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

Office of Prevention, Pesticides
and Toxic Substances

June 23, 2003

SUBJECT: Carbaryl: Risk Mitigation Addendum For Phase 5 Risk Assessment; DP Barcode: D290975; PC Code: 056801

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Attached are a series of updated risk estimates that have been completed based on inputs determined in negotiations between the registrant for carbaryl, Bayer Crop Protection, and the Agency. These revisions focus on additional information that has been considered related to occupational aerial applicators and reentry workers as well as residential handlers. The potential impact on children's exposure from the use of granular instead of liquid products has also been evaluated. Specifically, the evaluation includes a proposal from Bayer Crop Science related to the data used to assess the aerial application of carbaryl (May 29, 2003), modified transfer coefficients for selected crop groups in the occupational postapplication calculations, and the impact of packaging modifications for residential handlers (i.e., ready-to-use for lawn liquid broadcast and smaller sized ready-to-use dust containers). Bayer is a member of the Outdoor Residential Exposure Task Force (ORETF) whose data show that there could potentially be exposure reductions for children if granular products are used instead of liquid broadcast products. The potential for risk reduction for granular use over liquid broadcast use was also evaluated. In all cases, the risks associated with carbaryl use for the specified scenarios, which could be considered quantitatively, were reduced. In other cases (e.g., aerial applicator issue and granular turf issue), the Agency provided information on how data were currently used in the assessment, the need for additional data, and how these data might impact the risk estimates.

Issue 1: Bayer's Proposed Risk Mitigation For Aerial Applications of Carbaryl (5/29/03)

The Agency completed a series of calculations in its updated occupational risk assessment chapter which was completed on February 20, 2003 (DP Barcode 287251, Author: Jeff Dawson). The results indicated for many of the mixer/loader functions which support aerial application operations that engineering controls are required or the risks exceeded the Agency's level of concern even with engineering controls. In most cases, when engineering controls were insufficient, MOEs were in the 50 to 60 range or so with a few notable exceptions including high rate/high acreage mosquito control scenarios and for wettable powder use in forestry. Bayer essentially accepts these risk estimates but points out that the data used by the Agency are from the Pesticide Handlers Exposure Database (PHED) which they say are dated and do not reflect the most up-to-date exposure monitoring technology or engineering control technology. The Agency concurs that additional data reflecting more up-to-date technologies could be used to refine PHED estimates. It is possible, that more up-to-date technology may lower exposure estimates compared to the data currently being used in PHED because newer systems would likely be better engineered and have less potential for contact with chemical concentrates (i.e., they would likely better approximate a truly closed system). In the interim, however, the Agency believes that the currently available PHED data provide the best possible estimates of exposure and risk for the aerial mixer/loader scenarios considered in the carbaryl assessment.

For aerial applicators (i.e., pilots), results were similar in that engineering controls are also needed and risks for many scenarios are still of concern even with closed cockpit aircraft. For pilots, high acreage use in agriculture (e.g., 1200 acres on corn) is a concern but with an MOE of 85. For wide area uses such as APHIS/grasshopper or mosquito control only the lowest rates considered had risks that are not of concern. For scenarios that were of concern MOEs ranged from ~15 up through ~90. Bayer essentially accepts these risk estimates but points out that the Pesticide Handlers Exposure Database (PHED) data upon which these are based are not directly applicable to higher acreage estimates. This is because larger aircraft such as the Douglas DC3 require less landings and takeoffs to cover larger numbers of acres and it is thought exposures would be reduced because the number of entrances into the plane after each landing would greatly be reduced. The number of entrances into planes is thought to have an impact on exposure (i.e., from contact with contaminated fuselage parts). The Agency concurs that additional data reflecting these larger aircraft are needed for PHED in order to better refine the risk estimates associated with their use. In the interim, however, the Agency believes that the existing PHED data provide the best possible estimates of exposure and risk for the aerial applicator scenarios considered in the carbaryl assessment.

Issue 2: Bayer's Proposed Risk Mitigation For Occupational Reentry Workers

In several comments received by the Agency Bayer Crop Sciences commented that the Agency should consider additional information from the Agricultural Reentry Task Force (ARTF) related to the transfer coefficients used in assessments. The Agency has considered these comments and has made some modifications to the transfer coefficients used based on further review of ARTF data and review of a greenhouse study completed by the California

Department of Pesticide Regulation. Specifically, changes were made or additional characterization language was provided that pertained to the following transfer coefficient crop groups commonly used by the Agency.

- Cut Flowers;
- Tree "fruit", Evergreen;
- Turf/sod; and
- Vine & trellis crops.

The specific changes to the transfer coefficients or characterization language for each group is provided below. The calculations that were modified as a result of these transfer coefficient changes are provided in Appendix A which is attached to this document.

Cut Flower Crop Group: Overall, the data for this crop grouping are extremely weak due to methodology issues and a general lack of data. The transfer coefficients that the Agency has historically used are based on work conducted by Brouwer et al in the Netherlands on carnations and roses (i.e., ranged from 2500 to 7000 cm^2/hr depending on the activity). In this crop group the predominant exposures occur to the hands and forearms. In the Brouwer work, only cotton gauntlets were used to monitor. It is thought that cotton dosimeters on the hands generally provide an overestimate of exposure. Bayer Crop Sciences, in comments to the Agency, referenced a study conducted by the California Department of Pesticide Regulation (HS-1835; Dated November 19, 2002; *Pesticide Exposure of Workers In Greenhouses*) which the Agency considered for risk assessment purposes. In fact, the Agency decided that this study is a more appropriate source of information for calculating risks for greenhouse workers than the Brouwer data. The transfer coefficients determined from this study are 500 cm^2/hour for carnation harvest and 2600 cm^2/hour for rose harvest. These values have been used in the calculations for this crop group found in Appendix A along with the Brouwer-based TC of 7000 cm^2/hour for comparative purposes. The CADPR study also has several issues associated with it including: workers wore gloves and, in some cases additional clothing, which appear to be common in this industry; recovery data were not available; a handwipe instead of wash technique was used; and dislodgeable foliar residue samples were not collected in a manner consistent with current approaches (the way DFRs were processed may actually drive up TC estimates). Bayer Crop Sciences is a member of the ARTF which is currently in the process of conducting a more definitive study in the cut-flower industry which will likely be considered in the future as a more reliable source of information for these activities. In fact, the quality of this study was discussed at a recent joint regulatory meeting of the task force and it was decided that the study would not be included in the ARTF database.

Tree "fruit", Evergreen Crop Group: The issue related to this crop group was characterization of where the pruning activity fell in the different exposure ranges for this crop group. In the current policy, the transfer coefficient for pruning is 1500 cm^2/hour. Bayer Crop Science's comment is that pruning should be calculated using a transfer coefficient of 500 cm^2/hour based on ARTF data. The proposed ARTF cluster for pruning has a geometric mean TC of 493 cm^2/hour and an arithmetic mean TC of 582 cm^2/hour. This cluster contained an apple pruning study and an olive pruning study which had very different

transfer coefficients which probably occurred because of leaf type and foliage level differences. Olive leaves are thought to be more like citrus leaves so the Agency has opted to use the results only from the olive pruning study for this assessment. The olive pruning study also actually used carbaryl so it should be considered chemical-specific in this case. The geometric mean TC was 818 cm^2/hour and the arithmetic mean TC was 850 cm^2/hour for this study. There is also another study on citrus pruning on chlorpyrifos (which was used in that RED, MRID 430627-01) which can be used to characterize the pruning activity. In this study, that average TC was ~1350 cm^2/hour. Given that the olive pruning study was scenario- and chemical-specific for carbaryl and given the higher trend in TC estimates illustrated by the chlorpyrifos data, the Agency has decided to use a TC of 1000 cm^2/hour to represent the pruning activity for carbaryl on evergreen tree crops (Appendix A).

Turf/sod Crop Group: The issue for this crop group is that the recent ARTF data for this cluster should be used instead of the existing transfer coefficients of 500 cm^2/hour and 16500 cm^2/hour which were based, respectively, on a chlorothalonil turf mowing study and a 5 percent transferability estimate and use of the Jazzercize approach for the high intensity contact activity. The two studies conducted by ARTF were golf course maintenance and sod farm harvesting. Both studies used chlorothalonil and the ORETF roller technique to define turf transferable residue (TTR) levels. There was a significant issue with the golf course maintenance study related to the manner in which the TTRs were measured because the turf which was sampled was repeatedly mowed therefore driving down TTR values and driving the transfer coefficients up. The problem with this approach is that most TTR studies are not conducted with this technique so an adjustment based on the exposure rates (mg/hour) for the workers compared to the sod farm harvesters was completed in order to use the carbaryl-specific TTR data for all activities. For the sod farm harvesting activity, transfer coefficients were calculated by both the ARTF and Health Canada, and the arithmetic mean calculated by Health Canada of 6800 cm^2/hour was used to represent this activity for risk assessment purposes. When adjusted for application rate, the exposure rate (mg/hour) for golf course workers was approximately ½ that of sod farm harvesters so a transfer coefficient of 3400 cm^2/hour was used to represent that activity. All calculations are included in Appendix A. The values based on a TC of 500 cm^2/hour for mowing have been included for comparative purposes only because they are outdated. In the sod farm harvesting study, the majority of activity was mowing and the transferability was approximately 1 percent whereas the outdated 500 cm^2/hour TC value was based on a transferability of 5 percent. As such, it is recommended that the TC of 3400 cm^2/hour also be used to represent the mowing activity.

Vine & trellis Crop Group: The issue with this crop grouping is that the current TC policy has not been upgraded yet to reflect the results of ARTF study ARF020 which monitored blackberry harvest. The Agency concurs with Bayer Crop Sciences that exposures from blackberry harvest differ from grape harvest because of the level of contact associated with each activity. In the current policy, a transfer coefficient of 5000 cm^2/hour from a hand harvesting raisin grape study is used for all hand harvest activities. This is not believed by ARTF to be representative for the harvest of caneberries which is why ARF020 was conducted. The geometric and arithmetic mean transfer coefficients for blackberry hand

harvest as calculated by Health Canada are 1052 and 1110 cm^2/hour. Based on this information and the belief that the culture of blackberries varies from grapes, a transfer coefficient of 1100 cm^2/hour was used to assess risks for blackberry hand harvesting. The associated calculations are provided in Appendix A.

Issue 3: Evaluation of Proposed Risk Mitigation Options For Residential Handlers

In the negotiation process, risk mitigation options were determined for two residential products including garden and ornamental dusts (Scenario 2) and hose-end lawn care treatments (Scenario 8). The proposal for the dust products is to limit the amount of material per container which is thought to reduce risks because it will likely limit the amount of material handled by homeowners on a per event basis (0.05 lb ai/container). This approach is predicated on the lack of a true application rate for these types of products and the general *ad libitum* nature of their use. For the lawncare treatments, open loading would be eliminated from the process through the use of a ready-to-use container and the amount of area treated per container would be reduced to approximately 1/4 acre of turf. For larger acreages the thought is that granular products would be used because of cost concerns. All calculations are provided in Appendix B.

Specifically, for the dusts, the existing scenarios and additional scenarios using 25, 50, and 100 percent of a 0.05 lb ai container are included. The existing scenarios are included only for comparative purposes. For the lawncare use, open loading with hose-end sprayer application was considered for the existing scenarios of 20000 ft^2 (broadcast treatment) and 1000 ft^2 (spot treatment) as well as other values for amount treated ranging from 5000 ft^2 to 15000 ft^2. Similar calculations were completed for a ready-to-use hose end sprayer device (which eliminates the open mixing aspect of the application process) using the same acreage treated estimates as before.

Issue 4: Revised Aggregate Risk Calculations

In order to fully understand the risk mitigation options related to Issue 3 above, the Agency completed aggregate risk calculations for the scenarios described above. The calculations are included in Appendix C. The dietary and water EEC values have not been altered from the March 14, 2003 risk assessment for carbaryl (D287532).

Issue 5: Impact of Using Granular Formulations On Turf Instead Of Liquids

The potential impact on exposures from of the use of a granular formulation instead of a liquid formulation for lawn broadcast treatments has been investigated. This process considered seminal work in the residential exposure assessment area that was conducted by Dow Chemicals in the early to mid 1990s and the latest proposal for calculating residential risks from treated turf from the Outdoor Residential Exposure Task Force (ORETF).

