UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

MEMORANDUM

Date: 23-January-2007

Subject: **Tetraconazole. Dietary Exposure and Risk Assessment.** Application of Tetraconazole to Pecan, Sugar Beet, and Soybean. PC Code: 120603. DP No.: 321637. Decision No.: 359652. Registration No.: 5F6971.

From: Tom Bloem, Chemist
Registration Action Branch 1/Health Effects Division (RAB1/HED; 7509P)

Through: Susan Stanton, Environmental Scientist, Reregistration Action Branch 3/HED
Mohsen Sahafeyan, Chemist, RAB1/HED
Dietary Exposure Science Advisory Committee (DESAC) Secondary Review

George Kramer, Ph.D., Senior Chemist
RAB1/HED (7509P)

To: Mary Clock-Rust, Chemist
RAB1/HED (7509P)

Executive Summary

The residues of concern following application of tetraconazole includes compounds which HED has determined to be toxicologically different from tetraconazole. The current memorandum pertains only to exposure to tetraconazole and those compounds which HED has determined are toxicologically equivalent to tetraconazole (information concerning exposure to the remaining compounds can be found in the HED risk assessment; D331476, M. Clock-Rust *et al.*, in draft).

Acute, chronic, and cancer dietary risk assessments were conducted using the Dietary Exposure Evaluation Model - Food Consumption Intake Database (DEEM-FCID™, ver. 2.03) which incorporates the food consumption data from the USDA's Continuing Surveys of Food Intakes by Individuals (CSFII; 1994-1996 and 1998). These analyses were conducted in support of the proposed application of tetraconazole to soybean (Section 3 Registration), sugar beet (nationwide Section 3 Registration), peanut (Section 3 Registration), and turf (Section 3 Registration). The following paragraphs are summaries of the acute, chronic, and cancer analyses.

Acute: The tier 1 acute analysis (food and water; water estimate derived from the proposed turf application scenario) resulted in exposure estimate for females 13-49 years old less than HED's level of concern (3% aPAD; acute endpoint of concern was not identified for the general

population including infants and children). Since the turf water estimates resulted in an unacceptable cancer risk by themselves (see below) and registration for application of tetraconazole will most likely not be established, the acute analysis was repeated with exclusion of the turf use (water estimate derived from the pecan application scenario is used). The resulting exposure estimate for females 13-49 years old is less than HED's level of concern (<1% aPAD).

Chronic: The chronic analysis (food and water; water estimate derived from the proposed turf application scenario) was refined through the incorporation of empirical processing factors, average field trial residues, and average residues from the feeding studies (100% crop treated assumed). The resulting exposure estimates were less than HED's level of concern (≤76% cPAD; all infants <1 year old were the most highly exposed population subgroup). Since the turf water estimates resulted in an unacceptable cancer risk by themselves (see below) and registration for application of tetraconazole will most likely not be established, the chronic analysis was repeated with exclusion of the turf use (water estimate derived from the pecan application scenario is used). The resulting exposure estimates were less than HED's level of concern (≤10% cPAD; all infants <1 year old were the most highly exposed population subgroup).

Cancer: Using only the water estimates from application to turf, including the turf estimate generated if the use is restricted to golf courses, the cancer risk for the U.S. population was ≥4.3 x 10^{-6} (food residues were not included). Therefore, the water estimates resulting from application to turf were excluded for the analyses discussed below.

A cancer analysis was performed using empirical processing factors, average field trial residues, average residues from the feeding studies, projected percent crop treated estimates, and the water estimate derived from the pecan application scenario (4.97 ppb; 8 x 0.125 lb ai/acre; highest estimate when turf is excluded). The resulting exposures estimates yielded a cancer risk for the U.S. population of 3.1 x 10^{-6}. A complete commodity analysis indicates that drinking water contributes 78% of the total exposure, soybean oil contributes 18of the total exposure, and the remaining food commodities contribute 4% of the total exposure. Excluding the turf and pecan water estimates, the next highest water estimate results from the sugar beet application scenario (3.77 ppb; 2 x 0.10 lb ai/acre). Using the same food residue estimates as that from the previous analysis except for the elimination of pecans, the cancer risk for the U.S. population is 2.5 x 10^{-6}.

I. 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 (i.e., 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 divided by the required 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, web link: http://www.epa.gov/fedrgstr/EPA-PEST/2000/July/Day-12/6061.pdf; or see SOP 99.6 (8/20/99). The most recent dietary risk assessment for tetraconazole was conducted by L. Jones (D314309, 8-Mar-2005; risk assessment document).

II. Residue Information

Residues of Concern in Plants and Livestock: Table 1 is a summary of the residues of concern in plants and livestock (for a complete discussion concerning these conclusions, refer to D331476, M. Clock-Rust *et al.*, in draft). HED has concluded that the toxicological effects resulting from exposure to 1,2,4-triazole (T), triazolyl alanine (TA), triazolyl acetic acid (TAA), triazolyl hydroxypropionic acid (THP), and all labile conjugates of these compounds and M14360(C-1)-alcohol are different from that resulting from exposure to tetraconazole; HED concluded that the toxicity of the remaining metabolites are identical to that of tetraconazole. The current dietary exposure analysis pertains only to exposure to those compounds which HED has concluded are toxicologically similar to tetraconazole (i.e. tetraconazole, M14360-alcohol (free and conjugated), M14360-acid, M14360-DFA, and M14360-hydroxydetriazolyl-O-malonyldiglucoside); Information concerning exposure to the remaining compounds can be found in the HED risk assessment; D331476, M. Clock-Rust *et al.*, in draft).

Table 1. Residues for Tolerance Expression and Risk Assessment

Matrix	Residues included in Risk Assessment	Residues included in Tolerance Expression
Shelled Pea and Bean	tetraconazole and 1,2,4-triazole (T), triazolyl alanine (TA), triazolyl acetic acid (TAA), and all labile conjugates of these compounds	tetraconazole
Remaining Plants	tetraconazole, M14360-alcohol (free and conjugated), M14360-acid, M14360-DFA, M14360-hydroxydetriazolyl-O-malonyldiglucoside, and T, TA, TAA and all labile conjugates of these compounds	tetraconazole
Livestock	tetraconazole, M14360-alcohol (free and conjugated), M14360-acid, M14360-DFA, M14360(C-1)-alcohol (free and conjugated), M14360-hydroxydetriazolyl-O-malonyldiglucoside, and T, TA, THP, and TAA and all labile conjugates of these compounds	tetraconazole
Rotational Crops	tetraconazole, M14360-acid, M14360-DFA, M14360(C-1)-alcohol (free and conjugated), and TA, THP, and TAA and all labile conjugates of these compounds	tetraconazole
Drinking Water	tetraconazole	not applicable

Currently Established Tolerances and HED Recommended Tolerances: Tolerances for residues of tetraconazole *per se* have been established in/on sugar beet (regional registration) and livestock commodities (40 CFR 180.557). A Section 18 soybean (forage and hay may not be fed to livestock) registration has also been granted which resulted in the setting of temporary soybean and poultry tolerances. The petitioner is currently requesting a national sugar beet registration and Section 3 registrations for turf, soybean, pecan, and peanut. HED has reviewed the residue chemistry data submitted in support of these requests and concludes that the tolerances listed in the Table 2, for residues of tetraconazole *per se*, are appropriate (D331594, T. Bloem, 23-Jan-2007; D329379, T. Bloem, 23-Jan-2007; D327489, T. Bloem, 23-Jan-2007).

HED notes that the proposed peanut application scenario prohibits the feeding of peanut hay to livestock and the registered soybean Section 18 and the proposed soybean Section 3 registration prohibit the feeding of soybean forage and hay to livestock. In addition, sugar beet tops are being eliminated as a feed commodity from OPPTS 860.1000 (communication from J. Stokes, HED). Based on the restrictions of the labels and with the elimination of sugar beet tops as a feed commodity, the ruminant dietary burden has been greatly reduced and HED has recommended for the elimination of the currently established milk and cattle, goat, horse, and sheep tolerances in favor of the tolerances listed in Table 2 (D329379, T. Bloem, 23-Jan-2007). In addition, HED notes that the currently established soybean and poultry tolerances were

recommended as part of the soybean Section 18 registration. Since the soybean application scenario approved as part of the Section 18 registration and the soybean application scenario being proposed as part of the Section 3 registration are identical and since HED has performed a complete review of the soybean and poultry magnitude of the residue data as part of the current review, HED concludes that the recommended soybean and poultry tolerances are appropriate (i.e., the poultry and soybean tolerances from Table 2 were used for the current assessment).

Table 2: HED-Recommended Tolerances

Commodity	HED Recommended Tolerance (ppm)
beet sugar, root	0.05
beet, sugar, dried pulp	0.15
beet, sugar, molasses	0.15
peanut	0.03
peanut, oil	0.10
pecan	0.04
soybean, seed	0.15
soybean, refined oil	0.80
aspirated grain fractions	1.0
poultry, meat	0.01
poultry, fat	0.05
poultry meat byproducts	0.01
eggs	0.02
cattle, meat	0.01
cattle, liver	0.20
cattle, fat	0.02
cattle, meat byproducts (except liver)	0.01
milk	0.01
milk, fat	0.25
goat, meat	0.01
goat, liver	0.20
goat, fat	0.02
goat, meat byproducts (except liver)	0.01
hog, meat	0.01
hog, liver	0.05
hog, fat	0.01
hog, meat byproducts (except liver)	0.01
horse, meat	0.01
horse, liver	0.20
horse, fat	0.02
horse, meat byproducts (except liver)	0.01
sheep, meat	0.01
sheep, liver	0.20
sheep, fat	0.02
sheep, meat byproducts (except liver)	0.01

Residue Estimates for the Acute and Chronic Analyses: As stated earlier in the document, HED concluded that the toxicity of T, TA, TAA, THP, and all labile conjugates of these compounds and M14360(C-1)-alcohol are different from that resulting from exposure to tetraconazole. Since the current document is concerned with exposure to compounds which HED has determined are toxicologically similar to tetraconazole, these compounds were not considered.

The petitioner submitted field trial and processing data for tetraconazole *per se*. These data are sufficient for soybean tetraconazole risk assessment; however, the residues of concern for a tetraconazole risk assessment in sugar beet, pecan, and peanut includes tetraconazole, M14360-alcohol (free and conjugated), M14360-acid, M14360-DFA, and M14360-hydroxydetriazolyl-O-malonyldiglucoside. The magnitude of these residues were estimated based on the tetraconazole metabolites to tetraconazole residues ratios from the metabolism studies (sugar beet leaves: 0.06 (0-day preharvest interval (PHI) and 0.32-0.33 (23-35 day PHI); root: 0.26 (23-day PHI); wheat

straw: 0.02; wheat grain - metabolites were not identified; grape metabolism studies only included parent as a reference standard with none of the metabolites identified). HED concludes that the sugar beet root residue ratio is appropriate for the currently proposed crops (sugar beet, peanut, and pecan; these compounds were not identified as residues of concern in soybean seed). Table 4 is a summary of the tetraconazole *per se* residues, estimated residues of the metabolites of concern for a tetraconazole risk assessment, and total residues.

The livestock tolerances are based on residues of tetraconazole *per se* derived from the consumption of fed commodities which contain tetraconazole *per se*; however, as stated above, the residues of concern for a tetraconazole risk assessment in both feed (excluding soybean feed commodities) and livestock are tetraconazole, M14360-alcohol (free and conjugated), M14360-acid, M14360-DFA, and M14360-hydroxydetriazolyl-O-malonyldiglucoside. Therefore, the acute and chronic dietary assessment included livestock residues which were calculated based on dietary burdens which included all of the residues of concern for a tetraconazole risk assessment. This dietary burden was then used to calculate residues in the livestock tissues based on the tetraconazole *per se* transfer coefficients (i.e., assessments assumes that transfer coefficient for the tetraconazole metabolites are identical to tetraconazole). Table 3 is a summary of the dietary burden calculations and Table 5 is a summary of the residue estimates in the livestock commodities. HED notes that if the acute residue estimates for the livestock commodities in Table 5 were <LOQ, LOQ residues were assumed.

