, leafy, Group 4 - Spinach	0.800	0.077	-	-	0.800	0.077
Wheat, grain	0.005	0.005	-	-	0.005	0.005

1. Dash entries (-) indicate that there is not a registered or proposed use for the insecticide on that crop.
2. Maximum clothianidin residues observed in samples from crop field trials with thiamethoxam.
3. Average clothianidin residues observed in samples from crop field trials with thiamethoxam, utilized as inputs for the chronic dietary analysis of clothianidin resulting from thiamethoxam application.
4. Maximum clothianidin residues observed in samples from crop field trials with clothianidin.
5. Average clothianidin residues observed in samples from crop field trials with clothianidin, utilized as inputs for the chronic dietary analysis of clothianidin resulting from clothianidin application.
6. Sum of maximum clothianidin residues observed in samples from thiamethoxam field trials, and maximum clothianidin residues observed in samples from clothianidin field trials. These combined residues were utilized as inputs for the acute dietary analyses of clothianidin resulting from both clothianidin and thiamethoxam applications.
7. Sum of average clothianidin residues observed in samples from thiamethoxam field trials, and average clothianidin residues observed in samples from clothianidin field trials. These combined residues were not utilized as inputs for any of the dietary analyses, but are listed here for informational purposes only.

3. Drinking Water Data

The drinking water residues used in these dietary risk assessments were provided by EFED (D313414, D313415; Michael Barrett; 8/23/2005), and incorporated directly into the dietary assessments. Water residues were incorporated in DEEM-FCID via entry into the food categories "water, direct, all sources" and "water, indirect, all sources." The estimated drinking water concentrations (EDWCs) in surface water are 0.00729 ppm and 0.00135 ppm for acute and chronic scenarios, respectively. The EDWC in groundwater is 0.00588 ppm for all durations. Typically, HED uses the higher of the surface or groundwater estimates for each duration when assessing dietary risk (0.00729 ppm from surface water for acute exposures, and 0.00588 ppm from groundwater for chronic exposures). As an added conservatism in the chronic dietary assessment, the acute EDWC in surface water (0.00729 ppm) was used for both the acute and chronic analyses.

The acute scenario EDWC in surface water (0.00729 ppm) was obtained via exposure modeling which utilized the FIRST (FQPA Index Reservoir Screening Tool) model. This model

and its description are available at the EPA internet website via the web link,
<http://www.epa.gov/oppefed1/models/water/>.

4. DEEM-FCID™ Program and Consumption Information

Clothianidin acute and chronic dietary exposure assessments were conducted using DEEM-FCID™ (Version 2.03), which incorporates consumption data from USDA's CSFII, 1994 to 1996, and 1998. The 1994-96, 1998 data are based on the reported consumption of more than 20,000 individuals over two non-consecutive survey days. Foods "as consumed" (such as apple pie) are linked to EPA-defined food commodities (such as apples, peeled fruit - cooked, fresh/unspecified, or baked; or wheat flour - cooked, fresh/unspecified, or baked) using publicly available recipe translation files developed jointly by USDA/ARS and EPA. For chronic exposure assessment, consumption data are averaged for the entire US population, and within population subgroups, but for acute exposure assessment, they are retained as individual consumption events (which is why it is appropriate to add residue values together for the acute assessment, while separate exposure estimates are summed for the chronic assessment). Based on analysis of the 1994-96, 1998 CSFII consumption data, which took into account dietary patterns and survey respondents, HED concluded that it is most appropriate to report risk for the following population subgroups: the general US population, all infants (<1 year old), children 1-2, children 3-5, children 6-12, youth 13-19, adults 20-49, females 13-49, and adults 50+ years old.

For chronic dietary exposure assessment, an estimate of the residue level in each food or food-form (such as orange or orange juice) on the food commodity residue list is multiplied by the average daily consumption estimate for that food/food form. The resulting residue consumption estimate for each food/food form is summed with the residue consumption estimates for all other food/food forms on the commodity residue list to arrive at the total average estimated exposure. Exposure is expressed in mg/kg body weight/day, and as a percent of the cPAD. This procedure is performed for each population subgroup.

For acute exposure assessments, individual one-day food consumption data are used on an individual-by-individual basis. The reported consumption amounts of each food item can be multiplied by a residue point estimate, and summed to obtain a total daily pesticide exposure for a deterministic exposure assessment, or "matched" in multiple random pairings with residue values, and then summed in a probabilistic assessment. The resulting distribution of exposures is expressed as a percentage of the aPAD on both a user (those who reported eating relevant commodities/food forms) and a per-capita (those who reported eating the relevant commodities as well as those who did not) basis. In accordance with HED policy, per capita exposure and risk are reported for all tiers of analysis. However, for Tiers 1 and 2, significant differences in user versus per capita exposure and risk are identified, and noted in the risk assessment.

5. Toxicological Information

The toxicology database of clothianidin was evaluated by HED's Hazard Identification Assessment Review Committee (HIARC), which met on 11/14/2002. The findings and recommendations of the Committee were recorded in the Committee's report dated 1/6/2003. The risk assessment team has confirmed that the doses and endpoints are still appropriate to

assess the currently proposed seed treatment use on sugar beets; these doses and endpoints are summarized in Table 2, below.

Exposure Scenario	Dose Used in Risk Assessment, UF	FQPA SF and LOC for Risk Assessment	Study and Toxicological Effects
Acute Dietary (Females 13-50 years of age)	Developmental NOAEL = 25 UF = 1000* Acute RfD = 0.025 mg/kg	FQPA SF = 1 a PAD = <u>acute RfD</u> FQPA SF = 0.025 mg/kg	Developmental rabbit study. Developmental LOAEL = 75 mg/kg/day, based on an increased litter incidence of a missing lobe of the lung.
Acute Dietary (General population)	NOAEL = 25 UF = 1000* Acute RfD = 0.025 mg/kg	FQPA SF = 1 a PAD = <u>acute RfD</u> FQPA SF = 0.025 mg/kg	Special Neurotoxicity/Pharmacology Study in Mice and Rats. LOAEL = 50 mg/kg, based on transient signs of decreased spontaneous motor activity, tremors, and deep respirations.
Chronic Dietary (All populations)	Offspring NOAEL = 9.8 UF = 1000* Chronic RfD = 0.0098 mg/kg/day	FQPA SF = 1 c PAD = <u>chronic RfD</u> FQPA SF = 0.0098 mg/kg/day	2-Generation Reproduction Study. Offspring LOAEL = 31.2 mg/kg/day, based on decreased mean body weight gain, delayed sexual maturation, decreased absolute thymus weights in F ₁ pups, and an increase in stillbirths in both generations.
Cancer	Classification: "Not likely to be" carcinogenic.		

UF = Uncertainty Factor.

FQPA SF = FQPA Safety Factor.

NOAEL = No Observed Adverse Effect Level.

LOAEL = Lowest Observed Adverse Effect Level.

PAD = Population Adjusted Dose (a = acute, c = chronic).

RfD = Reference Dose.

*Additional 10X database uncertainty factor is for the lack of a developmental immunotoxicity study.

6. Results/Discussion

As previously stated, for acute and chronic assessments, HED is concerned when dietary risk exceeds 100% of the PAD. The DEEM-FCID™ analyses estimate the dietary exposure of the US population, and various population subgroups. The results of the acute analysis are summarized in Table 3 (below) for the general US population, all infants (<1 year old), children 1-2, children 3-5, children 6-12, youth 13-19, females 13-49, adults 20-49, and adults 50+ years. As shown in Table 3, the risk estimates associated with acute dietary exposure to clothianidin are below HED's LOC.

The acute assessment is based on the maximum clothianidin residues observed in clothianidin and thiamethoxam field trials. Typically, HED uses tolerance-level residues in its most conservative assessments. In this case, the combination of clothianidin tolerances with maximum clothianidin from thiamethoxam resulted in risk estimates that exceed HED's LOC for infants, children 1-2 years of age, and children 3-5 years of age. These risk exceedances were

Clothianidin

Dietary Exposure and Risk Assessment
PC Code 044309

DP Number 343102

caused, primarily, by residues associated with pome fruit. The clothianidin tolerance for pome fruit is 1.0 ppm, whereas the highest residue reported in the clothianidin field trials for pome fruit was 0.199 ppm (D265079; William Cutchin; 5/8/2000). The difference between the maximum residue, and the tolerance is sufficient to significantly impact the results of the modeled dietary exposure and risk estimates. Field trials are designed to produce high-level residues. The use of maximum residues in this assessment results in highly conservative exposure and risk estimates that are likely to overestimate actual exposure and risk, especially when coupled with the assumption of 100%CT, and the "double counting" of clothianidin arising from thiamethoxam, which were discussed earlier.

Children 1 to 2 years of age are the most highly-exposed subgroup, utilizing 45% of the aPAD, while the general US population utilizes 11% of the aPAD.

TABLE 3 Summary of Acute Dietary Exposure and Risk Estimates for Clothianidin.			
Population Subgroup* [Years of Age]	DEEM Acute Dietary Analysis (95th Percentile)		
	aPAD (mg/kg/day)	Exposure Estimate (mg/kg/day)	% aPAD
General US Population	0.025	0.002813	11
All Infants [< 1]	0.025	0.007806	31
Children [1-2]	0.025	0.011227	45
Children [3-5]	0.025	0.007231	29
Children [6-12]	0.025	0.003085	12
Youths [13-19]	0.025	0.001403	6
Adults [20-49]	0.025	0.001902	8
Adults [50+]	0.025	0.002102	8
Females [13-49]	0.025	0.001975	8

* Values for the population subgroup with the highest risk are in **bold type**.

