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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

**OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES**

MEMORANDUM

DATE: 19-MAR-2008

SUBJECT: **2,6-Dichlorobenzamide (BAM)** as a Metabolite of Fluopicolide and
             Dichlobenil. Acute and Chronic Aggregate Dietary (Food and Drinking
             Water) Exposure and Risk Assessments for the Section 3 Registration
             Actions for Fluopicolide on Root Vegetables (Subgroup 1A), Leaves of
             Root and Tuber Vegetables (Group 2), Bulb Vegetables (Group 3), and
             Head and Stem *Brassica* (Subgroup 5A)
                          and
             Section 3 Registration Actions for Dichlobenil on Rhubarb, Caneberries
             (Subgroup 13-07A), Bushberries (Subgroup 13-07B) and Associated
             Berry Commodities.

             PC Codes: 027402(BAM), 027401(Dichlobenil) and 027412(Fluopicolide)
             Decision Number: 373401
             DP Number: 349722

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Executive Summary

Acute and chronic dietary (food and drinking water) exposure and risk assessments were conducted using the Dietary Exposure Evaluation Model DEEM-FCID™, Version 2.03, which use food consumption data from the U.S. Department of Agriculture's Continuing Surveys of Food Intakes by Individuals (CSFII) from 1994-1996 and 1998. The analyses were performed on BAM to support Section 3 requests for use of parent fluopicolide on root vegetables, leaves of root and tuber vegetables, bulb vegetables, and head and stem *Brassica* and the Section 3 requests for use of parent dichlobenil on rhubarb, caneberries, bushberries and associated berry commodities.

BAM will be included in risk assessments for domestic crops. This assessment is for residues of BAM from uses of fluopicolide and dichlobenil. A separate assessment (D349721, S.Piper, 19-MAR-08) has been conducted for fluopicolide (parent) and a separate assessment (D341453, D.Rate, in process) is being conducted concurrently for dichlobenil (parent). BAM is a metabolite and/or environmental degradate of both fluopicolide and dichlobenil.

Acute and Chronic Dietary (Food and Drinking Water) Exposure Results and Characterization

Conservative acute and chronic (food and drinking water) exposure assessments were conducted. Maximum residues of BAM from fluopicolide field trials on root vegetables, leaves of root and tuber vegetables, bulb vegetables, and head and stem *Brassica*, and from dichlobenil field trials on food commodities with established/pending tolerances (40 CFR 180.231) were included in the assessments. The assessments used 100% crop treated except for apples, blueberries, cherries, cranberries, peaches, pears, and raspberries. No livestock tolerances are established or proposed for either fluopicolide or dichlobenil. DEEM (version 7.81) default processing factors were used.

The drinking water residue level used in this dietary risk assessment is the estimate of residues of BAM from use of dichlobenil. This assessment will use 56.2 ppb (from Screening Concentration in Ground Water-SCIGROW modeling of BAM residues from dichlobenil use on nutsedge) for the drinking water estimate for both the acute and chronic exposures.

The results of the acute dietary analysis for food and drinking water indicate that acute dietary risks do not exceed the Agency's level of concern (<100% of the aPAD) for the U.S. population and all subgroups. Combined dietary exposure from food and drinking water at the 99.9[th] percentile of exposure is estimated to be 0.011650 mg/kg/day for the overall U.S. population, equivalent to 12% of the acute Population Adjusted Dose (aPAD). The population subgroup with the highest estimated acute dietary exposure is all infants (<1 year old) of 0.028470 mg/kg/day, equivalent to 28% of the aPAD.

Chronic dietary exposure estimates for food and drinking water are well below HED's level of concern (<100% cPAD) for all population subgroups. The dietary exposure is estimated at 0.001317 mg/kg/day for the general U.S. population (29% of the chronic Population Adjusted Dose (cPAD)) and 0.004170 mg/kg/day (93% of the cPAD) for infants (<1 year old), the population subgroup with the highest estimated chronic dietary exposure to BAM from fluopicolide and dichlobenil.

Cancer Dietary (Food and Drinking Water) Exposure Results and Characterization

BAM is formally unclassified with respect to cancer. The parent fungicide fluopicolide is classified as "not likely to be carcinogenic to humans." The parent herbicide dichlobenil is classified as "Group C, possible human carcinogen" with the RfD approach utilized for quantification of human risk. The quantification of cancer risk using the RfD approach is identical to the assessment for chronic effects; no separate carcinogenic risk assessment is necessary.

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 point of departure (POD, NOAEL, LOAEL, e.g.) divided by the required uncertainty or safety factors.

For acute and non-cancer chronic exposures, ARIA is concerned when estimated dietary risk exceeds 100% of the PAD. ARIA is generally concerned when estimated cancer risk exceeds one in one million (i.e., the risk exceeds 3×10^{-6}). 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," 21/JUN/2000, web link: http://www.epa.gov/fedrgstr/EPA-PEST/2000/July/Day -12/6061.pdf ; or see SOP 99.6 (20-AUG-1999).

The most recent dietary risk assessment for BAM was conducted by N.Dodd (21-NOV-07, D340366).

II.   Residue Information

BAM is a metabolite and/or environmental degradate of both fluopicolide and dichlobenil. This risk assessment includes residues of BAM in food and drinking water from uses of both fluopicolide and dichlobenil. A separate assessment (D349721, S.Piper, 19-MAR-08) has been conducted for fluopicolide (parent) and a separate assessment (D341453, D.Rate, in process) is being conducted concurrently for dichlobenil (parent).

Fluopicolide

Tolerances have been established (40 CFR §180.627) for residues of fluopicolide, 2,6-dichloro-*N*-[[3-chloro-5-(trifluoromethyl)-2-pyridinyl]methyl] benzamide, range from 0.02 ppm on vegetable, tuberous and corm (except potato) to 6.0 ppm for use on grape raisins as an imported crops. No livestock tolerances have been established.

Dichlobenil

Dichlobenil is registered as a granular (G) formulation (Casoron® 4G; EPA Reg. No. 400-168; date of issuance: 18-MAY-05) for use on apple, blueberry, cherry, filbert, grape, and pear at 6 lb ai/A/season and on blackberry, cranberry, and raspberry at 4 lb ai/A/season. A registration for Casoron® 4G for use on rhubarb at 2 lb ai/A/season and translation of data to establish tolerances on berry commodities are pending (D315266, W.Cutchin, 22-FEB-06 and D349398, D.Rate, in process).

Tolerances are established (40 CFR §180.231) for the herbicide dichlobenil (2,6-dichlorobenzonitrile) and its metabolite 2,6-dichlorobenzamide. A tolerance for rhubarb and tolerances on berry commodities translated from the data reviewed for tolerances on blueberry, blackberry and raspberry are pending. The revised RED (31-JUL-1996) recommended deletion of the stone fruit crop group tolerance which was not being supported by the petitioner and establishment of a separate tolerance on cherries. However, the stone fruit crop group is included in this dietary exposure assessment since commodities containing BAM residues could be imported as long as the tolerance exists [as stated in the previous RED: Kathryn Boyle, 31-JUL-1996: Dichlobenil: The Revised HED Chapter of the Reregistration Eligibility Decision Document (RED), Case 0263, Chemical 027401, 027402 (BAM)]. No livestock tolerances are established for dichlobenil. Since the potato use will not be registered at this time and some restrictions will be applied to rotational crops at this time, no livestock feed items are associated with this petition.

Residue Data used for Acute and Chronic Assessments:

Maximum residues of BAM from fluopicolide field trials were used on root vegetables, leaves of root and tuber vegetables, bulb vegetables, and head and stem *Brassica* and from dichlobenil field trials on rhubarb, caneberries, bushberries and associated berry commodities. The assessments used 100% crop treated except for apples, blueberries, cherries, cranberries, peaches, pears, and raspberries (See attachment 6). Tolerances for grape have been established for imported grapes; therefore, no percent crop treated was used. No livestock tolerances are established or proposed for either fluopicolide or dichlobenil. DEEM (version 7.81) default processing factors were used. A summary of the anticipated residues for the new uses are listed in Table 1 below.