Table 3: Livestock Dietary Burden Calculations for Refinement of the Chronic Dietary Analysis

commodity[1]	% diet[1]	% dry matter	residue (ppm)		dietary burden[2]	
			acute	chronic	acute	chronic
beef cattle						
sugar beet dried pulp (R; 70%)	20	88	0.189	0.053	0.043	0.008
sugar beet molasses (CC; 70%)	10	75	0.189	0.071	0.025	0.007
peanut meal (PC; 77%)[3]	15	85	0.063	0.016	--	0.002
soybean seed (PC; 27%)[3]	15	89	0.15	0.046	0.025	--
soybean hull (R; 27%)	20	90	0.15	0.046	0.033	0.003
soybean aspirated grain fractions (CC;	5	85	1.0	0.345	0.059	0.005
total	**70**	--	--	--	**0.186**	**0.025**
dairy cattle						
sugar beet dried pulp (R; 70%)	20	88	0.189	0.053	0.043	0.008
sugar beet molasses (CC; 70%)	10	75	0.189	0.071	0.025	0.007
peanut meal (PC; 77%)[3]	15	85	0.063	0.016	--	0.002
soybean seed (PC; 27%)[3]	15	89	0.15	0.046	0.025	--
soybean hull (R; 27%)	20	90	0.15	0.046	0.033	0.003
total	**80**	--	--	--	**0.127**	**0.020**
poultry						
soybean meal (PC; 27%)	35	--	0.15	0.046	0.052	0.004
soybean hull (R; 27%)	10	--	0.15	0.046	0.015	0.001
total	**45**	--	--	--	**0.068**	**0.006**
hog						
soybean seed (PC; 27%)	25	--	0.15	0.046	0.038	0.003
total	**25**	--	--	--	**0.038**	**0.003**

[1] from revised Table 1; R = roughage, CC = carbohydrate concentrate, PC = protein concentrate; peanut hay and soybean forage and hay are not to be fed to livestock (therefore not included); percentage refers percent crop treated (see attachment 1) which were used in the chronic dietary burden calculations

[2] beef/dairy cattle dietary burden = residue x % diet ÷ % dry matter; poultry/hog dietary burden = residue x % diet; chronic calculations included the percent crop treated estimates

[3] peanut meal was included in the chronic dietary burden calculations instead of soybean seed due to the differences in the % crop treated for peanut and soybean (inclusion of peanut meal results in a higher dietary burden)

Table 4: Food/Feed Residue Estimates for Acute, Chronic, and Cancer Analyses						
matrix	tetraconazole residue (ppm)		factor[1]	total residue[2]		comments
	acute	chronic/ cancer		acute	chronic/ cancer	
soybean (seed, hulls, and meal)	0.15	0.046	--[3]	0.15	0.046	**acute** tetraconazole residue = tolerance residue **chronic** tetraconazole residues = average field trial residue (46614332.der.doc) multiplied by 2x to account for insufficient analytical method (see text above)
soybean oil	0.80	0.212	--[3]	0.80	0.212	**acute** tetraconazole residue = tolerance residue **chronic** tetraconazole residues = average soybean seed field trial residue multiplied by the average processing factor 4.6x (46614320.der.doc) multiplied by 2x to account for insufficient analytical method (see text above)
soybean aspirated grain fractions	1.0	0.345	--[3]	1.0	0.345	**acute** tetraconazole residue = tolerance residue **chronic** tetraconazole residues = average soybean seed field trial residue multiplied by the average processing factor 7.5x (46614320.der.doc) multiplied by 2x to account for insufficient analytical method (see text above)
sugar beet root sugar	0.05	0.002	0.26	0.063	0.0025	**acute** tetraconazole residue = tolerance residue **chronic** tetraconazole residues = average field trial residue multiplied by 0.50 based on reduction in the application rate and side-by-side field trial data multiplied by 0.1x processing factor (D279986, W. Donovan, 17-May-2002; ChemSAC minutes 15-May-2002; D310763, T. Bloem, 24-Nov-2004)
sugar beet molasses	0.15	0.056	0.26	0.189	0.071	**acute** tetraconazole residues = tolerance residue **chronic** tetraconazole residues = average field trial residue multiplied by 0.50 based on reduction in the application rate and side-by-side field trial data and multiplied by 2.8x processing factor (D279986, W. Donovan, 17-May-2002; ChemSAC minutes 15-May-2002; D310763, T. Bloem, 24-Nov-2004)
sugar beet dried pulp	0.15	0.042	0.26	0.189	0.053	**acute** tetraconazole residues = tolerance residue **chronic** tetraconazole residues = average field trial residue multiplied by 0.50 based on reduction in the application rate and side-by-side field trial data and multiplied by 2.1x processing factor (D279986, W. Donovan, 17-May-2002; ChemSAC minutes 15-May-2002; D310763, T. Bloem, 24-Nov-2004)
peanut (mutmeat and meal)	0.03	0.013	0.26	0.038	0.016	**acute** tetraconazole residue = tolerance residue **chronic** tetraconazole residues = average field trial residue (D259231, W. Donovan, 18-May-2000)
peanut oil	0.10	0.043	0.26	0.126	0.055	**acute** tetraconazole residues = tolerance residue **chronic** tetraconazole residues = average peanut field trial residue multiplied by 3.34x processing factor (D259231, W. Donovan, 18-May-2000)
pecan	0.04	0.007	0.26	0.050	0.009	**acute** tetraconazole residue = tolerance residue **chronic** tetraconazole residues = average field trial residue (46037601.der.doc)

[1] factor = residue ratio of non-free triazole tetraconazole metabolites of concern to tetraconazole from the metabolism studies; sugar beet root factor (0.26x) used for all commodities

[2] total residue = residue + (residue)(factor)

[3] the non-free triazole tetraconazole metabolites are not residues of concern in soybean seed

Table 5: Livestock Residues for Acute and Chronic Analysis

matrix	tetraconazole residue from feeding study[1] (ppm)			tetraconazole transfer coeffcients[2]			residue estimates[3]	
	lowest dietary burden	middle dietary burden	highest dietary burden	lowest dietary burden	middle dietary burden	highest dietary burden	acute	chronic
dairy cattle								
milk[4]	<0.003	max = 0.016; avg = 0.006	max = 0.048 avg = 0.019	--	based on max res - 0.016 based on avg res - 0.006	based on max res - 0.014 based on avg res - 0.006	**0.00199**	0.000113
milk fat	milk fat was not analyzed in the feeding studies; since residues in fat were significantly higher than those in muscle from the feeding studies, HED concluded that a 25x concentration factor for milk fat was appropriate (milk fat residue = milk residue x 25)						**0.050**	0.002825
skimmed milk	<0.003	<0.003	max = 0.003 avg = 0.003	--	--	based on max res - 0.0009 based on avg res - 0.0009	**0.000114**	0.000018
cream	max = 0.023 avg = 0.020	max = 0.125 avg = 0.073	max = 0.391 avg = 0.283	based on max res - 0.068 based on avg res - 0.060	based on max res - 0.122 based on avg res - 0.072	based on max res - 0.115 based on avg res - 0.083	0.0156	0.00167
beef cattle/hog								
subcutaneous fat	max = 0.003 avg = 0.003	max = 0.033 avg = 0.029	max = 0.205 avg = 0.109	--	based on max res - 0.032 based on avg res - 0.029	based on max res - 0.060 based on avg res - 0.032	**beef = 0.0112 hog = 0.00229**	beef = 0.000801 hog = 0.000096
peritoneal fat	max = 0.029 avg = 0.016	max = 0.069 avg = 0.051	max = 0.199 avg = 0.114	based on max res - 0.085 based on avg res - 0.046	based on max res - 0.068 based on avg res - 0.050	based on max res - 0.059 based on avg res - 0.033	**beef = 0.0159 hog = 0.00324**	beef = 0.00124 hog = 0.000149
kidney	max = 0.007 avg = 0.005	max = 0.039 avg = 0.024	max = 0.067 avg = 0.055	based on max res - 0.021 based on avg res - 0.016	based on max res - 0.038 based on avg res - 0.024	based on max res - 0.020 based on avg res - 0.016	**beef = 0.00711 hog = 0.00145**	beef = 0.000596 hog = 0.000072
liver	max = 0.371 avg = 0.268	max = 0.662 avg = 0.376	max = 1.636 avg = 1.345	based on max res - 1.091 based on avg res - 0.789	based on max res - 0.649 based on avg res - 0.368	based on max res - 0.481 based on avg res - 0.395	beef = 0.203 **hog = 0.0415**	beef = 0.01973 hog = 0.00237
muscle	<0.003	max = 0.006 avg = 0.005	max = 0.015 avg = 0.011	--	based on max res - 0.006 based on avg res - 0.005	based on max res - 0.004 based on avg res - 0.003	**beef = 0.00109 hog = 0.000224**	beef = 0.000114 hog = 0.000014
poultry								
liver	max = 0.011 avg = 0.010	max = 0.029 avg = 0.026	max = 0.081 avg = 0.073	based on max res - 0.159 based on avg res - 0.145	based on max res - 0.120 based on avg res - 0.108	based on max res - 0.113 based on avg res - 0.102	0.0108	0.00087
kidney	<0.01	<0.01	max = 0.049 avg = 0.040	--	--	based on max res - 0.069 based on avg res - 0.056	**0.00467**	0.000336
skeletal muscle	<0.01	<0.01	max = 0.021 avg = 0.021	--	--	based on max res - 0.029 based on avg res - 0.029	**0.00200**	0.000176
abdominal fat	max = 0.045 avg = 0.038	max = 0.140 avg = 0.115	max = 0.456 avg = 0.387	based on max res - 0.652 based on avg res - 0.551	based on max res - 0.581 based on avg res - 0.477	based on max res - 0.639 based on avg res - 0.542	**0.0443**	0.003304
skin and subcutaneous fat	max = 0.019 avg = 0.015	max = 0.044 avg = 0.041	max = 0.181 avg = 0.164	based on max res - 0.275 based on avg res - 0.217	based on max res - 0.183 based on avg res - 0.170	based on max res - 0.253 based on avg res - 0.230	0.0187	0.001378
eggs[5]	max = 0.011 avg = 0.008	max = 0.034 avg = 0.025	max = 0.135 avg = 0.089	based on max res - 0.159 based on avg res - 0.116	based on max res - 0.141 based on avg res - 0.104	based on max res - 0.189 based on avg res - 0.125	**0.0129**	0.000748

[1] ruminant feeding study - D254411, W. Donovan, 18 May-2000 (dietary burdens of 0.34 ppm, 1.02 ppm, and 3.4 ppm); poultry feeding study -46614307.der.wpd (dietary burdens of 0.069 ppm, 0.241 ppm, and 0.714 ppm)

[2] transfer coefficient = tetraconazole residue ÷ dietary burden; for the acute analysis the residues in bold were <tolerance therefore defaulted to the tolerance

[3] residue estimate = dietary burden x transfer coefficient; the highest transfer coefficient derived from a dosing level which resulted in quantifiable residues was used

[4] residues in milk peaked on the third day of dosing; therefore, the average residue is for all samples collected on day 3 and after

[5] residues in egg peaked on the tenth day of dosing; therefore, the average residue is for all samples collected on day 10 and after

III. Drinking Water Data

EFED provided modeled ground (Screening Concentration In Ground Water (SCIGROW)) and surface (Pesticide Root Zone Model (PRZM 3.12) and Exposure Analysis Modeling System (EXAMS 2.98.04)) water concentrations for tetraconazole *per se* (EFED memorandum prepared by I. Maher, December-2006). Table 6 is a summary of the estimates provided by EFED. The water estimates were incorporated directly into the dietary exposure analysis via the water sources direct (all sources) and indirect (all sources) commodities. The water models and their description are available at the EPA internet site: http://www.epa.gov/ oppefed1/models/water/.

Table 6: Summary of Ground and Surface Water Modeled Water Estimates

crop	state and application method modeled	ppb (µg/l)		
		peak	yearly	30-year annual average
ground water				
sugar beet		0.36		
turf		10.0		
peanut		0.72		
soybean		0.27		
pecan		1.79		
surface water				
sugar beet	Minnesota; aerial spray[1]	7.22	4.97	3.77
	Minnesota; ground spray[1]	6.33	4.40	3.20
	California; aerial spray[1]	2.12	1.43	1.30
	California; ground spray[1]	0.86	0.59	0.52
peanut	North Carolina; aerial spray[2]	10.36	4.03	3.02
	North Carolina; ground spray[2]	10.02	3.83	2.78
soybean	Mississippi; aerial spray[3]	1.29	0.59	0.47
	Mississippi; ground spray[3]	1.18	0.56	0.42
pecan	Georgia; aerial spray[4]	20.01	7.26	4.97
	Georgia; ground spray[4]	19.46	6.79	4.41
turf	Pennsylvania; aerial spray	118.00	77.13	59.90
	Pennsylvania; ground spray	87.40	57.55	41.03
	Florida; aerial spray	77.52	44.74	36.94
	Florida; ground spray	57.70	33.77	25.97
golf course turf	Pennsylvania; aerial spray[5]	40.12	26.22	20.37
	Pennsylvania; ground spray[5]	29.72	19.57	13.95
	Florida; aerial spray[5]	26.36	15.21	12.56
	Florida; ground spray[5]	19.62	11.48	8.83

[1] EXAMS EEC multiplied by 0.87 to account for percent of basin cropped (assumes 100% of the crop treated)
[2] EXAMS EEC multiplied by 0.67 to account for percent of basin cropped (assumes 100% of the crop treated)
[3] EXAMS EEC multiplied by 0.41 to account for percent of basin cropped (assumes 100% of the crop treated)
[4] EXAMS EEC multiplied by 0.85 to account for percent of basin cropped (assumes 100% of the crop treated)
[5] EXAMS EEC multiplied by 0.34 to account for percent of basin cropped (assumes 100% of the crop treated)

IV. DEEM-FCID™ Program and Consumption Information

Acute and chronic dietary exposure assessments were conducted using DEEM-FCID™ (ver. 2.03) which incorporates consumption data from USDA's CSFII, 1994-1996 and 1998. The 1994-96, 98 data are based on the reported consumption of more than 20,000 individuals over two non-consecutive survey days. Foods "as consumed" (e.g., apple pie) are linked to EPA-defined food commodities (e.g. apples, peeled fruit - cooked; fresh or N/S; baked; or wheat flour - cooked; fresh or N/S, 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 U.S. population and within population subgroups, but for acute exposure assessment are retained as individual consumption events. Based on analysis of the 1994-96, 98 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 U.S. 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 (e.g., orange or orange juice) on the food commodity residue list is multiplied by the average daily consumption estimate for that food/food form to produce a residue intake estimate. The resulting residue intake estimate for each food/food form is summed with the residue intake 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 (i.e., only those who reported eating relevant commodities/food forms) and a per-capita (i.e., 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, any significant differences in user vs. per capita exposure and risk are specifically identified and noted in the risk assessment.

