

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



OFFICE OF
PREVENTION, PESTICIDES, AND
TOXIC SUBSTANCES

MEMORANDUM

DATE: March 11, 1999

SUBJECT: Dietary Exposure Analysis for Difenoconazole in/on Wheat and Animal Commodities (2F4107) and Import Bananas (5E4526). Chemical#: 128847. DP Barcode: D251418

FROM: Susie Chun, Chemist *sc*
Registration Action Branch 1
Health Effects Division (7509C)

THROUGH: Melba Morrow, D.V.M., Branch Senior Scientist *M Morrow 3/17/99*
Registration Action Branch 1
Health Effects Division (7509C)

TO: Dana Vogel, Chemist
Registration Action Branch 1
Health Effects Division (7509C)

Action Requested

Provide an estimate of the dietary exposure and associated risk for difenoconazole resulting from existing tolerances and a proposed tolerance level for import bananas (5E4526) and in support of a petition for permanent tolerances in/on wheat and animal RACs (2F4107). *Note: Existing time-limited tolerances for the wheat and animal commodities expired 12/31/98. The proposed permanent tolerances are the same as those in that expired.*

The proposed tolerance levels of 0.2 ppm in/on bananas as a result of a Section 3 request (5E4526) was used in the acute analysis. The following expired time-limited tolerance levels in/on wheat and animal RACs were incorporated in the acute dietary analyses:

Wheat Grain	0.1 ppm	Wheat Forage	0.1 ppm
Wheat Straw	0.1 ppm	Milk	0.01 ppm
Eggs	0.05 ppm	Fat	0.05 ppm
Meat	0.05 ppm	Meat By-Products	0.05 ppm

of cattle, goats, horses, hogs, poultry, and sheep

Anticipated residue levels were used in the chronic and cancer dietary exposure analysis.

Executive Summary

Acute, chronic, and cancer dietary exposure analyses for difenoconazole were performed using the Dietary Exposure Evaluation Model (DEEM™). The tier 1 acute dietary assessment used tolerance level residues and 100% crop treated (CT) information. Since the Hazard Identification Assessment Review Committee (HIARC) determined that the acute dietary endpoint and dose are applicable only to the females 13+ subpopulation group, the acute dietary exposure analysis was performed for this

subpopulation only. The tier 3 chronic (cancer and non-cancer) assessments used anticipated residue information from field trial data and % CT data provided by the Biological and Economics Analysis Division (BEAD) (Memos, 2/9/99 and 12/17/98). All dietary risk estimates are below the Agency's level of concern for the U.S. population and sub-populations (including infants and children).

Toxicological Dose and Endpoints

Cancer

In accordance with the Agency's *Proposed Guidelines for Carcinogenic Risk Assessment* (April 10, 1996), the CPRC classified difenoconazole as a possible human carcinogen. The unit risk, Q_1 (mg/kg/day)⁻¹, of difenoconazole based upon male mouse liver adenomase and/or carcinomas combined is 0.157 in human equivalents (converted from animals to humans by use of the ³/₄'s scaling factor - Tox_Risk program, Version 3.5, K. Crump, 1994) (Memo, L. Brunsman, 9/15/98).

Acute and Chronic

On September 8, 1998, the Health Effects Division's Hazard Identification Assessment Review Committee evaluated the toxicology data base of difenoconazole, re-assessed the Reference Dose (Rfd) established in 1994 as well as the toxicological endpoints selected for dietary and occupational exposure risk assessments established in 1994. The HIARC also addressed the potential enhanced sensitivity of infants and children from exposure to difenoconazole as required by the Food Quality Protection Act (FQPA) of 1996.

The doses and toxicological endpoints selected for various exposure scenarios are summarized in Table 1 (Memo, A. Kocialski and J. Rowland, 9/25/98).