Two studies were conducted by Dow (Vaccaro *et al* in 1993/MRID 430135-01 and 1996/MRID 441671-01) which evaluated biological exposures from chlorpyrifos treated turf. In these studies, prescribed activities designed to simulate children's behaviors were

monitored, using biological monitoring, on treated turf. The routines completed and clothing worn by the participants were identical in both cases. The major differences were that the 1993 study was completed after a liquid broadcast application to turf at 4.1 lb ai/acre and the 1996 study was completed after a granular application to turf at 2 lb ai/acre. Results were reported as absorbed dose estimates for adults. In the 1993 liquid application study, the absorbed dose estimate was 7.1 µg/kg-bw/4 lb ai/A which when normalized for application rate results in an absorbed dose rate per pound of active ingredient applied of 1.73 µg/kg-bw/lb ai applied. Conversely, in the 1996 granular application study, the absorbed dose estimate was 1.1 µg/kg-bw/2 lb ai/A which when normalized for application rate results in an absorbed dose rate per pound of active ingredient applied of 0.55 µg/kg-bw/lb ai applied. With this information, the ratio of absorbed dose differences between the formulations can be calculated (i.e., 1.73/0.55 = **3.1x**) to determine a crude estimate of the potential for risk mitigation when using granular formulations. The key issues that should be considered with these calculations is that these two studies are the only ones with such matched data in existence that can be used for this comparison. Differences in chemical behaviors in the environment and from a pharmacokinetic perspective may influence how this ratio could be applied in the carbaryl process.

Consideration of the ratio calculated above is one approach that can be used to predict the potential exposure reduction that could be associated with the use of a granular product instead of a liquid product. Another approach that has been considered is based on the latest proposals for calculating postapplication dermal exposures from the Outdoor Residential Exposure Task Force (ORETF) and by considering the range of experimental observations that serve as the basis for the Agency's methods for calculating exposures from mouthing behaviors. This approach does not reflect current Agency policy and should only be considered as a rangefinder assessment that was completed just to ascertain the range of potential impacts that could occur with the use of a granular formulation. The rationale for including it in this discussion is that Bayer is a member of the ORETF and the dermal element integrates data for both liquid and granular products which would allow for comparisons of these formulation types.

The proposal from ORETF related to dermal exposure uses data from 15 different residential exposure studies to define an algorithm that can be used to calculate exposures from varying turf transferable residue (TTR) concentrations regardless of whether or not the formulation is a liquid or granular. The equation is as follows:

$$(\text{Log Dermal Exposure } (\mu g/hr))^2 = 21.74 + (5.177 * \text{Log TTR } (\mu g/cm^2))$$

This equation has been used to calculate risks for comparative purposes against the current SOP methodology for both granular and liquid formulations (Appendix D). The carbaryl liquid broadcast TTR study has been used with this equation to calculate risks using the proposed ORETF approach. A factor based on the recent "Moses Lake" exposure study completed by ORETF that monitored exposures to granular and liquid formulations was

calculated and used to adjust the carbaryl TTRs to a "granular" formulation (i.e., ORETF Draft *The Algorithm For Defining the Relationship of Transferable Turf Residues to Post-Application Dermal Exposure*, 5/23/03). These "adjusted granular TTR data" were then used to calculate risks for comparison to the liquid-based estimates.

The TTR data used for the carbaryl turf risk assessments came from a study conducted in Georgia with groundboom application at 8.17 lb ai/acre. The initial TTR concentration was 1.12 µg/cm^2 which corresponded to an initial transferability of 1.2 percent (MRID 451143-01). The adjustment factor used to define "granular carbaryl TTRs" represented the average ratios of initial TTR values for liquids to granular formulations used in the ORETF exposure study conducted in Moses Lake Washington in 2002 which used both liquid and granular formulations of the same active ingredient. The adjustment factor was calculated using the following data (Table 1):

Table 1: Calculation of Granular TTR Adjustment Factor Using ORETF Moses Lake Data

Study Location	Application Rate (lb ai/acre)	Deposition (µg/cm^2)	Initial TTR (µg/cm^2)	Initial TTR (% transferability)	Average Initial TTR (% transferability)
Granular Formulations					
ML CHAPS1	0.053	0.595	0.000196	0.012	0.013
ML CHAPS 2			0.000162	0.0096	
ML Jazz 1			0.000318	0.019	
ML Jazz 2			0.000206	0.012	
Liquid Formulations					
ML CHAPS1	0.50	5.609	0.006	3.37	3.06
ML CHAPS 2			0.00237	1.33	
ML Jazz 1			0.0106	5.95	
ML Jazz 2			0.00285	1.60	
ML = Moses Lake WA ORETF Exposure Study, ratio of liquid/granular average TTRs = **235x**					

The results of the above calculation could easily be construed to represent that the use of granular formulations would represent an overall reduction in exposures, and hence risks, of **235x**. This is not the case, however, because a large contribution to overall risks can be attributed to the mouthing behaviors of children. It is unlikely that similar reductions would occur to doses from mouthing because the level of transferability would not directly correlate since children often mouth their hands and objects with saliva that would likely enhance residue transfer rates. The Agency does, however, fully anticipate that the use of granular formulations would likely reduce exposures from mouthing behaviors because of the general trend in TTR reduction seen with the use of granular formulations. The degree of this reduction is uncertain. To address this, the Agency considered the range of residue transferability observed in Clothier et al (see SOP 2.3.2 revision in Expo Sac Policy 12, Feb 22, 2001) which was from ~0.15 percent to ~4.2 percent or roughly a **30x** difference. This

difference was considered in conjunction with the 235x adjustment for dermal TTRs described above to calculate the potential for risk reduction associated with the use of a granular formulation.

When the SOPs are used, the aggregate Day 0 MOE for liquids is ~5 which is consistent with the current assessment. In this calculation, the actual carbaryl TTRs have been used because their percent transferability is >1 percent as well as the SOP approaches for mouthing behaviors. For the granular estimates based on the SOPs, the liquid carbaryl TTRs were adjusted to obtain a "carbaryl granular TTR" and the TTRs for mouthing behaviors were adjusted based on Clothier et al to simulate the potential effect when using a granular instead of liquid formulation. The aggregate Day 0 MOE for this scenario was 176 but should be considered with extreme caution since the impact of dermal exposure was essentially nonexistent in this approach and the method used to calculate is thought to provide a severe underestimate of exposure due to the low transferability of the residues. When the ORETF algorithm was used for liquids, risks actually worsened to an aggregate MOE of ~2 because dermal risks worsened. For granulars, the aggregate MOE again worsened when the ORETF algorithm was used to ~70 because dermal exposure was again a significant contributor to the overall risk. See Appendix D for more details of these analyses.

In summary, these two analyses should be considered only for rangefinder purposes because of the key uncertainties associated with the inputs used. It is clear, however, that additional data are required to establish that a transition for carbaryl from liquid formulations to granular formulations is sufficient enough to reduce risks for children playing on treated lawns to acceptable levels. The rangefinder estimates do show that the risk picture indeed would likely improve when a granular material is used. Establishing the exact extent of that improvement is difficult, however, given the confounding information seen between the two analyses completed using the Vacarro chlorpyrifos studies and the modifications explored related to the deterministic approaches based on the SOPs For Residential Exposure Assessment. As such, it is recommended that a biological monitoring study using a granular formulation of carbaryl analogous to that completed using a liquid formulation of carbaryl be completed. In conjunction with this study, additional residue studies should be completed that quantify turf transferable residues using the ORETF modified California roller approach (for dermal exposure assessment) and a hand press study designed to quantify transferable residues that would be used to assess exposures from the mouthing behaviors of children.

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Appendix A/Table 1: Inputs For Carbaryl Occupational Postapplication Risk Assessment

Occupational Post-Application Risk Assessment Calculator Version 1 (8/9/00)

Chemical:	Carbaryl
Reason:	Risk Management Analysis For Phase 5 Carbaryl (w/TC modificati
Date:	6/05/03
Assessor:	J. Dawson

Applicable TC Groups:

Cut Flower
Tree, "fruit", Evergreen
Turf/Sod
Vine & trellis crops

[Note: Only applicable TC groups are included above.]

DFR/TTR Data Defaults:

Initial Percent of Rate as DFR (%):	20
Dissipation Rate per day (%):	10
Initial Percent of Rate as TTR (%):	5

Toxicology & Exposure Factor Inputs:

Short-term Uncertainty Factor:	100
NOAEL (mg/kg/day):	20
Source of NOAEL:	21 day dermal - rat
Intermediate-Term NOAEL:	20
Intermediate-Term UF:	100
Source of NOAEL:	21 day dermal - rat
Chronic LOAEL:	3.1
Chronic UF:	300
Source of LOAEL:	1 Year Dog Feeding Stuc
Adult Exposure Duration (hrs/day):	8
Adult Body Weight (kg):	70
Short-/Inter.-term dermal absorption (%):	100
Chron/Canc dermal absorption. (%):	12.7
Source of Dermal Absorption Factor:	Rat Dermal Absorption Stu
Q1* (mg/kg/day)-1:	0.000875
Professional Ag Worker (days/yr):	30
Private Grower (days.yr):	10
Years worked	35
Lifetime	70
Days/yr:	365

Note: If a dermal administration toxicity study is the source of the endpoint used for risk assessment, then the dermal absorption factor is set to 100 % to satisfy the calculations in this spreadsheet program.

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Appendix A/Table 2: Carbaryl Occupational Postapplication Noncancer Risk Assessment For The Cut Flower Crop Group

Occupational Post-Application Risk Assessment Calculator Version 1 (8/9/00)

Chemical:	Carbaryl
Reason:	Risk Management Analysis For Phase 5 Carbaryl (w/TC modifications)
Date:	6/05/03
Transfer Coefficient Group:	Cut Flowers
Specific Crop(s) Considered:	Floriculture Crops
Application Rate of Crop (lb ai/A):	2

DFR Data Summary

Data Source (enter 1 if data available, 0 if defaults):	1
Source:	ARTF Cabbage Weeding Study (Groundboom Application), MRID 451917-01
Slope of Semilog Regression:	-0.19023
[Initial] (ug/cm2):	2.46
Study Application Rate (lb ai/A):	2.07
Limit of Quantification (ug/cm2):	0.0025

[Note: Enter application rate of crop if no data available in study rate cell.]