Table 1. Residue Estimates Used in the BAM Dietary Analysis							
RAC	Classification[1]	Data Source	No. of Samples	Acute % CT[2]	Chronic % CT[2]	Processing Factors	Acute & Chronic (Maximum Residues ppm)
Amaranth, leafy	PB	MRID 46708540 (spinach)	14	100	100		0.188
Apple	NB/PB	MRID 42177102	15	2.5	1.0	8.0 dried 1.3 juice	RDF 1 0.271
Apricot[5]	NB/PB	MRID 42476102 (peach)	6	100	100	6.0 dried	0.04
Arrowroot, flour	NB	MRID 46708537	38	100	100		0.01
Artichoke	NB	MRID 46708537	38	100	100		0.01
Arugula	PB	MRID 46708540 (spinach)	14	100	100		0.188
Balsam, pear	NB	MRID 46708531 (cantaloupe)	18	100	100		0.01
Beet garden, roots	NB/PB	MRID 47021704 (radish roots)	12	100	100		0.01
Beet garden, tops	PB	MRID 47021704 (radish tops)	12	100	100		0.163
Blackberry	PB	MRID 42452803	3	100	100		0.01
Blueberry	PB	MRID 42304201	3	2.5	1.0		RDF 2 0.06
Boysenberry[3]	PB	MRID 42452803 (blackberry)	3	100	100		0.01
Broccoli	NB/PB	MRID 47021701	12	100	100		0.01

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RAC	Classification[1]	Data Source	No. of Samples	Acute % CT[2]	Chronic % CT[2]	Processing Factors	Acute & Chronic (Maximum Residues ppm)
Brussels sprouts	PB	MRID 47021701 (cabbage)	14	100	100		0.017
Burdock	NB	MRID 4702170 (radish tops)	12	100	100		0.01
Cabbage	NB/PB	MRID 47021701	14	100	100		0.017
Cantaloupe	NB/PB	MRID 46708531	18	100	100		0.01
Cardoon	NB/PB	MRID 46708539 (celery)	12	100	100		0.041
Casaba	NB	MRID 46708531 (cantaloupe)	18	100	100		0.01
Cassava	NB/PB	MRID 47021704 (radish roots)	12	100	100		0.01
Cauliflower	NB/PB	MRID 47021701 (broccoli)	12	100	100		0.01
Celeriac	NB	MRID 47021704 (radish tops)	12	100	100		0.01
Celery	NB/PB	MRID 46708539	12	100	100		0.041
Chayote	NB	MRID 46708538 (squash)	12	100	100		0.01
Cherry	PB	MRID 42452804	2	2.5	1.0	1.5 juice	RDF 3 0.46
Chicory, roots	NB	MRID 47021704 (radish roots)	12	100	100		0.01
Chicory, tops	NB	MRID 47021704 (radish tops)	12	100	100		0.163
Chinese waxgourd	NB/PB	MRID 46708532 (cucumber)	12	100	100		0.01
Chive	B	MRID 47021703 (green onion)	6	100	100		0.014
Chrysanthemum, garland	PB	MRID 46708540 (spinach)	14	100	100		0.188
Cranberry	PB	MRID 42452801		100	45	1.1 juice	0.03

Table 1. Residue Estimates Used in the BAM Dietary Analysis							
RAC	**Classification[1]**	**Data Source**	**No. of Samples**	**Acute % CT[2]**	**Chronic % CT[2]**	**Processing Factors**	**Acute & Chronic (Maximum Residues ppm)**
Cress	PB	MRID 46708540 (spinach)	14	100	100		0.188
Cucumber	NB/PB	MRID 46708532	12	100	100		0.01
Currant	PB	MRID 42304201 (blueberry)	3	2.5	1.0		0.06
Dandelion	PB	MRID 46708540 (spinach)	14	100	100		0.188
Dasheen corm	PB	MRID 47021704 (radish tops)	12	100	100		0.01
Dasheen leaves	PB	MRID 47021704 (radish roots)	12	100	100		0.163
Dewberry	PB	MRID 42452803 (blackberry)	3	100	100		0.01
Eggplant	NB	MRID 46708530 (pepper)	14	100	100		0.01
Elderberry[4]	PB	MRID 42304201 (blueberry)	3	100	100		0.06
Endive	PB	MRID 46708540 (spinach)	14	100	100		0.188
Fennel Florence	B	MRID 46708539 (celery)	12	100	100		0.041
Filbert[6]	PB	MRID 42476101	3	100	100		0.02
Garlic	NB/PB	MRID 47021703 (green onion)	6	100	100		0.014
Ginger	NB	MRID 47021704 (radish roots)	12	100	100		0.01
Ginseng	PB	MRID 47021704 (radish tops)	12	100	100		0.01
Gooseberry[4]	PB	MRID 42304201 (blueberry)	3	100	100		0.06
Grape	PB	MRID 42476103	12	100	100	4.3 raisin 1.2 juice	0.1
Honeydew Melon	NB	MRID 46708531 (cantaloupe)	18	100	100		0.01

Table 1. Residue Estimates Used in the BAM Dietary Analysis							
RAC	**Classification[1]**	**Data Source**	**No. of Samples**	**Acute % CT[2]**	**Chronic % CT[2]**	**Processing Factors**	**Acute & Chronic (Maximum Residues ppm)**
Horseradish	NB/PB	MRID 47021704 (radish roots)	12	100	100		0.01
Huckleberry	PB	MRID 42304201 (blueberry)	3	2.5	1.0		0.06
Kohlrabi	NB	MRID 47021701 (cabbage)	14	100	100		0.017
Leek	NB	MRID 47021703 (green onion)	6	100	100		0.014
Lettuce, head	NB/PB	MRID 46708533	14	100	100		0.0132
Lettuce, leaf	NB/PB	MRID 46708534	14	100	100		0.038
Loganberry	PB	MRID 42452803 (blackberry)	3	100	100		0.01
Nectarine[5]	NB	MRID 42476102 (peach)	6	100	100		0.04
Okra	NB/PB	MRID 46708530 (pepper)	14	100	100		0.01
Onion, bulb	NB/PB/B	MRID 47021703	14	100	100	9.0 dried	0.01
Onion, green	PB	MRID 47021703	6	100	100		0.014
Parsley, leaves	PB	MRID 46708540 (spinach)	14	100	100		0.188
Parsley, root	NB	MRID 47021704 (radish roots)	12	100	100		0.01
Parsnip	NB	MRID 47021704 (radish roots)	12	100	100		0.01
Peach	NB/PB	MRID 42476102	6	2.5	1.0	7.0 dried 1.5 juice	RDF 4 0.04
Pear	NB/PB	MRID 42177102 (apple)	15	2.5	1.0	6.25 dried	RDF 1 0.271
Pepper	NB/PB	MRID 46708530	14	100	100		0.01
Plum	NB/PB	MRID 42452804	2	100	100	5.0 prune dried 1.4 juice	0.46
Pumpkin	NB/PB	MRID 46708531 (cantaloupe)	18	100	100		0.01

Table 1. Residue Estimates Used in the BAM Dietary Analysis							
RAC	**Classification[1]**	**Data Source**	**No. of Samples**	**Acute % CT[2]**	**Chronic % CT[2]**	**Processing Factors**	**Acute & Chronic (Maximum Residues ppm)**
Radicchio	NB	MRID 46708533 (lettuce)	14	100	100		0.0132
Radish, root	PB	MRID 47021704	12	100	100		0.01
Radish, tops	PB	MRID 47021704	12	100	100		0.163
Raspberry	PB	MRID 42452803 (blackberry)	3	5.0	5.0		RDF 5 70.01
Rhubarb	NB	MRID 46708539 (celery)	12	100	100		0.041
Rutabaga	NB/PB	MRID 47021704 (radish roots)	12	100	100		0.01
Salisfy, roots	NB	MRID 47021704 (radish roots)	12	100	100		0.01
Salisfy, tops	NB	MRID 47021704 (radish tops)	12	100	100		0.163
Shallot	NB	MRID 47021703 (green onion)	6	100	100		0.014
Spinach	PB	MRID 46708540	14	100	100		0.188
Squash	NB/PB	MRID 46708538	12	100	100		0.01
Sweet Potato	NB/PB	MRID 47021704 (radish roots)	12	100	100		0.01
Swiss Chard	NB	MRID 46708539 (celery)	12	100	100		0.041
Tomatillo	NB	MRID 46708536 (tomato)	24	100	100		0.01
Tomato	NB/PB	MRID 46708536	24	100	100	5.4 paste 3.3 puree 14.3 dried 1.5 juice	0.01
Turmeric	NB	MRID 47021704 (radish roots)	12	100	100		0.01
Turnip, roots	NB/PB	MRID 47021704 (radish roots)	12	100	100		0.01
Water	--			--	--		0.0562

Table 1. Residue Estimates Used in the BAM Dietary Analysis							
RAC	Classification[1]	Data Source	No. of Samples	Acute % CT[2]	Chronic % CT[2]	Processing Factors	Acute & Chronic (Maximum Residues ppm)
Watermelon	NB/PB	MRID 46708531 (cantaloupe)	18	100	100		0.01
Yam	NB	MRID 47021704 (radish roots)	12	100	100		0.01

[1] B=Blended; PB=Partially Blended; NB=Not Blended

[2] Percent crop treated data were provided by the Biological and Economic Analysis Division (DP Num: 342741, J. Alsadek, Ph.D., 22-AUG-2007). "Percent of Crop Treated" values were used for the chronic assessment; "Maximum Percent of Crop Treated" values were used for the acute assessment.

[3] Blackberry residue was translated to and used in the dietary analysis for caneberry, subgroup 13A and wild raspberry.

[4] Blueberry residue was translated to and used in the dietary analysis for bushberry, Subgroup 13B.

[5] Peach residue was translated to apricot and nectarine. [HED SOP 200.1: Guidance for Translation of Field Trial Data from Representative Commodities in the Crop Group Regulation to Other Commodities in Each Crop Group/Subgroup, HED Standard Operating Procedure (12-SEP-2000)].

[6] Filberts, the highest reported residue was doubled to 0.02 because of approximately 50% degradation on storage.