The results of the two chronic analyses are summarized in Table 4, below. The total exposure estimate in each line of Table 4 is the sum of the clothianidin exposure estimates coming from the clothianidin and thiamethoxam sources. Although these exposure estimates are somewhat refined owing to the use of average residue levels, they should still be considered conservative estimates because field trials were the source of the residues, 100%CT was assumed, and residues were "double counted" for crops with registered (or pending proposed) uses of both clothianidin and thiamethoxam. As indicated in Table 4, the chronic risk estimates are below HED's LOC for all population subgroups.

Children 1 to 2 years of age are again the most highly-exposed subgroup, utilizing 16% of the cPAD, while the general US population utilizes 5% of the cPAD.

TABLE 4 Summary of Chronic Dietary Exposure and Risk Estimates for Clothianidin.							
Population Subgroup* [Years of Age]	cPAD (mg/kg/day)	Source of Clothianidin					
		Clothianidin		Thiamethoxam		Total	
		Dietary Exposure (mg/kg/day)	% cPAD	Dietary Exposure (mg/kg/day)	% cPAD	Dietary Exposure (mg/kg/day)	% cPAD
General US Population	0.0098	0.000368	4	0.000105	1	0.000473	5
All Infants [< 1]	0.0098	0.001083	11	0.000179	2	0.001262	13
Children [1-2]	0.0098	0.001315	13	0.000263	3	0.001578	16
Children [3-5]	0.0098	0.000921	9	0.000223	2	0.001144	12
Children [6-12]	0.0098	0.000447	5	0.000142	2	0.000589	6
Youth [13-19]	0.0098	0.000222	2	0.000095	1	0.000317	3
Adults [20-49]	0.0098	0.000273	3	0.000084	1	0.000357	4
Adults [50+]	0.0098	0.000300	3	0.000085	1	0.000385	4
Females [13-49]	0.0098	0.000279	3	0.000081	1	0.000360	4

* Values for the population subgroup with the highest risk are in bold type.

7. Characterization of Inputs/Outputs

This assessment is based on high-end estimates of residue levels, and assumes that all crops with either clothianidin or thiamethoxam tolerances are treated. These assumptions result in highly conservative, health-protective estimates of dietary exposure and risk.

8. Conclusions

There are no dietary exposure considerations that would preclude the establishment of tolerances for residues of clothianidin in/on sugar beet commodities.

9. List of Attachments

Attachment 1. Clothianidin Residues Used for Acute Dietary Exposure Estimates.

Attachment 2. Clothianidin from Clothianidin Application: Residues for Chronic Dietary Exposure Estimates.

Attachment 3. Clothianidin from Thiamethoxam Application: Residues for Chronic Dietary Exposure Estimates.

Attachment 4. Summary of the Acute Dietary Exposure and Risk Estimates for Clothianidin.

Attachment 5. Summary of the Chronic Dietary Exposure and Risk Estimates for Clothianidin from Clothianidin Application.

Attachment 6. Summary of the Chronic Dietary Exposure and Risk Estimates for Clothianidin from Thiamethoxam Application.

Attachment 1. Clothianidin Residues Used for Acute Dietary Exposure Estimates.

US Environmental Protection Agency Version 2.03
 DEEM-PCID ACUTE Analysis for CLOTHIANIDIN (1994-96 and 1998 data)
 Residue file name: ClothianidinDEEM082207 (MaxC+MaxT+W) Input.R98
 Adjustment factor #2 was NOT used.
 Analysis date: 8/22/2007 at 14:36:20
 Residue file dated: 8/22/2007 at 14:18:30
 Reference dose (RfD, Acute) = 0.025 mg/kg bw/day
 Daily totals for food and food-form consumption used.
 Run Comment: Acute and Chronic RfDs include a 10X database uncertainty factor

EPA Code	Crop Grp	Commodity Name	Def Res (ppm)	Adj. Factors #1	Adj. Factors #2	Comment
04010050	4A	Amaranth, leafy	0.040000	1.000	1.000	
11000070	11	Apple, fruit with peel	0.204000	1.000	0.050	
11000080	11	Apple, peeled fruit	0.204000	1.000	0.050	
11000081	11	Apple, peeled fruit-babyfood	0.204000	1.000	0.050	
11000090	11	Apple, dried	0.204000	8.000	0.050	
11000091	11	Apple, dried-babyfood	0.204000	8.000	0.050	
11000100	11	Apple, juice	0.204000	0.140	0.050	
11000101	11	Apple, juice-babyfood	0.204000	0.140	0.050	
11000110	11	Apple, sauce	0.204000	1.000	0.050	
11000111	11	Apple, sauce-babyfood	0.204000	1.000	0.050	
12000120	12	Apricot	0.120000	1.000	0.150	
12000121	12	Apricot-babyfood	0.120000	1.000	0.150	
12000130	12	Apricot, dried	0.120000	6.000	0.150	
12000140	12	Apricot, juice	0.120000	1.000	0.150	
12000141	12	Apricot, juice-babyfood	0.120000	1.000	0.150	
01030150	1CD	Arrowroot, flour	0.150000	1.000	0.330	
01030151	1CD	Arrowroot, flour-babyfood	0.150000	1.000	0.330	
95000160	0	Artichoke, globe	0.029000	1.000	1.000	
01030170	1CD	Artichoke, Jerusalem	0.150000	1.000	0.330	
04010180	4A	Arugula	0.040000	1.000	1.000	
09020210	9B	Balsam pear	0.005000	1.000	0.440	
15000250	15	Barley, pearled barley	0.020000	1.000	0.010	
15000251	15	Barley, pearled barley-babyfood	0.020000	1.000	0.010	
15000260	15	Barley, flour	0.020000	1.000	0.010	
15000261	15	Barley, flour-babyfood	0.020000	1.000	0.010	
15000270	15	Barley, bran	0.020000	1.000	0.010	
06030300	6C	Bean, black, seed	0.005000	1.000	0.380	
06020310	6B	Bean, broad, succulent	0.005000	1.000	0.380	
06030320	6C	Bean, broad, seed	0.005000	1.000	0.380	
06020330	6B	Bean, cowpea, succulent	0.005000	1.000	0.380	
06030340	6C	Bean, cowpea, seed	0.005000	1.000	0.380	
06030350	6C	Bean, great northern, seed	0.005000	1.000	0.380	
06030360	6C	Bean, kidney, seed	0.005000	1.000	0.380	
06020370	6B	Bean, lima, succulent	0.005000	1.000	0.380	
06030380	6C	Bean, lima, seed	0.005000	1.000	0.380	
06030390	6C	Bean, mung, seed	0.005000	1.000	0.380	
06030400	6C	Bean, navy, seed	0.005000	1.000	0.380	
06030410	6C	Bean, pink, seed	0.005000	1.000	0.380	
06030420	6C	Bean, pinto, seed	0.005000	1.000	0.380	
06010430	6A	Bean, snap, succulent	0.005000	1.000	0.380	