V. Toxicological Information

The HED Hazard Identification Assessment Review Committee (HIARC) met on 14-September-1999 (HED Doc. No. 013765) and 13-May-2004 (TXR No. 0052657) to select endpoints for risk assessment and to evaluate the potential for increased susceptibility of infants and children from exposure to tetraconazole (evaluated according to the February 2002 OPP 10X guidance document). The HED Cancer Assessment Review Committee met on 10-November-1999 and classified tetraconazole as a likely human carcinogen (HED Doc. No. 013948).

The HIARC, based on toxicological considerations recommended for a 1x FQPA. Based on toxicological considerations (evaluated by HIARC) and the residue assumptions used in the dietary analyses (evaluated by the reviewer), it was concluded that the FQPA Safety Factor should be reduced to 1x when assessing dietary exposures. Table 7 summarizes the endpoints used for dietary exposure assessment.

Table 7: Summary of Toxicological Doses and Endpoints for Tetraconazle Dietary Exposure Assessment[1]

Exposure Scenario	Dose Used in Risk Assessment, UF	FQPA SF* and Dose for Risk Assessment	Study and Toxicological Effects
Acute Dietary - general population (including infants and children)	None	N/A	No endpoint attributable to a single exposure was identified. This risk assessment is not required.
Acute Dietary - Females 13-50 years of age	NOAEL = 22.5 mg/kg/day UF = 100 **aRfD** = 0.225 mg/kg/day	FQPA SF = 1X **aPAD** = aRfD ÷ FQPA SF = 0.225 mg/kg	Oral developmental toxicity study - rat Developmental NOAEL = 22.5 mg/kg/day, based on increased incidence of small fetuses, and supernumerary ribs.
Chronic Dietary - all populations	NOAEL= 0.73 mg/kg/day UF =100 **cRfD** = 0.0073 mg/kg/day	FQPA SF = 1 **cPAD** = cRfD ÷ FQPA SF cPAD = 0.0073 mg/kg/day	Chronic oral toxicity - dog Systemic Toxicity LOAEL = 2.95/3.33 (M/F) mg/kg/day, based on absolute and relative kidney weights and histopathological changes in the male kidney.
Cancer	Classification: "likely to be carcinogenic to humans" $Q_1^* = 2.30 \times 10^{-2}$, based on male mouse liver benign and/or malignant combined tumor rates.		

[1] NOAEL = No Observed Adverse Effect Level; LOAEL = Lowest Observed Adverse Effect Level; UF = Uncertainty Factor; RfD = Reference Dose; PAD = Chronic Population Adusted Dose = RfD ÷ FQPA SF

VI. Results/Discussion & Conclusions

Acute: The tier 1 acute analysis (food and water (turf application scenario; 4 x 1.4 lb ai/acre)) resulted in exposure estimate for females 13-49 years old of 3% aPAD (see Table 8; acute endpoint of concern was not identified for the general population including infants and children). If the turf use is excluded (water estimate derived from the pecan application scenario is used; 8 x 0.125 lb ai/acre), the resulting exposure estimate for females 13-49 years old is <1% aPAD (see Table 9).

Chronic: The tier 2 chronic analysis (food and water (turf application scenario; 4 x 1.4 lb ai/acre)) incorporated average field trial residues and average residues from the feeding studies (100% crop treated assumed). The resulting chronic exposures estimates were ≤76% cPAD (all infants <1 year old were the most highly exposed population subgroup; Table 8). If the turf use is excluded (water estimate derived from the pecan application scenario is used; 8 x 0.125 lb ai/acre), the resulting exposure estimates are ≤10% cPAD (all infants <1 year old were the most highly exposed population subgroup; Table 9)

Cancer: Using only the drinking water concentrations resulting from application to turf (food residue excluded), the cancer risk for the U.S. population was $\geq 4.3 \times 10^{-6}$ (Table 10). Therefore, the water estimates resulting from application to turf were excluded for analyses discussed below.

The tier 2 chronic analysis (food and water) incorporated empirical processing factors, average field trial residues, average residues form the feeding studies, projected percent crop treated estimates, and the water estimate derived from the pecan application scenario (4.97 ppb; 8 x 0.125 lb ai/acre; highest estimate when turf is excluded). The resulting exposures estimates yielded a cancer risk for the U.S. population of 3.1×10^{-6} (Table 11). A complete commodity analysis indicates that drinking water contributes 78% of the total exposure, soybean oil contributes 18% of the total exposure, and the remaining food commodities contribute 4% of the total exposure (see attachment 12).

Excluding the turf and pecan water estimates, the next highest water estimate results from the sugar beet application scenario (3.77 ppb; 2 x 0.10 lb ai/acre). Using the same food residue estimates as that from the previous analysis except for the elimination of pecans, the cancer risk for the U.S. population is 2.5×10^{-6} (Table 10).

Table 8: Summary of the Acute and Chronic Dietary Exposure and Risk (all commodities; drinking water included)						
Population	aPAD (mg/kg/day)	Exposure (mg/kg/day)[1]	%aPAD	cPAD (mg/kg/day)	Exposure (mg/kg/day)	%cPAD
General U.S. Population	no acute endpoint identified for these population subgroups			0.073	0.001724	24
All Infants (< 1 year old)					0.005564	76
Children 1-2 years old					0.002629	36
Children 3-5 years old					0.002480	34
Children 6-12 years old					0.001717	24
Youth 13-19 years old					0.001276	18
Adults 20-49 years old					0.001597	22
Adults 50+ years old					0.001660	23
Females 13-49 years old	0.225	0.006168	2.7		0.001587	22

[1] 95th percentile (tier 1 analysis)

Table 9: Summary of the Acute and Chronic Dietary Exposure and Risk (all commodities excluding turf; drinking water included)						
Population	aPAD (mg/kg/day)	Exposure (mg/kg/day)[1]	%aPAD	cPAD (mg/kg/day)	Exposure (mg/kg/day)	%cPAD
General U.S. Population	no acute endpoint identified for these population subgroups			0.073	0.000252	3.4
All Infants (< 1 year old)					0.000735	10.1
Children 1-2 years old					0.000442	6.0
Children 3-5 years old					0.000432	5.9
Children 6-12 years old					0.000305	4.2
Youth 13-19 years old					0.000212	2.9
Adults 20-49 years old					0.000222	3.0
Adults 50+ years old					0.000213	2.9
Females 13-49 years old	0.225	0.001603	<1		0.000218	3.0

[1] 95th percentile (tier 1 analysis)

Table 10: Summary of the Cancer Dietary Exposure and Risk Resulting from Application of Tetraconazole to Turf (only water concentrations resulting from the turf application included; no food)			
Included Commodities	Exposure (mg/kg/day)[1]	Q_1^*	Cancer risk
59.90 (PA aerial spray turf)	0.001263	0.023	2.9×10^{-5}
41.03 (PA ground spray turf)	0.000865		2.0×10^{-5}
36.94 (FL aerial spray turf)	0.000779		1.8×10^{-5}
25.97 (FL ground spray turf)	0.000547		1.3×10^{-5}
20.37 (PA aerial spray golf course turf)	0.000429		9.9×10^{-6}
13.95 (PA ground spray gold course turf)	0.000294		6.8×10^{-6}
12.56 (FL aerial spray golf course turf)	0.000265		6.1×10^{-6}
8.83 (FL ground spray golf course turf)	0.000186		4.3×10^{-6}

[1] exposure for the general U.S. population; HED performs cancer analyses for only the general U.S. population

Table 11: Summary of the Cancer Dietary Exposure and Risk Resulting from all Registered/Proposed Uses Excluding Turf				
Scenario	Population[1]	Exposure (mg/kg/day)	Q_1^*	Cancer risk
all crops excluding turf	general U.S. population	0.000134	0.023	3.09×10^{-6}
all crops excluding turf and pecan	general U.S. population	0.000109		2.50×10^{-6}

[1] exposure for the general U.S. population; HED performs cancer analyses for only the general U.S. population

VII. Characterization of Inputs/Outputs

The acute analysis could be refined through the incorporation of maximum or highest average field trial residues, percent crop treated estimates, and/or monitoring data. The chronic/cancer analyses incorporated average field trial residues, average residues from the feeding studies, and/or projected percent crop treated information and could be refined through the incorporation of monitoring data. A complete commodity analysis conducted for the general U.S. population cancer assessment (all proposed/registered uses excluding turf) indicates that water (78% of the total exposure) and soybean oil (18% of the total exposure) are the major contributors.

VIII. Conclusions

With inclusion of all the proposed/registered uses (including turf), the acute (3% of the aPAD) and chronic (≤76% of the cPAD) exposure estimates are less than HED's level of concern. Cancer analyses were performed using only the turf water estimates and resulted in cancer risks greater than HED's level of concern (≥4.3×10^{-6}). With exclusion of the turf water estimates and inclusion of all the remaining proposed/registered uses, the cancer risk was 3.1×10^{-6}. With the exclusion of the turf and pecan uses, the cancer risk was 2.5×10^{-6}.

Attachment 1: BEAD percent crop treated information
Attachment 2: DEEM-FCID™ acute exposure estimates (all commodities)
Attachment 3: DEEM-FCID™ acute exposure estimates (all commodities excluding turf)
Attachment 4: DEEM-FCID™ acute residue file
Attachment 5: DEEM-FCID™ chronic exposure estimates (all commodities)
Attachment 6: DEEM-FCID™ chronic exposure estimates (all commodities excluding turf)
Attachment 7: DEEM-FCID™ chronic residue file
Attachment 8: DEEM-FCID™ cancer exposure estimates (all commodities excluding turf)
Attachment 9: DEEM-FCID™ cancer residue file will commodities excluding turf
Attachment 10: DEEM-FCID™ cancer exposure (all commodities excluding pecan and turf)
Attachment 11: DEEM-FCID™ cancer residue file (all commodities excluding pecan and turf)
Attachment 12: Complete Commodity Analysis of Cancer Analysis Performed with all Crops Excluding Turf.

CC with all attachments: Mary Waller/Lisa Jones, RM 21 (RD; 7505P)
T. Bloem:S10945:PY:(703)605-0217:7509P

Attachment 1: BEAD percent crop treated information

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

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Projected Percent Crop Treated for the Fungicide Tetraconazole on Three Crops: Peanuts, Soybeans, and Sugar Beets.

FROM: Jihad Alsadek, Economist
Science Information & Analysis Branch
Biological and Economic Analysis Division (7503P)

Richard Michell, Plant Pathologist
Biological Analysis Branch
Biological and Economic Analysis Division (7503P)

TO: Mary Waller, Product Manager
Fungicide Branch
Registration Division (7505P)

THRU: Diann Sims, Chief
Science Information Analysis Branch
Biological and Economic Analysis Division (7503P)

Arnet Jones, Chief
Biological Analysis Branch
Biological and Economic Analysis Division (7503P)

PRP Review: November 29, 2006

I. SUMMARY

This memorandum provides projected percent crop treated (PPCT) values for tetraconazole on three crops (peanuts, soybeans, and sugar beets), as well as the corresponding Federal Register (FR) language. The methodology used to produce the estimates is outlined below, along with the analysis of additional biological information that could impact the assessments. The market leader approach is only used with peanuts; other approaches are used with soybeans and sugar beets. The registrant Isa Gro input and expert opinions are used for soybeans, and the sugar beet regional value is adjusted for a national one. We have examined all the relevant data and conclude that it is unlikely that the actual percent crop treated (PCT) values for tetraconazole on peanuts, soybeans and sugar beets in the next five years will exceed the PPCTs provided for tetraconazole on these three crops. Numbers to be used in risk analysis are shown in table 1.