Exposure Inputs Summary

Exposure Potential	Transfer Coefficients (cm2/hour)		Activities
	Used For RA	Range	
Very Low	N/A	N/A	N/A
Low	500	379 to 705	Carnation harvesting - CDPR data
Medium	2600	1700 to 3400	Rose harvesting - CDPR data
High	7000	2400 to 13000	Old Brouwer data - for comparative purposes only
Very High	N/A	N/A	N/A

DAT	DFR LEVELS (ug/cm2)		DOSE (mg/kg/day)			MOES		
	Not Adjusted	Adjusted For Rate	Low Exposure	Medium Exposure	High Exposure	Low Exposure	Medium Exposure	High Exposure
0	2.460	2.377	0.13582	0.70625	1.90145	147.3	28.3	10.5
1	2.034	1.965	0.11229	0.58391	1.57206	178.1	34.3	12.7
2	1.682	1.625	0.09284	0.48276	1.29973	215.4	41.4	15.4
3	1.390	1.343	0.07676	0.39913	1.07458	260.6	50.1	18.6
4	1.149	1.111	0.06346	0.32999	0.88843	315.2	60.6	22.5
5	0.950	0.918	0.05247	0.27282	0.73452	381.2	73.3	27.2
6	0.786	0.759	0.04338	0.22556	0.60728	461.1	88.7	32.9
7	0.650	0.628	0.03586	0.18649	0.50208	557.7	107.2	39.8
8	0.537	0.519	0.02965	0.15418	0.41511	674.5	129.7	48.2
9	0.444	0.429	0.02451	0.12747	0.34320	815.9	156.9	58.3
10	0.367	0.355	0.02027	0.10539	0.28374	986.8	189.8	70.5
11	0.304	0.293	0.01676	0.08713	0.23459	1193.6	229.5	85.3
12	0.251	0.242	0.01385	0.07204	0.19395	1443.7	277.6	103.1
13	0.207	0.200	0.01145	0.05956	0.16035	1746.1	335.8	124.7
14	0.172	0.166	0.00947	0.04924	0.13258	2112.0	406.2	150.9
15	0.142	0.137	0.00783	0.04071	0.10961	2554.5	491.3	182.5
16	0.117	0.113	0.00647	0.03366	0.09062	3089.8	594.2	220.7
17	0.097	0.094	0.00535	0.02783	0.07492	3737.2	718.7	266.9
18	0.080	0.077	0.00442	0.02301	0.06194	4520.2	869.3	322.9
19	0.066	0.064	0.00366	0.01902	0.05121	5467.3	1051.4	390.5
20	0.055	0.053	0.00302	0.01573	0.04234	6612.9	1271.7	472.3
21	0.045	0.044	0.00250	0.01300	0.03501	7998.5	1538.2	571.3
22	0.037	0.036	0.00207	0.01075	0.02894	9674.3	1860.5	691.0
23	0.031	0.030	0.00171	0.00889	0.02393	11701.4	2250.3	835.8
24	0.026	0.025	0.00141	0.00735	0.01978	14153.2	2721.8	1010.9
25	0.021	0.020	0.00117	0.00608	0.01636	17118.6	3292.0	1222.8
26	0.017	0.017	0.00097	0.00502	0.01352	20705.5	3981.8	1479.0
27	0.014	0.014	0.00080	0.00415	0.01118	25043.8	4816.1	1788.8
28	0.012	0.012	0.00066	0.00343	0.00924	30291.2	5825.2	2163.7
29	0.010	0.010	0.00055	0.00284	0.00764	36638.1	7045.8	2617.0
30	0.008	0.008	0.00045	0.00235	0.00632	44314.8	8522.1	3165.3
Int-Term (30 day average)	0.457	0.441	0.02522	0.13115	0.35310	793	152	57
Chronic (30 day average)	0.457	0.441	0.00320	0.01666	0.04484	967.8	186.1	69.1

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Appendix A/Table 3: Carbaryl Occupational Postapplication Cancer Risk Assessment For The Cut Flower Crop Group

Occupational Post-Application Risk Assessment Calculator Version 1 (8/9/00)

Chemical:	Carbaryl
Reason:	Risk Management Analysis For Phase 5 Carbaryl (w/TC modifications)
Date:	6/05/03
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High	7000	2400 to 13000	Old Brouwer data - for comparative purposes only
Very High	N/A	N/A	N/A

DAT	DFR LEVELS (ug/cm2)		AVERAGE DAILY DOSE (ADD) (mg/kg/day)			RISKS FOR PRIVATE GROWERS						RISKS FOR PROFESSIONAL FARMWORKERS					
						Low Exposure		Medium Exposure		High Exposure		Low Exposure		Medium Exposure		High Exposure	
	Not Adjusted	Adjusted For Rate	Low Exposure	Medium Exposure	High Exposure	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk
0	2.460	2.377	0.0172	0.0897	0.2415	2.4E-004	2.1E-007	1.2E-003	1.1E-006	3.3E-003	2.9E-006	7.1E-004	6.2E-007	3.7E-003	3.2E-006	9.9E-003	8.7E-006
1	2.034	1.965	0.0143	0.0742	0.1997	2.0E-004	1.7E-007	1.0E-003	8.9E-007	2.7E-003	2.4E-006	5.9E-004	5.1E-007	3.0E-003	2.7E-006	8.2E-003	7.2E-006
2	1.682	1.625	0.0118	0.0613	0.1651	1.6E-004	1.4E-007	8.4E-004	7.3E-007	2.3E-003	2.0E-006	4.8E-004	4.2E-007	2.5E-003	2.2E-006	6.8E-003	5.9E-006
3	1.390	1.343	0.0097	0.0507	0.1365	1.3E-004	1.2E-007	6.9E-004	6.1E-007	1.9E-003	1.6E-006	4.0E-004	3.5E-007	2.1E-003	1.8E-006	5.6E-003	4.9E-006
4	1.149	1.111	0.0081	0.0419	0.1128	1.1E-004	9.7E-008	5.7E-004	5.0E-007	1.5E-003	1.4E-006	3.3E-004	2.9E-007	1.7E-003	1.5E-006	4.6E-003	4.1E-006
5	0.950	0.918	0.0067	0.0346	0.0933	9.1E-005	8.0E-008	4.7E-004	4.2E-007	1.3E-003	1.1E-006	2.7E-004	2.4E-007	1.4E-003	1.2E-006	3.8E-003	3.4E-006
6	0.786	0.759	0.0055	0.0286	0.0771	7.5E-005	6.6E-008	3.9E-004	3.4E-007	1.1E-003	9.2E-007	2.3E-004	2.0E-007	1.2E-003	1.0E-006	3.2E-003	2.8E-006
7	0.650	0.628	0.0046	0.0237	0.0638	6.2E-005	5.5E-008	3.2E-004	2.8E-007	8.7E-004	7.6E-007	1.9E-004	1.6E-007	9.7E-004	8.5E-007	2.6E-003	2.3E-006
8	0.537	0.519	0.0038	0.0196	0.0527	5.2E-005	4.5E-008	2.7E-004	2.3E-007	7.2E-004	6.3E-007	1.5E-004	1.4E-007	8.0E-004	7.0E-007	2.2E-003	1.9E-006
9	0.444	0.429	0.0031	0.0162	0.0436	4.3E-005	3.7E-008	2.2E-004	1.9E-007	6.0E-004	5.2E-007	1.3E-004	1.1E-007	6.7E-004	5.8E-007	1.8E-003	1.6E-006
10	0.367	0.355	0.0026	0.0134	0.0360	3.5E-005	3.1E-008	1.8E-004	1.6E-007	4.9E-004	4.3E-007	1.1E-004	9.3E-008	5.5E-004	4.8E-007	1.5E-003	1.3E-006
11	0.304	0.293	0.0021	0.0111	0.0298	2.9E-005	2.6E-008	1.5E-004	1.3E-007	4.1E-004	3.6E-007	8.7E-005	7.7E-008	4.5E-004	4.0E-007	1.2E-003	1.1E-006
12	0.251	0.242	0.0018	0.0091	0.0246	2.4E-005	2.1E-008	1.3E-004	1.1E-007	3.4E-004	3.0E-007	7.2E-005	6.3E-008	3.8E-004	3.3E-007	1.0E-003	8.9E-007
13	0.207	0.200	0.0015	0.0076	0.0204	2.0E-005	1.7E-008	1.0E-004	9.1E-008	2.8E-004	2.4E-007	6.0E-005	5.2E-008	3.1E-004	2.7E-007	8.4E-004	7.3E-007
14	0.172	0.166	0.0012	0.0063	0.0168	1.6E-005	1.4E-008	8.6E-005	7.5E-008	2.3E-004	2.0E-007	4.9E-005	4.3E-008	2.6E-004	2.2E-007	6.9E-004	6.1E-007
15	0.142	0.137	0.0010	0.0052	0.0139	1.4E-005	1.2E-008	7.1E-005	6.2E-008	1.9E-004	1.7E-007	4.1E-005	3.6E-008	2.1E-004	1.9E-007	5.7E-004	5.0E-007
16	0.117	0.113	0.0008	0.0043	0.0115	1.1E-005	9.9E-009	5.9E-005	5.1E-008	1.6E-004	1.4E-007	3.4E-005	3.0E-008	1.8E-004	1.5E-007	4.7E-004	4.1E-007
17	0.097	0.094	0.0007	0.0035	0.0095	9.3E-006	8.1E-009	4.8E-005	4.2E-008	1.3E-004	1.1E-007	2.8E-005	2.4E-008	1.5E-004	1.3E-007	3.9E-004	3.4E-007
18	0.080	0.077	0.0006	0.0029	0.0079	7.7E-006	6.7E-009	4.0E-005	3.5E-008	1.1E-004	9.4E-008	2.3E-005	2.0E-008	1.2E-004	1.1E-007	3.2E-004	2.8E-007
19	0.066	0.064	0.0005	0.0024	0.0065	6.4E-006	5.6E-009	3.3E-005	2.9E-008	8.9E-005	7.8E-008	1.9E-005	1.7E-008	9.9E-005	8.7E-008	2.7E-004	2.3E-007
20	0.055	0.053	0.0004	0.0020	0.0054	5.3E-006	4.6E-009	2.7E-005	2.4E-008	7.4E-005	6.4E-008	1.6E-005	1.4E-008	8.2E-005	7.2E-008	2.2E-004	1.9E-007
21	0.045	0.044	0.0003	0.0017	0.0044	4.4E-006	3.8E-009	2.3E-005	2.0E-008	6.1E-005	5.3E-008	1.3E-005	1.1E-008	6.8E-005	5.9E-008	1.8E-004	1.6E-007
22	0.037	0.036	0.0003	0.0014	0.0037	3.6E-006	3.1E-009	1.9E-005	1.6E-008	5.0E-005	4.4E-008	1.1E-005	9.4E-009	5.6E-005	4.9E-008	1.5E-004	1.3E-007
23	0.031	0.030	0.0002	0.0011	0.0030	3.0E-006	2.6E-009	1.5E-005	1.4E-008	4.2E-005	3.6E-008	8.9E-006	7.8E-009	4.6E-005	4.1E-008	1.2E-004	1.1E-007
24	0.026	0.025	0.0002	0.0009	0.0025	2.5E-006	2.2E-009	1.3E-005	1.1E-008	3.4E-005	3.0E-008	7.4E-006	6.5E-009	3.8E-005	3.4E-008	1.0E-004	9.0E-008
25	0.021	0.020	0.0001	0.0008	0.0021	2.0E-006	1.8E-009	1.1E-005	9.2E-009	2.8E-005	2.5E-008	6.1E-006	5.3E-009	3.2E-005	2.8E-008	8.5E-005	7.5E-008
26	0.017	0.017	0.0001	0.0006	0.0017	1.7E-006	1.5E-009	8.7E-006	7.6E-009	2.4E-005	2.1E-008	5.0E-006	4.4E-009	2.6E-005	2.3E-008	7.1E-005	6.2E-008
27	0.014	0.014	0.0001	0.0005	0.0014	1.4E-006	1.2E-009	7.2E-006	6.3E-009	1.9E-005	1.7E-008	4.2E-006	3.6E-009	2.2E-005	1.9E-008	5.8E-005	5.1E-008
28	0.012	0.012	0.0001	0.0004	0.0012	1.1E-006	1.0E-009	6.0E-006	5.2E-009	1.6E-005	1.4E-008	3.4E-006	3.0E-009	1.8E-005	1.6E-008	4.8E-005	4.2E-008
29	0.010	0.010	0.0001	0.0004	0.0010	9.5E-007	8.3E-010	4.9E-006	4.3E-009	1.3E-005	1.2E-008	2.8E-006	2.5E-009	1.5E-005	1.3E-008	4.0E-005	3.5E-008
30	0.008	0.008	0.0001	0.0003	0.0008	7.9E-007	6.9E-010	4.1E-006	3.6E-009	1.1E-005	9.6E-009	2.4E-006	2.1E-009	1.2E-005	1.1E-008	3.3E-005	2.9E-008

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Appendix A/Table 4: Carbaryl Postapplication Noncancer Risk Assessment For Evergreen Tree Crop Group

Occupational Post-Application Risk Assessment Calculator Version 1 (8/9/00)

Chemical:	Carbaryl
Reason:	Risk Management Analysis For Phase 5 Carbaryl (w/TC modifications)
Date:	6/05/03
Transfer Coefficient Group:	Evergreen Tree Fruit
Specific Crop(s) Considered:	Avocados, conifers, dates, grapefruit, lemons, mangoes, oranges, papaya
Application Rate of Crop (lb ai/A):	7.5

DFR Data Summary

Data Source (enter 1 if data available, 0 if defaults):	1
Source:	ARTF Olive Pruning Study (Airblast Application), MRID 451751-02
Slope of Semilog Regression:	-0.09877
[Initial] (ug/cm2):	3.067
Study Application Rate (lb ai/A):	7.65
Limit of Quantification (ug/cm2):	0.0025

[Note: Enter application rate of crop if no data available in study rate cell.]