Table 1. Summary of Toxicological Endpoints for Difenoconazole Use in Human Risk Assessment

EXPOSURE SCENARIO	DOSE (mg/kg/day)	ENDPOINT	STUDY
Acute Dietary [females 13+]	NOAEL= 25	post-implantation loss, increased resorption per doe, decreased body weight	developmental rabbit
	UF = 100		
Acute Rfd = 0.25 mg/kg			
Acute Dietary (General Population including infants and children)	None	An endpoint attributable to a single exposure (dose) was not available from the oral toxicity studies including the rat and rabbit developmental toxicity studies.	
Chronic Dietary	NOAEL = 0.96	cumulative decreases in body weight gains	chronic/onco rat
	UF = 100	Chronic Rfd = 0.01 mg/kg/day	
Short-Term* (Dermal)	oral NOAEL=25	post-implantation loss, increased resorption per doe, decreased body weight	developmental rabbit
Intermediate-Term* (Dermal)	oral NOAEL=1.25	based on decreased pup weight on day 21	2-generation reproduction rat
Long-Term (Dermal) Non Cancer	None	Long-term dermal exposure is not expected based on a one time application as a seed treatment. This risk assessment is not required.	

EXPOSURE SCENARIO	DOSE (mg/kg/day)	ENDPOINT	STUDY
Long-Term Dermal* (Cancer)	NOAEL =4.7	Difenoconazole is classified as a Group C, possible human carcinogen with a non-linear (MOE) approach for human risk characterization (CPRC Document, 7/27/94).	
Inhalation Any time period)	None	Based on the low acute toxicity [Toxicity Category IV], the application rate [0.5-1.0 fl.oz./100 lbs of seed] the application method [standard slurry or mist-type seed treater] and the number of applications [1x] there is minimal concern for potential inhalation exposure/risk. This risk assessment is not required.	

A dermal absorption factor of 75% should be used for route-to-route extrapolation.

FQPA Recommendation

The HIARC, based on hazard assessment, recommended to the FQPA Safety Committee, that 10x factor for the protection of infants and children should be removed (equivalent to a factor of 1x).

This decision was confirmed by the FQPA Safety Factor Committee, which met on October 19, 1998 (Memo, B. Tarplee, 10/28/98).

Residue Information

Tolerances for difenoconazole (including time-limited tolerances) are published in 40 CFR §180.475. For the acute analysis, published, proposed new tolerance level residues, and 100% crop treated (%CT) were used (Attachment 1).

For the chronic and cancer analysis, AR information based on field trial data (Memo, D25377, S. Chun, 3/11/99), and % CT information provided by BEAD (memos dated 2/9/99 and 12/17/98) for some commodities were used (Attachment 3).

Acute and chronic (non-cancer) dietary exposure analyses using DEEM™ were previously completed (Memo, D250090, S. Chun, 10/20/98) using 100% CT, published, and proposed new tolerance level residues. The acute and chronic dietary analyses were below HED's level of concern.

Since the FQPA Safety Factor was removed (i.e. equivalent to a factor 1x.), the acute and chronic population adjusted doses (PADs) are the same as the acute and chronic RfDs, respectively.

Results

The DEEM™ analysis evaluated the individual food consumption as reported by respondents in the USDA 1989-91 Nationwide Continuing Surveys for Food Intake by Individuals (CSFII) and accumulated exposure to the chemical for each commodity. Summaries of the residue information used in the acute and chronic and cancer dietary exposure analyses are attached (Attachments 1 and 3).

Acute Dietary Exposure Analysis

The acute dietary exposure analysis estimates the distribution of single-day exposures for the U.S. population and certain subgroups and accumulates exposure to the chemical for each commodity. Each analysis assumes uniform distribution of difenoconazole for the commodities on which difenoconazole is used.

The acute dietary exposure analysis for the population subgroup females 13+ was performed using the tolerance residue level and 100 percent crop treated (Attachment 2). For acute dietary risk, HED's level of concern is 100% RfD.

Dietary exposures and associated acute risk at the 95th percentile are shown in Table 1 for the population subgroup females 13+.