Clothianidin		Dietary Exposure and Risk Assessment PC Code 044309		DP Number 343102	
06010431	6A	Bean, snap, succulent-babyfood	0.005000	1.000	0.380
21000440	M	Beef, meat	0.000043	1.000	1.000
21000441	M	Beef, meat-babyfood	0.000043	1.000	1.000
21000450	M	Beef, meat, dried	0.000043	1.920	1.000
21000460	M	Beef, meat byproducts	0.000032	1.000	1.000
21000461	M	Beef, meat byproducts-babyfood	0.000032	1.000	1.000
21000480	M	Beef, kidney	0.000032	1.000	1.000
21000490	M	Beef, liver	0.001800	1.000	1.000
21000491	M	Beef, liver-babyfood	0.001800	1.000	1.000
01010500	1AB	Beet, garden, roots	0.010000	1.000	0.330
01010501	1AB	Beet, garden, roots-babyfood	0.010000	1.000	0.330
01010520	1A	Beet, sugar	0.019000	1.000	1.000
01010521	1A	Beet, sugar-babyfood	0.019000	1.000	1.000
01010530	1A	Beet, sugar, molasses	0.055100	1.000	1.000 (2.9x factor)
01010531	1A	Beet, sugar, molasses-babyfood	0.055100	1.000	1.000 (2.9x factor)
13010550	13A	Blackberry	0.040000	1.000	1.000
13010560	13A	Blackberry, juice	0.040000	1.000	1.000
13010561	13A	Blackberry, juice-babyfood	0.040000	1.000	1.000
13020570	13B	Blueberry	0.050000	1.000	0.550
13020571	13B	Blueberry-babyfood	0.050000	1.000	0.550
13010580	13A	Boysenberry	0.040000	1.000	1.000
05010610	5A	Broccoli	0.040000	1.000	1.000
05010611	5A	Broccoli-babyfood	0.040000	1.000	1.000
05010620	5A	Broccoli, Chinese	0.040000	1.000	1.000
05020630	5B	Broccoli raab	0.360000	1.000	1.000
05010640	5A	Brussels sprouts	0.040000	1.000	1.000
01010670	1AB	Burdock	0.005000	1.000	0.330
05010690	5A	Cabbage	0.040000	1.000	1.000
05020700	5B	Cabbage, Chinese, bok choy	0.020000	1.000	1.000
05010710	5A	Cabbage, Chinese, napa	0.040000	1.000	1.000
05010720	5A	Cabbage, Chinese, mustard	0.040000	1.000	1.000
09010750	9A	Cantaloupe	0.005000	1.000	0.130
04020760	4B	Cardoon	0.020000	1.000	1.000
01010780	1AB	Carrot	0.010000	1.000	0.330
01010781	1AB	Carrot-babyfood	0.010000	1.000	0.330
01010790	1AB	Carrot, juice	0.010000	1.000	0.330
09010800	9A	Casaba	0.005000	1.000	0.440
01030820	1CD	Cassava	0.150000	1.000	0.330
01030821	1CD	Cassava-babyfood	0.150000	1.000	0.330
05010830	5A	Cauliflower	0.040000	1.000	1.000
01010840	1AB	Celeriac	0.010000	1.000	0.330
04020850	4B	Celery	0.020000	1.000	1.000
04020851	4B	Celery-babyfood	0.020000	1.000	1.000
04020860	4B	Celery, juice	0.020000	1.000	1.000
04020870	4B	Celtuce	0.020000	1.000	1.000
09020880	9B	Chayote, fruit	0.005000	1.000	0.440
12000900	12	Cherry	0.030000	1.000	0.150
12000901	12	Cherry-babyfood	0.030000	1.000	0.150
12000910	12	Cherry, juice	0.030000	1.500	0.150
12000911	12	Cherry, juice-babyfood	0.030000	1.500	0.150
06030980	6C	Chickpea, seed	0.005000	1.000	0.380
06030981	6C	Chickpea, seed-babyfood	0.005000	1.000	0.380
06030990	6C	Chickpea, flour	0.005000	1.000	0.380
01011000	1AB	Chicory, roots	0.010000	1.000	0.330
09021020	9B	Chinese waxgourd	0.005000	1.000	0.440
04011040	4A	Chrysanthemum, garland	0.040000	1.000	1.000
95001150	O	Coffee, roasted bean	0.010000	1.000	1.000
95001160	O	Coffee, instant	0.010000	1.000	1.000

Clothianidin		Dietary Exposure and Risk Assessment PC Code 044309		DP Number 343102	
05021170	5B	Collards	0.360000	1.000	1.000
15001200	15	Corn, field, flour	0.010000	1.000	0.060 OF0614
15001201	15	Corn, field, flour-babyfood	0.010000	1.000	0.060 OF0614
15001210	15	Corn, field, meal	0.010000	1.000	0.060 OF0614
15001211	15	Corn, field, meal-babyfood	0.010000	1.000	0.060 OF0614
15001220	15	Corn, field, bran	0.010000	1.000	0.060 OF0614
15001230	15	Corn, field, starch	0.010000	1.000	0.060 OF0614
15001231	15	Corn, field, starch-babyfood	0.010000	1.000	0.060 OF0614
15001240	15	Corn, field, syrup	0.010000	1.000	0.060 OF0614
15001241	15	Corn, field, syrup-babyfood	0.010000	1.000	0.060 OF0614
15001250	15	Corn, field, oil	0.010000	1.000	0.060 OF0614
15001251	15	Corn, field, oil-babyfood	0.010000	1.000	0.060 OF0614
15001260	15	Corn, pop	0.010000	1.000	1.000 OF0614
15001270	15	Corn, sweet	0.010000	1.000	1.000 OF0614
15001271	15	Corn, sweet-babyfood	0.010000	1.000	1.000 OF0614
95001280	O	Cottonseed, oil	0.010000	1.000	0.200
95001281	O	Cottonseed, oil-babyfood	0.010000	1.000	0.200
11001290	11	Crabapple	0.204000	1.000	0.200
95001300	O	Cranberry	0.005000	1.000	0.290
95001301	O	Cranberry-babyfood	0.005000	1.000	0.290
95001310	O	Cranberry, dried	0.005000	1.000	0.290
95001320	O	Cranberry, juice	0.005000	1.100	0.290
95001321	O	Cranberry, juice-babyfood	0.005000	1.100	0.290
04011330	4A	Cress, garden	0.040000	1.000	1.000
04011340	4A	Cress, upland	0.040000	1.000	1.000
09021350	9B	Cucumber	0.005000	1.000	0.050
13021360	13B	Currant	0.050000	1.000	0.550
13021370	13B	Currant, dried	0.050000	1.000	0.550
04011380	4A	Dandelion, leaves	0.040000	1.000	1.000
01031390	1CD	Dasheen, corm	0.150000	1.000	0.330
13011420	13A	Dewberry	0.040000	1.000	1.000
08001480	8	Eggplant	0.010000	1.000	0.150
13021490	13B	Elderberry	0.050000	1.000	0.550
04011500	4A	Endive	0.040000	1.000	1.000
04021520	4B	Fennel, Florence	0.020000	1.000	1.000
20001630	20	Flaxseed, oil	0.005000	1.000	0.150
01031660	1CD	Ginger	0.150000	1.000	0.330
01031661	1CD	Ginger-babyfood	0.150000	1.000	0.330
01031670	1CD	Ginger, dried	0.150000	1.000	0.330
01011680	1AB	Ginseng, dried	0.010000	1.000	0.330
23001690	M	Goat, meat	0.000043	1.000	1.000
23001700	M	Goat, meat byproducts	0.000032	1.000	1.000
23001720	M	Goat, kidney	0.000032	1.000	1.000
23001730	M	Goat, liver	0.001800	1.000	1.000
13021740	13B	Gooseberry	0.050000	1.000	0.550
95001750	O	Grape	0.298000	1.000	1.000
95001760	O	Grape, juice	0.298000	2.100	1.000
95001761	O	Grape, juice-babyfood	0.298000	2.100	1.000
95001770	O	Grape, leaves	0.298000	1.000	1.000
95001780	O	Grape, raisin	0.298000	2.500	1.000
95001790	O	Grape, wine and sherry	0.298000	2.100	1.000
06031820	6C	Guar, seed	0.005000	1.000	0.380
06031821	6C	Guar, seed-babyfood	0.005000	1.000	0.380
09011870	9A	Honeydew melon	0.005000	1.000	0.130
95001880	O	Hop	0.028000	1.000	1.000
24001890	M	Horse, meat	0.000043	1.000	1.000
01011900	1AB	Horseradish	0.010000	1.000	0.330
13021910	13B	Huckleberry	0.050000	1.000	0.550

Clothianidin		Dietary Exposure and Risk Assessment PC Code 044309		DP Number 343102	
05021940	5B	Kale	0.360000	1.000	1.000
05011960	5A	Kohlrabi	0.040000	1.000	1.000
06032030	6C	Lentil, seed	0.005000	1.000	0.380
04012040	4A	Lettuce, head	0.005000	1.000	1.000
04012050	4A	Lettuce, leaf	0.040000	1.000	1.000
13012080	13A	Loganberry	0.040000	1.000	1.000
11002100	11	Loquat	0.204000	1.000	0.530
28002210	M	Meat, game	0.000043	1.000	1.000
27002220	D	Milk, fat	0.000098	1.000	1.000
27002221	D	Milk, fat - baby food/infant for	0.000098	1.000	1.000
27012230	D	Milk, nonfat solids	0.000098	1.000	1.000
27012231	D	Milk, nonfat solids-baby food/in	0.000098	1.000	1.000
27022240	D	Milk, water	0.000098	1.000	1.000
27022241	D	Milk, water-babyfood/infant form	0.000098	1.000	1.000
27032251	D	Milk, sugar (lactose)-baby food/	0.000098	1.000	1.000
05022290	5B	Mustard greens	0.360000	1.000	1.000
12002300	12	Nectarine	0.120000	1.000	0.150
08002340	8	Okra	0.010000	1.000	0.150
04012480	4A	Parsley, leaves	0.040000	1.000	1.000
01012500	1AB	Parsley, turnip rooted	0.010000	1.000	0.330
01012510	1AB	Parsnip	0.010000	1.000	0.330
01012511	1AB	Parsnip-babyfood	0.010000	1.000	0.330
06022550	6B	Pea, succulent	0.005000	1.000	0.380
06022551	6B	Pea, succulent-babyfood	0.005000	1.000	0.380
06032560	6C	Pea, dry	0.005000	1.000	0.380
06032561	6C	Pea, dry-babyfood	0.005000	1.000	0.380
06012570	6A	Pea, edible podded, succulent	0.005000	1.000	0.380
06032580	6C	Pea, pigeon, seed	0.005000	1.000	0.380
06022590	6B	Pea, pigeon, succulent	0.005000	1.000	0.380
12002600	12	Peach	0.120000	1.000	0.150
12002601	12	Peach-babyfood	0.120000	1.000	0.150
12002610	12	Peach, dried	0.120000	7.000	0.150
12002611	12	Peach, dried-babyfood	0.120000	7.000	0.150
12002620	12	Peach, juice	0.120000	1.000	0.150
12002621	12	Peach, juice-babyfood	0.120000	1.000	0.150
11002660	11	Pear	0.204000	1.000	0.090
11002661	11	Pear-babyfood	0.204000	1.000	0.090
11002670	11	Pear, dried	0.204000	6.250	0.090
11002680	11	Pear, juice	0.204000	0.140	0.090
11002681	11	Pear, juice-babyfood	0.204000	0.140	0.090
14002690	14	Pecan	0.005000	1.000	1.000
08002700	8	Pepper, bell	0.010000	1.000	0.150
08002701	8	Pepper, bell-babyfood	0.010000	1.000	0.150
08002710	8	Pepper, bell, dried	0.010000	1.000	0.150
08002711	8	Pepper, bell, dried-babyfood	0.010000	1.000	0.150
08002720	8	Pepper, nonbell	0.010000	1.000	0.150
08002721	8	Pepper, nonbell-babyfood	0.010000	1.000	0.150
08002730	8	Pepper, nonbell, dried	0.010000	1.000	0.150
95002750	0	Peppermint	0.128000	1.000	0.090
95002760	0	Peppermint, oil	0.128000	1.000	0.090
12002850	12	Plum	0.020000	1.000	0.150
12002851	12	Plum-babyfood	0.020000	1.000	0.150
12002860	12	Plum, prune, fresh	0.020000	1.000	0.150
12002861	12	Plum, prune, fresh-babyfood	0.020000	1.000	0.150
12002870	12	Plum, prune, dried	0.020000	5.000	0.150
12002871	12	Plum, prune, dried-babyfood	0.020000	5.000	0.150
12002880	12	Plum, prune, juice	0.020000	1.400	0.150
12002881	12	Plum, prune, juice-babyfood	0.020000	1.400	0.150