Exposure Inputs Summary

Exposure Potential	Transfer Coefficients (cm2/hour)		Activities
	Used For RA	Range	
Very Low	100	100	propping
Low	1000	197 to 2302	Irrigation, pruning, scouting, hand weeding, thinning Christmas trees,
Medium	1500	360 to 4000	harvesting, polination, bagging, tying, misc. hand labor, staking, topping, training,
High	3000	1400 to 4000	thinning
Very High	N/A	N/A	N/A

DAT	DFR LEVELS (ug/cm2)		DOSE (mg/kg/day)				MOEs			
	Not Adjusted	Adjusted For Rate	Very Low Exposure	Low Exposure	Medium Exposure	High Exposure	Very Low Exposure	Low Exposure	Medium Exposure	High Exposure
0	3.067	3.007	0.0344	0.3436	0.5155	1.0309	582	58	39	19
1	2.779	2.724	0.0311	0.3113	0.4670	0.9340	642	64	43	21
2	2.517	2.468	0.0282	0.2820	0.4231	0.8461	709	71	47	24
3	2.280	2.236	0.0256	0.2555	0.3833	0.7666	783	78	52	26
4	2.066	2.026	0.0231	0.2315	0.3472	0.6945	864	86	58	29
5	1.872	1.835	0.0210	0.2097	0.3146	0.6291	954	95	64	32
6	1.696	1.662	0.0190	0.1900	0.2850	0.5700	1053	105	70	35
7	1.536	1.506	0.0172	0.1721	0.2582	0.5164	1162	116	77	39
8	1.392	1.364	0.0156	0.1559	0.2339	0.4678	1283	128	86	43
9	1.261	1.236	0.0141	0.1413	0.2119	0.4238	1416	142	94	47
10	1.142	1.120	0.0128	0.1280	0.1920	0.3839	1563	156	104	52
11	1.035	1.015	0.0116	0.1159	0.1739	0.3478	1725	172	115	57
12	0.937	0.919	0.0105	0.1050	0.1576	0.3151	1904	190	127	63
13	0.849	0.833	0.0095	0.0952	0.1427	0.2855	2102	210	140	70
14	0.769	0.754	0.0086	0.0862	0.1293	0.2586	2320	232	155	77
15	0.697	0.683	0.0078	0.0781	0.1172	0.2343	2561	256	171	85
16	0.632	0.619	0.0071	0.0708	0.1061	0.2123	2826	283	188	94
17	0.572	0.561	0.0064	0.0641	0.0962	0.1923	3120	312	208	104
18	0.518	0.508	0.0058	0.0581	0.0871	0.1742	3444	344	230	115
19	0.470	0.460	0.0053	0.0526	0.0789	0.1578	3801	380	253	127
20	0.425	0.417	0.0048	0.0477	0.0715	0.1430	4196	420	280	140
21	0.385	0.378	0.0043	0.0432	0.0648	0.1295	4632	463	309	154
22	0.349	0.342	0.0039	0.0391	0.0587	0.1174	5112	511	341	170
23	0.316	0.310	0.0035	0.0354	0.0532	0.1063	5643	564	376	188
24	0.287	0.281	0.0032	0.0321	0.0482	0.0963	6229	623	415	208
25	0.260	0.255	0.0029	0.0291	0.0436	0.0873	6876	688	458	229
26	0.235	0.231	0.0026	0.0264	0.0395	0.0791	7589	759	506	253
27	0.213	0.209	0.0024	0.0239	0.0358	0.0716	8377	838	558	279
28	0.193	0.189	0.0022	0.0216	0.0324	0.0649	9247	925	616	308
29	0.175	0.171	0.0020	0.0196	0.0294	0.0588	10207	1021	680	340
30	0.158	0.155	0.0018	0.0178	0.0266	0.0533	11266	1127	751	376
Int-Term (30 day average)	1.003	0.983	0.0112	0.1124	0.1685	0.3371	1780	178	119	59

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Appendix A/Table 5: Carbaryl Postapplication Cancer Risk Assessment For Evergreen Tree Crop Group

Occupational Post-Application Risk Assessment Calculator Version 1 (8/9/00)

Chemical:	Carbaryl
Reason:	Risk Management Analysis For Phase 5 Carbaryl (w/TC modifications)
Date:	6/05/03
Transfer Coefficient Group:	Evergreen Tree Fruit
Specific Crop(s) Considered:	Avocados, conifers, dates, grapefruit, lemons, mangoes, oranges, papaya
Application Rate of Crop (lb ai/A):	7.5

DFR Data Summary

Data Source (enter 1 if data available, 0 if defaults):	1
Source:	ARTF Olive Pruning Study (Airblast Application), MRID 451751-02
Slope of Semilog Regression:	-0.09877
[Initial] (ug/cm2):	3.067
Study Application Rate (lb ai/A):	7.65
Limit of Quantification (ug/cm2):	0.0025

[Note: Enter application rate of crop if no data available in study rate cell.]

Exposure Inputs Summary

Exposure Potential	Transfer Coefficients (cm2/hour)		Activities
	Used For RA	Range	
Very Low	100	100	propping
Low	1000	197 to 2302	trrigation, pruning, scouting, hand weeding, thinning Christmas trees,
Medium	1500	360 to 4000	harvesting, polination, bagging, tying, misc. hand labor, staking, topping, training,
High	3000	1400 to 4000	thinning
Very High	N/A	N/A	N/A

DAT	DFR LEVELS (ug/cm2)		AVERAGE DAILY DOSE (ADD) (mg/kg/day)				RISKS FOR PRIVATE GROWERS								RISKS FOR PROFESSIONAL FARMWORKERS							
							Very Low Exposure		Low Exposure		Medium Exposure		High Exposure		Very Low Exposure		Low Exposure		Medium Exposure		High Exposure	
	Not Adjusted	Adjusted For Rate	Very Low Exposure	Low Exposure	Medium Exposure	High Exposure	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk
0	3.0670	3.0069	4.4E-003	0.0436	0.065	0.131	6.0E-005	5.2E-008	6.0E-004	5.2E-007	9.0E-004	7.8E-007	1.8E-003	1.6E-006	1.8E-004	1.6E-007	1.8E-003	1.6E-006	2.7E-003	2.4E-006	5.4E-003	4.7E-006
1	2.7786	2.7241	4.0E-003	0.0395	0.059	0.119	5.4E-005	4.7E-008	5.4E-004	4.7E-007	8.1E-004	7.1E-007	1.6E-003	1.4E-006	1.6E-004	1.4E-007	1.6E-003	1.4E-006	2.4E-003	2.1E-006	4.9E-003	4.3E-006
2	2.5172	2.4679	3.6E-003	0.0358	0.054	0.107	4.9E-005	4.3E-008	4.9E-004	4.3E-007	7.4E-004	6.4E-007	1.5E-003	1.3E-006	1.5E-004	1.3E-007	1.5E-003	1.3E-006	2.2E-003	1.9E-006	4.4E-003	3.9E-006
3	2.2805	2.2358	3.2E-003	0.0325	0.049	0.097	4.4E-005	3.9E-008	4.4E-004	3.9E-007	6.7E-004	5.8E-007	1.3E-003	1.2E-006	1.3E-004	1.2E-007	1.3E-003	1.2E-006	2.0E-003	1.8E-006	4.0E-003	3.5E-006
4	2.0660	2.0255	2.9E-003	0.0294	0.044	0.088	4.0E-005	3.5E-008	4.0E-004	3.5E-007	6.0E-004	5.3E-007	1.2E-003	1.1E-006	1.2E-004	1.1E-007	1.2E-003	1.1E-006	1.8E-003	1.6E-006	3.6E-003	3.2E-006
5	1.8717	1.8350	2.7E-003	0.0266	0.040	0.080	3.6E-005	3.2E-008	3.6E-004	3.2E-007	5.5E-004	4.8E-007	1.1E-003	9.6E-007	1.1E-004	9.6E-008	1.1E-003	9.6E-007	1.6E-003	1.4E-006	3.3E-003	2.9E-006
6	1.6957	1.6624	2.4E-003	0.0241	0.036	0.072	3.3E-005	2.9E-008	3.3E-004	2.9E-007	5.0E-004	4.3E-007	9.9E-004	8.7E-007	9.9E-005	8.7E-008	9.9E-004	8.7E-007	1.5E-003	1.3E-006	3.0E-003	2.6E-006
7	1.5362	1.5061	2.2E-003	0.0219	0.033	0.066	3.0E-005	2.6E-008	3.0E-004	2.6E-007	4.5E-004	3.9E-007	9.0E-004	7.9E-007	9.0E-005	7.9E-008	9.0E-004	7.9E-007	1.3E-003	1.2E-006	2.7E-003	2.4E-006
8	1.3917	1.3644	2.0E-003	0.0198	0.030	0.059	2.7E-005	2.4E-008	2.7E-004	2.4E-007	4.1E-004	3.6E-007	8.1E-004	7.1E-007	8.1E-005	7.1E-008	8.1E-004	7.1E-007	1.2E-003	1.1E-006	2.4E-003	2.1E-006
9	1.2608	1.2361	1.8E-003	0.0179	0.027	0.054	2.5E-005	2.2E-008	2.5E-004	2.2E-007	3.7E-004	3.2E-007	7.4E-004	6.5E-007	7.4E-005	6.5E-008	7.4E-004	6.5E-007	1.1E-003	9.7E-007	2.2E-003	1.9E-006
10	1.1422	1.1199	1.6E-003	0.0163	0.024	0.049	2.2E-005	1.9E-008	2.2E-004	1.9E-007	3.3E-004	2.9E-007	6.7E-004	5.8E-007	6.7E-005	5.8E-008	6.7E-004	5.8E-007	1.0E-003	8.8E-007	2.0E-003	1.8E-006
11	1.0348	1.0145	1.5E-003	0.0147	0.022	0.044	2.0E-005	1.8E-008	2.0E-004	1.8E-007	3.0E-004	2.6E-007	6.1E-004	5.3E-007	6.1E-005	5.3E-008	6.1E-004	5.3E-007	9.1E-004	7.9E-007	1.8E-003	1.6E-006
12	0.9375	0.9191	1.3E-003	0.0133	0.020	0.040	1.8E-005	1.6E-008	1.8E-004	1.6E-007	2.7E-004	2.4E-007	5.5E-004	4.8E-007	5.5E-005	4.8E-008	5.5E-004	4.8E-007	8.2E-004	7.2E-007	1.6E-003	1.4E-006
13	0.8493	0.8327	1.2E-003	0.0121	0.018	0.036	1.7E-005	1.4E-008	1.7E-004	1.4E-007	2.5E-004	2.2E-007	5.0E-004	4.3E-007	5.0E-005	4.3E-008	5.0E-004	4.3E-007	7.5E-004	6.5E-007	1.5E-003	1.3E-006
14	0.7694	0.7544	1.1E-003	0.0109	0.016	0.033	1.5E-005	1.3E-008	1.5E-004	1.3E-007	2.2E-004	2.0E-007	4.5E-004	3.9E-007	4.5E-005	3.9E-008	4.5E-004	3.9E-007	6.7E-004	5.9E-007	1.3E-003	1.2E-006
15	0.6971	0.6834	9.9E-004	0.0099	0.015	0.030	1.4E-005	1.2E-008	1.4E-004	1.2E-007	2.0E-004	1.8E-007	4.1E-004	3.6E-007	4.1E-005	3.6E-008	4.1E-004	3.6E-007	6.1E-004	5.4E-007	1.2E-003	1.1E-006
16	0.6315	0.6191	9.0E-004	0.0090	0.013	0.027	1.2E-005	1.1E-008	1.2E-004	1.1E-007	1.8E-004	1.6E-007	3.7E-004	3.2E-007	3.7E-005	3.2E-008	3.7E-004	3.2E-007	5.5E-004	4.8E-007	1.1E-003	9.7E-007
17	0.5721	0.5609	8.1E-004	0.0081	0.012	0.024	1.1E-005	9.8E-009	1.1E-004	9.8E-008	1.7E-004	1.5E-007	3.3E-004	2.9E-007	3.3E-005	2.9E-008	3.3E-004	2.9E-007	5.0E-004	4.4E-007	1.0E-003	8.8E-007
18	0.5183	0.5082	7.4E-004	0.0074	0.011	0.022	1.0E-005	8.8E-009	1.0E-004	8.8E-008	1.5E-004	1.3E-007	3.0E-004	2.7E-007	3.0E-005	2.7E-008	3.0E-004	2.7E-007	4.5E-004	4.0E-007	9.1E-004	8.0E-007
19	0.4696	0.4604	6.7E-004	0.0067	0.010	0.020	9.2E-006	8.0E-009	9.2E-005	8.0E-008	1.4E-004	1.2E-007	2.7E-004	2.4E-007	2.7E-005	2.4E-008	2.7E-004	2.4E-007	4.1E-004	3.6E-007	8.2E-004	7.2E-007
20	0.4254	0.4171	6.1E-004	0.0061	0.009	0.018	8.3E-006	7.3E-009	8.3E-005	7.3E-008	1.2E-004	1.1E-007	2.5E-004	2.2E-007	2.5E-005	2.2E-008	2.5E-004	2.2E-007	3.7E-004	3.3E-007	7.5E-004	6.5E-007
21	0.3854	0.3778	5.5E-004	0.0055	0.008	0.016	7.5E-006	6.6E-009	7.5E-005	6.6E-008	1.1E-004	9.9E-008	2.3E-004	2.0E-007	2.3E-005	2.0E-008	2.3E-004	2.0E-007	3.4E-004	3.0E-007	6.8E-004	5.9E-007
22	0.3492	0.3423	5.0E-004	0.0050	0.007	0.015	6.8E-006	6.0E-009	6.8E-005	6.0E-008	1.0E-004	8.9E-008	2.0E-004	1.8E-007	2.0E-005	1.8E-008	2.0E-004	1.8E-007	3.1E-004	2.7E-007	6.1E-004	5.4E-007
23	0.3163	0.3101	4.5E-004	0.0045	0.007	0.014	6.2E-006	5.4E-009	6.2E-005	5.4E-008	9.2E-005	8.1E-008	1.8E-004	1.6E-007	1.8E-005	1.6E-008	1.8E-004	1.6E-007	2.8E-004	2.4E-007	5.5E-004	4.9E-007
24	0.2866	0.2809	4.1E-004	0.0041	0.006	0.012	5.6E-006	4.9E-009	5.6E-005	4.9E-008	8.4E-005	7.3E-008	1.7E-004	1.5E-007	1.7E-005	1.5E-008	1.7E-004	1.5E-007	2.5E-004	2.2E-007	5.0E-004	4.4E-007
25	0.2596	0.2545	3.7E-004	0.0037	0.006	0.011	5.1E-006	4.4E-009	5.1E-005	4.4E-008	7.6E-005	6.6E-008	1.5E-004	1.3E-007	1.5E-005	1.3E-008	1.5E-004	1.3E-007	2.3E-004	2.0E-007	4.6E-004	4.0E-007
26	0.2352	0.2306	3.3E-004	0.0033	0.005	0.010	4.6E-006	4.0E-009	4.6E-005	4.0E-008	6.9E-005	6.0E-008	1.4E-004	1.2E-007	1.4E-005	1.2E-008	1.4E-004	1.2E-007	2.1E-004	1.8E-007	4.1E-004	3.6E-007
27	0.2131	0.2089	3.0E-004	0.0030	0.005	0.009	4.2E-006	3.6E-009	4.2E-005	3.6E-008	6.2E-005	5.5E-008	1.2E-004	1.1E-007	1.2E-005	1.1E-008	1.2E-004	1.1E-007	1.9E-004	1.6E-007	3.7E-004	3.3E-007
28	0.1930	0.1893	2.7E-004	0.0027	0.004	0.008	3.8E-006	3.3E-009	3.8E-005	3.3E-008	5.6E-005	4.9E-008	1.1E-004	9.9E-008	1.1E-005	9.9E-009	1.1E-004	9.9E-008	1.7E-004	1.5E-007	3.4E-004	3.0E-007
29	0.1749	0.1715	2.5E-004	0.0025	0.004	0.007	3.4E-006	3.0E-009	3.4E-005	3.0E-008	5.1E-005	4.5E-008	1.0E-004	8.9E-008	1.0E-005	8.9E-009	1.0E-004	8.9E-008	1.5E-004	1.3E-007	3.1E-004	2.7E-007
30	0.1584	0.1553	2.3E-004	0.0023	0.003	0.007	3.1E-006	2.7E-009	3.1E-005	2.7E-008	4.6E-005	4.1E-008	9.3E-005	8.1E-008	9.3E-006	8.1E-009	9.3E-005	8.1E-008	1.4E-004	1.2E-007	2.8E-004	2.4E-007