Table 1. Values to be used in Risk Assessment

Crop	Chronic	Acute
Peanuts	77	88
Soybeans	27	38
Sugar Beets	70	70

II. FR LANGUAGE

EPA estimates projected percent crop treated (PPCT) for a new pesticide use by assuming that the percent crop treated (PCT) during the pesticide's initial five years of use on a specific use site will not exceed the average PCT of the market leader (i.e., the one with the greatest PCT) on that site.

Typically, EPA uses USDA/NASS as the primary source for PCT data. When a specific use site is not surveyed by USDA/NASS, EPA uses other sources including proprietary data and calculates the PCT. Comparisons are only made among pesticides of the same pesticide types (i.e., the leading fungicide on the use site is selected for comparison with the new fungicide). The PCTs included in the average may be for the same pesticide, or for different pesticides, since the same, or different pesticides, may dominate for each year selected. This PPCT, based on the average PCT of the market leader, is appropriate for use in chronic dietary risk assessment. The method of estimating a PPCT for a new use of a registered pesticide or a new pesticide produces a high-end estimate that is unlikely, in most cases, to be exceeded during the initial five years of actual use.

The predominant factors that bear on whether the estimated PPCT could be exceeded are whether new pesticide use or new pesticide is more efficacious or controls a broader spectrum of pests than the dominant pesticide; and/or whether there are concerns with pest pressures as indicated in emergency exemption requests or other readily available information; and/or other factor based on analysis of additional information, such as the total crop acreage and the geographical distribution of the crops and pests.

All information currently available for the predominant factors mentioned above or relevant to the case in question have been considered for this chemical, and it is the opinion of BEAD that it is unlikely that actual PCT for tetraconazole will exceed the PPCT during the next five years.

III. PROJECTIONS BASED ON MARKET LEADER APPROACH

The PPCTs for peanuts are calculated by averaging the PCTs of the leading fungicide(s) for the three most recent available years. The PPCT for sugar beets showed a 55 percent use of tetraconazole as the market leader for the year 2000, but 2000 USDA/NASS data for the market leader tetraconazole is registered on sugar beets in seven states (Colorado, Michigan, Minnesota, Montana, Nebraska, North Dakota, and Wyoming). NASS data are adjusted to get the acres treated in each of the seven states, summing them up, then dividing by the sum of the planted acres in these same states, and multiplying by 100 to get, on average, market leader for sugar beets to be used in chronic dietary risk assessment and acute risk too.

The PPCTs for soybeans were based on a modified approach which is described in the following subsection (Modified PPCT Approach for Soybeans).

Table 2. Projected Tetraconazole PCT Values for Dietary Risk Assessments

Crop	Market Leaders[i]	Average[ii] Market Leader	Maximum[iii] Market Leader	Years
Peanuts	Chlorothalonil	77	88	1991, 1999, 2004
Soybeans	Unknown, but projected to be a triazole and/or strobilurin fungicide	27	38	Future projection for next 5 years
Sugar Beets	Tetraconazole	70	70	Adjusted for year 2000

Sources: Based on 1991 to 2004 NASS usage data for peanuts and sugar beets. Crop Specialists' usage projections were used for soybeans.

[l] Market leaders could be the same chemical for all three years or could be different for each year.

[b] Averaging the available years.

[c] The highest observed percent crop treated of the available survey years.

IV. Modified PPCT Approach for Soybeans

Due to the recent discovery of a new and important disease on soybeans, Asian soybean rust, historical information was not considered useful for estimating a useful PCT for a fungicide market leader on soybeans. Another approach was utilized which involved obtaining PCT estimates for future market leaders from soybean crop specialists. The estimates were obtained via a phone call and four list server responses enlisted by USDA. The five crop specialists' PCT estimates for a market leader ranged from 10 to 38 percent. For a conservative estimate we utilized only the maximum projected values provided by each respondent, which ranged from 15 to 38 percent. These values translated into average and maximum PPCT values of 27 and 38 percent, respectively.

The most common factors used by the crop specialists to project the market leader PCT were: weather patterns; prevailing winds; length of time crop is in a growth stage that will lead to yield losses, if infection occurs during this period; cost-effectiveness of treatments; and market supply/availability limitations. Some of the specific examples provided to support their estimates were:

a) About 21% of the total soybean acreage is in areas where the prevailing winds and temperature and humidity are generally unfavorable for soybean rust infection (e.g., KS, ND, NE, SD).

b) About 16% of the total soybean acreage doesn't have the yield potential to justify the cost of a soybean rust fungicide treatment.

c) In most years 40% of the soybean acreage is considered to possess a high risk for soybean rust infection (e.g., IL, IN, OH, AR, eastern MO).

d) Pesticide distributors are more likely to carry stock of those soybean rust fungicides that have other labeled uses relevant to area growers (e.g., wheat and corn uses in Midwestern states). Note: The only alternate crop uses for tetraconazole are sugar beets and peanuts, which are not prevalent crops in most soybean production areas.

V. ADDITIONAL FACTORS

Table 3. Biological Analysis of BEAD's Projected Percent Crop Treated (PPCT) for Tetraconazole on Three New Crops

NEW USES [AVG. /MAX. PPCT]	RECENT MARKET LEADER(S) [SAMPLE YEARS]	JUSTIFICATION/COMMENTS	WILL TETRACONAZOLE EXCEED THE PCT LEVELS OF MARKET LEADER(S)?
Sugar Beets – cercospora leaf spot, powdery mildew [70/70]	tetraconazole [2000]	Tetraconazole is the current market leader (55%), and was previously only registered for use in 7 sugar beet producing states (CO, MI, MN, MT, NE, ND, WY); based on the 2006 acreage planted, the addition of 4 states (CA, ID, OR, WA) increases the potential acreage to be treated by about 18 percent; if all the planted acreage in these 4 additional states are treated it could bring the PPCT up to about 77%; based upon the pest information provided in the USDA Crop Profiles it is not likely that more than 70% of the planted acreage will be treated in any of the 4 additional states, because the reported total fungicide usage for these target pests is less than 70%	No
Soybeans – Asian soybean rust, cercospora, frog eye, white mold, powdery mildew, septoria, anthracnose [27/38]	Not applicable	These values seem to be reasonable estimates for the future market leader(s) when the following factors are considered: 1] at least 11 active ingredients are currently available and competing for the Asian soybean rust control market on the approximately 75 million acres grown; 2] treatments are only warranted when weather conditions conducive to disease development occur during the soybean bloom and/or pod fill stages; 3] in any given year the probability of a national epidemic which results in the need for most of the US acreage grown in the 31 soybean producing states being treated is low, because it would be dependent upon the widespread occurrence of unusual weather patterns during the critical crop growth stages; 4] The proposed labeling allows for up to two applications per year, which if it occurs will reduce stocks and therefore reduce the total acreage capable of being treated; Some of the crop specialists projected that up to 30 - 40% of the acreage in their state may be treated twice. 5] the registrant stated that only one tetraconazole product will be marketed for the soybean use because the chemical is still under patent, which	No, plus the likelihood of an epidemic although uncertain is thought to be low

NEW USES [AVG. /MAX. PPCT]	RECENT MARKET LEADER(S) [SAMPLE YEARS]	JUSTIFICATION/COMMENTS	WILL TETRACONAZOLE EXCEED THE PCT LEVELS OF MARKET LEADER(S)?
		would appear to limit the amount likely to be available throughout the US due to supply limitations and surplus stock concerns if an epidemic does not occur; 6] The registrant (Isa Gro), per a personal phone call on November 16, 2006, stated that although they projected they might be able to treat as much as 5.38% of the crop if an epidemic occurred; they felt it would be impossible to supply enough tetraconazole to treat 10% of the crop anytime within the next 5 years. 7] Since the disease organism is not considered cold-hardy, each growing season the disease must start its northward movement from Mexico and/or extreme southern United States locations. Accordingly, the northward disease spread each year and the specific states impacted is dependent upon wind speed and direction during humid and moderate temperature weather. 8] EPA has approved a wide range of active ingredients and products that can be available to growers. This effort was initiated because of national concern that the supply of fungicides would not be adequate in the case of a soybean rust epidemic. This involved granting numerous states permission to use seven active ingredients via Section 18 quarantine emergency exemptions, in addition to the four active ingredients already available via Section 3 registrations. 9] Based on yields obtained in recent soybean rust efficacy studies conducted in the US and other countries the triazole and strobilurin fungicide classes generally seem to be the most efficacious groups of fungicides to use (Fungicide & Nematicide Tests – Special Section on Asian Soybean Rust Reports; http://www.apsnet.org/online/FNtests/). Most crop specialists predict combinations of these two types of fungicides will be used by many growers. 10] Since the competing fungicide tebuconazole is reportedly among the least expensive fungicides, as well as one of the most effective triazole fungicides, it is generally considered by crop specialists to be the triazole fungicide of choice.	

NEW USES [AVG. /MAX. PPCT]	RECENT MARKET LEADER(S) [SAMPLE YEARS]	JUSTIFICATION/COMMENTS	WILL TETRACONAZOLE EXCEED THE PCT LEVELS OF MARKET LEADER(S)?
		Since there are multiple products (alone and in combinations with other fungicides) being sold by different companies reasonable stocks are expected to be available in most soybean production areas. 11] Crop specialists projected that the maximum US soybean acreage to be treated with a fungicide, if an epidemic occurred, would range from 35-65 percent (average = 54%). Therefore if one of the eleven active ingredients available were able to attain a 50% market share this would only result in a maximum of 32.5% of the crop being treated with any one fungicide. BEAD contends that this level of market share is rarely achieved when a number of competitive active ingredients are available.	
Peanuts – early leaf spot, late leaf spot, web blotch, rust [77/88]	chlorothalonil [1991, 1999, 2004]	The market leader chlorothalonil is typically inexpensive and is used mainly for control of the same pests that are claimed on the proposed tetraconazole label plus the common and important disease white mold (southern stem rot); chlorothalonil is alternated with various systemic fungicides to delay the development of resistant pest strains; the introduction of the systemic fungicide tetraconazole will not likely affect chlorothalonil's current usage, but it is expected to share the existing systemic fungicide market	No

VI. **CONCLUSIONS/RECOMMENDATIONS**

BEAD recommends that the given average PPCTs be used in the chronic dietary risk assessment for tetraconazole, and the maximum PPCTs for acute risk assessment. BEAD has considered all relevant information and believes it is unlikely that the above PPCTs will be exceeded during the next five years for peanuts, soybeans, and sugar beets.

VII. References:

Typically, EPA uses USDA/NASS as the source for raw PCT data because it is publicly available and does not have to be calculated from available data sources. When a specific use site is not surveyed by USDA/NASS, EPA uses proprietary data and calculates the estimated PCT.