Clothianidin		Dietary Exposure and Risk Assessment PC Code 044309		DP Number 343102	
25002900 M	Pork, meat	0.000043	1.000	1.000	
25002901 M	Pork, meat-babyfood	0.000043	1.000	1.000	
25002920 M	Pork, meat byproducts	0.000032	1.000	1.000	
25002921 M	Pork, meat byproducts-babyfood	0.000032	1.000	1.000	
25002940 M	Pork, kidney	0.000032	1.000	1.000	
25002950 M	Pork, liver	0.001800	1.000	1.000	
01032960 1C	Potato, chips	0.093000	1.000	0.410	
01032970 1C	Potato, dry (granules/ flakes)	0.093000	6.500	0.410	
01032971 1C	Potato, dry (granules/ flakes)-b	0.093000	6.500	0.410	
01032980 1C	Potato, flour	0.093000	1.000	0.410	
01032981 1C	Potato, flour-babyfood	0.093000	1.000	0.410	
01032990 1C	Potato, tuber, w/peel	0.093000	1.000	0.410	
01032991 1C	Potato, tuber, w/peel-babyfood	0.093000	1.000	0.410	
01033000 1C	Potato, tuber, w/o peel	0.093000	1.000	0.410	
01033001 1C	Potato, tuber, w/o peel-babyfood	0.093000	1.000	0.410	
09023080 9B	Pumpkin	0.005000	1.000	0.440	
09023090 9B	Pumpkin, seed	0.005000	1.000	0.440	
11003100 11	Quince	0.204000	1.000	0.530	
29003120 M	Rabbit, meat	0.000043	1.000	1.000	
04013130 4A	Radicchio	0.040000	1.000	1.000	
01013140 1AB	Radish, roots	0.010000	1.000	0.330	
01013160 1AB	Radish, Oriental, roots	0.010000	1.000	0.330	
05023180 5B	Rape greens	0.360000	1.000	1.000	
20003190 20	Rapeseed, oil	0.010000	1.000	0.550	
20003191 20	Rapeseed, oil-babyfood	0.010000	1.000	0.550	
13013200 13A	Raspberry	0.040000	1.000	1.000	
13013201 13A	Raspberry-babyfood	0.040000	1.000	1.000	
13013210 13A	Raspberry, juice	0.040000	1.000	1.000	
13013211 13A	Raspberry, juice-babyfood	0.040000	1.000	1.000	
04023220 4B	Rhubarb	0.020000	1.000	1.000	
01013270 1AB	Rutabaga	0.010000	1.000	0.330	
20003300 20	Safflower, oil	0.005000	1.000	0.150	
20003301 20	Safflower, oil-babyfood	0.005000	1.000	0.150	
01013310 1AB	Salsify, roots	0.010000	1.000	0.330	
26003390 M	Sheep, meat	0.000043	1.000	1.000	
26003391 M	Sheep, meat-babyfood	0.000043	1.000	1.000	
26003400 M	Sheep, meat byproducts	0.000032	1.000	1.000	
26003420 M	Sheep, kidney	0.000032	1.000	1.000	
26003430 M	Sheep, liver	0.001800	1.000	1.000	
15003440 15	Sorghum, grain	0.010000	1.000	0.090	
15003450 15	Sorghum, syrup	0.010000	1.000	0.090	
06003470 6	Soybean, seed	0.005000	1.000	0.110	
06003480 6	Soybean, flour	0.005000	1.000	0.110	
06003481 6	Soybean, flour-babyfood	0.005000	1.000	0.110	
06003490 6	Soybean, soy milk	0.005000	1.000	0.110	
06003491 6	Soybean, soy milk-babyfood or in	0.005000	1.000	0.110	
06003500 6	Soybean, oil	0.005000	1.000	0.110	
06003501 6	Soybean, oil-babyfood	0.005000	1.000	0.110	
95003520 O	Spearmint	0.128000	1.000	0.090	
95003530 O	Spearmint, oil	0.128000	1.000	0.090	
04013550 4A	Spinach	0.800000	1.000	1.000	
04013551 4A	Spinach-babyfood	0.800000	1.000	1.000	
09023560 9B	Squash, summer	0.005000	1.000	0.440	
09023561 9B	Squash, summer-babyfood	0.005000	1.000	0.440	
09023570 9B	Squash, winter	0.005000	1.000	0.440	
09023571 9B	Squash, winter-babyfood	0.005000	1.000	0.440	
95003590 O	Strawberry	0.005000	1.000	0.460	
95003591 O	Strawberry-babyfood	0.005000	1.000	0.460	

Clothianidin		Dietary Exposure and Risk Assessment PC Code 044309		DP Number 343102	
95003600	0	Strawberry, juice	0.005000	1.000	0.460
95003601	0	Strawberry, juice-babyfood	0.005000	1.000	0.460
20003640	20	Sunflower, seed	0.005000	1.000	0.250
20003650	20	Sunflower, oil	0.005000	1.000	0.250
20003651	20	Sunflower, oil-babyfood	0.005000	1.000	0.250
01033660	1CD	Sweet potato	0.150000	1.000	0.330
01033661	1CD	Sweet potato-babyfood	0.150000	1.000	0.330
04023670	4B	Swiss chard	0.020000	1.000	1.000
01033710	1CD	Tanier, corm	0.150000	1.000	0.330
08003740	8	Tomatillo	0.010000	1.000	0.150
08003750	8	Tomato	0.010000	1.000	0.150
08003751	8	Tomato-babyfood	0.010000	1.000	0.150
08003760	8	Tomato, paste	0.010000	5.400	0.150
08003761	8	Tomato, paste-babyfood	0.010000	5.400	0.150
08003770	8	Tomato, puree	0.010000	3.300	0.150
08003771	8	Tomato, puree-babyfood	0.010000	3.300	0.150
08003780	8	Tomato, dried	0.010000	14.300	0.150
08003781	8	Tomato, dried-babyfood	0.010000	14.300	0.150
08003790	8	Tomato, juice	0.010000	1.500	0.150
01033870	1CD	Turmeric	0.150000	1.000	0.330
05023890	5B	Turnip, greens	0.360000	1.000	1.000
01013880	1AB	Turnip, roots	0.010000	1.000	0.330
86010000	0	Water, direct, all sources	0.007290	1.000	1.000
86020000	0	Water, indirect, all sources	0.007290	1.000	1.000
09013990	9A	Watermelon	0.005000	1.000	0.130
09014000	9A	Watermelon, juice	0.005000	1.000	0.130
15004010	15	Wheat, grain	0.005000	1.000	0.020
15004011	15	Wheat, grain-babyfood	0.005000	1.000	0.020
15004020	15	Wheat, flour	0.005000	1.000	0.020
15004021	15	Wheat, flour-babyfood	0.005000	1.000	0.020
15004030	15	Wheat, germ	0.005000	1.000	0.020
15004040	15	Wheat, bran	0.005000	1.000	0.020
01034060	1CD	Yam, true	0.150000	1.000	0.330
01034070	1CD	Yam bean	0.150000	1.000	0.330

Dietary Exposure and Risk Assessment
PC Code 044309

Clothianidin

DP Number 343102

Attachment 2. Clothianidin from Clothianidin Application: Residues Used for Chronic Dietary Exposure Estimates.