Table 1. - Acute Dietary Exposure Results

Subgroups	Exposure (mg/kg/day)	% aRfD
Females (13+, preg., not nursing)	0.000913	< 1
Females (13+, nursing)	0.001079	< 1
Females (13-19 yrs., not preg., not nursing)	0.000941	< 1
Females (20+ years, not preg., not nursing)	0.000804	< 1
Females (13-50 years)	0.000869	< 1

Chronic Dietary Analysis

The chronic DEEM™ dietary exposure analysis used mean consumption (3 day average). Anticipated residues and % CT information for select commodities were used.

For chronic dietary risk, HED's level of concern is 100% RfD. Dietary exposures for the U.S. general population and other subgroups are presented in Table 2. The other subgroups included in Table 2 represent the highest dietary exposures for their respective subgroups (i.e., children, females, and the other general population subgroup higher than U.S. population).

Table 2. - Chronic Dietary Exposure Results

Subgroups	Exposure (mg/kg/day)	% RfD
U.S. Population (48 states)	0.000005	< 1
Non-Hispanic whites	0.000006	< 1
Non-Hispanic other than black or white	0.000006	< 1
Non-nursing infants (< 1 year old)	0.000019	< 1
Females (13+/nursing)	0.000006	< 1

The complete chronic dietary exposure analysis is attached (Attachment 4).

Cancer Dietary Analysis

Anticipated residues and % CT information for select commodities were used to calculate the upper bound lifetime cancer risk for dietary exposure to difenoconazole. The cancer DEEM™ analysis used mean consumption and gave the following results:

Subgroups	Exposure (mg/kg/day)	Lifetime Cancer Risk
U.S. Population (48 states)	0.000005	8.4 x 10 ⁻⁷

A summary of the cancer dietary exposure analysis is attached (Attachment 5).

Conclusions

The Tier 1 acute dietary exposure analysis for difenoconazole is a very conservative estimate of dietary exposure with all residues at tolerance level and 100 percent of the commodities assumed to be treated. All %RfDs from this analysis were below 1% for the subgroup, females 13+. The results of this analysis indicate that the acute dietary risk associated with the proposed uses of difenoconazole in/on wheat and animal commodities is below the Agency's level of concern.

The Tier 3 chronic dietary exposure analysis for difenoconazole is a refined estimate with ARs calculated for most commodities and the use of % CT data. The chronic dietary risk associated with the proposed uses of difenoconazole is also below the Agency's level of concern.

The Agency considers 1×10^{-6} as negligible risk (i.e, less than 1 in 1 million) for cancer. The results of this analysis indicate that the cancer dietary risk of 8.4×10^{-7} associated with the existing and proposed uses of difenoconazole is below the Agency's level of concern.

Attachment 1: Acute Residue File

Attachment 2: Acute Dietary Exposure Analysis (S. Chun, 3/1/99)

Attachment 3: Chronic and Cancer Residue File

Attachment 4: Chronic Dietary Exposure Analysis (S. Chun, 3/1/99)

Attachment 5: Cancer Dietary Exposure analysis (S. Chun, 3/1/99)

cc: S. Chun (RAB1); L. Richardson (CEB1), 2F4107, 5E4526
RDI: Dietary Exposure SAC [W. Cutchin (3/5/99) and C. Christensen (3/10/99)]
S. Chun:806R:CM#2:(703)305-2249:7509C:RAB1

Attachment 1 - Acute Residue Information

FILENAME: C:\deem89\resdata\128847.r91

CHEMICAL NAME: Difenconazole

RfD(CHRONIC): .010000 mg/kg/DAY NOEL(CHRONIC): .000000 mg/kg/day
 RfD(ACUTE): .250000 mg/kg/DAY NOEL(ACUTE): 25.000000 mg/kg/day Q*=.1570
 Date created/last modified: 03-01-1999/10:12:35/8 Program ver. 6.16
 Comment: D. Vogel, 98ID0040 (corn), 2F4107 (wheat & animal), 5E4526 (bananas)