III. Drinking Water Data

As discussed below, the drinking water residue level used in this dietary risk assessment is the estimate of residues of BAM from use of dichlobenil. This residue level was the highest, considering uses of dichlobenil, uses of fluopicolide, and uses of both fluopicolide and dichlobenil (on grapes and rhubarb, the only crops on which both pesticides will be registered). This assessment will use 56.2 ppb (from SCIGROW modeling of BAM residues from dichlobenil use on nutsedge) for the drinking water estimate for both the acute and chronic exposures.

Dichlobenil

The BAM residues in drinking water from use of dichlobenil were provided by the Environmental Fate and Effects Division (EFED) in the following memoranda: "Drinking Water Assessment for the BAM (2,6-Dichlorobenzamide) Degradate of Dichlobenil" (DP Num: 340773, J. Angier, Ph.D., 29-AUG-2007). The sums of the reported values were incorporated directly into this dietary assessment. Water residues were incorporated in the DEEM-FCID into the food categories "water, direct, all sources" and "water, indirect, all sources."

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This drinking water exposure assessment utilizes known physical/chemical characteristics of BAM, combined with estimated rates of formation of the degradate following dichlobenil application. The OPP/EFED *Tier 2* surface water model PRZM-EXAMS (Pesticide Root Zone Model - Exposure Analysis Modeling System) was used in this assessment. Percent Cropped Area (PCA) corrections were applied for appropriate crops as well. Currently registered and pending uses of dichlobenil were considered. Dichlobenil use is currently registered for control of weeds in fruit and nut orchards (6 lbs ai/acre) and non-crop areas (12 lbs ai/acre), and for control of nutsedge (10 lbs ai/acre). (Nutsedge usage was previously evaluated at 20 lbs ai/acre; the current label restricts this use to a maximum application rate of 10 lbs ai/acre.) A new use on rhubarb (2 lbs ai/acre) is pending. A screening assessment for the impact of BAM on potential groundwater drinking water sources, using the *Tier 1* groundwater model SCIGROW, has also been conducted.

Each run was performed using fate and mobility parameters for BAM only. To determine the equivalent amount of BAM degradate applied as a result of dichlobenil usage, the 'applied' BAM amounts were calculated by multiplying the maximum amount of BAM expected to form as a result of registered dichlobenil use (13.1%) by the (maximum allowed for each scenario) amounts of dichlobenil applied. However, since BAM has a different molecular weight (190.3 g/mol) than parent dichlobenil (172 g/L), a further correction was applied. Thus, in terms of total mass, BAM represents 14.5% of parent dichlobenil. Rhubarb and orchard values have had PCA adjustments of 87% applied, while the nutsedge control and other non-crop uses have no PCA applied.

SURFACE WATER DRINKING WATER CONCENTRATIONS (ppb) FOR THE DEGRADATE BAM (RESULTING FROM DICHLOBENIL USE), MODELED USING PRZM-EXAMS

Scenario Peak (*acute*)	1-in-10 Year Annual Mean	30 Year Overall Mean
FL turf (Nutsedge control):		
20.9	8.61	3.97
CA lettuce (surrogate for Rhubarb):		
12.9	6.59	3.69
FL turf (non-crop weed control):		
25.5	10.5	4.84
OR apple (Orchards):		
6.13	3.63	0.896

Results for estimated (high-end) groundwater BAM concentrations from SCIGROW were obtained using the maximum proposed application rates (adjusted to reflect 14.5% of applied dichlobenil) and the available fate parameters for BAM.

GROUND WATER DRINKING WATER CONCENTRATIONS FOR BAM,
RESULTING FROM PARENT DICHLOBENIL USE – MODELED USING SCIGROW

*SciGrow output for Nutsedge control use = **56.2 ppb***
SciGrow output for non-crop weed control use = 67.4 ppb
SciGrow output for Orchard use = 33.7 ppb
SciGrow output for Rhubarb use = 11.2 ppb

Since the weed control in non-crop areas is typically applied beneath a semi-protective
layer such as concrete, vinyl liner, etc., it is not expected to contribute substantially to
runoff or infiltration (as the covering will restrict contact with water). Thus, *for "non
crop area weed control" only*, the EECs are not truly representative of what would be
expected under approved usage patterns (e.g., under concrete, asphalt, etc).

Based on modeling results, the estimated ground water drinking water concentration for
BAM from use of dichlobenil is 56.2 ppb (based on SCIGROW modeling of dichlobenil
use on nutsedge). (The use for non-crop weed control is not expected to exceed the use
for nutsedge control on an actual use basis.) This BAM residue level is higher than
estimated residues in surface water.

Fluopicolide

The BAM residues in drinking water from use of fluopicolide were provided by the
EFED in the following memoranda: "*Drinking Water Exposure Assessment for
Fluopicolide Uses on Grapes, Vegetables, Potatoes, Sugar Beet, Onion, and Turf –
Exposure of 2,6-Dichlorobenzamide (BAM)* (DP Number 325804, J. Lin, 3-MAY-07).

This drinking water exposure memo addresses the human exposure of BAM through
ingestion of drinking water from uses of fluopicolide on grapes, vegetables, sugar beet,
onion and turf. The drinking water exposure of fluopicolide itself has been addressed in
an earlier drinking water exposure memo (07/MAR/2007). Surface water concentrations
were estimated using the Tier II model PRZM version 3.12 and EXAMS version 2.98.
Ground water concentrations were estimated using the Tier I SCI-GROW model.

Based on modeling results, the estimated surface water drinking water concentrations for
BAM from uses of fluopicolide are:

> 4.26 ug /L for the 1-in-10 year annual peak concentration (acute)
> 1.53 ug /L for the 1-in-10 year annual mean concentration (non-cancer chronic)

and

> 0.85 ug /L for the 30-year annual mean concentration (cancer chronic).

The 1-in-10 year annual peak (acute) was derived from modeling on Florida peppers.
The 1-in-10 year annual mean (non-cancer chronic) and the 30-year annual mean
concentration (cancer chronic) were derived from modeling on California lettuce. These
values were highest among all modeling scenarios examined.

The SCI-GROW estimated ground water drinking water concentrations for BAM form uses of fluopicolide are not expected to exceed 4.19 μg/L, which was based on 2 applications of 0.054 lb ai/A per application.

Dichlobenil and Fluopicolide

Grapes and rhubarb (a leafy vegetable) are the only crops on which both dichlobenil and fluopicolide are to be registered. The rates on grapes are 2 lb ai/A for dichlobenil and 0.375 lb ai/A for fluopicolide. The rates on rhubarb are also 2 lb ai/A for dichlobenil and 0.375 lb ai/A for fluopicolide. Since the rate for dichlobenil on nutsedge is much higher (10 lb ai/A), the dichlobenil use on nutsedge is expected to result in higher residues in drinking water.

IV. DEEM-FCID™ Program and Consumption Information

BAM acute and chronic dietary exposure assessments were conducted using the Dietary Exposure Evaluation Model software with the Food Commodity Intake Database DEEM-FCID™, Version 2.03, which incorporates consumption data from USDA's Continuing Surveys of Food Intakes by Individuals (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 highly refined assessments, any significant differences in user vs. per capita exposure and risk are specifically identified and noted in the risk assessment.

V. Toxicological Information

BAM toxicity was reassessed (R. Mitkus, RAB1, updated 09-AUG-07) as follows:

Table 2. Summary of Toxicological Doses and Endpoints for 2,6-Dichlorobenzamide (BAM) for Use in Dietary Exposure Assessments				
Exposure Scenario	**Point of Departure**	**Uncertainty/ FQPA Safety Factors**	**RfD, PAD, Level of Concern for Risk Assessment**	**Study and Toxicological Effects**
Acute Dietary (General population, including infants and children)	LOAEL = 100 mg/kg/day	UF_A = 10X UF_H = 10X FQPA $SF^{1,2}$ = 10X (includes UF_L and UF_{DB})	aRfD = aPAD **= 0.1 mg/kg/day**	**Dose-range finding assay for *in vivo* mouse erythrocyte micronucleus assay** LOAEL = 100 mg/kg/day based on lethargy after a single oral dose
Acute Dietary (Females 13-49 years of age)	NOAEL = 30 mg/kg/day	UF_A = 10X UF_H = 10X FQPA SF^1 = 10X (includes UF_{DB})	aRfD = aPAD **= 0.03 mg/kg/day**	**Developmental toxicity (rabbit)** Offspring LOAEL = 90 mg/kg/day based on increased incidences of late abortion and skeletal (bipartite interparietal bone) and visceral (postcaval lung lobe agenesis) anomalies
Chronic Dietary (All populations)	NOAEL = 4.5 mg/kg/day	UF_A = 10X UF_H = 10X FQPA SF^1 = 10X (includes UF_{DB})	cRfD = cPAD **= 0.0045 mg/kg/day**	**Chronic toxicity (dog)** LOAEL = 12.5 mg/kg/day based on decreased body weight and body weight gain
Cancer	**Classification:** Formally unclassified. The parent herbicide dichlobenil is classified as "Group C, possible human carcinogen" with RfD approach utilized for quantification of human risk. The parent fungicide fluopicolide is "not likely to be carcinogenic to humans."			