US Environmental Protection Agency Version 2.03
 DEEM-FCID CHRONIC analysis for CLOTHIANIDIN (1994-96 and 1998 data)
 Residue file name: ClothianidinDEEM082207(AverageC+W)Input.R98
 Adjustment factor #2 was NOT used.
 Analysis date: 8/22/2007 at 14:29:49
 Residue file dated: 8/22/2007 at 14:16:00
 Reference dose (RfD, Chronic) = 0.0098 mg/kg bw/day
 Run Comment: Acute and Chronic RfDs include a 10X database uncertainty factor

EPA Code	Crop Grp	Commodity Name	Def Res (ppm)	Adj. Factors #1	Adj. Factors #2	Comment
11000070	11	Apple, fruit with peel	0.079000	1.000	1.000	
11000080	11	Apple, peeled fruit	0.079000	1.000	1.000	
11000081	11	Apple, peeled fruit-babyfood	0.079000	1.000	1.000	
11000090	11	Apple, dried	0.079000	8.000	1.000	
11000091	11	Apple, dried-babyfood	0.079000	8.000	1.000	
11000100	11	Apple, juice	0.079000	0.140	1.000	
11000101	11	Apple, juice-babyfood	0.079000	0.140	1.000	
11000110	11	Apple, sauce	0.079000	1.000	1.000	
11000111	11	Apple, sauce-babyfood	0.079000	1.000	1.000	
01010500	1AB	Beet, garden, roots	0.010000	1.000	1.000	
01010501	1AB	Beet, garden, roots-babyfood	0.010000	1.000	1.000	
01010520	1A	Beet, sugar	0.011000	1.000	1.000	
01010521	1A	Beet, sugar-babyfood	0.011000	1.000	1.000	
01010530	1A	Beet, sugar, molasses	0.031900	1.000	1.000	(2.9x factor)
01010531	1A	Beet, sugar, molasses-babyfood	0.031900	1.000	1.000	(2.9x factor)
01010670	1AB	Burdock	0.010000	1.000	1.000	
01010780	1AB	Carrot	0.010000	1.000	1.000	
01010781	1AB	Carrot-babyfood	0.010000	1.000	1.000	
01010790	1AB	Carrot, juice	0.010000	1.000	1.000	
01010840	1AB	Celeriac	0.010000	1.000	1.000	
01011000	1AB	Chicory, roots	0.010000	1.000	1.000	
15001200	15	Corn, field, flour	0.005000	1.000	1.000	
15001201	15	Corn, field, flour-babyfood	0.005000	1.000	1.000	
15001210	15	Corn, field, meal	0.005000	1.000	1.000	
15001211	15	Corn, field, meal-babyfood	0.005000	1.000	1.000	
15001220	15	Corn, field, bran	0.005000	1.000	1.000	
15001230	15	Corn, field, starch	0.005000	1.000	1.000	
15001231	15	Corn, field, starch-babyfood	0.005000	1.000	1.000	
15001240	15	Corn, field, syrup	0.005000	1.000	1.000	
15001241	15	Corn, field, syrup-babyfood	0.005000	1.000	1.000	
15001250	15	Corn, field, oil	0.005000	1.000	1.000	
15001251	15	Corn, field, oil-babyfood	0.005000	1.000	1.000	
15001260	15	Corn, pop	0.005000	1.000	1.000	
15001270	15	Corn, sweet	0.005000	1.000	1.000	
15001271	15	Corn, sweet-babyfood	0.005000	1.000	1.000	
95001280	0	Cottonseed, oil	0.005000	1.000	1.000	
95001281	0	Cottonseed, oil-babyfood	0.005000	1.000	1.000	
11001290	11	Crabapple	0.079000	1.000	1.000	
01011680	1AB	Ginseng, dried	0.010000	1.000	1.000	
95001750	0	Grape	0.139000	1.000	1.000	

Clothianidin		Dietary Exposure and Risk Assessment			DP Number 343102
		PC Code 044309			
95001760	O	Grape, juice	0.139000	2.100	1.000
95001761	O	Grape, juice-babyfood	0.139000	2.100	1.000
95001770	O	Grape, leaves	0.139000	1.000	1.000
95001780	O	Grape, raisin	0.139000	2.500	1.000
95001790	O	Grape, wine and sherry	0.139000	2.100	1.000
01011900	1AB	Horseradish	0.010000	1.000	1.000
11002100	11	Loquat	0.079000	1.000	1.000
27002220	D	Milk, fat	0.000098	1.000	1.000
27002221	D	Milk, fat - baby food/infant for	0.000098	1.000	1.000
27012230	D	Milk, nonfat solids	0.000098	1.000	1.000
27012231	D	Milk, nonfat solids-baby food/in	0.000098	1.000	1.000
27022240	D	Milk, water	0.000098	1.000	1.000
27022241	D	Milk, water-babyfood/infant form	0.000098	1.000	1.000
27032251	D	Milk, sugar (lactose)-baby food/	0.000098	1.000	1.000
01012500	1AB	Parsley, turnip rooted	0.010000	1.000	1.000
01012510	1AB	Parsnip	0.010000	1.000	1.000
01012511	1AB	Parsnip-babyfood	0.010000	1.000	1.000
11002660	11	Pear	0.079000	1.000	1.000
11002661	11	Pear-babyfood	0.079000	1.000	1.000
11002670	11	Pear, dried	0.079000	6.250	1.000
11002680	11	Pear, juice	0.079000	0.140	1.000
11002681	11	Pear, juice-babyfood	0.079000	0.140	1.000
01032960	1C	Potato, chips	0.014000	1.000	1.000
01032970	1C	Potato, dry (granules/ flakes)	0.014000	6.500	1.000
01032971	1C	Potato, dry (granules/ flakes)-b	0.014000	6.500	1.000
01032980	1C	Potato, flour	0.014000	1.000	1.000
01032981	1C	Potato, flour-babyfood	0.014000	1.000	1.000
01032990	1C	Potato, tuber, w/peel	0.014000	1.000	1.000
01032991	1C	Potato, tuber, w/peel-babyfood	0.014000	1.000	1.000
01033000	1C	Potato, tuber, w/o peel	0.014000	1.000	1.000
01033001	1C	Potato, tuber, w/o peel-babyfood	0.014000	1.000	1.000
11003100	11	Quince	0.079000	1.000	1.000
01013140	1AB	Radish, roots	0.010000	1.000	1.000
01013160	1AB	Radish, Oriental, roots	0.010000	1.000	1.000
20003190	20	Rapeseed, oil	0.005000	1.000	1.000
20003191	20	Rapeseed, oil-babyfood	0.005000	1.000	1.000
01013270	1AB	Rutabaga	0.010000	1.000	1.000
01013310	1AB	Salsify, roots	0.010000	1.000	1.000
15003440	15	Sorghum, grain	0.005000	1.000	1.000
15003450	15	Sorghum, syrup	0.005000	1.000	1.000
01033660	1CD	Sweet potato	0.014000	1.000	1.000
01033661	1CD	Sweet potato-babyfood	0.014000	1.000	1.000
01013880	1AB	Turnip, roots	0.010000	1.000	1.000
86010000	O	Water, direct, all sources	0.007290	1.000	1.000
86020000	O	Water, indirect, all sources	0.007290	1.000	1.000

	Dietary Exposure and Risk Assessment	
Clothianidin	PC Code 044309	DP Number 343102

Attachment 3. Clothianidin from Thiamethoxam Application: Residues Used for Chronic Dietary Exposure Estimates.

US Environmental Protection Agency Version 2.03
 DEEM-FCID CHRONIC analysis for CLOTHIANIDIN (1994-1996 and 1998 data)
 Residue file: Average Clothianidin from Thiamethoxam.R98
 Adjustment factor #2 was NOT used.
 Analysis date: 7/31/2006
 Residue file dated: 7/31/2006 at 16:15:28
 Reference dose (RfD, Chronic) = 0.0098 mg/kg bw/day
 Run Comment: Acute and Chronic RfDs include a 10X database uncertainty factor

EPA Code	Crop Grp	Commodity Name	Def Res (ppm)	Adj. Factors		Comment
				#1	#2	
04010050	4A	Amaranth, leafy	0.015000	1.000	1.000	
11000070	11	Apple, fruit with peel	0.005000	1.000	0.050	
11000080	11	Apple, peeled fruit	0.005000	1.000	0.050	
11000081	11	Apple, peeled fruit-babyfood	0.005000	1.000	0.050	
11000090	11	Apple, dried	0.005000	8.000	0.050	
11000091	11	Apple, dried-babyfood	0.005000	8.000	0.050	
11000100	11	Apple, juice	0.005000	0.014	0.050	
11000101	11	Apple, juice-babyfood	0.005000	0.014	0.050	
11000110	11	Apple, sauce	0.005000	1.000	0.050	
11000111	11	Apple, sauce-babyfood	0.005000	1.000	0.050	
12000120	12	Apricot	0.033000	1.000	0.150	
12000121	12	Apricot-babyfood	0.033000	1.000	0.150	
12000130	12	Apricot, dried	0.033000	6.000	0.150	
12000140	12	Apricot, juice	0.033000	1.000	0.150	
12000141	12	Apricot, juice-babyfood	0.033000	1.000	0.150	
01030150	1CD	Arrowroot, flour	0.046000	1.000	0.330	
01030151	1CD	Arrowroot, flour-babyfood	0.046000	1.000	0.330	
95000160	O	Artichoke, globe	0.022000	1.000	1.000	
01030170	1CD	Artichoke, Jerusalem	0.046000	1.000	0.330	
04010180	4A	Arugula	0.015000	1.000	1.000	
09020210	9B	Balsam pear	0.005000	1.000	0.440	
15000250	15	Barley, pearled barley	0.008000	1.000	0.010	
15000251	15	Barley, pearled barley-babyfood	0.008000	1.000	0.010	
15000260	15	Barley, flour	0.008000	1.000	0.010	
15000261	15	Barley, flour-babyfood	0.008000	1.000	0.010	
15000270	15	Barley, bran	0.008000	1.000	0.010	
06030300	6C	Bean, black, seed	0.005000	1.000	0.380	
06020310	6B	Bean, broad, succulent	0.005000	1.000	0.380	
06030320	6C	Bean, broad, seed	0.005000	1.000	0.380	
06020330	6B	Bean, cowpea, succulent	0.005000	1.000	0.380	
06030340	6C	Bean, cowpea, seed	0.005000	1.000	0.380	
06030350	6C	Bean, great northern, seed	0.005000	1.000	0.380	
06030360	6C	Bean, kidney, seed	0.005000	1.000	0.380	
06020370	6B	Bean, lima, succulent	0.005000	1.000	0.380	
06030380	6C	Bean, lima, seed	0.005000	1.000	0.380	
06030390	6C	Bean, mung, seed	0.005000	1.000	0.380	
06030400	6C	Bean, navy, seed	0.005000	1.000	0.380	
06030410	6C	Bean, pink, seed	0.005000	1.000	0.380	
06030420	6C	Bean, pinto, seed	0.005000	1.000	0.380	
06010430	6A	Bean, snap, succulent	0.005000	1.000	0.380	