Agricultural Chemical Usage, 1990 Field Crops Summary, May 1991
Agricultural Chemical Usage, 1998 Field Crops Summary, May 1999
Agricultural Chemical Usage, 1999 Field Crops Summary, May 2000
Agricultural Chemical Usage, 2004 Field Crops Summary, May 2005
USDA, 1999, Crop Profile for Sugar Beet in California. http://www.ipmcenters.org/cropprofiles/docs/casugarbeets.html
USDA, 2000. Crop Profile for Sugar Beet in Idaho. http://www.ipmcenters.org/cropprofiles/docs/IDsugarbeets.html
USDA, 1999, Crop Profile for Sugar Beet in Oregon. http://www.ipmcenters.org/cropprofiles/docs/orsugarbeets.html

USDA, 2001, Crop Profile for Sugar Beet in Washington. http://www.ipmcenters.org/cropprofiles/docs/WAsugarbeets.html

Attachment 2: DEEM-FCID™ acute exposure estimates (all commodities)

```
U.S. Environmental Protection Agency                                    Ver. 2.02
DEEM-FCID ACUTE Analysis for TETRACONAZOLE                          (1994-98 data)
Residue file: 120603a.R98                          Adjustment factor #2 NOT used.
Analysis Date: 12-07-2006/12:55:44    Residue file dated: 12-07-2006/12:54:51/8
Daily totals for food and foodform consumption used.
Run Comment: "acute for females 13-50 only FQPA SF = 1x (acute and chronic)"
================================================================================

Summary calculations (per capita):

                    95th Percentile      99th Percentile      99.9th Percentile
                   Exposure   % aRfD    Exposure   % aRfD    Exposure   % aRfD
                  ---------- --------  ---------- --------  ---------- -------
Females 13+ (preg/not nursing):
                    0.006467     2.87    0.007195     3.20    0.009582    4.26
Females 13+ (nursing):
                    0.007715     3.43    0.011025     4.90    0.013018    5.79
Females 13-19 (not preg or nursing):
                    0.005535     2.46    0.008239     3.66    0.013633    6.06
Females 20+ (not preg or nursing):
                    0.006025     2.68    0.009208     4.09    0.016783    7.46
Females 13-50 yrs:
                    0.006169     2.74    0.009939     4.42    0.016864    7.50
Females 13-49 yrs:
                    0.006168     2.74    0.010060     4.47    0.016826    7.48
```

Attachment 3: DEEM-FCID™ acute exposure estimates (all commodities excluding turf)

```
U.S. Environmental Protection Agency                                    Ver. 2.02
DEEM-FCID ACUTE Analysis for TETRACONAZOLE                          (1994-98 data)
Residue file: 120603a all commodities excluding turf.R98
Adjustment factor #2 NOT used.
Analysis Date: 01-08-2007/14:43:01    Residue file dated: 01-08-2007/14:36:36/8
Daily totals for food and foodform consumption used.
Run Comment: "acute for females 13-50 only FQPA SF = 1x (acute and chronic)"
================================================================================

Summary calculations (per capita):

                    95th Percentile      99th Percentile      99.9th Percentile
                   Exposure   % aRfD    Exposure   % aRfD    Exposure   % aRfD
                  ---------- --------  ---------- --------  ---------- --------
Females 13+ (preg/not nursing):
                    0.002093     0.93    0.002353     1.05    0.002403     1.07
Females 13+ (nursing):
                    0.002123     0.94    0.002901     1.29    0.002978     1.32
Females 13-19 (not preg or nursing):
                    0.001517     0.67    0.001959     0.87    0.002788     1.24
Females 20+ (not preg or nursing):
                    0.001483     0.66    0.002108     0.94    0.003257     1.45
Females 13-50 yrs:
                    0.001599     0.71    0.002223     0.99    0.003279     1.46
Females 13-49 yrs:
                    0.001603     0.71    0.002228     0.99    0.003275     1.46
```

Attachment 4: DEEM-FCID™ acute residue file

```
Filename: C:\Documents and Settings\tbloem\tetraconazole\120603a.R98
Chemical: tetraconazole
RfD(Chronic): .0073 mg/kg bw/day  NOEL(Chronic): 0 mg/kg bw/day
RfD(Acute): .225 mg/kg bw/day  NOEL(Acute):  0 mg/kg bw/day Q*= .023
Date created/last modified: 12-07-2006/12:20:49/8          Program ver. 2.03
Comment: acute for females 13-50 only FQPA SF = 1x (acute and chronic)
```

EPA Code	Crop Grp	Commodity Name	Def Res (ppm)	Adj.Factors #1	#2	Comment
95002630	O	Peanut	0.038000	1.000	1.000	
95002640	O	Peanut, butter	0.038000	1.890	1.000	
95002650	O	Peanut, oil	0.126000	1.000	1.000	
86010000	O	Water, direct, all sources	0.118000	1.000	1.000	
86020000	O	Water, indirect, all sources	0.118000	1.000	1.000	
21000440	M	Beef, meat	0.010000	1.000	1.000	
21000441	M	Beef, meat-babyfood	0.010000	1.000	1.000	
21000450	M	Beef, meat, dried	0.010000	1.920	1.000	
21000460	M	Beef, meat byproducts	0.010000	1.000	1.000	
21000461	M	Beef, meat byproducts-babyfood	0.010000	1.000	1.000	
21000470	M	Beef, fat	0.020000	1.000	1.000	
21000471	M	Beef,fat-babyfood	0.020000	1.000	1.000	
21000480	M	Beef, kidney	0.010000	1.000	1.000	
21000490	M	Beef, liver	0.203000	1.000	1.000	
21000491	M	Beef, liver-babyfood	0.203000	1.000	1.000	
23001690	M	Goat, meat	0.010000	1.000	1.000	
23001700	M	Goat, meat byproducts	0.010000	1.000	1.000	
23001710	M	Goat, fat	0.020000	1.000	1.000	
23001720	M	Goat, kidney	0.010000	1.000	1.000	
23001730	M	Goat, liver	0.203000	1.000	1.000	
24001890	M	Horse, meat	0.010000	1.000	1.000	
28002210	M	Meat, game	0.010000	1.000	1.000	
25002900	M	Pork, meat	0.010000	1.000	1.000	
25002901	M	Pork, meat-babyfood	0.010000	1.000	1.000	
25002910	M	Pork, skin	0.010000	1.000	1.000	
25002920	M	Pork, meat byproducts	0.010000	1.000	1.000	
25002921	M	Pork, meat byproducts-babyfood	0.010000	1.000	1.000	
25002930	M	Pork, fat	0.010000	1.000	1.000	
25002931	M	Pork, fat-babyfood	0.010000	1.000	1.000	
25002940	M	Pork, kidney	0.010000	1.000	1.000	
25002950	M	Pork, liver	0.050000	1.000	1.000	
29003120	M	Rabbit, meat	0.010000	1.000	1.000	
26003390	M	Sheep, meat	0.010000	1.000	1.000	
26003391	M	Sheep, meat-babyfood	0.010000	1.000	1.000	
26003400	M	Sheep, meat byproducts	0.010000	1.000	1.000	
26003410	M	Sheep, fat	0.020000	1.000	1.000	
26003411	M	Sheep, fat-babyfood	0.020000	1.000	1.000	
26003420	M	Sheep, kidney	0.010000	1.000	1.000	
26003430	M	Sheep, liver	0.203000	1.000	1.000	
40000930	P	Chicken, meat	0.010000	1.000	1.000	
40000931	P	Chicken, meat-babyfood	0.010000	1.000	1.000	
40000940	P	Chicken, liver	0.010800	1.000	1.000	
40000950	P	Chicken, meat byproducts	0.010000	1.000	1.000	
40000951	P	Chicken, meat byproducts-babyfoo	0.010000	1.000	1.000	

40000960	P	Chicken, fat	0.050000	1.000	1.000
40000961	P	Chicken, fat-babyfood	0.050000	1.000	1.000
40000970	P	Chicken, skin	0.018700	1.000	1.000
40000971	P	Chicken, skin-babyfood	0.018700	1.000	1.000
70001450	P	Egg, whole	0.020000	1.000	1.000
70001451	P	Egg, whole-babyfood	0.020000	1.000	1.000
70001460	P	Egg, white	0.020000	1.000	1.000
70001461	P	Egg, white (solids)-babyfood	0.020000	1.000	1.000
70001470	P	Egg, yolk	0.020000	1.000	1.000
70001471	P	Egg, yolk-babyfood	0.020000	1.000	1.000
60003010	P	Poultry, other, meat	0.010000	1.000	1.000
60003020	P	Poultry, other, liver	0.010800	1.000	1.000
60003030	P	Poultry, other, meat byproducts	0.010000	1.000	1.000
60003040	P	Poultry, other, fat	0.050000	1.000	1.000
60003050	P	Poultry, other, skin	0.018700	1.000	1.000
50003820	P	Turkey, meat	0.010000	1.000	1.000
50003821	P	Turkey, meat-babyfood	0.010000	1.000	1.000
50003830	P	Turkey, liver	0.010800	1.000	1.000
50003831	P	Turkey, liver-babyfood	0.010800	1.000	1.000
50003840	P	Turkey, meat byproducts	0.010000	1.000	1.000
50003841	P	Turkey, meat byproducts-babyfood	0.010000	1.000	1.000
50003850	P	Turkey, fat	0.050000	1.000	1.000
50003851	P	Turkey, fat-babyfood	0.050000	1.000	1.000
50003860	P	Turkey, skin	0.018700	1.000	1.000
50003861	P	Turkey, skin-babyfood	0.018700	1.000	1.000
27002220	D	Milk, fat	0.250000	1.000	1.000
27002221	D	Milk, fat - baby food/infant for	0.250000	1.000	1.000
27012230	D	Milk, nonfat solids	0.010000	1.000	1.000
27012231	D	Milk, nonfat solids-baby food/in	0.010000	1.000	1.000
27022240	D	Milk, water	0.010000	1.000	1.000
27022241	D	Milk, water-babyfood/infant form	0.010000	1.000	1.000
27032251	D	Milk, sugar (lactose)-baby food/	0.010000	1.000	1.000
01010520	1A	Beet, sugar	0.063000	1.000	1.000
01010521	1A	Beet, sugar-babyfood	0.063000	1.000	1.000
01010530	1A	Beet, sugar, molasses	0.189000	1.000	1.000
01010531	1A	Beet, sugar, molasses-babyfood	0.189000	1.000	1.000
06003470	6	Soybean, seed	0.150000	1.000	1.000
06003480	6	Soybean, flour	0.150000	1.000	1.000
06003481	6	Soybean, flour-babyfood	0.150000	1.000	1.000
06003490	6	Soybean, soy milk	0.150000	1.000	1.000
06003491	6	Soybean, soy milk-babyfood or in	0.150000	1.000	1.000
06003500	6	Soybean, oil	0.800000	1.000	1.000
06003501	6	Soybean, oil-babyfood	0.800000	1.000	1.000
14002690	14	Pecan	0.050000	1.000	1.000

Attachment 5: DEEM-FCID™ chronic exposure estimates (all commodities)

U.S. Environmental Protection Agency Ver. 2.00
DEEM-FCID Chronic analysis for TETRACONAZOLE (1994-98 data)
Residue file name: C:\Documents and Settings\tbloem\tetraconazole\120603c.R98
Adjustment factor #2 used.
Analysis Date 12-11-2006/12:39:33 Residue file dated: 12-11-2006/12:32:37/8
Reference dose (RfD, Chronic) = .0073 mg/kg bw/day
COMMENT 1: acute for females 13-50 only FQPA SF = 1x (acute and chronic)

Total exposure by population subgroup

Population Subgroup	Total Exposure mg/kg body wt/day	Total Exposure Percent of Rfd
U.S. Population (total)	0.001724	23.6%
U.S. Population (spring season)	0.001711	23.4%
U.S. Population (summer season)	0.001842	25.2%
U.S. Population (autumn season)	0.001670	22.9%
U.S. Population (winter season)	0.001672	22.9%
Northeast region	0.001575	21.6%
Midwest region	0.001748	23.9%
Southern region	0.001643	22.5%
Western region	0.001962	26.9%
Hispanics	0.001946	26.7%
Non-hispanic whites	0.001683	23.1%
Non-hispanic blacks	0.001649	22.6%
Non-hisp/non-white/non-black	0.002095	28.7%
All infants (< 1 year)	0.005564	76.2%
Nursing infants	0.002054	28.1%
Non-nursing infants	0.006896	94.5%
Children 1-6 yrs	0.002485	34.0%
Children 7-12 yrs	0.001628	22.3%
Females 13-19 (not preg or nursing)	0.001232	16.9%
Females 20+ (not preg or nursing)	0.001690	23.1%
Females 13-50 yrs	0.001653	22.6%
Females 13+ (preg/not nursing)	0.001672	22.9%
Females 13+ (nursing)	0.002340	32.1%
Males 13-19 yrs	0.001310	17.9%
Males 20+ yrs	0.001537	21.0%
Seniors 55+	0.001658	22.7%
Children 1-2 yrs	0.002629	36.0%
Children 3-5 yrs	0.002480	34.0%
Children 6-12 yrs	0.001717	23.5%
Youth 13-19 yrs	0.001276	17.5%
Adults 20-49 yrs	0.001597	21.9%
Adults 50+ yrs	0.001660	22.7%
Females 13-49 yrs	0.001587	21.7%

Attachment 6: DEEM-FCID™ chronic exposure estimates (all commodities excluding turf)

```
U.S. Environmental Protection Agency                                    Ver. 2.00
DEEM-FCID Chronic analysis for TETRACONAZOLE                        (1994-98 data)
Residue file name: C:\Documents and Settings\tbloem\tetraconazole\120603c all
commodities excluding turf.R98                              Adjustment factor #2
used.
Analysis Date 01-08-2007/14:44:43     Residue file dated: 01-08-2007/14:37:28/8
Reference dose (RfD, Chronic) = .0073 mg/kg bw/day
COMMENT 1: acute for females 13-50 only FQPA SF = 1x (acute and chronic)
```