Abbreviations: UF = uncertainty factor, UF_A = extrapolation from animal to human (interspecies), UF_H = potential variation in sensitivity among members of the human population (intraspecies), FQPA SF = FQPA Safety Factor, UF_L = use of a LOAEL to extrapolate a NOAEL, UF_{DB} = to account for the absence of key data, NOAEL = no observed adverse effect level, LOAEL = lowest observed adverse effect level,

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RfD = reference dose (a = acute, c = chronic), PAD = population adjusted dose, MOE = margin of exposure,

[1] The FQPA SF has been retained in the form of a UF_{DB} for the lack of neurotoxicity, including olfactory toxicity, data.
[2] The FQPA SF has been retained in the form of a UF_L and UF_{DB} for the use of a LOAEL to extrapolate a NOAEL and for the lack of olfactory toxicity data.

VI.   Results/Discussion

As stated above, for acute and chronic assessments, the Agency is concerned when dietary risk exceeds 100% of the PAD. The DEEM-FCID™ analyses estimate the dietary exposure of the U.S. population and various population subgroups. The results reported in Tables 3 and 4 are for the general U.S. Population, all infants (<1 year old), children 1-2, children 3-5, children 6-12, youth 13-19, females 13-49, adults 20-49, and adults 50+ years. Cancer risk is determined for the general U.S. population only.

Results of Acute and Chronic Dietary (Food and Drinking Water) Exposure Analyses

The results of the acute dietary exposure analysis are reported in Table 3, below. A conservative acute and chronic (food and drinking water) exposure assessments were conducted. Maximum residues of BAM from fluopicolide field trials on root vegetables, leaves of root and tuber vegetables, bulb vegetables, and head and stem *Brassica*, and from dichlobenil field trials on food commodities with established/pending tolerances (40 CFR 180.231) were included in the assessments. The assessments used 100% crop treated except for apples, blueberries, cherries, cranberries, peaches, pears, and raspberries. No livestock tolerances are established or proposed for either fluopicolide or dichlobenil. DEEM default processing factors were used.

The drinking water residue level used in this dietary risk assessment is the estimate of residues of BAM from use of dichlobenil. This assessment will use 56.2 ppb (from SCIGROW modeling of BAM residues from dichlobenil use on nutsedge) for the drinking water estimate for both the acute and chronic exposures.

The results of the acute dietary analysis for food and drinking water indicate that acute dietary risks do not exceed the Agency's level of concern (<100% of the aPAD) for the U.S. population and all subgroups. Combined dietary from food and drinking water at the 99.9[th] percentile of exposure is estimated to be 0.011650 mg/kg/day for the overall U.S. population, equivalent to 12% of the aPAD. The population subgroup with the highest estimated acute dietary exposure are all infants (<1 year old) of 0.028470 mg/kg/day, equivalent to 28% of the aPAD.

Population Subgroup	aPAD (mg/kg/day)	95th Percentile		99th Percentile		99.9th Percentile	
		Exposure (mg/kg/day)	% aPAD	Exposure (mg/kg/day)	% aPAD	Exposure (mg/kg/day)	% aPAD
General U.S. Population	0.1	0.003294	3	0.005997	6	0.011650	12
All Infants (< 1 year old)		**0.011506**	**12**	**0.016406**	**16**	**0.028470**	**28**
Children 1-2 years old		0.005949	6	0.009911	10	0.017320	17
Children 3-5 years old		0.005021	5	0.007521	8	0.014934	15
Children 6-12 years old		0.003314	3	0.005349	5	0.008285	8
Youth 13-19 years old		0.002576	3	0.004146	4	0.007207	7
Adults 20-49 years old		0.002886	3	0.004726	5	0.008394	8
Adults 50+ years old		0.002726	3	0.003983	4	0.006591	7
Females 13-49 years old	**0.03**	**0.002926**	**10**	**0.004720**	**16**	**0.008495**	**28**

Table 3. Results of Acute Dietary for Food and Water using DEEM-FCID

As shown in Table 4, chronic dietary exposure estimates for food and drinking water are well below HED's level of concern (<100% cPAD) for all population subgroups. The dietary exposure is estimated at 0.001317 mg/kg/day for the general U.S. population (29% of the cPAD) and 0.004170 mg/kg/day (93% of the cPAD) for infants (<1 year old), the population subgroup with the highest estimated chronic dietary exposure to BAM from fluopicolide and dichlobenil.

Table 4. Summary of Dietary (Food and Drinking Water) Exposure and Risk for BAM						
Population Subgroup	Acute Dietary (99.9th Percentile)		Chronic Dietary		Cancer	
	Dietary Exposure (mg/kg/day)	% aPAD	Dietary Exposure (mg/kg/day)	% cPAD	Dietary Exposure (mg/kg/day)	Risk
General U.S. Population	0.011650	11	0.001317	29	*	*
All Infants (< 1 year old)	**0.028470**	**28**	**0.004170**	**93**	N/A	N/A
Children 1-2 years old	0.017320	17	0.002284	51		
Children 3-5 years old	0.014934	12	0.001985	44		
Children 6-12 years old	0.008285	7	0.001297	29		
Youth 13-19 years old	0.007207	7	0.000930	21		
Adults 20-49 years old	0.008394	8	0.001196	27		
Adults 50+ years old	0.006591	7	0.001288	29		
Females 13-49 years old	**0.008495**	**28**	0.001196	27		

* Classification: BAM is formally unclassified. The parent herbicide dichlobenil is classified as "Group C, possible human carcinogen" with RfD approach utilized for quantification of human risk. The quantification of cancer risk using the RfD approach is identical to the assessment for chronic effects; no separate carcinogenic risk assessment is necessary.   The parent fungicide fluopicolide is "not likely to be carcinogenic to humans."

VII.   Characterization of Inputs/Outputs

Conservative acute and chronic (food and drinking water) exposure assessments were conducted. Maximum residues of BAM from fluopicolide field trials on imported grapes and from dichlobenil field trials on food commodities with established/pending tolerances (40 CFR 180.231) were included in the assessment. The assessments used 100% crop treated except for apples, blueberries, cherries, cranberries, peaches, pears, and raspberries. No livestock tolerances are established or proposed for either fluopicolide or dichlobenil. DEEM default processing factors were used. Although not needed at this time, HED could refine the exposure and risk assessments with the following information: 1) additional projected market share/percent crop treated data; 2) anticipated residue data; and 3) processing studies.

VIII.   Conclusions

The results of the acute dietary analysis for food and drinking water indicate that acute dietary risks do not exceed the Agency's level of concern (<100% of the aPAD) for the U.S. population and all subgroups. Combined dietary from food and drinking water at

the 99.9[th] percentile of exposure is estimated to be 0.011650 mg/kg/day for the overall U.S. population, equivalent to 12% of the aPAD. The population subgroup with the highest estimated acute dietary exposure are all infants (<1 year old) of 0.028470 mg/kg/day, equivalent to 28% of the aPAD.

The results of the chronic dietary exposure estimates for food and drinking water are well below HED's level of concern (<100% cPAD) for all population subgroups. The dietary exposure is estimated at 0.001317 mg/kg/day for the general U.S. population (29% of the cPAD) and 0.004170 mg/kg/day (93% of the cPAD) for infants (<1 year old), the population subgroup with the highest estimated chronic dietary exposure to BAM from fluopicolide and dichlobenil.

IX.   List of Attachments

1. Residue Distribution Files for the Acute Analyses
2. Acute Food Plus Water Residue Input File
3. Acute Food Plus Water Results File
4. Chronic Food Plus Water Residue Input File
5. Chronic Food Plus Water Results File
6. Screening Level Estimates of Agricultural Uses of Dichlobenil

Attachment 1: Residue Distribution Files for the Acute Analyses

RDF #1 'Apple, maximum res FT data; 2.5%CT TOTALZ=39 TOTALNZ=1 0.271	RDF #2 'Blueberry, maximum res FT data; 2.5%CT TOTALZ=39 TOTALNZ=1 0.06
RDF#3 'Cherry, maximum res FT data; 2.5%CT TOTALZ=39 TOTALNZ=1 0.46	RDF#4 'Peach, maximum res FT data; 2.5%CT TOTALZ=39 TOTALNZ=1 0.04
RDF#5 'Raspberry, maximum res FT data; 5%CT TOTALZ=19 TOTALNZ=1 0.01	