Clothianidin		Dietary Exposure and Risk Assessment		PC Code 044309		DP Number 343102	
06010431	6A	Bean, snap, succulent-babyfood	0.005000	1.000	0.380		
21000440	M	Beef, meat	0.000043	1.000	1.000		
21000441	M	Beef, meat-babyfood	0.000043	1.000	1.000		
21000450	M	Beef, meat, dried	0.000043	1.920	1.000		
21000460	M	Beef, meat byproducts	0.000032	1.000	1.000		
21000461	M	Beef, meat byproducts-babyfood	0.000032	1.000	1.000		
21000480	M	Beef, kidney	0.000032	1.000	1.000		
21000490	M	Beef, liver	0.001800	1.000	1.000		
21000491	M	Beef, liver-babyfood	0.001800	1.000	1.000		
01010500	1AB	Beet, garden, roots	0.005000	1.000	0.330		
01010501	1AB	Beet, garden, roots-babyfood	0.005000	1.000	0.330		
13010550	13A	Blackberry	0.020000	1.000	1.000		
13010560	13A	Blackberry, juice	0.020000	1.000	1.000		
13010561	13A	Blackberry, juice-babyfood	0.020000	1.000	1.000		
13020570	13B	Blueberry	0.006000	1.000	0.550		
13020571	13B	Blueberry-babyfood	0.006000	1.000	0.550		
13010580	13A	Boysenberry	0.020000	1.000	1.000		
05010610	5A	Broccoli	0.009000	1.000	1.000		
05010611	5A	Broccoli-babyfood	0.009000	1.000	1.000		
05010620	5A	Broccoli, Chinese	0.009000	1.000	1.000		
05020630	5B	Broccoli raab	0.116000	1.000	1.000		
05010640	5A	Brussels sprouts	0.009000	1.000	1.000		
01010670	1AB	Burdock	0.005000	1.000	0.330		
05010690	5A	Cabbage	0.006000	1.000	1.000		
05020700	5B	Cabbage, Chinese, bok choy	0.006000	1.000	1.000		
05010710	5A	Cabbage, Chinese, napa	0.006000	1.000	1.000		
05010720	5A	Cabbage, Chinese, mustard	0.006000	1.000	1.000		
09010750	9A	Cantaloupe	0.005000	1.000	0.130		
04020760	4B	Cardoon	0.007000	1.000	1.000		
01010780	1AB	Carrot	0.005000	1.000	0.330		
01010781	1AB	Carrot-babyfood	0.005000	1.000	0.330		
01010790	1AB	Carrot, juice	0.005000	1.000	0.330		
09010800	9A	Casaba	0.005000	1.000	0.440		
01030820	1CD	Cassava	0.046000	1.000	0.330		
01030821	1CD	Cassava-babyfood	0.046000	1.000	0.330		
05010830	5A	Cauliflower	0.009000	1.000	1.000		
01010840	1AB	Celeriac	0.005000	1.000	0.330		
04020850	4B	Celery	0.007000	1.000	1.000		
04020851	4B	Celery-babyfood	0.007000	1.000	1.000		
04020860	4B	Celery, juice	0.007000	1.000	1.000		
04020870	4B	Celtuce	0.007000	1.000	1.000		
09020880	9B	Chayote, fruit	0.005000	1.000	0.440		
12000900	12	Cherry	0.009000	1.000	0.150		
12000901	12	Cherry-babyfood	0.009000	1.000	0.150		
12000910	12	Cherry, juice	0.009000	1.500	0.150		
12000911	12	Cherry, juice-babyfood	0.009000	1.500	0.150		
06030980	6C	Chickpea, seed	0.005000	1.000	0.380		
06030981	6C	Chickpea, seed-babyfood	0.005000	1.000	0.380		
06030990	6C	Chickpea, flour	0.005000	1.000	0.380		
01011000	1AB	Chicory, roots	0.005000	1.000	0.330		
09021020	9B	Chinese waxgourd	0.005000	1.000	0.440		
04011040	4A	Chrysanthemum, garland	0.015000	1.000	1.000		
95001150	O	Coffee, roasted bean	0.010000	1.000	1.000		
95001160	O	Coffee, instant	0.010000	1.000	1.000		
05021170	5B	Collards	0.116000	1.000	1.000		
15001200	15	Corn, field, flour	0.005000	1.000	0.060		
15001201	15	Corn, field, flour-babyfood	0.005000	1.000	0.060		
15001210	15	Corn, field, meal	0.005000	1.000	0.060		

Clothianidin		Dietary Exposure and Risk Assessment PC Code 044309		DP Number 343102
15001211	15	Corn, field, meal-babyfood	0.005000 1.000	0.060
15001220	15	Corn, field, bran	0.005000 1.000	0.060
15001230	15	Corn, field, starch	0.005000 1.000	0.060
15001231	15	Corn, field, starch-babyfood	0.005000 1.000	0.060
15001240	15	Corn, field, syrup	0.005000 1.000	0.060
15001241	15	Corn, field, syrup-babyfood	0.005000 1.000	0.060
15001250	15	Corn, field, oil	0.005000 1.000	0.060
15001251	15	Corn, field, oil-babyfood	0.005000 1.000	0.060
15001260	15	Corn, pop	0.005000 1.000	1.000
15001270	15	Corn, sweet	0.005000 1.000	1.000
15001271	15	Corn, sweet-babyfood	0.005000 1.000	1.000
95001280	O	Cottonseed, oil	0.005000 1.000	0.200
95001281	O	Cottonseed, oil-babyfood	0.005000 1.000	0.200
11001290	11	Crabapple	0.005000 1.000	0.200
95001300	O	Cranberry	0.005000 1.000	0.290
95001301	O	Cranberry-babyfood	0.005000 1.000	0.290
95001310	O	Cranberry, dried	0.005000 1.000	0.290
95001320	O	Cranberry, juice	0.005000 1.100	0.290
95001321	O	Cranberry, juice-babyfood	0.005000 1.100	0.290
04011330	4A	Cress, garden	0.015000 1.000	1.000
04011340	4A	Cress, upland	0.015000 1.000	1.000
09021350	9B	Cucumber	0.005000 1.000	0.050
13021360	13B	Currant	0.006000 1.000	0.550
13021370	13B	Currant, dried	0.006000 1.000	0.550
04011380	4A	Dandelion, leaves	0.015000 1.000	1.000
01031390	1CD	Dasheen, corm	0.046000 1.000	0.330
13011420	13A	Dewberry	0.020000 1.000	1.000
08001480	8	Eggplant	0.005000 1.000	0.150
13021490	13B	Elderberry	0.006000 1.000	0.550
04011500	4A	Endive	0.015000 1.000	1.000
04021520	4B	Fennel, Florence	0.007000 1.000	1.000
20001630	20	Flaxseed, oil	0.005000 1.000	0.150
01031660	1CD	Ginger	0.046000 1.000	0.330
01031661	1CD	Ginger-babyfood	0.046000 1.000	0.330
01031670	1CD	Ginger, dried	0.046000 1.000	0.330
01011680	1AB	Ginseng, dried	0.005000 1.000	0.330
23001690	M	Goat, meat	0.000043 1.000	1.000
23001700	M	Goat, meat byproducts	0.000032 1.000	1.000
23001720	M	Goat, kidney	0.000032 1.000	1.000
23001730	M	Goat, liver	0.001800 1.000	1.000
13021740	13B	Gooseberry	0.006000 1.000	0.550
95001750	O	Grape	0.005000 1.000	1.000
95001760	O	Grape, juice	0.005000 2.100	1.000
95001761	O	Grape, juice-babyfood	0.005000 2.100	1.000
95001770	O	Grape, leaves	0.005000 1.000	1.000
95001780	O	Grape, raisin	0.005000 2.500	1.000
95001790	O	Grape, wine and sherry	0.005000 2.100	1.000
06031820	6C	Guar, seed	0.005000 1.000	0.380
06031821	6C	Guar, seed-babyfood	0.005000 1.000	0.380
09011870	9A	Honeydew melon	0.005000 1.000	0.130
95001880	O	Hop	0.026000 1.000	1.000
24001890	M	Horse, meat	0.000043 1.000	1.000
01011900	1AB	Horseradish	0.005000 1.000	0.330
13021910	13B	Huckleberry	0.006000 1.000	0.550
05021940	5B	Kale	0.116000 1.000	1.000
05011960	5A	Kohlrabi	0.009000 1.000	1.000
06032030	6C	Lentil, seed	0.005000 1.000	0.380
04012040	4A	Lettuce, head	0.005000 1.000	1.000