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Appendix A/Table 6: Carbaryl Postapplication Noncancer Risk Assessment For Turf

Occupational Post-Application Risk Assessment Calculator Version 1 (8/9/00)

Chemical:	Carbaryl
Reason:	Risk Management Analysis For Phase 5 Carbaryl (w/TC modifications)
Date:	6/05/03
Transfer Coefficient Group:	Turf
Specific Crop(s) Considered:	Golf course and sodfarm turf
Application Rate of Crop (lb ai/A):	8.17

DFR Data Summary

Data Source (enter 1 if data available, 0 if defaults):	1
Source:	MRID 451143-01 (Georgia Data)
Slope of Semilog Regression:	-0.16818
[Initial] (ug/cm2):	1.122
Study Application Rate (lb ai/A):	8.17
Limit of Quantification (ug/cm2):	0.00035

[Note: Enter application rate of crop if no data available in study rate cell.]

Exposure Inputs Summary

Exposure Potential	Transfer Coefficients (cm2/hour)		Activities
	Used For RA	Range	
Very Low	N/A	N/A	N/A
Low	500	N/A	Mowing
Medium	3400	N/A	Golf Course Maintenance
High	6800	N/A	Sod Farm Harvesting
Very High	N/A	N/A	N/A

DAT	TTR LEVELS (ug/cm2)		DOSE (mg/kg/day)			MOEs		
	Not Adjusted	Adjusted For Rate	Low Exposure	Medium Exposure	High Exposure	Low Exposure	Medium Exposure	High Exposure
0	1.1220	1.1220	0.0641	0.4360	0.87	312	46	23
1	0.9483	0.9483	0.0542	0.3685	0.74	369	54	27
2	0.8015	0.8015	0.0458	0.3114	0.623	437	64	32
3	0.6774	0.6774	0.0387	0.2632	0.526	517	76	38
4	0.5726	0.5726	0.0327	0.2225	0.445	611	90	45
5	0.4839	0.4839	0.0277	0.1880	0.376	723	106	53
6	0.4090	0.4090	0.0234	0.1589	0.318	856	126	63
7	0.3457	0.3457	0.01976	0.1343	0.269	1012	149	74
8	0.2922	0.2922	0.01670	0.1135	0.227	1198	176	88
9	0.2470	0.2470	0.01411	0.0960	0.192	1417	208	104
10	0.2087	0.2087	0.01193	0.0811	0.162	1677	247	123
11	0.1764	0.1764	0.01008	0.0686	0.137	1984	292	146
12	0.1491	0.1491	0.00852	0.0579	0.1159	2347	345	173
13	0.1260	0.1260	0.00720	0.0490	0.0979	2777	408	204
14	0.1065	0.1065	0.00609	0.0414	0.0828	3286	483	242
15	0.0900	0.0900	0.00514	0.0350	0.0700	3887	572	286
16	0.0761	0.0761	0.00435	0.0296	0.0591	4599	676	338
17	0.0643	0.0643	0.00368	0.0250	0.0500	5442	800	400
18	0.0544	0.0544	0.00311	0.0211	0.0422	6439	947	473
19	0.0459	0.0459	0.00263	0.0179	0.0357	7618	1120	560
20	0.0388	0.0388	0.00222	0.0151	0.0302	9013	1325	663
21	0.0328	0.0328	0.00188	0.0128	0.0255	10664	1568	784
22	0.0277	0.0277	0.00159	0.0108	0.0216	12617	1855	928
23	0.0234	0.0234	0.00134	0.0091	0.0182	14927	2195	1098
24	0.0198	0.0198	0.00113	0.0077	0.0154	17661	2597	1299
25	0.0167	0.0167	0.00096	0.0065	0.0130	20896	3073	1536
26	0.0142	0.0142	0.00081	0.0055	0.0110	24723	3636	1818
27	0.0120	0.0120	0.00068	0.0046	0.0093	29251	4302	2151
28	0.0101	0.0101	0.00058	0.0039	0.0079	34609	5090	2545
29	0.0085	0.0085	0.00049	0.0033	0.0066	40947	6022	3011
30	0.0072	0.0072	0.00041	0.0028	0.0056	48447	7125	3562
Int-Term	0.233	0.233	0.01329	0.09036	0.18072	1505	221	111

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Appendix A/Table 7: Carbaryl Postapplication Cancer Risk Assessment For Turf

Occupational Post-Application Risk Assessment Calculator Version 1 (8/9/00)

Chemical:	Carbaryl
Reason:	Risk Management Analysis For Phase 5 Carbaryl (w/TC modifications)
Date:	6/05/03
Transfer Coefficient Group:	Turf
Specific Crop(s) Considered:	Golf course and sodfarm turf
Application Rate of Crop (lb ai/A):	8.17

DFR Data Summary

Data Source (enter 1 if data available, 0 if defaults):	1
Source:	MRID 451143-01 (California Data)
Slope of Semilog Regression:	-0.54313
[Initial] (ug/cm2):	0.927
Study Application Rate (lb ai/A):	8.17
Limit of Quantification (ug/cm2):	0.00035

[Note: Enter application rate of crop if no data available in study rate cell.]

Exposure Inputs Summary

Exposure Potential	Transfer Coefficients (cm2/hour)		Activities
	Used For RA	Range	
Very Low	N/A	N/A	N/A
Low	500	N/A	Mowing
Medium	3400	N/A	Golf Course Maintenance
High	6800	N/A	Sod Farm Harvesting
Very High	N/A	N/A	N/A

DAT	TTR LEVELS (ug/cm2)		AVERAGE DAILY DOSE (ADD) (mg/kg/day)			RISKS FOR PRIVATE GROWERS						RISKS FOR PROFESSIONAL WORKERS					
						Low Exposure		Medium Exposure		High Exposure		Low Exposure		Medium Exposure		High Exposure	
	Not Adjusted	Adjusted For Rate	Low Exposure	Medium Expo.	High Exposure	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk
0	0.9270000	0.9270000	0.00673	0.04575	0.09149	9.2E-005	8.1E-008	6.3E-004	5.5E-007	1.3E-003	1.1E-006	2.8E-004	2.4E-007	1.9E-003	1.6E-006	3.8E-003	3.3E-006
1	0.5385194	0.5385194	0.00391	0.02658	0.05315	5.4E-005	4.7E-008	3.6E-004	3.2E-007	7.3E-004	6.4E-007	1.6E-004	1.4E-007	1.1E-003	9.6E-007	2.2E-003	1.9E-006
2	0.3128405	0.3128405	0.00227	0.01544	0.03088	3.1E-005	2.7E-008	2.1E-004	1.9E-007	4.2E-004	3.7E-007	9.3E-005	8.2E-008	6.3E-004	5.6E-007	1.3E-003	1.1E-006
3	0.1817375	0.1817375	0.00132	0.00897	0.01794	1.8E-005	1.6E-008	1.2E-004	1.1E-007	2.5E-004	2.1E-007	5.4E-005	4.7E-008	3.7E-004	3.2E-007	7.4E-004	6.4E-007
4	0.1055763	0.1055763	0.00077	0.00521	0.01042	1.0E-005	9.2E-009	7.1E-005	6.2E-008	1.4E-004	1.2E-007	3.1E-005	2.8E-008	2.1E-004	1.9E-007	4.3E-004	3.7E-007
5	0.0613321	0.0613321	0.00045	0.00303	0.00605	6.1E-006	5.3E-009	4.1E-005	3.6E-008	8.3E-005	7.3E-008	1.8E-005	1.6E-008	1.2E-004	1.1E-007	2.5E-004	2.2E-007
6	0.0356295	0.0356295	0.00026	0.00176	0.00352	3.5E-006	3.1E-009	2.4E-005	2.1E-008	4.8E-005	4.2E-008	1.1E-005	9.3E-009	7.2E-005	6.3E-008	1.4E-004	1.3E-007
7	0.0206981	0.0206981	0.00015	0.00102	0.00204	2.1E-006	1.8E-009	1.4E-005	1.2E-008	2.8E-005	2.4E-008	6.2E-006	5.4E-009	4.2E-005	3.7E-008	8.4E-005	7.3E-008
8	0.0120241	0.0120241	0.00009	0.00059	0.00119	1.2E-006	1.0E-009	8.1E-006	7.1E-009	1.6E-005	1.4E-008	3.6E-006	3.1E-009	2.4E-005	2.1E-008	4.9E-005	4.3E-008
9	0.0069851	0.0069851	0.00005	0.00034	0.00069	6.9E-007	6.1E-010	4.7E-006	4.1E-009	9.4E-006	8.3E-009	2.1E-006	1.8E-009	1.4E-005	1.2E-008	2.8E-005	2.5E-008
10	0.0040579	0.0040579	0.00003	0.00020	0.00040	4.0E-007	3.5E-010	2.7E-006	2.4E-009	5.5E-006	4.8E-009	1.2E-006	1.1E-009	8.2E-006	7.2E-009	1.6E-005	1.4E-008