Attachment 2: Acute Food plus Water Residue Input File

```
U.S. Environmental Protection Agency                          Ver. 2.02
DEEM-FCID Acute analysis for 2,6-DICHLOROBENZAMIDE (BAM)
Residue file name: C:\DEEMFCID\BAM\BAM_domestic_acutePP7E7172R98.R98
Analysis Date 03-18-2008           Residue file dated: 03-18-2008/11:39:42/8
Reference dose (aRfD) = 0.1 mg/kg bw/day
Comment: New uses from PP#7E7172 + dichlobenil
-------------------------------------------------------------------------
RDL indices and parameters for Monte Carlo Analysis:
Index Dist Parameter #1        Param #2   Param #3   Comment
  #   Code
----- ---- ------------        ----------- ----------- -----------
  1   6    apple.RDF
  2   6    blueberry.RDF
  3   6    Cherry.RDF
  4   6    Peach.RDF
  5   6    Raspberry.RDF

  EPA    Crop Food Name                        Def Res    Adj.Factors  RDL
Comment
  Code     Grp                                 (ppm)     #1     #2    Pntr
-------- ---- ------------------------------   ---------- ------ ------ --- ------
-
04010050 4A    Amaranth, leafy                 0.188000  1.000  1.000
11000070 11    Apple, fruit with peel          0.271000  1.000  1.000   1
11000080 11    Apple, peeled fruit             0.271000  1.000  1.000   1
11000081 11    Apple, peeled fruit-babyfood    0.271000  1.000  1.000   1
11000090 11    Apple, dried                    0.271000  8.000  1.000
11000091 11    Apple, dried-babyfood           0.271000  8.000  1.000
11000100 11    Apple, juice                    0.271000  1.300  1.000   1
11000101 11    Apple, juice-babyfood           0.271000  1.300  1.000   1
11000110 11    Apple, sauce                    0.271000  1.000  1.000   1
11000111 11    Apple, sauce-babyfood           0.271000  1.000  1.000   1
12000120 12    Apricot                         0.040000  1.000  1.000
12000121 12    Apricot-babyfood                0.040000  1.000  1.000
12000130 12    Apricot, dried                  0.040000  6.000  1.000
12000140 12    Apricot, juice                  0.040000  1.000  1.000
12000141 12    Apricot, juice-babyfood         0.040000  1.000  1.000
01030150 1CD   Arrowroot, flour                0.010000  1.000  1.000
01030151 1CD   Arrowroot, flour-babyfood       0.010000  1.000  1.000
01030170 1CD   Artichoke, Jerusalem            0.010000  1.000  1.000
04010180 4A    Arugula                         0.188000  1.000  1.000
09020210 9B    Balsam pear                     0.010000  1.000  1.000
01010500 1AB   Beet, garden, roots             0.010000  1.000  1.000        PP#7E7
    Full comment: PP#7E7172
01010501 1AB   Beet, garden, roots-babyfood    0.010000  1.000  1.000        PP#7E7
    Full comment: PP#7E7172
02000510 2     Beet, garden, tops              0.163000  1.000  1.000        PP#7E7
    Full comment: PP#7E7172
13010550 13A   Blackberry                      0.010000  1.000  1.000
13010560 13A   Blackberry, juice               0.010000  1.000  1.000
13010561 13A   Blackberry, juice-babyfood      0.010000  1.000  1.000
13020570 13B   Blueberry                       0.060000  1.000  1.000   2
13020571 13B   Blueberry-babyfood              0.060000  1.000  1.000   2
13010580 13A   Boysenberry                     0.010000  1.000  1.000        dichlo
    Full comment: dichlobenil
05010610 5A    Broccoli                        0.010000  1.000  1.000        PP#7E7
    Full comment: PP#7E7172
05010611 5A    Broccoli-babyfood               0.010000  1.000  1.000        PP#7E7
    Full comment: PP#7E7172
05010620 5A    Broccoli, Chinese               0.010000  1.000  1.000        PP#7E7
    Full comment: PP#7E7172
05010640 5A    Brussels sprouts                0.017000  1.000  1.000        PP#7E7
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        Full comment: PP#7E7172
01010670 1AB  Burdock                        0.010000  1.000  1.000      PP#7E7
        Full comment: PP#7E7172
05010690 5A   Cabbage                        0.017000  1.000  1.000      PP#7E7
        Full comment: PP#7E7172
05010710 5A   Cabbage, Chinese, napa         0.017000  1.000  1.000      PP#7E7
        Full comment: PP#7E7172
05010720 5A   Cabbage, Chinese, mustard      0.017000  1.000  1.000      PP#7E7
        Full comment: PP#7E7172
09010750 9A   Cantaloupe                     0.010000  1.000  1.000
04020760 4B   Cardoon                        0.041000  1.000  1.000
09010800 9A   Casaba                         0.010000  1.000  1.000
01030820 1CD  Cassava                        0.010000  1.000  1.000
01030821 1CD  Cassava-babyfood               0.010000  1.000  1.000
05010830 5A   Cauliflower                    0.010000  1.000  1.000      PP#7E7
        Full comment: PP#7E7172
01010840 1AB  Celeriac                       0.010000  1.000  1.000      PP#7E7
        Full comment: PP#7E7172
04020850 4B   Celery                         0.041000  1.000  1.000
04020851 4B   Celery-babyfood                0.041000  1.000  1.000
04020860 4B   Celery, juice                  0.041000  1.000  1.000
04020870 4B   Celtuce                        0.041000  1.000  1.000
09020880 9B   Chayote, fruit                 0.010000  1.000  1.000
12000900 12   Cherry                         0.460000  1.000  1.000    3
12000901 12   Cherry-babyfood                0.460000  1.000  1.000    3
12000910 12   Cherry, juice                  0.460000  1.500  1.000    3
12000911 12   Cherry, juice-babyfood         0.460000  1.500  1.000    3
01011000 1AB  Chicory, roots                 0.010000  1.000  1.000      PP#7E7
        Full comment: PP#7E7172
02001010 2    Chicory, tops                  0.163000  1.000  1.000      PP#7E7
        Full comment: PP#7E7172
09021020 9B   Chinese waxgourd               0.010000  1.000  1.000
19011030 19A  Chive                          0.014000  1.000  1.000      PP#7E7
        Full comment: PP#7E7172
04011040 4A   Chrysanthemum, garland         0.188000  1.000  1.000
04011330 4A   Cress, garden                  0.188000  1.000  1.000
04011340 4A   Cress, upland                  0.188000  1.000  1.000
09021350 9B   Cucumber                       0.010000  1.000  1.000
13021360 13B  Currant                        0.060000  1.000  1.000      dichlo
        Full comment: dichlobenil
13021370 13B  Currant, dried                 0.060000  1.000  1.000      dichlo
        Full comment: dichlobenil
04011380 4A   Dandelion, leaves              0.188000  1.000  1.000
01031390 1CD  Dasheen, corm                  0.010000  1.000  1.000
02001400 2    Dasheen, leaves                0.163000  1.000  1.000      PP#7E7
        Full comment: PP#7E7172
13011420 13A  Dewberry                       0.010000  1.000  1.000      dichlo
        Full comment: dichlobenil
08001480 8    Eggplant                       0.010000  1.000  1.000
13021490 13B  Elderberry                     0.060000  1.000  1.000      dichlo
        Full comment: dichlobenil
04011500 4A   Endive                         0.188000  1.000  1.000
04021520 4B   Fennel, Florence               0.041000  1.000  1.000
14001550 14   Filbert                        0.020000  1.000  1.000
14001560 14   Filbert, oil                   0.020000  1.000  1.000
03001640 3    Garlic                         0.014000  1.000  1.000      PP#7E7
        Full comment: PP#7E7172
03001650 3    Garlic, dried                  0.014000  1.000  1.000      PP#7E7
        Full comment: PP#7E7172
03001651 3    Garlic, dried-babyfood         0.014000  1.000  1.000      PP#7E7
        Full comment: PP#7E7172
01031660 1CD  Ginger                         0.010000  1.000  1.000
01031661 1CD  Ginger-babyfood                0.010000  1.000  1.000
01031670 1CD  Ginger, dried                  0.010000  1.000  1.000
01011680 1AB  Ginseng, dried                 0.010000  1.000  1.000      PP#7E7
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       Full comment: PP#7E7172
13021740 13B  Gooseberry                       0.060000  1.000  1.000      dichlo
       Full comment: dichlobenil
95001750 O    Grape                            0.100000  1.000  1.000
95001760 O    Grape, juice                     0.100000  1.200  1.000
95001761 O    Grape, juice-babyfood            0.100000  1.200  1.000
95001770 O    Grape, leaves                    0.100000  1.000  1.000
95001780 O    Grape, raisin                    0.100000  4.300  1.000
95001790 O    Grape, wine and sherry           0.100000  1.200  1.000
09011870 9A   Honeydew melon                   0.010000  1.000  1.000
01011900 1AB  Horseradish                      0.010000  1.000  1.000      PP#7E7
       Full comment: PP#7E7172
13021910 13B  Huckleberry                      0.060000  1.000  1.000      dichlo
       Full comment: dichlobenil
05011960 5A   Kohlrabi                         0.017000  1.000  1.000      PP#7E7
       Full comment: PP#7E7172
03001980 3    Leek                             0.014000  1.000  1.000      PP#7E7
       Full comment: PP#7E7172
04012040 4A   Lettuce, head                    0.013200  1.000  1.000
04012050 4A   Lettuce, leaf                    0.038000  1.000  1.000
13012080 13A  Loganberry                       0.010000  1.000  1.000      dichlo
       Full comment: dichlobenil
12002300 12   Nectarine                        0.040000  1.000  1.000
08002340 8    Okra                             0.010000  1.000  1.000
03002370 3    Onion, dry bulb                  0.010000  1.000  1.000      PP#7E7
       Full comment: PP#7E7172
03002371 3    Onion, dry bulb-babyfood         0.010000  1.000  1.000      PP#7E7
       Full comment: PP#7E7172
03002380 3    Onion, dry bulb, dried           0.010000  9.000  1.000      PP#7E7
       Full comment: PP#7E7172
03002381 3    Onion, dry bulb, dried-babyfood  0.010000  9.000  1.000      PP#7E7
       Full comment: PP#7E7172
03002390 3    Onion, green                     0.014000  1.000  1.000      PP#7E7
       Full comment: PP#7E7172
04012480 4A   Parsley, leaves                  0.188000  1.000  1.000
01012500 1AB  Parsley, turnip rooted           0.010000  1.000  1.000      PP#7E7
       Full comment: PP#7E7172
01012510 1AB  Parsnip                          0.010000  1.000  1.000      PP#7E7
       Full comment: PP#7E7172
01012511 1AB  Parsnip-babyfood                 0.010000  1.000  1.000      PP#7E7
       Full comment: PP#7E7172
12002600 12   Peach                            0.040000  1.000  1.000  4
12002601 12   Peach-babyfood                   0.040000  1.000  1.000  4
12002610 12   Peach, dried                     0.040000  7.000  1.000  4
12002611 12   Peach, dried-babyfood            0.040000  7.000  1.000  4
12002620 12   Peach, juice                     0.040000  1.500  1.000  4
12002621 12   Peach, juice-babyfood            0.040000  1.500  1.000  4
11002660 11   Pear                             0.271000  1.000  1.000  1
11002661 11   Pear-babyfood                    0.271000  1.000  1.000  1
11002670 11   Pear, dried                      0.271000  6.250  1.000  1
11002680 11   Pear, juice                      0.271000  1.000  1.000  1
11002681 11   Pear, juice-babyfood             0.271000  1.000  1.000  1
08002700 8    Pepper, bell                     0.010000  1.000  1.000
08002701 8    Pepper, bell-babyfood            0.010000  1.000  1.000
08002710 8    Pepper, bell, dried              0.010000  1.000  1.000
08002711 8    Pepper, bell, dried-babyfood     0.010000  1.000  1.000
08002720 8    Pepper, nonbell                  0.010000  1.000  1.000
08002721 8    Pepper, nonbell-babyfood         0.010000  1.000  1.000
08002730 8    Pepper, nonbell, dried           0.010000  1.000  1.000
12002850 12   Plum                             0.460000  1.000  1.000
12002851 12   Plum-babyfood                    0.460000  1.000  1.000
12002860 12   Plum, prune, fresh               0.460000  1.000  1.000
12002861 12   Plum, prune, fresh-babyfood      0.460000  1.000  1.000
12002870 12   Plum, prune, dried               0.460000  5.000  1.000
12002871 12   Plum, prune, dried-babyfood      0.460000  5.000  1.000
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12002880 12   Plum, prune, juice            0.460000   1.400  1.000
12002881 12   Plum, prune, juice-babyfood   0.460000   1.400  1.000
09023080 9B   Pumpkin                       0.010000   1.000  1.000
09023090 9B   Pumpkin, seed                 0.010000   1.000  1.000
04013130 4A   Radicchio                     0.013200   1.000  1.000
01013140 1AB  Radish, roots                 0.010000   1.000  1.000        PP#7E7
     Full comment: PP#7E7172
02003150 2    Radish, tops                  0.163000   1.000  1.000        PP#7E7
     Full comment: PP#7E7172
01013160 1AB  Radish, Oriental, roots       0.010000   1.000  1.000        PP#7E7
     Full comment: PP#7E7172
02003170 2    Radish, Oriental, tops        0.163000   1.000  1.000        PP#7E7
     Full comment: PP#7E7172
13013200 13A  Raspberry                     0.010000   1.000  1.000     5  dichlo
     Full comment: dichlobenil
13013201 13A  Raspberry-babyfood            0.010000   1.000  1.000     5
13013210 13A  Raspberry, juice              0.010000   1.000  1.000     5
13013211 13A  Raspberry, juice-babyfood     0.010000   1.000  1.000     5
04023220 4B   Rhubarb                       0.041000   1.000  1.000
01013270 1AB  Rutabaga                      0.010000   1.000  1.000        PP#7E7
     Full comment: PP#7E7172
01013310 1AB  Salsify, roots                0.010000   1.000  1.000        PP#7E7
     Full comment: PP#7E7172
02003320 2    Salsify, tops                 0.163000   1.000  1.000        PP#7E7
     Full comment: PP#7E7172
03003380 3    Shallot                       0.014000   1.000  1.000        PP#7E7
     Full comment: PP#7E7172
04013550 4A   Spinach                       0.188000   1.000  1.000
04013551 4A   Spinach-babyfood              0.188000   1.000  1.000
09023560 9B   Squash, summer                0.010000   1.000  1.000
09023561 9B   Squash, summer-babyfood       0.010000   1.000  1.000
09023570 9B   Squash, winter                0.010000   1.000  1.000
09023571 9B   Squash, winter-babyfood       0.010000   1.000  1.000
01033660 1CD  Sweet potato                  0.010000   1.000  1.000
01033661 1CD  Sweet potato-babyfood         0.010000   1.000  1.000
04023670 4B   Swiss chard                   0.041000   1.000  1.000
01033710 1CD  Tanier, corm                  0.010000   1.000  1.000
08003740 8    Tomatillo                     0.010000   1.000  1.000
08003750 8    Tomato                        0.010000   1.000  1.000
08003751 8    Tomato-babyfood               0.010000   1.000  1.000
08003760 8    Tomato, paste                 0.010000   5.400  1.000
08003761 8    Tomato, paste-babyfood        0.010000   5.400  1.000
08003770 8    Tomato, puree                 0.010000   3.300  1.000
08003771 8    Tomato, puree-babyfood        0.010000   3.300  1.000
08003780 8    Tomato, dried                 0.010000  14.300  1.000
08003781 8    Tomato, dried-babyfood        0.010000  14.300  1.000
08003790 8    Tomato, juice                 0.010000   1.500  1.000
01033870 1CD  Turmeric                      0.010000   1.000  1.000
01013880 1AB  Turnip, roots                 0.010000   1.000  1.000        PP#7E7
     Full comment: PP#7E7172
86010000 O    Water, direct, all sources    0.056200   1.000  1.000
86020000 O    Water, indirect, all sources  0.056200   1.000  1.000
09013990 9A   Watermelon                    0.010000   1.000  1.000
09014000 9A   Watermelon, juice             0.010000   1.000  1.000
01034060 1CD  Yam, true                     0.010000   1.000  1.000
01034070 1CD  Yam bean                      0.010000   1.000  1.000
```