Clothianidin		Dietary Exposure and Risk Assessment		DP Number 343102	
		PC Code 044309			
04012050 4A	Lettuce, leaf	0.015000	1.000	1.000	
13012080 13A	Loganberry	0.020000	1.000	1.000	
11002100 11	Loquat	0.005000	1.000	0.530	
28002210 M	Meat, game	0.000043	1.000	1.000	
27002220 D	Milk, fat	0.000098	1.000	1.000	
27002221 D	Milk, fat - baby food/infant for	0.000098	1.000	1.000	
27012230 D	Milk, nonfat solids	0.000098	1.000	1.000	
27012231 D	Milk, nonfat solids-baby food/in	0.000098	1.000	1.000	
27022240 D	Milk, water	0.000098	1.000	1.000	
27022241 D	Milk, water-babyfood/infant form	0.000098	1.000	1.000	
27032251 D	Milk, sugar (lactose)-baby food/	0.000098	1.000	1.000	
05022290 5B	Mustard greens	0.116000	1.000	1.000	
12002300 12	Nectarine	0.033000	1.000	0.150	
08002340 8	Okra	0.005000	1.000	0.150	
04012480 4A	Parsley, leaves	0.015000	1.000	1.000	
01012500 1AB	Parsley, turnip rooted	0.005000	1.000	0.330	
01012510 1AB	Parsnip	0.005000	1.000	0.330	
01012511 1AB	Parsnip-babyfood	0.005000	1.000	0.330	
06022550 6B	Pea, succulent	0.005000	1.000	0.380	
06022551 6B	Pea, succulent-babyfood	0.005000	1.000	0.380	
06032560 6C	Pea, dry	0.005000	1.000	0.380	
06032561 6C	Pea, dry-babyfood	0.005000	1.000	0.380	
06012570 6A	Pea, edible podded, succulent	0.005000	1.000	0.380	
06032580 6C	Pea, pigeon, seed	0.005000	1.000	0.380	
06022590 6B	Pea, pigeon, succulent	0.005000	1.000	0.380	
12002600 12	Peach	0.033000	1.000	0.150	
12002601 12	Peach-babyfood	0.033000	1.000	0.150	
12002610 12	Peach, dried	0.033000	7.000	0.150	
12002611 12	Peach, dried-babyfood	0.033000	7.000	0.150	
12002620 12	Peach, juice	0.033000	1.000	0.150	
12002621 12	Peach, juice-babyfood	0.033000	1.000	0.150	
11002660 11	Pear	0.005000	1.000	0.090	
11002661 11	Pear-babyfood	0.005000	1.000	0.090	
11002670 11	Pear, dried	0.005000	6.250	0.090	
11002680 11	Pear, juice	0.005000	0.140	0.090	
11002681 11	Pear, juice-babyfood	0.005000	0.140	0.090	
14002690 14	Pecan	0.005000	1.000	1.000	
08002700 8	Pepper, bell	0.005000	1.000	0.150	
08002701 8	Pepper, bell-babyfood	0.005000	1.000	0.150	
08002710 8	Pepper, bell, dried	0.005000	1.000	0.150	
08002711 8	Pepper, bell, dried-babyfood	0.005000	1.000	0.150	
08002720 8	Pepper, nonbell	0.005000	1.000	0.150	
08002721 8	Pepper, nonbell-babyfood	0.005000	1.000	0.150	
08002730 8	Pepper, nonbell, dried	0.005000	1.000	0.150	
95002750 0	Peppermint	0.094000	1.000	0.090	
95002760 0	Peppermint, oil	0.094000	1.000	0.090	
12002850 12	Plum	0.006000	1.000	0.150	
12002851 12	Plum-babyfood	0.006000	1.000	0.150	
12002860 12	Plum, prune, fresh	0.006000	1.000	0.150	
12002861 12	Plum, prune, fresh-babyfood	0.006000	1.000	0.150	
12002870 12	Plum, prune, dried	0.006000	5.000	0.150	
12002871 12	Plum, prune, dried-babyfood	0.006000	5.000	0.150	
12002880 12	Plum, prune, juice	0.006000	1.400	0.150	
12002881 12	Plum, prune, juice-babyfood	0.006000	1.400	0.150	
25002900 M	Pork, meat	0.000043	1.000	1.000	
25002901 M	Pork, meat-babyfood	0.000043	1.000	1.000	
25002920 M	Pork, meat byproducts	0.000032	1.000	1.000	
25002921 M	Pork, meat byproducts-babyfood	0.000032	1.000	1.000	

Clothianidin		Dietary Exposure and Risk Assessment PC Code 044309		DP Number 343102
25002940 M	Pork, kidney	0.000032	1.000	1.000
25002950 M	Pork, liver	0.001800	1.000	1.000
01032960 1C	Potato, chips	0.046000	1.000	0.410
01032970 1C	Potato, dry (granules/ flakes)	0.046000	6.500	0.410
01032971 1C	Potato, dry (granules/ flakes)-b	0.046000	6.500	0.410
01032980 1C	Potato, flour	0.046000	1.000	0.410
01032981 1C	Potato, flour-babyfood	0.046000	1.000	0.410
01032990 1C	Potato, tuber, w/peel	0.046000	1.000	0.410
01032991 1C	Potato, tuber, w/peel-babyfood	0.046000	1.000	0.410
01033000 1C	Potato, tuber, w/o peel	0.046000	1.000	0.410
01033001 1C	Potato, tuber, w/o peel-babyfood	0.046000	1.000	0.410
09023080 9B	Pumpkin	0.005000	1.000	0.440
09023090 9B	Pumpkin, seed	0.005000	1.000	0.440
11003100 11	Quince	0.005000	1.000	0.530
29003120 M	Rabbit, meat	0.000043	1.000	1.000
04013130 4A	Radicchio	0.015000	1.000	1.000
01013140 1AB	Radish, roots	0.005000	1.000	0.330
01013160 1AB	Radish, Oriental, roots	0.005000	1.000	0.330
05023180 5B	Rape greens	0.116000	1.000	1.000
20003190 20	Rapeseed, oil	0.005000	1.000	0.550
20003191 20	Rapeseed, oil-babyfood	0.005000	1.000	0.550
13013200 13A	Raspberry	0.020000	1.000	1.000
13013201 13A	Raspberry-babyfood	0.020000	1.000	1.000
13013210 13A	Raspberry, juice	0.020000	1.000	1.000
13013211 13A	Raspberry, juice-babyfood	0.020000	1.000	1.000
04023220 4B	Rhubarb	0.007000	1.000	1.000
01013270 1AB	Rutabaga	0.005000	1.000	0.330
20003300 20	Safflower, oil	0.005000	1.000	0.150
20003301 20	Safflower, oil-babyfood	0.005000	1.000	0.150
01013310 1AB	Salsify, roots	0.005000	1.000	0.330
26003390 M	Sheep, meat	0.000043	1.000	1.000
26003391 M	Sheep, meat-babyfood	0.000043	1.000	1.000
26003400 M	Sheep, meat byproducts	0.000032	1.000	1.000
26003420 M	Sheep, kidney	0.000032	1.000	1.000
26003430 M	Sheep, liver	0.001800	1.000	1.000
15003440 15	Sorghum, grain	0.005000	1.000	0.090
15003450 15	Sorghum, syrup	0.005000	1.000	0.090
06003470 6	Soybean, seed	0.005000	1.000	0.110
06003480 6	Soybean, flour	0.005000	1.000	0.110
06003481 6	Soybean, flour-babyfood	0.005000	1.000	0.110
06003490 6	Soybean, soy milk	0.005000	1.000	0.110
06003491 6	Soybean, soy milk-babyfood or in	0.005000	1.000	0.110
06003500 6	Soybean, oil	0.005000	1.000	0.110
06003501 6	Soybean, oil-babyfood	0.005000	1.000	0.110
95003520 O	Spearmint	0.094000	1.000	0.090
95003530 O	Spearmint, oil	0.094000	1.000	0.090
04013550 4A	Spinach	0.077000	1.000	1.000
04013551 4A	Spinach-babyfood	0.077000	1.000	1.000
09023560 9B	Squash, summer	0.005000	1.000	0.440
09023561 9B	Squash, summer-babyfood	0.005000	1.000	0.440
09023570 9B	Squash, winter	0.005000	1.000	0.440
09023571 9B	Squash, winter-babyfood	0.005000	1.000	0.440
95003590 O	Strawberry	0.005000	1.000	0.460
95003591 O	Strawberry-babyfood	0.005000	1.000	0.460
95003600 O	Strawberry, juice	0.005000	1.000	0.460
95003601 O	Strawberry, juice-babyfood	0.005000	1.000	0.460
20003640 20	Sunflower, seed	0.005000	1.000	0.250
20003650 20	Sunflower, oil	0.005000	1.000	0.250