Food Crop Code	Grp	Food Name	RESIDUE (ppm)	RDF #	Adj. #1	Factors #2	Comment
073	A	BANANAS-DRIED	000.200000	03.900	01.000	5E4526,	New
378	A	BANANAS-JUICE	000.200000	01.000	01.000	5E4526,	New
072	A	BANANAS	000.200000	01.000	01.000	5E4526,	New
094	A	PLANTAINS-RIPE	000.200000	01.000	01.000	5E4526,	New
481	A	PLANTAINS-DRIED	000.200000	03.900	01.000	5E4526,	New
480	A	PLANTAINS-GREEN	000.200000	01.000	01.000	5E4526,	New
265	O	BARLEY	000.100000	01.000	01.000	2E4051	
238	O	CORN/SWEET	000.100000	01.000	01.000	S18,	98ID0040, New
273	O	RYE-GERM	000.100000	01.000	01.000	2E4051	
272	O	RYE-ROUGH	000.100000	01.000	01.000	2E4051	
274	O	RYE-FLOUR	000.100000	01.000	01.000	2F4107,	TLT 12/31/98
277	O	WHEAT-GERM	000.100000	01.000	01.000	2F4107,	TLT 12/31/98
278	O	WHEAT-BRAN	000.100000	01.000	01.000	2F4107,	TLT 12/31/98
279	O	WHEAT-FLOUR	000.100000	01.000	01.000	2F4107,	TLT 12/31/98
437	O	WHEAT-GERM OIL	000.100000	01.000	01.000	2F4107,	TLT 12/31/98
276	O	WHEAT-ROUGH	000.100000	01.000	01.000	2F4107,	TLT 12/31/98
324	U	BEEF-FAT W/O BONES	000.050000	01.000	01.000	2F4107,	TLT 12/31/98
325	U	BEEF-KIDNEY	000.050000	01.000	01.000	2F4107,	TLT 12/31/98
326	U	BEEF-LIVER	000.050000	01.000	01.000	2F4107,	TLT 12/31/98
327	U	BEEF-LEAN(FAT/FREE)W/O BONES	000.050000	01.000	01.000	2F4107,	TLT 12/31/98
322	U	BEEF-OTHER ORGAN MEATS	000.050000	01.920	01.000	2F4107,	TLT 12/31/98
323	U	BEEF-DRIED	000.050000	01.000	01.000	2F4107,	TLT 12/31/98
321	U	BEEF-MEAT BYPRODUCTS	000.050000	01.000	01.000	2F4107,	TLT 12/31/98
332	U	GOAT-LIVER	000.050000	01.000	01.000	2F4107,	TLT 12/31/98
329	U	GOAT-OTHER ORGAN MEATS	000.050000	01.000	01.000	2F4107,	TLT 12/31/98
333	U	GOAT-LEAN (FAT/FREE) W/O BONE	000.050000	01.000	01.000	2F4107,	TLT 12/31/98
331	U	GOAT-KIDNEY	000.050000	01.000	01.000	2F4107,	TLT 12/31/98
328	U	GOAT-MEAT BYPRODUCTS	000.050000	01.000	01.000	2F4107,	TLT 12/31/98
330	U	GOAT-FAT W/O BONE	000.050000	01.000	01.000	2F4107,	TLT 12/31/98
334	U	HORSEMEAT	000.050000	01.000	01.000	2F4107,	TLT 12/31/98
347	U	PORK-LEAN (FAT FREE) W/O BONE	000.050000	01.000	01.000	2F4107,	TLT 12/31/98
346	U	PORK-LIVER	000.050000	01.000	01.000	2F4107,	TLT 12/31/98
345	U	PORK-KIDNEY	000.050000	01.000	01.000	2F4107,	TLT 12/31/98