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Appendix A/Table 7: Carbaryl Postapplication Cancer Risk Assessment For Turf

Occupational Post-Application Risk Assessment Calculator Version 1 (8/9/00)

Chemical:	Carbaryl
Reason:	Risk Management Analysis For Phase 5 Carbaryl (w/TC modifications)
Date:	6/05/03
Transfer Coefficient Group:	Turf
Specific Crop(s) Considered:	Golf course and sodfarm turf
Application Rate of Crop (lb ai/A):	8.17

DFR Data Summary

Data Source (enter 1 if data available, 0 if defaults):	1
Source:	MRID 451143-01 (California Data)
Slope of Semilog Regression:	-0.54313
[Initial] (ug/cm2):	0.927
Study Application Rate (lb ai/A):	8.17
Limit of Quantification (ug/cm2):	0.00035

[Note: Enter application rate of crop if no data available in study rate cell.]

Exposure Inputs Summary

Exposure Potential	Transfer Coefficients (cm2/hour)		Activities
	Used For RA	Range	
Very Low	N/A	N/A	N/A
Low	500	N/A	Mowing
Medium	3400	N/A	Golf Course Maintenance
High	6800	N/A	Sod Farm Harvesting
Very High	N/A	N/A	N/A

DAT	TTR LEVELS (ug/cm2)		AVERAGE DAILY DOSE (ADD) (mg/kg/day)			RISKS FOR PRIVATE GROWERS						RISKS FOR PROFESSIONAL WORKERS					
						Low Exposure		Medium Exposure		High Exposure		Low Exposure		Medium Exposure		High Exposure	
	Not Adjusted	Adjusted For Rate	Low Exposure	Medium Expo.	High Exposure	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk
0	0.9270000	0.9270000	0.00673	0.04575	0.09149	9.2E-005	8.1E-008	6.3E-004	5.5E-007	1.3E-003	1.1E-006	2.8E-004	2.4E-007	1.9E-003	1.6E-006	3.8E-003	3.3E-006
1	0.5385194	0.5385194	0.00391	0.02658	0.05315	5.4E-005	4.7E-008	3.6E-004	3.2E-007	7.3E-004	6.4E-007	1.6E-004	1.4E-007	1.1E-003	9.6E-007	2.2E-003	1.9E-006
2	0.3128405	0.3128405	0.00227	0.01544	0.03088	3.1E-005	2.7E-008	2.1E-004	1.9E-007	4.2E-004	3.7E-007	9.3E-005	8.2E-008	6.3E-004	5.6E-007	1.3E-003	1.1E-006
3	0.1817375	0.1817375	0.00132	0.00897	0.01794	1.8E-005	1.6E-008	1.2E-004	1.1E-007	2.5E-004	2.1E-007	5.4E-005	4.7E-008	3.7E-004	3.2E-007	7.4E-004	6.4E-007
4	0.1055763	0.1055763	0.00077	0.00521	0.01042	1.0E-005	9.2E-009	7.1E-005	6.2E-008	1.4E-004	1.2E-007	3.1E-005	2.8E-008	2.1E-004	1.9E-007	4.3E-004	3.7E-007
5	0.0613321	0.0613321	0.00045	0.00303	0.00605	6.1E-006	5.3E-009	4.1E-005	3.6E-008	8.3E-005	7.3E-008	1.8E-005	1.6E-008	1.2E-004	1.1E-007	2.5E-004	2.2E-007
6	0.0356295	0.0356295	0.00026	0.00176	0.00352	3.5E-006	3.1E-009	2.4E-005	2.1E-008	4.8E-005	4.2E-008	1.1E-005	9.3E-009	7.2E-005	6.3E-008	1.4E-004	1.3E-007
7	0.0206981	0.0206981	0.00015	0.00102	0.00204	2.1E-006	1.8E-009	1.4E-005	1.2E-008	2.8E-005	2.4E-008	6.2E-006	5.4E-009	4.2E-005	3.7E-008	8.4E-005	7.3E-008
8	0.0120241	0.0120241	0.00009	0.00059	0.00119	1.2E-006	1.0E-009	8.1E-006	7.1E-009	1.6E-005	1.4E-008	3.6E-006	3.1E-009	2.4E-005	2.1E-008	4.9E-005	4.3E-008
9	0.0069851	0.0069851	0.00005	0.00034	0.00069	6.9E-007	6.1E-010	4.7E-006	4.1E-009	9.4E-006	8.3E-009	2.1E-006	1.8E-009	1.4E-005	1.2E-008	2.8E-005	2.5E-008
10	0.0040579	0.0040579	0.00003	0.00020	0.00040	4.0E-007	3.5E-010	2.7E-006	2.4E-009	5.5E-006	4.8E-009	1.2E-006	1.1E-009	8.2E-006	7.2E-009	1.6E-005	1.4E-008

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Appendix A/Table 9: Carbaryl Postapplication Cancer Risk Assessment For Vine Crop Group

Occupational Post-Application Risk Assessment Calculator Version 1 (8/9/00)

Chemical:	Carbaryl
Reason:	Risk Management Analysis For Phase 5 Carbaryl (w/TC modifications)
Date:	6/05/03
Transfer Coefficient Group:	Vine/trellis
Specific Crop(s) Considered:	Pole beans, blackberries, highbush blueberries, grapes (various types), kiwi, raspberries
Application Rate of Crop (lb ai/A):	2

DFR Data Summary

Data Source (enter 1 if data available, 0 if defaults):	1
Source:	ARTF Cabbage Weeding Study (Groundboom Application), MRID 451917-01
Slope of Semilog Regression:	-0.19023
[Initial] (ug/cm2):	2.46
Study Application Rate (lb ai/A):	2.07
Limit of Quantification (ug/cm2):	0.0025

[Note: Enter application rate of crop if no data available in study rate cell.]

Exposure Inputs Summary

Exposure Potential	Transfer Coefficients (cm2/hour)		Activities
	Used For RA	Range	
Very Low	500	197 to 2302	Hedging, irrigation, scouting, hand weeding, training/tying blueberries
Low	1000	197 to 2302	Scouting, training, tying
Medium	1100	TBD	Caneberry harvest
High	5000	TBD	grape hand harvest, leaf pulling, thinning, pruning, training/tying grapes
Very High	10000	TBD	grape girdling and cane turning