Attachment 3: Acute Food Plus Water Results File

```
U.S. Environmental Protection Agency                        Ver. 2.02
DEEM-FCID ACUTE Analysis for 2,6-DICHLOROBENZAMIDE (BAM)      (1994-98 data)
Residue file: BAM_domestic_acutePP7E7172R98.R98      Adjustment factor #2 used.
Analysis Date: 03-18-2008/12:05:12   Residue file dated: 03-18-2008/11:39:42/8
Acute Pop Adjusted Dose (aPAD) varies with population; see individual reports
Daily totals for food and foodform consumption used.
MC iterations = 1000     MC list in residue file   MC seed = 10
Run Comment: "New uses from PP#7E7172 + dichlobenil"
================================================================================

Summary calculations (per capita):

                95th Percentile     99th Percentile     99.9th Percentile
                Exposure  % aPAD    Exposure  % aPAD    Exposure   % aPAD
                ---------- --------  ---------- --------  ---------- --------
U.S. Population:
                0.003294    3.29    0.005997    6.00    0.011650   11.65
All infants:
                0.011506   11.51    0.016406   16.41    0.028470   28.47
Children 1-2 yrs:
                0.005949    5.95    0.009911    9.91    0.017320   17.32
Children 3-5 yrs:
                0.005021    5.02    0.007521    7.52    0.014934   14.93
Children 6-12 yrs:
                0.003314    3.31    0.005349    5.35    0.008285    8.28
Youth 13-19 yrs:
                0.002576    2.58    0.004146    4.15    0.007207    7.21
Adults 20-49 yrs:
                0.002886    2.89    0.004726    4.73    0.008394    8.39
Adults 50+ yrs:
                0.002726    2.73    0.003983    3.98    0.006591    6.59
Females 13-49 yrs:
                0.002926    9.75    0.004720   15.73    0.008495   28.32
```

Attachment 4: Chronic Food Plus Water Residue Input File

```
U.S. Environmental Protection Agency                        Ver. 2.00
DEEM-FCID Chronic analysis for 2,6-DICHLOROBENZAMIDE (BAM)      1994-98 data
Residue file: C:\DEEMFCID\BAM\BAM_domestic_chronicPP7E7271.R98 Adjust. #2 used
Analysis Date 03-18-2008         Residue file dated: 03-18-2008/11:51:13/8
Reference dose (RfD) = 0.0045 mg/kg bw/day
Comment:New uses from PP#7E7172 + dichlobenil berries
--------------------------------------------------------------------------------
Food Crop                                Residue    Adj.Factors
Comment
EPA Code  Grp   Food Name                (ppm)
                                                     #1      #2
-------- ---- ------------------------------ ---------- ------    ------   -----
--
04010050 4A   Amaranth, leafy              0.188000  1.000    1.000
11000070 11   Apple, fruit with peel       0.271000  1.000    0.010
11000080 11   Apple, peeled fruit          0.271000  1.000    0.010
11000081 11   Apple, peeled fruit-babyfood 0.271000  1.000    0.010
11000090 11   Apple, dried                 0.271000  8.000    0.010
11000091 11   Apple, dried-babyfood        0.271000  8.000    0.010
11000100 11   Apple, juice                 0.271000  1.300    0.010
11000101 11   Apple, juice-babyfood        0.271000  1.300    0.010
11000110 11   Apple, sauce                 0.271000  1.000    0.010
```