344	U	PORK-FAT W/O BONE	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
343	U	PORK- OTHER ORGAN MEATS	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
342	U	PORK-MEAT BYPRODUCTS	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
338	U	SHEEP-FAT W/O BONE	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
337	U	SHEEP-OTHER ORGAN MEATS	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
336	U	SHEEP-MEAT BYPRODUCTS	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
339	U	SHEEP-KIDNEY	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
340	U	SHEEP-LIVER	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
341	U	SHEEP-LEAN (FAT FREE)W/O BONE	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
424	U	VEAL-FAT W/O BONES	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
425	U	VEAL-LEAN (FATFREE) W/O BONES	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
430	U	VEAL-MEAT BYPRODUCTS	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
426	U	VEAL-KIDNEY	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
427	U	VEAL-LIVER	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
428	U	VEAL-OTHER ORGAN MEATS	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
429	U	VEAL-DRIED	000.050000	01.920	01.000	2F4107,	TLT	12/31/98
368	V	CHICKEN-FAT W/O BONES	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
369	V	CHICKEN-LEAN/FATFREE W/O BONE	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
367	V	CHICKEN-GIBLETS (LIVER)	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
385	V	CHICKEN-GIBLETS (EXCL. LIVER)	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
366	V	CHICKEN-BYPRODUCTS	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
362	V	POULTRY-OTHER-FAT W/O BONES	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
360	V	POULTRY-OTHER-LEAN (FAT FREE)	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
361	V	POULTRY-OTHER-GIBLETS (LIVER)	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
357	V	TURKEY--FAT W/O BONES	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
356	V	TURKEY-GIBLETS (LIVER)	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
355	V	TURKEY-BYPRODUCTS	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
449	V	TURKEY-OTHER ORGAN MEATS	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
358	V	TURKEY-LEAN/FAT FREE W/O BONE	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
365	X	EGGS-YOLK ONLY	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
363	X	EGGS-WHOLE	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
364	X	EGGS-WHITE ONLY	000.050000	01.000	01.000	2F4107,	TLT	12/31/98
319	X	MILK-FAT SOLIDS	000.010000	01.000	01.000	2F4107,	TLT	12/31/98
320	X	MILK SUGAR (LACTOSE)	000.010000	01.000	01.000	2F4107,	TLT	12/31/98
318	X	MILK-NONFAT SOLIDS	000.010000	01.000	01.000	2F4107,	TLT	12/31/98

Attachment 2: Acute Dietary Exposure Analysis -Summary

U.S. Environmental Protection Agency
 DEEM ACUTE analysis for DIFENOCONAZOLE
 Residue file name: 128847.r91

Ver. 6.27
 (1989-92 data)

Adjustment factor #2 NOT used.

Analysis Date: 10-19-1998/13:36:24 Residue file dated: 10-19-1998/13:33:14/8
 Acute Reference Dose (aRfD) = 0.250000 mg/kg body-wt/day

Run Comment: D. Vogel, 98ID0040 (corn), 2F4107 (wheat & animal), 5E4526 (bananas)

Summary calculations:

	95th Percentile		99th Percentile		99.9 Percentile	
	Exposure	% aRfD	Exposure	% aRfD	Exposure	% aRfD
Females (13+/preg/not nsg):	0.000913	0.37	0.001182	0.47	0.001400	0.56
Females (13+/nursing):	0.001079	0.43	0.001303	0.52	0.001458	0.58
Females (13-19 yrs/np/nn):	0.000941	0.38	0.001240	0.50	0.001862	0.74
Females (20+ years/np/nn):	0.000804	0.32	0.001129	0.45	0.001682	0.67
Females (13-50 years):	0.000869	0.35	0.001188	0.48	0.001715	0.69

Attachment 3: Chronic and Cancer Residue Information

FILENAME: C:\deem89\resdata\128847c.R91

CHEMICAL NAME: Difenoconazole

RfD(CHRONIC): .010000 mg/kg/DAY NOEL(CHRONIC): .000000 mg/kg/day
 RfD(ACUTE): .250000 mg/kg/DAY NOEL(ACUTE): 25.000000 mg/kg/day Q*=.1570
 Date created/last modified: 03-01-1999/10:56:56/8 Program ver. 6.16
 Comment: D. Vogel, 98ID0040 (corn), 2F4107 (wheat & animal), 5E4526 (bananas)
 Comment: ARs used