DAT	DFR LEVELS (ug/cm2)		AVERAGE DAILY DOSE (ADD) (mg/kg/day)					RISKS FOR PRIVATE GROWERS										RISKS FOR PROFESSIONAL FARMWORKERS									
								Very Low Exposure		Low Exposure		Medium Exposure		High Exposure		Very High Exposure		Very Low Exposure		Low Exposure		Medium Exposure		High Exposure		Very High Exposure	
	Not Adjusted	Adjusted For Rate	Very Low Expo.	Low Exposure	Medium Exposure	High Exposure	Very High Expo.	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk	LADD	Cancer Risk
0	2.4600	2.3768	0.01725	0.03450	0.03795	0.17249	0.34498	2.4E-004	2.1E-007	4.7E-004	4.1E-007	5.2E-004	4.5E-007	2.4E-003	2.1E-006	4.7E-003	4.1E-006	7.1E-004	6.2E-007	1.4E-003	1.2E-006	1.6E-003	1.4E-006	7.1E-003	6.2E-006	1.4E-002	1.2E-005
1	2.0339	1.9651	0.01426	0.02852	0.03137	0.14261	0.28522	2.0E-004	1.7E-007	3.9E-004	3.4E-007	4.3E-004	3.8E-007	2.0E-003	1.7E-006	3.9E-003	3.4E-006	5.9E-004	5.1E-007	1.2E-003	1.0E-006	1.3E-003	1.1E-006	5.9E-003	5.1E-006	1.2E-002	1.0E-005
2	1.6815	1.6247	0.01179	0.02358	0.02594	0.11790	0.23581	1.6E-004	1.4E-007	3.2E-004	2.8E-007	3.6E-004	3.1E-007	1.6E-003	1.4E-006	3.2E-003	2.8E-006	4.8E-004	4.2E-007	9.7E-004	8.5E-007	1.1E-003	9.3E-007	4.8E-003	4.2E-006	9.7E-003	8.5E-006
3	1.3902	1.3432	0.00975	0.01950	0.02145	0.09748	0.19496	1.3E-004	1.2E-007	2.7E-004	2.3E-007	2.9E-004	2.6E-007	1.3E-003	1.2E-006	2.7E-003	2.3E-006	4.0E-004	3.5E-007	8.0E-004	7.0E-007	8.8E-004	7.7E-007	4.0E-003	3.5E-006	8.0E-003	7.0E-006
4	1.1494	1.1105	0.00806	0.01612	0.01773	0.08059	0.16119	1.1E-004	9.7E-008	2.2E-004	1.9E-007	2.4E-004	2.1E-007	1.1E-003	9.7E-007	2.2E-003	1.9E-006	3.3E-004	2.9E-007	6.6E-004	5.8E-007	7.3E-004	6.4E-007	3.3E-003	2.9E-006	6.6E-003	5.8E-006
5	0.9503	0.9182	0.00666	0.01333	0.01466	0.06663	0.13326	9.1E-005	8.0E-008	1.8E-004	1.6E-007	2.0E-004	1.8E-007	9.1E-004	8.0E-007	1.8E-003	1.6E-006	2.7E-004	2.4E-007	5.5E-004	4.8E-007	6.0E-004	5.3E-007	2.7E-003	2.4E-006	5.5E-003	4.8E-006
6	0.7857	0.7591	0.00551	0.01102	0.01212	0.05509	0.11018	7.5E-005	6.6E-008	1.5E-004	1.3E-007	1.7E-004	1.5E-007	7.5E-004	6.6E-007	1.5E-003	1.3E-006	2.3E-004	2.0E-007	4.5E-004	4.0E-007	5.0E-004	4.4E-007	2.3E-003	2.0E-006	4.5E-003	4.0E-006
7	0.6496	0.6276	0.00455	0.00911	0.01002	0.04555	0.09109	6.2E-005	5.5E-008	1.2E-004	1.1E-007	1.4E-004	1.2E-007	6.2E-004	5.5E-007	1.2E-003	1.1E-006	1.9E-004	1.6E-007	3.7E-004	3.3E-007	4.1E-004	3.6E-007	1.9E-003	1.6E-006	3.7E-003	3.3E-006
8	0.5370	0.5189	0.00377	0.00753	0.00828	0.03766	0.07531	5.2E-005	4.5E-008	1.0E-004	9.0E-008	1.1E-004	9.9E-008	5.2E-004	4.5E-007	1.0E-003	9.0E-007	1.5E-004	1.4E-007	3.1E-004	2.7E-007	3.4E-004	3.0E-007	1.5E-003	1.4E-006	3.1E-003	2.7E-006
9	0.4440	0.4290	0.00311	0.00623	0.00685	0.03113	0.06227	4.3E-005	3.7E-008	8.5E-005	7.5E-008	9.4E-005	8.2E-008	4.3E-004	3.7E-007	8.5E-004	7.5E-007	1.3E-004	1.1E-007	2.6E-004	2.2E-007	2.8E-004	2.5E-007	1.3E-003	1.1E-006	2.6E-003	2.2E-006
10	0.3671	0.3547	0.00257	0.00515	0.00566	0.02574	0.05148	3.5E-005	3.1E-008	7.1E-005	6.2E-008	7.8E-005	6.8E-008	3.5E-004	3.1E-007	7.1E-004	6.2E-007	1.1E-004	9.3E-008	2.1E-004	1.9E-007	2.3E-004	2.0E-007	1.1E-003	9.3E-007	2.1E-003	1.9E-006
11	0.3035	0.2932	0.00213	0.00426	0.00468	0.02128	0.04256	2.9E-005	2.6E-008	5.8E-005	5.1E-008	6.4E-005	5.6E-008	2.9E-004	2.6E-007	5.8E-004	5.1E-007	8.7E-005	7.7E-008	1.7E-004	1.5E-007	1.9E-004	1.7E-007	8.7E-004	7.7E-007	1.7E-003	1.5E-006
12	0.2509	0.2424	0.00176	0.00352	0.00387	0.01759	0.03519	2.4E-005	2.1E-008	4.8E-005	4.2E-008	5.3E-005	4.6E-008	2.4E-004	2.1E-007	4.8E-004	4.2E-007	7.2E-005	6.3E-008	1.4E-004	1.3E-007	1.6E-004	1.4E-007	7.2E-004	6.3E-007	1.4E-003	1.3E-006
13	0.2075	0.2004	0.00145	0.00291	0.00320	0.01455	0.02909	2.0E-005	1.7E-008	4.0E-005	3.5E-008	4.4E-005	3.8E-008	2.0E-004	1.7E-007	4.0E-004	3.5E-007	6.0E-005	5.2E-008	1.2E-004	1.0E-007	1.3E-004	1.2E-007	6.0E-004	5.2E-007	1.2E-003	1.0E-006
14	0.1715	0.1657	0.00120	0.00241	0.00265	0.01203	0.02405	1.6E-005	1.4E-008	3.3E-005	2.9E-008	3.6E-005	3.2E-008	1.6E-004	1.4E-007	3.3E-004	2.9E-007	4.9E-005	4.3E-008	9.9E-005	8.6E-008	1.1E-004	9.5E-008	4.9E-004	4.3E-007	9.9E-004	8.6E-007
15	0.1418	0.1370	0.00099	0.00199	0.00219	0.00994	0.01989	1.4E-005	1.2E-008	2.7E-005	2.4E-008	3.0E-005	2.6E-008	1.4E-004	1.2E-007	2.7E-004	2.4E-007	4.1E-005	3.6E-008	8.2E-005	7.2E-008	9.0E-005	7.9E-008	4.1E-004	3.6E-007	8.2E-004	7.2E-007
16	0.1172	0.1133	0.00082	0.00164	0.00181	0.00822	0.01644	1.1E-005	9.9E-009	2.3E-005	2.0E-008	2.5E-005	2.2E-008	1.1E-004	9.9E-008	2.3E-004	2.0E-007	3.4E-005	3.0E-008	6.8E-005	5.9E-008	7.4E-005	6.5E-008	3.4E-004	3.0E-007	6.8E-004	5.9E-007
17	0.0969	0.0937	0.00068	0.00136	0.00150	0.00680	0.01359	9.3E-006	8.1E-009	1.9E-005	1.6E-008	2.0E-005	1.8E-008	9.3E-005	8.1E-008	1.9E-004	1.6E-007	2.8E-005	2.4E-008	5.6E-005	4.9E-008	6.1E-005	5.4E-008	2.8E-004	2.4E-007	5.6E-004	4.9E-007
18	0.0801	0.0774	0.00056	0.00112	0.00124	0.00562	0.01124	7.7E-006	6.7E-009	1.5E-005	1.3E-008	1.7E-005	1.5E-008	7.7E-005	6.7E-008	1.5E-004	1.3E-007	2.3E-005	2.0E-008	4.6E-005	4.0E-008	5.1E-005	4.4E-008	2.3E-004	2.0E-007	4.6E-004	4.0E-007
19	0.0663	0.0640	0.00046	0.00093	0.00102	0.00465	0.00929	6.4E-006	5.6E-009	1.3E-005	1.1E-008	1.4E-005	1.2E-008	6.4E-005	5.6E-008	1.3E-004	1.1E-007	1.9E-005	1.7E-008	3.8E-005	3.3E-008	4.2E-005	3.7E-008	1.9E-004	1.7E-007	3.8E-004	3.3E-007
20	0.0548	0.0529	0.00038	0.00077	0.00085	0.00384	0.00768	5.3E-006	4.6E-009	1.1E-005	9.2E-009	1.2E-005	1.0E-008	5.3E-005	4.6E-008	1.1E-004	9.2E-008	1.6E-005	1.4E-008	3.2E-005	2.8E-008	3.5E-005	3.0E-008	1.6E-004	1.4E-007	3.2E-004	2.8E-007
21	0.0453	0.0438	0.00032	0.00064	0.00070	0.00318	0.00635	4.4E-006	3.8E-009	8.7E-006	7.6E-009	9.6E-006	8.4E-009	4.4E-005	3.8E-008	8.7E-005	7.6E-008	1.3E-005	1.1E-008	2.6E-005	2.3E-008	2.9E-005	2.5E-008	1.3E-004	1.1E-007	2.6E-004	2.3E-007
22	0.0374	0.0362	0.00026	0.00053	0.00058	0.00263	0.00525	3.6E-006	3.1E-009	7.2E-006	6.3E-009	7.9E-006	6.9E-009	3.6E-005	3.1E-008	7.2E-005	6.3E-008	1.1E-005	9.4E-009	2.2E-005	1.9E-008	2.4E-005	2.1E-008	1.1E-004	9.4E-008	2.2E-004	1.9E-007
23	0.0310	0.0299	0.00022	0.00043	0.00048	0.00217	0.00434	3.0E-006	2.6E-009	5.9E-006	5.2E-009	6.5E-006	5.7E-009	3.0E-005	2.6E-008	5.9E-005	5.2E-008	9.9E-006	7.8E-009	1.8E-005	1.6E-008	2.0E-005	1.7E-008	9.9E-005	7.8E-008	1.8E-004	1.6E-007
24	0.0256	0.0247	0.00018	0.00036	0.00039	0.00179	0.00359	2.5E-006	2.2E-009	4.9E-006	4.3E-009	5.4E-006	4.7E-009	2.5E-005	2.2E-008	4.9E-005	4.3E-008	7.4E-006	6.5E-009	1.5E-005	1.3E-008	1.6E-005	1.4E-008	7.4E-005	6.5E-008	1.5E-004	1.3E-007
25	0.0212	0.0204	0.00015	0.00030	0.00033	0.00148	0.00297	2.0E-006	1.8E-009	4.1E-006	3.6E-009	4.5E-006	3.9E-009	2.0E-005	1.8E-008	4.1E-005	3.6E-008	6.1E-006	5.3E-009	1.2E-005	1.1E-008	1.3E-005	1.2E-008	6.1E-005	5.3E-008	1.2E-004	1.1E-007
26	0.0175	0.0169	0.00012	0.00025	0.00027	0.00123	0.00245	1.7E-006	1.5E-009	3.4E-006	2.9E-009	3.7E-006	3.2E-009	1.7E-005	1.5E-008	3.4E-005	2.9E-008	5.0E-006	4.4E-009	1.0E-005	8.8E-009	1.1E-005	9.7E-009	5.0E-005	4.4E-008	1.0E-004	8.8E-008
27	0.0145	0.0140	0.00010	0.00020	0.00022	0.00101	0.00203	1.4E-006	1.2E-009	2.8E-006	2.4E-009	3.1E-006	2.7E-009	1.4E-005	1.2E-008	2.8E-005	2.4E-008	4.2E-006	3.6E-009	8.3E-006	7.3E-009	9.2E-006	8.0E-009	4.2E-005	3.6E-008	8.3E-005	7.3E-008
28	0.0120	0.0116	0.00008	0.00017	0.00018	0.00084	0.00168	1.1E-006	1.0E-009	2.3E-006	2.0E-009	2.5E-006	2.2E-009	1.1E-005	1.0E-008	2.3E-005	2.0E-008	3.4E-006	3.0E-009	6.9E-006	6.0E-009	7.6E-006	6.6E-009	3.4E-005	3.0E-008	6.9E-005	6.0E-008
29	0.0099	0.0096	0.00007	0.00014	0.00015	0.00069	0.00139	9.5E-007	8.3E-010	1.9E-006	1.7E-009	2.1E-006	1.8E-009	9.5E-006	8.3E-009	1.9E-005	1.7E-008	2.8E-006	2.5E-009	5.7E-006	5.0E-009	6.3E-006	5.5E-009	2.8E-005	2.5E-008	5.7E-005	5.0E-008
30	0.0082	0.0079	0.00006	0.00011	0.00013	0.00057	0.00115	7.9E-007	6.9E-010	1.6E-006	1.4E-009	1.7E-006	1.5E-009	7.9E-006	6.9E-009	1.6E-005	1.4E-008	2.4E-006	2.1E-009	4.7E-006	4.1E-009	5.2E-006	4.5E-009	2.4E-005	2.1E-008	4.7E-005	4.1E-008

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APPENDIX B/TABLE 1: INPUT PARAMETERS FOR CARBARYL HOMEOWNER HANDLER EXPOSURE AND RISK CALCULATIONS

SCEN.	SCEN. DESCRIPTOR	CROP TYPE OR TARGET	EXPOSURE FACTORS APPLICATION RATE (lb ai/unit)	BASIS FOR RATE (defines unit treated)	TREATED UNITS	ACTIVE USED (lb ai/event)	UNIT EXPOSURE INPUTS DERMAL (mg/lb ai)	INHALATION (ug/lb ai)
2	Garden/Ornamental Dust	Vegetables/Ornamentals	0.4	4 lb bottle 10% (239-1513)	0.25	0.100000	148	870
	(MRID 444598-01)	Vegetables/Ornamentals	0.4	4 lb bottle 10% (239-1513)	0.50	0.200000	148	870
		Vegetables/Ornamentals	0.4	4 lb bottle 10% (239-1513)	1	0.400000	148	870
		Average Study Use Rate	0.079	(lb ai/1000 ft2)	1	0.079000	148	870
		Vegetables/Ornamentals	0.05	lb bottle 5% (reduced package	0.25	0.012500	148	870
		Vegetables/Ornamentals	0.05	lb bottle 5% (reduced package	0.50	0.025000	148	870
		Vegetables/Ornamentals	0.05	lb bottle 5% (reduced package	1	0.050000	148	870
8	Lawn Care: Hose End Sprayer - Open Loading	Lawn (broadcast)	0.25	(lb ai/1000 ft2)	20	5.000000	11	16
	(MRID 449722-01/ORETF OMA 004)	Lawn (broadcast)	0.25	(lb ai/1000 ft2)	15	3.750000	11	16
		Lawn (broadcast)	0.25	(lb ai/1000 ft2)	11	2.750000	11	16
		Lawn (broadcast)	0.25	(lb ai/1000 ft2)	10	2.500000	11	16
		Lawn (broadcast)	0.25	(lb ai/1000 ft2)	5	1.250000	11	16
		Lawn (spot)	0.25	(lb ai/1000 ft2)	1	0.250000	11	16
New	Lawn Care: Hose End Sprayer - Ready to Use	Lawn (broadcast)	0.25	(lb ai/1000 ft2)	20	5.000000	2.6	11
	(MRID 449722-01/ORETF OMA 004)	Lawn (broadcast)	0.25	(lb ai/1000 ft2)	15	3.750000	2.6	11
		Lawn (broadcast)	0.25	(lb ai/1000 ft2)	11	2.750000	2.6	11
		Lawn (broadcast)	0.25	(lb ai/1000 ft2)	10	2.500000	2.6	11
		Lawn (broadcast)	0.25	(lb ai/1000 ft2)	5	1.250000	2.6	11
		Lawn (spot)	0.25	(lb ai/1000 ft2)	1	0.250000	2.6	11