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11000111 11   Apple, sauce-babyfood           0.271000  1.000    0.010
12000120 12   Apricot                         0.040000  1.000    1.000
12000121 12   Apricot-babyfood                0.040000  1.000    1.000
12000130 12   Apricot, dried                  0.040000  6.000    1.000
12000140 12   Apricot, juice                  0.040000  1.000    1.000
12000141 12   Apricot, juice-babyfood         0.040000  1.000    1.000
01030150 1CD  Arrowroot, flour                0.010000  1.000    1.000
01030151 1CD  Arrowroot, flour-babyfood       0.010000  1.000    1.000
01030170 1CD  Artichoke, Jerusalem            0.010000  1.000    1.000
04010180 4A   Arugula                         0.188000  1.000    1.000
09020210 9B   Balsam pear                     0.010000  1.000    1.000
01010500 1AB  Beet, garden, roots             0.010000  1.000    1.000
PP#7E7
  Full comment: PP#7E7172
01010501 1AB  Beet, garden, roots-babyfood    0.010000  1.000    1.000
PP#7E7
  Full comment: PP#7E7172
02000510 2    Beet, garden, tops              0.163000  1.000    1.000
PP#7E7
  Full comment: PP#7E7172
13010550 13A  Blackberry                      0.010000  1.000    1.000
13010560 13A  Blackberry, juice               0.010000  1.000    1.000
13010561 13A  Blackberry, juice-babyfood      0.010000  1.000    1.000
13020570 13B  Blueberry                       0.060000  1.000    0.010
13020571 13B  Blueberry-babyfood              0.060000  1.000    0.010
13010580 13A  Boysenberry                     0.010000  1.000    1.000
dichlo
  Full comment: dichlobenil
05010610 5A   Broccoli                        0.010000  1.000    1.000
PP#7E7
  Full comment: PP#7E7172
05010611 5A   Broccoli-babyfood               0.010000  1.000    1.000
PP#7E7
  Full comment: PP#7E7172
05010620 5A   Broccoli, Chinese               0.010000  1.000    1.000
PP#7E7
  Full comment: PP#7E7172
05010640 5A   Brussels sprouts                0.017000  1.000    1.000
PP#7E7
  Full comment: PP#7E7172
01010670 1AB  Burdock                         0.010000  1.000    1.000
PP#7E7
  Full comment: PP#7E7172
05010690 5A   Cabbage                         0.017000  1.000    1.000
PP#7E7
  Full comment: PP#7E7172
05010710 5A   Cabbage, Chinese, napa          0.017000  1.000    1.000
PP#7E7
  Full comment: PP#7E7172
05010720 5A   Cabbage, Chinese, mustard       0.017000  1.000    1.000
PP#7E7
  Full comment: PP#7E7172
09010750 9A   Cantaloupe                      0.010000  1.000    1.000
04020760 4B   Cardoon                         0.041000  1.000    1.000
09010800 9A   Casaba                          0.010000  1.000    1.000
01030820 1CD  Cassava                         0.010000  1.000    1.000
01030821 1CD  Cassava-babyfood                0.010000  1.000    1.000
05010830 5A   Cauliflower                     0.010000  1.000    1.000
PP#7E7
  Full comment: PP#7E7172
01010840 1AB  Celeriac                        0.010000  1.000    1.000
PP#7E7
  Full comment: PP#7E7172
04020850 4B   Celery                          0.041000  1.000    1.000
04020851 4B   Celery-babyfood                 0.041000  1.000    1.000
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04020860 4B   Celery, juice                 0.041000  1.000   1.000
04020870 4B   Celtuce                       0.041000  1.000   1.000
09020880 9B   Chayote, fruit                0.010000  1.000   1.000
12000900 12   Cherry                        0.460000  1.000   0.010
12000901 12   Cherry-babyfood               0.460000  1.000   0.010
12000910 12   Cherry, juice                 0.460000  1.500   0.010
12000911 12   Cherry, juice-babyfood        0.460000  1.500   0.010
01011000 1AB  Chicory, roots                0.010000  1.000   1.000
PP#7E7
   Full comment: PP#7E7172
02001010 2    Chicory, tops                 0.163000  1.000   1.000
PP#7E7
   Full comment: PP#7E7172
09021020 9B   Chinese waxgourd              0.010000  1.000   1.000
19011030 19A  Chive                         0.014000  1.000   1.000
PP#7E7
   Full comment: PP#7E7172
04011040 4A   Chrysanthemum, garland        0.188000  1.000   1.000
04011330 4A   Cress, garden                 0.188000  1.000   1.000
04011340 4A   Cress, upland                 0.188000  1.000   1.000
09021350 9B   Cucumber                      0.010000  1.000   1.000
13021360 13B  Currant                       0.060000  1.000   1.000
dichlo
   Full comment: dichlobenil
13021370 13B  Currant, dried                0.060000  1.000   1.000
dichlo
   Full comment: dichlobenil
04011380 4A   Dandelion, leaves             0.188000  1.000   1.000
01031390 1CD  Dasheen, corm                 0.010000  1.000   1.000
02001400 2    Dasheen, leaves               0.163000  1.000   1.000
PP#7E7
   Full comment: PP#7E7172
13011420 13A  Dewberry                      0.010000  1.000   1.000
dichlo
   Full comment: dichlobenil
08001480 8    Eggplant                      0.010000  1.000   1.000
13021490 13B  Elderberry                    0.060000  1.000   1.000
dichlo
   Full comment: dichlobenil
04011500 4A   Endive                        0.188000  1.000   1.000
04021520 4B   Fennel, Florence              0.041000  1.000   1.000
14001550 14   Filbert                       0.020000  1.000   1.000
14001560 14   Filbert, oil                  0.020000  1.000   1.000
03001640 3    Garlic                        0.014000  1.000   1.000
PP#737
   Full comment: PP#737172
03001650 3    Garlic, dried                 0.014000  1.000   1.000
PP#737
   Full comment: PP#737172
03001651 3    Garlic, dried-babyfood        0.014000  1.000   1.000
PP#737
   Full comment: PP#737172
01031660 1CD  Ginger                        0.010000  1.000   1.000
01031661 1CD  Ginger-babyfood               0.010000  1.000   1.000
01031670 1CD  Ginger, dried                 0.010000  1.000   1.000
01011680 1AB  Ginseng, dried                0.010000  1.000   1.000
PP#7E7
   Full comment: PP#7E7172
13021740 13B  Gooseberry                    0.060000  1.000   1.000
dichlo
   Full comment: dichlobenil
95001750 O    Grape                         0.100000  1.000   1.000
95001760 O    Grape, juice                  0.100000  1.200   1.000
95001761 O    Grape, juice-babyfood         0.100000  1.200   1.000
95001770 O    Grape, leaves                 0.100000  1.000   1.000
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95001780 O    Grape, raisin              0.100000  4.300  1.000
95001790 O    Grape, wine and sherry     0.100000  1.200  1.000
09011870 9A   Honeydew melon             0.010000  1.000  1.000
01011900 1AB  Horseradish                0.010000  1.000  1.000
PP#7E7
  Full comment: PP#7E7172
13021910 13B  Huckleberry                0.060000  1.000  1.000
dichlo
  Full comment: dichlobenil
05011960 5A   Kohlrabi                   0.017000  1.000  1.000
PP#7E7
  Full comment: PP#7E7172
03001980 3    Leek                       0.014000  1.000  1.000
PP#737
  Full comment: PP#737172
04012040 4A   Lettuce, head              0.013200  1.000  1.000
04012050 4A   Lettuce, leaf              0.038000  1.000  1.000
13012080 13A  Loganberry                 0.010000  1.000  1.000
dichlo
  Full comment: dichlobenil
12002300 12   Nectarine                  0.040000  1.000  1.000
08002340 8    Okra                       0.010000  1.000  1.000
03002370 3    Onion, dry bulb            0.010000  1.000  1.000
PP#737
  Full comment: PP#737172
03002371 3    Onion, dry bulb-babyfood   0.010000  1.000  1.000
PP#737
  Full comment: PP#737172
03002380 3    Onion, dry bulb, dried     0.010000  9.000  1.000
PP#737
  Full comment: PP#737172
03002381 3    Onion, dry bulb, dried-babyfood  0.010000  9.000  1.000
PP#737
  Full comment: PP#737172
03002390 3    Onion, green               0.014000  1.000  1.000
PP#737
  Full comment: PP#737172
04012480 4A   Parsley, leaves            0.188000  1.000  1.000
01012500 1AB  Parsley, turnip rooted     0.010000  1.000  1.000
PP#7E7
  Full comment: PP#7E7172
01012510 1AB  Parsnip                    0.010000  1.000  1.000
PP#7E7
  Full comment: PP#7E7172
01012511 1AB  Parsnip-babyfood           0.010000  1.000  1.000
PP#7E7
  Full comment: PP#7E7172
12002600 12   Peach                      0.040000  1.000  0.010
12002601 12   Peach-babyfood             0.040000  1.000  0.010
12002610 12   Peach, dried               0.040000  7.000  0.010
12002611 12   Peach, dried-babyfood      0.040000  7.000  0.010
12002620 12   Peach, juice               0.040000  1.500  0.010
12002621 12   Peach, juice-babyfood      0.040000  1.500  0.010
11002660 11   Pear                       0.271000  1.000  0.010
11002661 11   Pear-babyfood              0.271000  1.000  0.010
11002670 11   Pear, dried                0.271000  6.250  0.010
11002680 11   Pear, juice                0.271000  1.000  0.010
11002681 11   Pear, juice-babyfood       0.271000  1.000  0.010
08002700 8    Pepper, bell               0.010000  1.000  1.000
08002701 8    Pepper, bell-babyfood      0.010000  1.000  1.000
08002710 8    Pepper, bell, dried        0.010000  1.000  1.000
08002711 8    Pepper, bell, dried-babyfood  0.010000  1.000  1.000
08002720 8    Pepper, nonbell            0.010000  1.000  1.000
08002721 8    Pepper, nonbell-babyfood   0.010000  1.000  1.000
08002730 8    Pepper, nonbell, dried     0.010000  1.000  1.000
```

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12002850 12   Plum                             0.460000   1.000    1.000
12002851 12   Plum-babyfood                    0.460000   1.000    1.000
12002860 12   Plum, prune, fresh               0.460000   1.000    1.000
12002861 12   Plum, prune, fresh-babyfood      0.460000   1.000    1.000
12002870 12   Plum, prune, dried               0.460000   5.000    1.000
12002871 12   Plum, prune, dried-babyfood      0.460000   5.000    1.000
12002880 12   Plum, prune, juice               0.460000   1.400    1.000
12002881 12   Plum, prune, juice-babyfood      0.460000   1.400    1.000
09023080 9B   Pumpkin                          0.010000   1.000    1.000
09023090 9B   Pumpkin, seed                    0.010000   1.000    1.000
04013130 4A   Radicchio                        0.013200   1.000    1.000
01013140 1AB  Radish, roots                    0.010000   1.000    1.000
PP#7E7
  Full comment: PP#7E7172
02003150 2    Radish, tops                     0.163000   1.000    1.000
PP#7E7
  Full comment: PP#7E7172
01013160 1AB  Radish, Oriental, roots          0.010000   1.000    1.000
PP#7E7
  Full comment: PP#7E7172
02003170 2    Radish, Oriental, tops           0.163000   1.000    1.000
PP#7E7
  Full comment: PP#7E7172
13013200 13A  Raspberry                        0.010000   1.000    0.050
13013201 13A  Raspberry-babyfood               0.010000   1.000    0.050
13013210 13A  Raspberry, juice                 0.010000   1.000    0.050
13013211 13A  Raspberry, juice-babyfood        0.010000   1.000    0.050
04023220 4B   Rhubarb                          0.041000   1.000    1.000
01013270 1AB  Rutabaga                         0.010000   1.000    1.000
PP#7E7
  Full comment: PP#7E7172
01013310 1AB  Salsify, roots                   0.010000   1.000    1.000
PP#7E7
  Full comment: PP#7E7172
02003320 2    Salsify, tops                    0.163000   1.000    1.000
PP#7E7
  Full comment: PP#7E7172
03003380 3    Shallot                          0.014000   1.000    1.000
PP#737
  Full comment: PP#737172
04013550 4A   Spinach                          0.188000   1.000    1.000
04013551 4A   Spinach-babyfood                 0.188000   1.000    1.000
09023560 9B   Squash, summer                   0.010000   1.000    1.000
09023561 9B   Squash, summer-babyfood          0.010000   1.000    1.000
09023570 9B   Squash, winter                   0.010000   1.000    1.000
09023571 9B   Squash, winter-babyfood          0.010000   1.000    1.000
01033660 1CD  Sweet potato                     0.010000   1.000    1.000
01033661 1CD  Sweet potato-babyfood            0.010000   1.000    1.000
04023670 4B   Swiss chard                      0.041000   1.000    1.000
01033710 1CD  Tanier, corm                     0.010000   1.000    1.000
08003740 8    Tomatillo                        0.010000   1.000    1.000
08003750 8    Tomato                           0.010000   1.000    1.000
08003751 8    Tomato-babyfood                  0.010000   1.000    1.000
08003760 8    Tomato, paste                    0.010000   5.400    1.000
08003761 8    Tomato, paste-babyfood           0.010000   5.400    1.000
08003770 8    Tomato, puree                    0.010000   3.300    1.000
08003771 8    Tomato, puree-babyfood           0.010000   3.300    1.000
08003780 8    Tomato, dried                    0.010000  14.300    1.000
08003781 8    Tomato, dried-babyfood           0.010000  14.300    1.000
08003790 8    Tomato, juice                    0.010000   1.500    1.000
01033870 1CD  Turmeric                         0.010000   1.000    1.000
01013880 1AB  Turnip, roots                    0.010000   1.000    1.000
PP#7E7
  Full comment: PP#7E7172
86010000 O    Water, direct, all sources       0.056200   1.000    1.000
```

```
86020000 O    Water, indirect, all sources      0.056200  1.000     1.000
09013990 9A    Watermelon                        0.010000  1.000     1.000
09014000 9A    Watermelon, juice                 0.010000  1.000     1.000
01034060 1CD   Yam, true                         0.010000  1.000     1.000
01034070 1CD   Yam bean                          0.010000  1.000     1.000
```