Food Crop Code	Grp	Food Name	RESIDUE (ppm)	RDF #	Adj.Factors #1	Factors #2	Comment
073	A	BANANAS-DRIED	000.010000	03.900	01.000	5E4526,	New, AR
378	A	BANANAS-JUICE	000.010000	01.000	01.000	5E4526,	New, AR
072	A	BANANAS	000.010000	01.000	01.000	5E4526,	New, AR
094	A	PLANTAINS-RIPE	000.010000	01.000	01.000	5E4526,	New, AR
481	A	PLANTAINS-DRIED	000.010000	03.900	01.000	5E4526,	New, AR
480	A	PLANTAINS-GREEN	000.010000	01.000	01.000	5E4526,	New, AR
265	O	BARLEY	000.100000	01.000	00.105	2E4051	
238	O	CORN/SWEET	000.005000	01.000	00.030	S18, 98ID0040,	New, AR
273	O	RYE-GERM	000.100000	01.000	01.000	2E4051	
272	O	RYE-ROUGH	000.100000	01.000	01.000	2E4051	
274	O	RYE-FLOUR	000.100000	01.000	01.000	2E4051	
277	O	WHEAT-GERM	000.005000	01.000	00.090	2F4107,	TLT 12/31/98, AR
278	O	WHEAT-BRAN	000.005000	01.000	00.090	2F4107,	TLT 12/31/98, AR
279	O	WHEAT-FLOUR	000.005000	01.000	00.090	2F4107,	TLT 12/31/98, AR
437	O	WHEAT-GERM OIL	000.005000	01.000	00.090	2F4107,	TLT 12/31/98, AR
276	O	WHEAT-ROUGH	000.005000	01.000	00.090	2F4107,	TLT 12/31/98, AR
324	U	BEEF-FAT W/O BONES	000.000041	01.000	01.000	2F4107,	TLT 12/31/98, AR
325	U	BEEF-KIDNEY	000.000120	01.000	01.000	2F4107,	TLT 12/31/98, AR
326	U	BEEF-LIVER	000.000440	01.000	01.000	2F4107,	TLT 12/31/98, AR
327	U	BEEF-LEAN(FAT/FREE)W/O BONES	000.000014	01.000	01.000	2F4107,	TLT 12/31/98, AR
322	U	BEEF-OTHER ORGAN MEATS	000.000440	01.000	01.000	2F4107,	TLT 12/31/98, AR
323	U	BEEF-DRIED	000.000014	01.920	01.000	2F4107,	TLT 12/31/98, AR
321	U	BEEF-MEAT BYPRODUCTS	000.000440	01.000	01.000	2F4107,	TLT 12/31/98, AR
332	U	GOAT-LIVER	000.000440	01.000	01.000	2F4107,	TLT 12/31/98, AR
329	U	GOAT-OTHER ORGAN MEATS	000.000440	01.000	01.000	2F4107,	TLT 12/31/98, AR
333	U	GOAT-LEAN (FAT/FREE) W/O BONE	000.000014	01.000	01.000	2F4107,	TLT 12/31/98, AR
331	U	GOAT-KIDNEY	000.000120	01.000	01.000	2F4107,	TLT 12/31/98, AR
328	U	GOAT-MEAT BYPRODUCTS	000.000440	01.000	01.000	2F4107,	TLT 12/31/98, AR
330	U	GOAT-FAT W/O BONE	000.000041	01.000	01.000	2F4107,	TLT 12/31/98, AR
334	U	HORSEMEAT	000.000014	01.000	01.000	2F4107,	TLT 12/31/98, AR
347	U	PORK-LEAN (FAT FREE) W/O BONE	000.000014	01.000	01.000	2F4107,	TLT 12/31/98, AR