Total exposure by population subgroup

Population Subgroup	Total Exposure mg/kg body wt/day	Total Exposure Percent of Rfd
U.S. Population (total)	0.000252	3.4%
U.S. Population (spring season)	0.000251	3.4%
U.S. Population (summer season)	0.000260	3.6%
U.S. Population (autumn season)	0.000246	3.4%
U.S. Population (winter season)	0.000249	3.4%
Northeast region	0.000232	3.2%
Midwest region	0.000259	3.5%
Southern region	0.000243	3.3%
Western region	0.000274	3.8%
Hispanics	0.000274	3.8%
Non-hispanic whites	0.000246	3.4%
Non-hispanic blacks	0.000251	3.4%
Non-hisp/non-white/non-black	0.000289	4.0%
All infants (< 1 year)	0.000735	10.1%
Nursing infants	0.000263	3.6%
Non-nursing infants	0.000915	12.5%
Children 1-6 yrs	0.000427	5.9%
Children 7-12 yrs	0.000290	4.0%
Females 13-19 (not preg or nursing)	0.000196	2.7%
Females 20+ (not preg or nursing)	0.000220	3.0%
Females 13-50 yrs	0.000228	3.1%
Females 13+ (preg/not nursing)	0.000240	3.3%
Females 13+ (nursing)	0.000300	4.1%
Males 13-19 yrs	0.000226	3.1%
Males 20+ yrs	0.000217	3.0%
Seniors 55+	0.000212	2.9%
Children 1-2 yrs	0.000442	6.0%
Children 3-5 yrs	0.000432	5.9%
Children 6-12 yrs	0.000305	4.2%
Youth 13-19 yrs	0.000212	2.9%
Adults 20-49 yrs	0.000222	3.0%
Adults 50+ yrs	0.000213	2.9%

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Females 13-49 yrs                              0.000218                3.0%
-------------------------------------------------------------------------------
```

Attachment 7: DEEM-FCID™ chronic residue file

```
Filename: C:\Documents and Settings\tbloem\tetraconazole\120603c.R98
Chemical: tetraconazole
RfD(Chronic): .0073 mg/kg bw/day  NOEL(Chronic): 0 mg/kg bw/day
RfD(Acute): .225 mg/kg bw/day  NOEL(Acute):  0 mg/kg bw/day Q*= .023
Date created/last modified: 12-11-2006/12:32:37/8          Program ver. 2.03
Comment: acute for females 13-50 only FQPA SF = 1x (acute and chronic)
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```

EPA Code	Crop Grp	Commodity Name	Def Res (ppm)	Adj.Factors #1	#2	Comment
95002630	O	Peanut	0.016000	1.000	1.000	
95002640	O	Peanut, butter	0.016000	1.890	1.000	
95002650	O	Peanut, oil	0.055000	1.000	1.000	
86010000	O	Water, direct, all sources	0.077130	1.000	1.000	
86020000	O	Water, indirect, all sources	0.077130	1.000	1.000	
21000440	M	Beef, meat	0.000114	1.000	1.000	
21000441	M	Beef, meat-babyfood	0.000114	1.000	1.000	
21000450	M	Beef, meat, dried	0.000114	1.920	1.000	
21000460	M	Beef, meat byproducts	0.000596	1.000	1.000	
21000461	M	Beef, meat byproducts-babyfood	0.000596	1.000	1.000	
21000470	M	Beef, fat	0.001240	1.000	1.000	
21000471	M	Beef,fat-babyfood	0.001240	1.000	1.000	
21000480	M	Beef, kidney	0.000596	1.000	1.000	
21000490	M	Beef, liver	0.019730	1.000	1.000	
21000491	M	Beef, liver-babyfood	0.019730	1.000	1.000	
23001690	M	Goat, meat	0.000114	1.000	1.000	
23001700	M	Goat, meat byproducts	0.000596	1.000	1.000	
23001710	M	Goat, fat	0.001240	1.000	1.000	
23001720	M	Goat, kidney	0.000596	1.000	1.000	
23001730	M	Goat, liver	0.019730	1.000	1.000	
24001890	M	Horse, meat	0.000114	1.000	1.000	
28002210	M	Meat, game	0.000114	1.000	1.000	
25002900	M	Pork, meat	0.000014	1.000	1.000	
25002901	M	Pork, meat-babyfood	0.000014	1.000	1.000	
25002910	M	Pork, skin	0.000149	1.000	1.000	
25002920	M	Pork, meat byproducts	0.000072	1.000	1.000	
25002921	M	Pork, meat byproducts-babyfood	0.000072	1.000	1.000	
25002930	M	Pork, fat	0.000149	1.000	1.000	
25002931	M	Pork, fat-babyfood	0.000149	1.000	1.000	
25002940	M	Pork, kidney	0.000072	1.000	1.000	
25002950	M	Pork, liver	0.002370	1.000	1.000	
29003120	M	Rabbit, meat	0.000114	1.000	1.000	
26003390	M	Sheep, meat	0.000114	1.000	1.000	
26003391	M	Sheep, meat-babyfood	0.000114	1.000	1.000	
26003400	M	Sheep, meat byproducts	0.000596	1.000	1.000	
26003410	M	Sheep, fat	0.001240	1.000	1.000	
26003411	M	Sheep, fat-babyfood	0.001240	1.000	1.000	
26003420	M	Sheep, kidney	0.000596	1.000	1.000	
26003430	M	Sheep, liver	0.019730	1.000	1.000	
40000930	P	Chicken, meat	0.000176	1.000	1.000	
40000931	P	Chicken, meat-babyfood	0.000176	1.000	1.000	
40000940	P	Chicken, liver	0.000870	1.000	1.000	
40000950	P	Chicken, meat byproducts	0.000336	1.000	1.000	

40000951	P	Chicken, meat byproducts-babyfoo	0.000336	1.000	1.000
40000960	P	Chicken, fat	0.003304	1.000	1.000
40000961	P	Chicken, fat-babyfood	0.003304	1.000	1.000
40000970	P	Chicken, skin	0.001378	1.000	1.000
40000971	P	Chicken, skin-babyfood	0.001378	1.000	1.000
70001450	P	Egg, whole	0.000748	1.000	1.000
70001451	P	Egg, whole-babyfood	0.000748	1.000	1.000
70001460	P	Egg, white	0.000748	1.000	1.000
70001461	P	Egg, white (solids)-babyfood	0.000748	1.000	1.000
70001470	P	Egg, yolk	0.000748	1.000	1.000
70001471	P	Egg, yolk-babyfood	0.000748	1.000	1.000
60003010	P	Poultry, other, meat	0.000176	1.000	1.000
60003020	P	Poultry, other, liver	0.000870	1.000	1.000
60003030	P	Poultry, other, meat byproducts	0.000336	1.000	1.000
60003040	P	Poultry, other, fat	0.003304	1.000	1.000
60003050	P	Poultry, other, skin	0.001378	1.000	1.000
50003820	P	Turkey, meat	0.000176	1.000	1.000
50003821	P	Turkey, meat-babyfood	0.000176	1.000	1.000
50003830	P	Turkey, liver	0.000870	1.000	1.000
50003831	P	Turkey, liver-babyfood	0.000870	1.000	1.000
50003840	P	Turkey, meat byproducts	0.000336	1.000	1.000
50003841	P	Turkey, meat byproducts-babyfood	0.000336	1.000	1.000
50003850	P	Turkey, fat	0.003304	1.000	1.000
50003851	P	Turkey, fat-babyfood	0.003304	1.000	1.000
50003860	P	Turkey, skin	0.001378	1.000	1.000
50003861	P	Turkey, skin-babyfood	0.001378	1.000	1.000
27002220	D	Milk, fat	0.002825	1.000	1.000
27002221	D	Milk, fat - baby food/infant for	0.002825	1.000	1.000
27012230	D	Milk, nonfat solids	0.000113	1.000	1.000
27012231	D	Milk, nonfat solids-baby food/in	0.000113	1.000	1.000
27022240	D	Milk, water	0.000113	1.000	1.000
27022241	D	Milk, water-babyfood/infant form	0.000113	1.000	1.000
27032251	D	Milk, sugar (lactose)-baby food/	0.000113	1.000	1.000
01010520	1A	Beet, sugar	0.002500	1.000	1.000
01010521	1A	Beet, sugar-babyfood	0.002500	1.000	1.000
01010530	1A	Beet, sugar, molasses	0.071000	1.000	1.000
01010531	1A	Beet, sugar, molasses-babyfood	0.071000	1.000	1.000
06003470	6	Soybean, seed	0.046000	1.000	1.000
06003480	6	Soybean, flour	0.046000	1.000	1.000
06003481	6	Soybean, flour-babyfood	0.046000	1.000	1.000
06003490	6	Soybean, soy milk	0.046000	1.000	1.000
06003491	6	Soybean, soy milk-babyfood or in	0.046000	1.000	1.000
06003500	6	Soybean, oil	0.212000	1.000	1.000
06003501	6	Soybean, oil-babyfood	0.212000	1.000	1.000
14002690	14	Pecan	0.009000	1.000	1.000

Attachment 8: DEEM-FCID™ cancer exposure estimates (all commodities excluding turf)

```
U.S. Environmental Protection Agency                                    Ver. 2.00
DEEM-FCID Chronic analysis for TETRACONAZOLE                        (1994-98 data)
Residue file name: C:\Documents and Settings\tbloem\tetraconazole\120603cancer
without turf.R98
                                                    Adjustment factor #2 used.
Analysis Date 12-12-2006/15:06:28     Residue file dated: 12-12-2006/15:04:57/8
Q* = 0.023
COMMENT 1: acute for females 13-50 only FQPA SF = 1x (acute and chronic)
================================================================================
                    Total exposure by population subgroup
--------------------------------------------------------------------------------

                                                 Total Exposure
                                          ----------------------------------
          Population                          mg/kg         Lifetime risk
           Subgroup                        body wt/day       (Q*= .023)
-----------------------------------   -------------     -------------
U.S. Population (total)                     0.000134         3.09E-06
--------------------------------------------------------------------------------
```

Attachment 9: DEEM-FCID™ cancer residue file (all commodities excluding turf)

```
Filename: C:\Documents and Settings\tbloem\tetraconazole\120603cancer without
turf.R98
Chemical: tetraconazole
RfD(Chronic): .0073 mg/kg bw/day  NOEL(Chronic): 0 mg/kg bw/day
RfD(Acute): .225 mg/kg bw/day  NOEL(Acute):  0 mg/kg bw/day Q*= .023
Date created/last modified: 12-12-2006/14:06:38/8          Program ver. 2.03
Comment: acute for females 13-50 only FQPA SF = 1x (acute and chronic)
```

EPA Code	Crop Grp	Commodity Name	Def Res (ppm)	Adj.Factors #1	#2	Comment
95002630	O	Peanut	0.016000	1.000	0.770	
95002640	O	Peanut, butter	0.016000	1.890	0.770	
95002650	O	Peanut, oil	0.055000	1.000	0.770	
86010000	O	Water, direct, all sources	0.004970	1.000	1.000	
86020000	O	Water, indirect, all sources	0.004970	1.000	1.000	
21000440	M	Beef, meat	0.000114	1.000	1.000	
21000441	M	Beef, meat-babyfood	0.000114	1.000	1.000	
21000450	M	Beef, meat, dried	0.000114	1.920	1.000	
21000460	M	Beef, meat byproducts	0.000596	1.000	1.000	
21000461	M	Beef, meat byproducts-babyfood	0.000596	1.000	1.000	
21000470	M	Beef, fat	0.001240	1.000	1.000	
21000471	M	Beef,fat-babyfood	0.001240	1.000	1.000	
21000480	M	Beef, kidney	0.000596	1.000	1.000	
21000490	M	Beef, liver	0.019730	1.000	1.000	
21000491	M	Beef, liver-babyfood	0.019730	1.000	1.000	
23001690	M	Goat, meat	0.000114	1.000	1.000	
23001700	M	Goat, meat byproducts	0.000596	1.000	1.000	
23001710	M	Goat, fat	0.001240	1.000	1.000	
23001720	M	Goat, kidney	0.000596	1.000	1.000	
23001730	M	Goat, liver	0.019730	1.000	1.000	
24001890	M	Horse, meat	0.000114	1.000	1.000	
28002210	M	Meat, game	0.000114	1.000	1.000	
25002900	M	Pork, meat	0.000014	1.000	1.000	
25002901	M	Pork, meat-babyfood	0.000014	1.000	1.000	
25002910	M	Pork, skin	0.000149	1.000	1.000	
25002920	M	Pork, meat byproducts	0.000072	1.000	1.000	
25002921	M	Pork, meat byproducts-babyfood	0.000072	1.000	1.000	
25002930	M	Pork, fat	0.000149	1.000	1.000	
25002931	M	Pork, fat-babyfood	0.000149	1.000	1.000	
25002940	M	Pork, kidney	0.000072	1.000	1.000	
25002950	M	Pork, liver	0.002370	1.000	1.000	
29003120	M	Rabbit, meat	0.000114	1.000	1.000	
26003390	M	Sheep, meat	0.000114	1.000	1.000	
26003391	M	Sheep, meat-babyfood	0.000114	1.000	1.000	
26003400	M	Sheep, meat byproducts	0.000596	1.000	1.000	
26003410	M	Sheep, fat	0.001240	1.000	1.000	
26003411	M	Sheep, fat-babyfood	0.001240	1.000	1.000	
26003420	M	Sheep, kidney	0.000596	1.000	1.000	
26003430	M	Sheep, liver	0.019730	1.000	1.000	
40000930	P	Chicken, meat	0.000176	1.000	1.000	
40000931	P	Chicken, meat-babyfood	0.000176	1.000	1.000	
40000940	P	Chicken, liver	0.000870	1.000	1.000	
40000950	P	Chicken, meat byproducts	0.000336	1.000	1.000	