Attachment 5: Chronic Food Plus Water Results File

```
U.S. Environmental Protection Agency                            Ver. 2.00
DEEM-FCID Chronic analysis for 2,6-DICHLOROBENZAMIDE (BAM)    (1994-98 data)
Residue file name: C:\DEEMFCID\BAM\BAM_domestic_chronicPP7E7271.R98
                                             Adjustment factor #2 used.
Analysis Date 03-18-2008/11:51:31    Residue file dated: 03-18-2008/11:51:13/8
Reference dose (RfD, Chronic) = .0045 mg/kg bw/day
COMMENT 1: New uses from PP#7E7172 + dichlobenil berries
=================================================================================
                    Total exposure by population subgroup
---------------------------------------------------------------------------------
```

	Total Exposure	
Population Subgroup	mg/kg body wt/day	Percent of Rfd
U.S. Population (total)	0.001317	29.3%
U.S. Population (spring season)	0.001305	29.0%
U.S. Population (summer season)	0.001418	31.5%
U.S. Population (autumn season)	0.001268	28.2%
U.S. Population (winter season)	0.001275	28.3%
Northeast region	0.001236	27.5%
Midwest region	0.001322	29.4%
Southern region	0.001244	27.6%
Western region	0.001501	33.4%
Hispanics	0.001459	32.4%
Non-hispanic whites	0.001295	28.8%
Non-hispanic blacks	0.001237	27.5%
Non-hisp/non-white/non-black	0.001578	35.1%
All infants (< 1 year)	0.004170	92.7%
Nursing infants	0.001591	35.4%
Non-nursing infants	0.005149	114.4%
Children 1-6 yrs	0.002037	45.3%
Children 7-12 yrs	0.001225	27.2%
Females 13-19 (not preg or nursing)	0.000912	20.3%
Females 20+ (not preg or nursing)	0.001293	28.7%
Females 13-50 yrs	0.001244	27.7%
Females 13+ (preg/not nursing)	0.001246	27.7%
Females 13+ (nursing)	0.001742	38.7%
Males 13-19 yrs	0.000941	20.9%
Males 20+ yrs	0.001155	25.7%
Seniors 55+	0.001292	28.7%
Children 1-2 yrs	0.002284	50.7%
Children 3-5 yrs	0.001985	44.1%
Children 6-12 yrs	0.001297	28.8%
Youth 13-19 yrs	0.000930	20.7%
Adults 20-49 yrs	0.001196	26.6%

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Adults 50+ yrs                          0.001288            28.6%
Females 13-49 yrs                       0.001196            26.6%
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Attachment 6: Screening Level Estimates of Agricultural Uses of Dichlobenil

Screening Level Estimates of Agricultural Uses of Dichlobenil			
Crop	Pounds of Active Ingredient	Percent of Crop Treated	Maximum Percent of Crop Treated
Apples	6,000	<1	<2.5
Blueberries	<500	<1	<2.5
Cherries	2,000	<1	<2.5
Cranberries	30,000	45	--
Grapes	3,000	<1	<2.5
Peaches	1,000	<1	<2.5
Pears	<500	<1	<2.5
Raspberries	1,000	5	5
Strawberries*	<500	<1	<2.5

*No tolerance is established on strawberries.