346	U	PORK-LIVER	000.000440	01.000	01.000	2F4107,	TLT	12/31/98,	AR
345	U	PORK-KIDNEY	000.000120	01.000	01.000	2F4107,	TLT	12/31/98,	AR
344	U	PORK-FAT W/O BONE	000.000041	01.000	01.000	2F4107,	TLT	12/31/98,	AR
343	U	PORK- OTHER ORGAN MEATS	000.000440	01.000	01.000	2F4107,	TLT	12/31/98,	AR
342	U	PORK-MEAT BYPRODUCTS	000.000440	01.000	01.000	2F4107,	TLT	12/31/98,	AR
338	U	SHEEP-FAT W/O BONE	000.000041	01.000	01.000	2F4107,	TLT	12/31/98,	AR
337	U	SHEEP-OTHER ORGAN MEATS	000.000440	01.000	01.000	2F4107,	TLT	12/31/98,	AR
336	U	SHEEP-MEAT BYPRODUCTS	000.000440	01.000	01.000	2F4107,	TLT	12/31/98,	AR
339	U	SHEEP-KIDNEY	000.000120	01.000	01.000	2F4107,	TLT	12/31/98,	AR
340	U	SHEEP-LIVER	000.000440	01.000	01.000	2F4107,	TLT	12/31/98,	AR
341	U	SHEEP-LEAN (FAT FREE)W/O BONE	000.000014	01.000	01.000	2F4107,	TLT	12/31/98,	AR
424	U	VEAL-FAT W/O BONES	000.000041	01.000	01.000	2F4107,	TLT	12/31/98,	AR
425	U	VEAL-LEAN. (FATFREE) W/O BONES	000.000014	01.000	01.000	2F4107,	TLT	12/31/98,	AR
430	U	VEAL-MEAT BYPRODUCTS	000.000440	01.000	01.000	2F4107,	TLT	12/31/98,	AR
426	U	VEAL-KIDNEY	000.000120	01.000	01.000	2F4107,	TLT	12/31/98,	AR
427	U	VEAL-LIVER	000.000440	01.000	01.000	2F4107,	TLT	12/31/98,	AR
428	U	VEAL-OTHER ORGAN MEATS	000.000440	01.000	01.000	2F4107,	TLT	12/31/98,	AR
429	U	VEAL-DRIED	000.000014	01.920	01.000	2F4107,	TLT	12/31/98,	AR
368	V	CHICKEN-FAT W/O BONES	000.000003	01.000	01.000	2F4107,	TLT	12/31/98,	AR
369	V	CHICKEN-LEAN/FATFREE W/O BONE	000.000006	01.000	01.000	2F4107,	TLT	12/31/98,	AR
367	V	CHICKEN-GIBLETS (LIVER)	000.000023	01.000	01.000	2F4107,	TLT	12/31/98,	AR
385	V	CHICKEN-GIBLETS (EXCL. LIVER)	000.000023	01.000	01.000	2F4107,	TLT	12/31/98,	AR
366	V	CHICKEN-BYPRODUCTS	000.000023	01.000	01.000	2F4107,	TLT	12/31/98,	AR
362	V	POULTRY-OTHER-FAT W/O BONES	000.000003	01.000	01.000	2F4107,	TLT	12/31/98,	AR
360	V	POULTRY-OTHER-LEAN (FAT FREE)	000.000006	01.000	01.000	2F4107,	TLT	12/31/98,	AR
361	V	POULTRY-OTHER-GIBLETS (LIVER)	000.000023	01.000	01.000	2F4107,	TLT	12/31/98,	AR
357	V	TURKEY--FAT W/O BONES	000.000003	01.000	01.000	2F4107,	TLT	12/31/98,	AR
356	V	TURKEY-GIBLETS (LIVER)	000.000023	01.000	01.000	2F4107,	TLT	12/31/98,	AR
355	V	TURKEY-BYPRODUCTS	000.000023	01.000	01.000	2F4107,	TLT	12/31/98,	AR
449	V	TURKEY-OTHER ORGAN MEATS	000.000023	01.000	01.000	2F4107,	TLT	12/31/98,	AR
358	V	TURKEY-LEAN/FAT FREE W/O BONE	000.000006	01.000	01.000	2F4107,	TLT	12/31/98,	AR
365	X	EGGS-YOLK ONLY	000.000046	01.000	01.000	2F4107,	TLT	12/31/98,	AR
363	X	EGGS-WHOLE	000.000019	01.000	01.000	2F4107,	TLT	12/31/98,	AR
364	X	EGGS-WHITE ONLY	000.000004	01.000	01.000	2F4107,	TLT	12/31/98,	AR
319	X	MILK-FAT SOLIDS	000.000013	01.000	01.000	2F4107,	TLT	12/31/98,	AR
320	X	MILK SUGAR (LACTOSE)	000.000013	01.000	01.000	2F4107,	TLT	12/31/98,	AR
318	X	MILK-NONFAT SOLIDS	000.000013	01.000	01.000	2F4107,	TLT	12/31/98,	AR