40000951	P	Chicken, meat byproducts-babyfoo	0.000336	1.000	1.000
40000960	P	Chicken, fat	0.003304	1.000	1.000
40000961	P	Chicken, fat-babyfood	0.003304	1.000	1.000
40000970	P	Chicken, skin	0.001378	1.000	1.000
40000971	P	Chicken, skin-babyfood	0.001378	1.000	1.000
70001450	P	Egg, whole	0.000748	1.000	1.000
70001451	P	Egg, whole-babyfood	0.000748	1.000	1.000
70001460	P	Egg, white	0.000748	1.000	1.000
70001461	P	Egg, white (solids)-babyfood	0.000748	1.000	1.000
70001470	P	Egg, yolk	0.000748	1.000	1.000
70001471	P	Egg, yolk-babyfood	0.000748	1.000	1.000
60003010	P	Poultry, other, meat	0.000176	1.000	1.000
60003020	P	Poultry, other, liver	0.000870	1.000	1.000
60003030	P	Poultry, other, meat byproducts	0.000336	1.000	1.000
60003040	P	Poultry, other, fat	0.003304	1.000	1.000
60003050	P	Poultry, other, skin	0.001378	1.000	1.000
50003820	P	Turkey, meat	0.000176	1.000	1.000
50003821	P	Turkey, meat-babyfood	0.000176	1.000	1.000
50003830	P	Turkey, liver	0.000870	1.000	1.000
50003831	P	Turkey, liver-babyfood	0.000870	1.000	1.000
50003840	P	Turkey, meat byproducts	0.000336	1.000	1.000
50003841	P	Turkey, meat byproducts-babyfood	0.000336	1.000	1.000
50003850	P	Turkey, fat	0.003304	1.000	1.000
50003851	P	Turkey, fat-babyfood	0.003304	1.000	1.000
50003860	P	Turkey, skin	0.001378	1.000	1.000
50003861	P	Turkey, skin-babyfood	0.001378	1.000	1.000
27002220	D	Milk, fat	0.002825	1.000	1.000
27002221	D	Milk, fat - baby food/infant for	0.002825	1.000	1.000
27012230	D	Milk, nonfat solids	0.000113	1.000	1.000
27012231	D	Milk, nonfat solids-baby food/in	0.000113	1.000	1.000
27022240	D	Milk, water	0.000018	1.000	1.000
27022241	D	Milk, water-babyfood/infant form	0.000018	1.000	1.000
27032251	D	Milk, sugar (lactose)-baby food/	0.000113	1.000	1.000
01010520	1A	Beet, sugar	0.002500	1.000	0.700
01010521	1A	Beet, sugar-babyfood	0.002500	1.000	0.700
01010530	1A	Beet, sugar, molasses	0.071000	1.000	0.700
01010531	1A	Beet, sugar, molasses-babyfood	0.071000	1.000	0.700
06003470	6	Soybean, seed	0.046000	1.000	0.270
06003480	6	Soybean, flour	0.046000	1.000	0.270
06003481	6	Soybean, flour-babyfood	0.046000	1.000	0.270
06003490	6	Soybean, soy milk	0.046000	1.000	0.270
06003491	6	Soybean, soy milk-babyfood or in	0.046000	1.000	0.270
06003500	6	Soybean, oil	0.212000	1.000	0.270
06003501	6	Soybean, oil-babyfood	0.212000	1.000	0.270
14002690	14	Pecan	0.009000	1.000	1.000

Attachment 10: DEEM-FCID™ cancer exposure estimates (all commodities excluding pecan and turf)

U.S. Environmental Protection Agency Ver. 2.00
DEEM-FCID Chronic analysis for TETRACONAZOLE (1994-98 data)
Residue file name: C:\Documents and Settings\tbloem\tetraconazole\120603cancer without pecan and turf.R98
Adjustment factor #2 used.
Analysis Date 12-12-2006/15:07:05 Residue file dated: 12-12-2006/15:05:51/8
Q* = 0.023
COMMENT 1: acute for females 13-50 only FQPA SF = 1x (acute and chronic)

Total exposure by population subgroup

Population Subgroup	Total Exposure mg/kg body wt/day	Total Exposure Lifetime risk (Q*= .023)
U.S. Population (total)	0.000109	2.50E-06

Attachment 11: DEEM-FCID™ cancer residue file (all commodities excluding pecan and turf)

```
Filename: C:\Documents and Settings\tbloem\tetraconazole\120603cancer without
pecan and turf.R98
Chemical: tetraconazole
RfD(Chronic): .0073 mg/kg bw/day  NOEL(Chronic): 0 mg/kg bw/day
RfD(Acute): .225 mg/kg bw/day  NOEL(Acute):  0 mg/kg bw/day Q*= .023
Date created/last modified: 12-11-2006/12:36:02/8          Program ver. 2.03
Comment: acute for females 13-50 only FQPA SF = 1x (acute and chronic)
```

EPA Code	Crop Grp	Commodity Name	Def Res (ppm)	Adj.Factors #1	#2	Comment
95002630	O	Peanut	0.016000	1.000	0.770	
95002640	O	Peanut, butter	0.016000	1.890	0.770	
95002650	O	Peanut, oil	0.055000	1.000	0.770	
86010000	O	Water, direct, all sources	0.003770	1.000	1.000	
86020000	O	Water, indirect, all sources	0.003770	1.000	1.000	
21000440	M	Beef, meat	0.000114	1.000	1.000	
21000441	M	Beef, meat-babyfood	0.000114	1.000	1.000	
21000450	M	Beef, meat, dried	0.000114	1.920	1.000	
21000460	M	Beef, meat byproducts	0.000596	1.000	1.000	
21000461	M	Beef, meat byproducts-babyfood	0.000596	1.000	1.000	
21000470	M	Beef, fat	0.001240	1.000	1.000	
21000471	M	Beef,fat-babyfood	0.001240	1.000	1.000	
21000480	M	Beef, kidney	0.000596	1.000	1.000	
21000490	M	Beef, liver	0.019730	1.000	1.000	
21000491	M	Beef, liver-babyfood	0.019730	1.000	1.000	
23001690	M	Goat, meat	0.000114	1.000	1.000	
23001700	M	Goat, meat byproducts	0.000596	1.000	1.000	
23001710	M	Goat, fat	0.001240	1.000	1.000	
23001720	M	Goat, kidney	0.000596	1.000	1.000	
23001730	M	Goat, liver	0.019730	1.000	1.000	
24001890	M	Horse, meat	0.000114	1.000	1.000	
28002210	M	Meat, game	0.000114	1.000	1.000	
25002900	M	Pork, meat	0.000014	1.000	1.000	
25002901	M	Pork, meat-babyfood	0.000014	1.000	1.000	
25002910	M	Pork, skin	0.000149	1.000	1.000	
25002920	M	Pork, meat byproducts	0.000072	1.000	1.000	
25002921	M	Pork, meat byproducts-babyfood	0.000072	1.000	1.000	
25002930	M	Pork, fat	0.000149	1.000	1.000	
25002931	M	Pork, fat-babyfood	0.000149	1.000	1.000	
25002940	M	Pork, kidney	0.000072	1.000	1.000	
25002950	M	Pork, liver	0.002370	1.000	1.000	
29003120	M	Rabbit, meat	0.000114	1.000	1.000	
26003390	M	Sheep, meat	0.000114	1.000	1.000	
26003391	M	Sheep, meat-babyfood	0.000114	1.000	1.000	
26003400	M	Sheep, meat byproducts	0.000596	1.000	1.000	
26003410	M	Sheep, fat	0.001240	1.000	1.000	
26003411	M	Sheep, fat-babyfood	0.001240	1.000	1.000	
26003420	M	Sheep, kidney	0.000596	1.000	1.000	
26003430	M	Sheep, liver	0.019730	1.000	1.000	
40000930	P	Chicken, meat	0.000176	1.000	1.000	
40000931	P	Chicken, meat-babyfood	0.000176	1.000	1.000	
40000940	P	Chicken, liver	0.000870	1.000	1.000	

40000950	P	Chicken, meat byproducts	0.000336	1.000	1.000
40000951	P	Chicken, meat byproducts-babyfoo	0.000336	1.000	1.000
40000960	P	Chicken, fat	0.003304	1.000	1.000
40000961	P	Chicken, fat-babyfood	0.003304	1.000	1.000
40000970	P	Chicken, skin	0.001378	1.000	1.000
40000971	P	Chicken, skin-babyfood	0.001378	1.000	1.000
70001450	P	Egg, whole	0.000748	1.000	1.000
70001451	P	Egg, whole-babyfood	0.000748	1.000	1.000
70001460	P	Egg, white	0.000748	1.000	1.000
70001461	P	Egg, white (solids)-babyfood	0.000748	1.000	1.000
70001470	P	Egg, yolk	0.000748	1.000	1.000
70001471	P	Egg, yolk-babyfood	0.000748	1.000	1.000
60003010	P	Poultry, other, meat	0.000176	1.000	1.000
60003020	P	Poultry, other, liver	0.000870	1.000	1.000
60003030	P	Poultry, other, meat byproducts	0.000336	1.000	1.000
60003040	P	Poultry, other, fat	0.003304	1.000	1.000
60003050	P	Poultry, other, skin	0.001378	1.000	1.000
50003820	P	Turkey, meat	0.000176	1.000	1.000
50003821	P	Turkey, meat-babyfood	0.000176	1.000	1.000
50003830	P	Turkey, liver	0.000870	1.000	1.000
50003831	P	Turkey, liver-babyfood	0.000870	1.000	1.000
50003840	P	Turkey, meat byproducts	0.000336	1.000	1.000
50003841	P	Turkey, meat byproducts-babyfood	0.000336	1.000	1.000
50003850	P	Turkey, fat	0.003304	1.000	1.000
50003851	P	Turkey, fat-babyfood	0.003304	1.000	1.000
50003860	P	Turkey, skin	0.001378	1.000	1.000
50003861	P	Turkey, skin-babyfood	0.001378	1.000	1.000
27002220	D	Milk, fat	0.002825	1.000	1.000
27002221	D	Milk, fat - baby food/infant for	0.002825	1.000	1.000
27012230	D	Milk, nonfat solids	0.000113	1.000	1.000
27012231	D	Milk, nonfat solids-baby food/in	0.000113	1.000	1.000
27022240	D	Milk, water	0.000018	1.000	1.000
27022241	D	Milk, water-babyfood/infant form	0.000018	1.000	1.000
27032251	D	Milk, sugar (lactose)-baby food/	0.000113	1.000	1.000
01010520	1A	Beet, sugar	0.002500	1.000	0.700
01010521	1A	Beet, sugar-babyfood	0.002500	1.000	0.700
01010530	1A	Beet, sugar, molasses	0.071000	1.000	0.700
01010531	1A	Beet, sugar, molasses-babyfood	0.071000	1.000	0.700
06003470	6	Soybean, seed	0.046000	1.000	0.270
06003480	6	Soybean, flour	0.046000	1.000	0.270
06003481	6	Soybean, flour-babyfood	0.046000	1.000	0.270
06003490	6	Soybean, soy milk	0.046000	1.000	0.270
06003491	6	Soybean, soy milk-babyfood or in	0.046000	1.000	0.270
06003500	6	Soybean, oil	0.212000	1.000	0.270
06003501	6	Soybean, oil-babyfood	0.212000	1.000	0.270