Clothianidin		Dietary Exposure and Risk Assessment		DP Number 343102	
		PC Code 044309			
20003651	20	Sunflower, oil-babyfood	0.005000	1.000	0.250
01033660	1CD	Sweet potato	0.046000	1.000	0.330
01033661	1CD	Sweet potato-babyfood	0.046000	1.000	0.330
04023670	4B	Swiss chard	0.007000	1.000	1.000
01033710	1CD	Tanier, corm	0.046000	1.000	0.330
08003740	8	Tomatillo	0.005000	1.000	0.150
08003750	8	Tomato	0.005000	1.000	0.150
08003751	8	Tomato-babyfood	0.005000	1.000	0.150
08003760	8	Tomato, paste	0.005000	5.400	0.150
08003761	8	Tomato, paste-babyfood	0.005000	5.400	0.150
08003770	8	Tomato, puree	0.005000	3.300	0.150
08003771	8	Tomato, puree-babyfood	0.005000	3.300	0.150
08003780	8	Tomato, dried	0.005000	14.300	0.150
08003781	8	Tomato, dried-babyfood	0.005000	14.300	0.150
08003790	8	Tomato, juice	0.005000	1.500	0.150
01033870	1CD	Turmeric	0.046000	1.000	0.330
01013880	1AB	Turnip, roots	0.005000	1.000	0.330
05023890	5B	Turnip, greens	0.116000	1.000	1.000
09013990	9A	Watermelon	0.005000	1.000	0.130
09014000	9A	Watermelon, juice	0.005000	1.000	0.130
15004010	15	Wheat, grain	0.005000	1.000	0.020
15004011	15	Wheat, grain-babyfood	0.005000	1.000	0.020
15004020	15	Wheat, flour	0.005000	1.000	0.020
15004021	15	Wheat, flour-babyfood	0.005000	1.000	0.020
15004030	15	Wheat, germ	0.005000	1.000	0.020
15004040	15	Wheat, bran	0.005000	1.000	0.020
01034060	1CD	Yam, true	0.046000	1.000	0.330
01034070	1CD	Yam bean	0.046000	1.000	0.330

Clothianidin	Dietary Exposure and Risk Assessment PC Code 044309	DP Number 343102
--------------	--	------------------

Attachment 4. Summary of the Acute Dietary Exposure and Risk Estimates for Clothianidin.

US Environmental Protection Agency Version 2.03
 DEEM-FCID ACUTE Analysis for CLOTHIANIDIN (1994-96 and 1998 data)
 Residue file name: ClothianidinDEEM082207(MaxC+MaxT+W) Input.R98
 Adjustment factor #2 was NOT used.
 Analysis date: 8/22/2007 at 14:36:20
 Residue file dated: 8/22/2007 at 14:18:30
 Reference dose (RfD, Acute) = 0.025 mg/kg bw/day
 Daily totals for food and food-form consumption used.
 Run Comment: Acute and Chronic RfDs include a 10X database uncertainty factor

Summary calculations (per capita):

	95th Percentile Exposure	%aPAD	99th Percentile Exposure	%aPAD	99.9th Percentile Exposure	%aPAD
U.S. Population:	0.002813	11.25	0.006601	26.40	0.017957	71.83
All infants:	0.007806	31.22	0.015644	62.57	0.035588	142.35
Children 1-2 yrs:	0.011227	44.91	0.024317	97.27	0.069188	276.75
Children 3-5 yrs:	0.007231	28.93	0.013980	55.92	0.030663	122.65
Children 6-12 yrs:	0.003085	12.34	0.006921	27.69	0.017527	70.11
Youth 13-19 yrs:	0.001403	5.61	0.003217	12.87	0.009103	36.41
Adults 20-49 yrs:	0.001902	7.61	0.004328	17.31	0.007549	30.20
Adults 50+ yrs:	0.002102	8.41	0.004350	17.40	0.007930	31.72
Females 13-49 yrs:	0.001975	7.90	0.004597	18.39	0.008199	32.80

Attachment 5. Summary of the Chronic Dietary Exposure and Risk Estimates for Clothianidin from Clothianidin Application.

US Environmental Protection Agency Version 2.03
 DEEM-FCID CHRONIC analysis for CLOTHIANIDIN (1994-96 and 1998 data)
 Residue file name: ClothianidinDEEM082207 (AverageC+W) Input.R98
 Adjustment factor #2 was NOT used.
 Analysis date: 8/22/2007 at 14:29:49
 Residue file dated: 8/22/2007 at 14:16:00
 Reference dose (RfD, Chronic) = 0.0098 mg/kg bw/day
 Run Comment: Acute and Chronic RfDs include a 10X database uncertainty factor

Total exposure by population subgroup

Population Subgroup	Total Exposure	
	mg/kg body wt/day	Percent of cPAD
U.S. Population (total)	0.000368	3.8%
U.S. Population (spring season)	0.000360	3.7%
U.S. Population (summer season)	0.000374	3.8%
U.S. Population (autumn season)	0.000369	3.8%
U.S. Population (winter season)	0.000368	3.8%
Northeast region	0.000387	3.9%
Midwest region	0.000371	3.8%
Southern region	0.000332	3.4%
Western region	0.000404	4.1%
Hispanics	0.000367	3.7%
Non-hispanic whites	0.000373	3.8%
Non-hispanic blacks	0.000337	3.4%
Non-hisp/non-white/non-black	0.000366	3.7%
All infants (< 1 year)	0.001083	11.0%
Nursing infants	0.000494	5.0%
Non-nursing infants	0.001306	13.3%
Children 1-6 yrs	0.000997	10.2%
Children 7-12 yrs	0.000421	4.3%
Females 13-19 (not preg or nursing)	0.000229	2.3%
Females 20+ (not preg or nursing)	0.000300	3.1%
Females 13-50 yrs	0.000295	3.0%
Females 13+ (preg/not nursing)	0.000268	2.7%
Females 13+ (nursing)	0.000339	3.5%
Males 13-19 yrs	0.000214	2.2%
Males 20+ yrs	0.000264	2.7%
Seniors 55+	0.000305	3.1%
Children 1-2 yrs	0.001315	13.4%
Children 3-5 yrs	0.000921	9.4%
Children 6-12 yrs	0.000447	4.6%
Youth 13-19 yrs	0.000222	2.3%
Adults 20-49 yrs	0.000273	2.8%
Adults 50+ yrs	0.000300	3.1%
Females 13-49 yrs	0.000279	2.9%

Attachment 6. Summary of the Chronic Dietary Exposure and Risk Estimates for Clothianidin from Thiamethoxam Application.

US Environmental Protection Agency Version 2.03
 DEEM-FCID CHRONIC analysis for CLOTHIANIDIN (1994-1996 and 1998 data)
 Residue file: Average Clothianidin from Thiamethoxam.R98
 Adjustment factor #2 was NOT used.
 Analysis date: 7/31/2006
 Residue file dated: 7/31/2006 at 16:15:28
 Reference dose (RfD, Chronic) = 0.0098 mg/kg bw/day
 Run Comment: Acute and Chronic RfDs include a 10X database uncertainty factor

Total exposure by population subgroup

Population Subgroup	Total Exposure	
	mg/kg body wt/day	Percent of cPAD
U.S. Population (total)	0.000105	1.1%
U.S. Population (spring season)	0.000104	1.1%
U.S. Population (summer season)	0.000107	1.1%
U.S. Population (autumn season)	0.000105	1.1%
U.S. Population (winter season)	0.000103	1.1%
Northeast region	0.000101	1.0%
Midwest region	0.000111	1.1%
Southern region	0.000103	1.1%
Western region	0.000103	1.1%
Hispanics	0.000105	1.1%
Non-hispanic whites	0.000103	1.0%
Non-hispanic blacks	0.000112	1.1%
Non-hisp/non-white/non-black	0.000113	1.1%
All infants (< 1 year)	0.000179	1.8%
Nursing infants	0.000094	1.0%
Non-nursing infants	0.000212	2.2%
Children 1-6 yrs	0.000229	2.3%
Children 7-12 yrs	0.000135	1.4%
Females 13-19 (not preg or nursing)	0.000086	0.9%
Females 20+ (not preg or nursing)	0.000081	0.8%
Females 13-50 yrs	0.000085	0.9%
Females 13+ (preg/not nursing)	0.000078	0.8%
Females 13+ (nursing)	0.000091	0.9%
Males 13-19 yrs	0.000105	1.1%
Males 20+ yrs	0.000087	0.9%
Seniors 55+	0.000085	0.9%
Children 1-2 yrs	0.000263	2.7%
Children 3-5 yrs	0.000223	2.3%
Children 6-12 yrs	0.000142	1.5%
Youth 13-19 yrs	0.000095	1.0%
Adults 20-49 yrs	0.000084	0.9%
Adults 50+ yrs	0.000085	0.9%
Females 13-49 yrs	0.000081	0.8%