Attachment 4: Chronic Dietary Analysis

U.S. Environmental Protection Agency
 DEEM89N CHRONIC analysis for DIFENOCONAZOLE
 Residue file name: 128847C
 Analysis Date 03-11-1999
 Reference dose (Rfd, CHRONIC) = 0.010000 mg/kg body-wt/day
 COMMENT 1: D. Vogel, 98ID0040 (corn), 2F4107 (wheat & animal), 5E4526 (bananas)
 COMMENT 2: ARs Used;

Ver. 6.12
 (1989-92 data)

Adjustment factor #2 used.

Residue file dated: 03-11-1999/11:52:39/8

 Total exposure by population subgroup

Population Subgroup	Total Exposure	
	mg/kg body wt./day	Percent of Rfd
U.S. Pop - 48 states - all seasons	0.000005	0.1%
U.S. Population - spring season	0.000006	0.1%
U.S. Population - summer season	0.000005	0.1%
U.S. Population - autumn season	0.000005	0.1%
U.S. Population - winter season	0.000006	0.1%
Northeast region	0.000006	0.1%
Midwest region	0.000005	0.1%
Southern region	0.000005	0.1%
Western region	0.000006	0.1%
Pacific Region	0.000006	0.1%
Hispanics	0.000005	0.1%
Non-hispanic whites	0.000006	0.1%
Non-hispanic blacks	0.000004	0.0%
Non-hispanic other than black or white	0.000006	0.1%
All infants (<1 year)	0.000016	0.2%
Nursing infants (<1 year)	0.000007	0.1%
Non-nursing infants (<1 year)	0.000019	0.2%
Children (1-6 years)	0.000011	0.1%
Children (7-12 years)	0.000005	0.1%
Females (13-19 yrs/not preg. or nursing)	0.000003	0.0%
Females (20+ years/not preg. or nursing)	0.000004	0.0%
Females (13-50 years)	0.000004	0.0%
Females (13+/pregnant/not nursing)	0.000004	0.0%
Females (13+/nursing)	0.000006	0.1%
Males (13-19 years)	0.000003	0.0%
Males (20+ years)	0.000005	0.1%
Seniors (55+)	0.000006	0.1%

Attachment 5: Cancer Dietary Analysis

U.S. Environmental Protection Agency
 DEEM89N CHRONIC analysis for DIFENOCONAZOLE
 Residue file name: 128847C
 Analysis Date 03-11-1999
 Q* = 0.157000

Ver. 6.12
 (1989-92 data)

Adjustment factor #2 used.

Residue file dated: 03-11-1999/11:52:39/8

COMMENT 1: D. Vogel, 98ID0040 (corn), 2F4107 (wheat & animal), 5E4526 (bananas)
 COMMENT 2: ARs Used;

 Total exposure by population subgroup

Population Subgroup	Total Exposure	
	mg/kg body wt/day	Lifetime risk (Q*=0.157000)
U.S. Pop - 48 states - all seasons	0.000005	8.45E-07
U.S. Population - spring season	0.000006	8.71E-07
U.S. Population - summer season	0.000005	8.11E-07
U.S. Population - autumn season	0.000005	8.23E-07
U.S. Population - winter season	0.000006	8.80E-07