Attachment 12: Complete Commodity Analysis of Cancer Analysis Performed with all Crops Excluding Turf.

```
U.S. Environmental Protection Agency                                    Ver. 2.00
DEEM-FCID Chronic analysis for TETRACONAZOLE                        (1994-98 data)
Residue file name: C:\Documents and Settings\tbloem\tetraconazole\120603cancer
without turf.R98
                                                      Adjustment factor #2 used.
Analysis Date 12-12-2006/15:06:41     Residue file dated: 12-12-2006/15:04:57/8
Q* = 0.023
COMMENT 1: acute for females 13-50 only FQPA SF = 1x (acute and chronic)
================================================================================
                 Complete commodity contribution analysis for
                            U.S. Population (total)
--------------------------------------------------------------------------------

Crop Group = (O)  Other
                                                          Exposure analysis
                                                      -------------------------
                                 Residue   Adjustment      mg/kg    Lifetime risk
       Food name                  (ppm)      Factors    body wt/day (Q*= .023)
---------------------------- ---------- ------------ ----------- -------------
Peanut (95002630):
   FoodForm N/S                0.016000   1.000  0.770   0.0000002      5.48E-09
Peanut, butter (95002640):
   FoodForm N/S                0.016000   1.890  0.770   0.0000012      2.69E-08
Peanut, oil (95002650):
   FoodForm N/S                0.055000   1.000  0.770   0.0000001      1.81E-09
Water, direct, all sources (86010000):
   FoodForm N/S                0.004970   1.000  1.000   0.0000603      1.39E-06
Water, indirect, all sources (86020000):
   FoodForm N/S                0.004970   1.000  1.000   0.0000444      1.02E-06
                                                      ----------- -------------
       Crop group subtotal                              0.0001062      2.44E-06

Crop Group = (M)  Meat
                                                          Exposure analysis
                                                      -------------------------
                                 Residue   Adjustment      mg/kg    Lifetime risk
       Food name                  (ppm)      Factors    body wt/day (Q*= .023)
---------------------------- ---------- ------------ ----------- -------------
Beef, meat (21000440):
   FoodForm N/S                0.000114   1.000  1.000   0.0000001      1.89E-09
Beef, meat-babyfood (21000441):
   FoodForm N/S                0.000114   1.000  1.000   0.0000000      9.65E-12
Beef, meat, dried (21000450):
   FoodForm N/S                0.000114   1.920  1.000   0.0000000      9.37E-12
Beef, meat byproducts (21000460):
   FoodForm N/S                0.000596   1.000  1.000   0.0000000      3.08E-10
Beef, meat byproducts-babyfood (21000461):
   FoodForm N/S                0.000596   1.000  1.000   0.0000000      5.48E-14
Beef, fat (21000470):
   FoodForm N/S                0.001240   1.000  1.000   0.0000002      4.64E-09
Beef,fat-babyfood (21000471):
   FoodForm N/S                0.001240   1.000  1.000   0.0000000      9.07E-12
Beef, kidney (21000480):
   FoodForm N/S                0.000596   1.000  1.000   0.0000000      6.58E-13
Beef, liver (21000490):
```

FoodForm N/S	0.019730	1.000	1.000	0.0000001	2.01E-09
Beef, liver-babyfood (21000491):					
FoodForm N/S	0.019730	1.000	1.000	0.0000000	3.00E-11
Goat, meat (23001690):					
FoodForm N/S	0.000114	1.000	1.000	0.0000000	6.09E-12
Goat, meat byproducts (23001700):					
FoodForm N/S	0.000596	1.000	1.000	no exposure	
Goat, fat (23001710):					
FoodForm N/S	0.001240	1.000	1.000	0.0000000	2.40E-12
Goat, kidney (23001720):					
FoodForm N/S	0.000596	1.000	1.000	no exposure	
Goat, liver (23001730):					
FoodForm N/S	0.019730	1.000	1.000	no exposure	
Horse, meat (24001890):					
FoodForm N/S	0.000114	1.000	1.000	no exposure	
Meat, game (28002210):					
FoodForm N/S	0.000114	1.000	1.000	0.0000000	2.50E-11
Pork, meat (25002900):					
FoodForm N/S	0.000014	1.000	1.000	0.0000000	9.91E-11
Pork, meat-babyfood (25002901):					
FoodForm N/S	0.000014	1.000	1.000	0.0000000	3.55E-13
Pork, skin (25002910):					
FoodForm N/S	0.000149	1.000	1.000	0.0000000	8.94E-12
Pork, meat byproducts (25002920):					
FoodForm N/S	0.000072	1.000	1.000	0.0000000	3.46E-11
Pork, meat byproducts-babyfood (25002921):					
FoodForm N/S	0.000072	1.000	1.000	0.0000000	6.62E-15
Pork, fat (25002930):					
FoodForm N/S	0.000149	1.000	1.000	0.0000000	2.87E-10
Pork, fat-babyfood (25002931):					
FoodForm N/S	0.000149	1.000	1.000	0.0000000	3.94E-13
Pork, kidney (25002940):					
FoodForm N/S	0.000072	1.000	1.000	0.0000000	5.80E-14
Pork, liver (25002950):					
FoodForm N/S	0.002370	1.000	1.000	0.0000000	5.18E-11
Rabbit, meat (29003120):					
FoodForm N/S	0.000114	1.000	1.000	0.0000000	7.53E-13
Sheep, meat (26003390):					
FoodForm N/S	0.000114	1.000	1.000	0.0000000	1.37E-11
Sheep, meat-babyfood (26003391):					
FoodForm N/S	0.000114	1.000	1.000	0.0000000	1.05E-13
Sheep, meat byproducts (26003400):					
FoodForm N/S	0.000596	1.000	1.000	0.0000000	7.27E-13
Sheep, fat (26003410):					
FoodForm N/S	0.001240	1.000	1.000	0.0000000	3.07E-11
Sheep, fat-babyfood (26003411):					
FoodForm N/S	0.001240	1.000	1.000	0.0000000	5.70E-14
Sheep, kidney (26003420):					
FoodForm N/S	0.000596	1.000	1.000	0.0000000	1.37E-14
Sheep, liver (26003430):					
FoodForm N/S	0.019730	1.000	1.000	0.0000000	4.54E-13
Crop group subtotal				0.0000004	9.47E-09

Crop Group = (P) Poultry

Food name	Residue (ppm)	Adjustment Factors		Exposure analysis: mg/kg body wt/day	Exposure analysis: Lifetime risk (Q*= .023)
Chicken, meat (40000930):					
FoodForm N/S	0.000176	1.000	1.000	0.0000001	1.86E-09
Chicken, meat-babyfood (40000931):					
FoodForm N/S	0.000176	1.000	1.000	0.0000000	2.02E-11
Chicken, liver (40000940):					
FoodForm N/S	0.000870	1.000	1.000	0.0000000	2.32E-11
Chicken, meat byproducts (40000950):					
FoodForm N/S	0.000336	1.000	1.000	0.0000000	1.00E-10
Chicken, meat byproducts-babyfood (40000951):					
FoodForm N/S	0.000336	1.000	1.000	0.0000000	1.24E-12
Chicken, fat (40000960):					
FoodForm N/S	0.003304	1.000	1.000	0.0000002	3.78E-09
Chicken, fat-babyfood (40000961):					
FoodForm N/S	0.003304	1.000	1.000	0.0000000	3.94E-11
Chicken, skin (40000970):					
FoodForm N/S	0.001378	1.000	1.000	0.0000000	7.67E-10
Chicken, skin-babyfood (40000971):					
FoodForm N/S	0.001378	1.000	1.000	0.0000000	7.92E-12
Egg, whole (70001450):					
FoodForm N/S	0.000748	1.000	1.000	0.0000003	6.40E-09
Egg, whole-babyfood (70001451):					
FoodForm N/S	0.000748	1.000	1.000	0.0000000	1.69E-12
Egg, white (70001460):					
FoodForm N/S	0.000748	1.000	1.000	0.0000000	2.77E-10
Egg, white (solids)-babyfood (70001461):					
FoodForm N/S	0.000748	1.000	1.000	no exposure	
Egg, yolk (70001470):					
FoodForm N/S	0.000748	1.000	1.000	0.0000000	1.35E-10
Egg, yolk-babyfood (70001471):					
FoodForm N/S	0.000748	1.000	1.000	0.0000000	2.49E-12
Poultry, other, meat (60003010):					
FoodForm N/S	0.000176	1.000	1.000	0.0000000	9.59E-12
Poultry, other, liver (60003020):					
FoodForm N/S	0.000870	1.000	1.000	0.0000000	4.80E-13
Poultry, other, meat byproducts (60003030):					
FoodForm N/S	0.000336	1.000	1.000	0.0000000	8.89E-13
Poultry, other, fat (60003040):					
FoodForm N/S	0.003304	1.000	1.000	0.0000000	7.61E-11
Poultry, other, skin (60003050):					
FoodForm N/S	0.001378	1.000	1.000	0.0000000	1.16E-11
Turkey, meat (50003820):					
FoodForm N/S	0.000176	1.000	1.000	0.0000000	5.10E-10
Turkey, meat-babyfood (50003821):					
FoodForm N/S	0.000176	1.000	1.000	0.0000000	1.15E-11
Turkey, liver (50003830):					
FoodForm N/S	0.000870	1.000	1.000	0.0000000	5.80E-12
Turkey, liver-babyfood (50003831):					
FoodForm N/S	0.000870	1.000	1.000	no exposure	
Turkey, meat byproducts (50003840):					
FoodForm N/S	0.000336	1.000	1.000	0.0000000	5.06E-11
Turkey, meat byproducts-babyfood (50003841):					

FoodForm N/S	0.000336	1.000	1.000	0.0000000	6.88E-13
Turkey, fat (50003850):					
FoodForm N/S	0.003304	1.000	1.000	0.0000000	1.06E-09
Turkey, fat-babyfood (50003851):					
FoodForm N/S	0.003304	1.000	1.000	0.0000000	1.51E-11
Turkey, skin (50003860):					
FoodForm N/S	0.001378	1.000	1.000	0.0000000	2.12E-10
Turkey, skin-babyfood (50003861):					
FoodForm N/S	0.001378	1.000	1.000	0.0000000	3.80E-12
Crop group subtotal				0.0000007	1.54E-08

Crop Group = (D) Dairy Products

Food name	Residue (ppm)	Adjustment Factors		Exposure analysis mg/kg body wt/day	Lifetime risk (Q*= .023)
Milk, fat (27002220):					
FoodForm N/S	0.002825	1.000	1.000	0.0000009	2.16E-08
Milk, fat - baby food/infant formula (27002221):					
FoodForm N/S	0.002825	1.000	1.000	0.0000000	1.22E-11
Milk, nonfat solids (27012230):					
FoodForm N/S	0.000113	1.000	1.000	0.0000001	1.92E-09
Milk, nonfat solids-baby food/infant fo (27012231):					
FoodForm N/S	0.000113	1.000	1.000	0.0000000	4.84E-11
Milk, water (27022240):					
FoodForm N/S	0.000018	1.000	1.000	0.0000001	2.28E-09
Milk, water-babyfood/infant formula (27022241):					
FoodForm N/S	0.000018	1.000	1.000	0.0000000	7.52E-13
Milk, sugar (lactose)-baby food/infant (27032251):					
FoodForm N/S	0.000113	1.000	1.000	0.0000000	2.04E-10
Crop group subtotal				0.0000011	2.60E-08

Crop Group = (1) Root and Tuber Vegetables

Food name	Residue (ppm)	Adjustment Factors		Exposure analysis mg/kg body wt/day	Lifetime risk (Q*= .023)
Beet, sugar (01010520):					
FoodForm N/S	0.002500	1.000	0.700	0.0000005	1.16E-08
Beet, sugar-babyfood (01010521):					
FoodForm N/S	0.002500	1.000	0.700	0.0000000	1.47E-10
Beet, sugar, molasses (01010530):					
FoodForm N/S	0.071000	1.000	0.700	0.0000001	2.62E-09
Beet, sugar, molasses-babyfood (01010531):					
FoodForm N/S	0.071000	1.000	0.700	0.0000000	1.71E-11
Crop group subtotal				0.0000006	1.44E-08

Crop Group = (6) Legume Vegetables (Succulent or Dried)

Food name	Residue (ppm)	Adjustment Factors		Exposure analysis mg/kg body wt/day	Exposure analysis Lifetime risk (Q*= .023)
Soybean, seed (06003470):					
FoodForm N/S	0.046000	1.000	0.270	0.0000000	9.87E-10
Soybean, flour (06003480):					
FoodForm N/S	0.046000	1.000	0.270	0.0000002	3.52E-09
Soybean, flour-babyfood (06003481):					
FoodForm N/S	0.046000	1.000	0.270	0.0000001	1.37E-09
Soybean, soy milk (06003490):					
FoodForm N/S	0.046000	1.000	0.270	0.0000003	6.21E-09
Soybean, soy milk-babyfood or infant fo (06003491):					
FoodForm N/S	0.046000	1.000	0.270	no exposure	
Soybean, oil (06003500):					
FoodForm N/S	0.212000	1.000	0.270	0.0000238	5.47E-07
Soybean, oil-babyfood (06003501):					
FoodForm N/S	0.212000	1.000	0.270	0.0000008	1.85E-08
Crop group subtotal				0.0000251	5.77E-07

Crop Group = (14) Tree Nuts

Food name	Residue (ppm)	Adjustment Factors		Exposure analysis mg/kg body wt/day	Exposure analysis Lifetime risk (Q*= .023)
Pecan (14002690):					
FoodForm N/S	0.009000	1.000	1.000	0.0000000	2.81E-10
Crop group subtotal				0.0000000	2.81E-10
Population subgroup total				0.0001342	3.09E-06