Short-Term Inhalation NOAEL:	1
Short-Term Inhalation UF:	100
Source: Short-term Inhalation NOAEL:	Dev. Neurotox -Rat
Short-Term Dermal NOAEL:	20
Short-Term Dermal UF:	100
Source: Short-term Dermal NOAEL:	Tech. Dermal Tox - Rat
Body Weight:	70
Noncancer Dermal Absorption Factor (%):	100
Cancer Dermal Absorption Factor (%):	12.7
Inhalation Absorption Factor (%):	100
Typical Use Homeowner (days/yr):	1
Activity Duration (yrs):	50
Lifetime (yr):	70
Days/yr:	365
Q1* (mg/kg/day)-1:	0.000875

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APPENDIX B/TABLE 2: CARBARYL MOEs ATTRIBUTABLE TO COMBINED SHORT-TERM HOMEOWNER HANDLER DERMAL AND INHALATION EXPOSURES

SCEN.	SCEN. DESCRIPTOR	CROP TYPE OR TARGET	EXPOSURE FACTORS APPLICATION RATE (lb ai/unit)	BASIS FOR RATE (defines unit treated)	TREATED UNITS	ACTIVE USED (lb ai/event)	DAILY EXPOSURE DERMAL (mg/day)	INHALAT. (mg/day)	AVERAGE DAILY DOSE POT. DERMAL (mg/kg/day)	INHALAT. (mg/kg/day)	DERMAL MOEs	INHALATION MOEs	COMBINED MOEs
2	Garden/Ornamental Dust	Vegetables/Ornamentals	0.4	4 lb bottle 10% (239-1513)	0.25	0.1	1.48E+001	8.70E-002	2.11E-001	1.24E-003	94.6	804.6	84.6
	(MRID 444598-01)	Vegetables/Ornamentals	0.4	4 lb bottle 10% (239-1513)	0.5	0.2	2.96E+001	1.74E-001	4.23E-001	2.49E-003	47.3	402.3	42.3
		Vegetables/Ornamentals	0.4	4 lb bottle 10% (239-1513)	1	0.4	5.92E+001	3.48E-001	8.46E-001	4.97E-003	23.6	201.1	21.2
		Average Study Use Rate	0.079	(lb ai/1000 ft2)	1	0.079	1.17E+001	6.87E-002	1.67E-001	9.82E-004	119.7	1018.5	107.1
		Vegetables/Ornamentals	0.05	1 lb bottle 5% (reduced package)	0.25	0.0125	1.85E+000	1.09E-002	2.64E-002	1.55E-004	756.8	6436.8	677.1
		Vegetables/Ornamentals	0.05	1 lb bottle 5% (reduced package)	0.5	0.025	3.70E+000	2.18E-002	5.29E-002	3.11E-004	378.4	3218.4	338.6
		Vegetables/Ornamentals	0.05	1 lb bottle 5% (reduced package)	1	0.05	7.40E+000	4.35E-002	1.06E-001	6.21E-004	189.2	1609.2	169.3
8	Lawn Care: Hose End Sprayer - Open Loading	Lawn (broadcast)	0.25	(lb ai/1000 ft2)	20	5	5.50E+001	8.00E-002	7.86E-001	1.14E-003	25.5	875.0	24.7
	(MRID 449722-01/ORETF OMA 004)	Lawn (broadcast)	0.25	(lb ai/1000 ft2)	15	3.75	4.13E+001	6.00E-002	5.89E-001	8.57E-004	33.9	1166.7	33.0
		Lawn (broadcast)	0.25	(lb ai/1000 ft2)	11	2.75	3.03E+001	4.40E-002	4.32E-001	6.29E-004	46.3	1590.9	45.0
		Lawn (broadcast)	0.25	(lb ai/1000 ft2)	10	2.5	2.75E+001	4.00E-002	3.93E-001	5.71E-004	50.9	1750.0	49.5
		Lawn (broadcast)	0.25	(lb ai/1000 ft2)	5	1.25	1.38E+001	2.00E-002	1.96E-001	2.86E-004	101.8	3500.0	98.9
		Lawn (spot)	0.25	(lb ai/1000 ft2)	1	0.25	2.75E+000	4.00E-003	3.93E-002	5.71E-005	509.1	17500.0	494.7
New	Lawn Care: Hose End Sprayer - Ready to Use	Lawn (broadcast)	0.25	(lb ai/1000 ft2)	20	5	1.30E+001	5.50E-002	1.86E-001	7.86E-004	107.7	1272.7	99.3
	(MRID 449722-01/ORETF OMA 004)	Lawn (broadcast)	0.25	(lb ai/1000 ft2)	15	3.75	9.75E+000	4.13E-002	1.39E-001	5.89E-004	143.6	1697.0	132.4
		Lawn (broadcast)	0.25	(lb ai/1000 ft2)	11	2.75	7.15E+000	3.03E-002	1.02E-001	4.32E-004	195.8	2314.0	180.5
		Lawn (broadcast)	0.25	(lb ai/1000 ft2)	10	2.5	6.50E+000	2.75E-002	9.29E-002	3.93E-004	215.4	2545.5	198.6
		Lawn (broadcast)	0.25	(lb ai/1000 ft2)	5	1.25	3.25E+000	1.38E-002	4.64E-002	1.96E-004	430.8	5090.9	397.2
		Lawn (spot)	0.25	(lb ai/1000 ft2)	1	0.25	6.50E-001	2.75E-003	9.29E-003	3.93E-005	2153.8	25454.5	1985.8

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APPENDIX B/TABLE 3: CARBARYL CANCER RISKS ATTRIBUTABLE TO COMBINED HOMEOWNER HANDLER DERMAL AND INHALATION EXPOSURES

SCEN.	SCEN. DESCRIPTOR	CROP TYPE OR TARGET	EXPOSURE FACTORS APPLICATION RATE (lb ai/unit)	BASIS FOR RATE (defines unit treated)	TREATED UNITS	ACTIVE USED (lb ai/event)	ABSORBED ADD (mg/kg/day)	CANCER RISKS LADD (mg/kg/day)	TYPICAL HOMEOWNER CANCER RISK (1 day/year)	ALLOWABLE DAYS/YEAR
2	Garden/Ornamental Dust (MRID 444598-01)	Vegetables/Ornamentals	0.4	4 lb bottle 10% (239-1513)	0.25	0.1	2.81E-002	5.50E-005	4.81E-008	21
		Vegetables/Ornamentals	0.4	4 lb bottle 10% (239-1513)	0.5	0.2	5.62E-002	1.10E-004	9.62E-008	10
		Vegetables/Ornamentals	0.4	4 lb bottle 10% (239-1513)	1	0.4	1.12E-001	2.20E-004	1.92E-007	5
		Average Study Use Rate	0.079	(lb ai/1000 ft2)	1	0.079	2.22E-002	4.34E-005	3.80E-008	26
		Vegetables/Ornamentals	0.05	1 lb bottle 5% (reduced package)	0.25	0.0125	3.51E-003	6.87E-006	6.01E-009	166
		Vegetables/Ornamentals	0.05	1 lb bottle 5% (reduced package)	0.5	0.025	7.02E-003	1.37E-005	1.20E-008	83
		Vegetables/Ornamentals	0.05	1 lb bottle 5% (reduced package)	1	0.05	1.40E-002	2.75E-005	2.41E-008	42
8	Lawn Care: Hose End Sprayer - Open Loading (MRID 449722-01/ORETF OMA 004)	Lawn (broadcast)	0.25	(lb ai/1000 ft2)	20	5	1.01E-001	1.98E-004	1.73E-007	6
		Lawn (broadcast)	0.25	(lb ai/1000 ft2)	15	3.75	7.57E-002	1.48E-004	1.30E-007	8
		Lawn (broadcast)	0.25	(lb ai/1000 ft2)	11	2.75	5.55E-002	1.09E-004	9.51E-008	11
		Lawn (broadcast)	0.25	(lb ai/1000 ft2)	10	2.5	5.05E-002	9.88E-005	8.64E-008	12
		Lawn (broadcast)	0.25	(lb ai/1000 ft2)	5	1.25	2.52E-002	4.94E-005	4.32E-008	23
		Lawn (spot)	0.25	(lb ai/1000 ft2)	1	0.25	5.05E-003	9.88E-006	8.64E-009	116
New	Lawn Care: Hose End Sprayer - Ready to Use (MRID 449722-01/ORETF OMA 004)	Lawn (broadcast)	0.25	(lb ai/1000 ft2)	20	5	2.44E-002	4.77E-005	4.17E-008	24
		Lawn (broadcast)	0.25	(lb ai/1000 ft2)	15	3.75	1.83E-002	3.58E-005	3.13E-008	32
		Lawn (broadcast)	0.25	(lb ai/1000 ft2)	11	2.75	1.34E-002	2.62E-005	2.30E-008	44
		Lawn (broadcast)	0.25	(lb ai/1000 ft2)	10	2.5	1.22E-002	2.38E-005	2.09E-008	48
		Lawn (broadcast)	0.25	(lb ai/1000 ft2)	5	1.25	6.09E-003	1.19E-005	1.04E-008	96
		Lawn (spot)	0.25	(lb ai/1000 ft2)	1	0.25	1.22E-003	2.38E-006	2.09E-009	>365

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Appendix C/'Table 1: Short-term Aggregate Risk and DWLOC Calculations For Risk Mitigation Purposes

Population Subgroup	Scenario	Target Agg. MOE	Food MOE	Nondietary Ing. MOE	Dermal MOE	Inhalation MOE	Aggregate MOE	Water MOE	Allowable Water Exposure (mg/kg/day)	DWLOC (ug/L or ppb)	EECs Surface Water (all PRZM/EXMS) FL Citrus (ppb)	PA Apples (ppb)	Ground Water (SciGrow) (ppb)
Adult Male	Garden/Ornamental Dust (50% of 1 lb 5% bottl	100	32258	NA	378	3218	335	143	0.007013	245.4	28	9	0.8
	Garden/Ornamental Dust (100% of 1 lb 5% bott	100	32258	NA	189	1609	168	247	0.004056	142.0	28	9	0.8
	Lawn RTU Hose End (15000 ft2 treated)	100	32258	NA	143	1697	131	419	0.002387	83.5	28	9	0.8
	Lawn RTU Hose End (10000 ft2 treated)	100	32258	NA	215	2545	197	203	0.004925	172.4	28	9	0.8
	Lawn RTU Hose End (5000 ft2 treated)	100	32258	NA	431	6090	398	134	0.007485	262.0	28	9	0.8
Adult Female	Garden/Ornamental Dust (50% of 1 lb 5% bottl	100	38462	NA	378	3218	335	142	0.007018	210.5	28	9	0.8
	Garden/Ornamental Dust (100% of 1 lb 5% bott	100	38462	NA	189	1609	168	246	0.004061	121.8	28	9	0.8
	Lawn RTU Hose End (15000 ft2 treated)	100	38462	NA	143	1697	131	418	0.002392	71.8	28	9	0.8
	Lawn RTU Hose End (10000 ft2 treated)	100	38462	NA	215	2545	197	203	0.004930	147.9	28	9	0.8
	Lawn RTU Hose End (5000 ft2 treated)	100	38462	NA	431	6090	398	134	0.007490	224.7	28	9	0.8

Short-term Oral NOAEL (mg/kg/day): 1

Source, short-term oral NOAEL: Dev Neurotoxicity Study - Rats

			Food Exp
Adult Male	Garden/Ornamental Dust (50% of 1 lb 5% bottl	100	0.000031
	Garden/Ornamental Dust (100% of 1 lb 5% bott	100	0.000031
	Lawn RTU Hose End (15000 ft2 treated)	100	0.000031
	Lawn RTU Hose End (10000 ft2 treated)	100	0.000031
	Lawn RTU Hose End (5000 ft2 treated)	100	0.000031
Adult Female	Garden/Ornamental Dust (50% of 1 lb 5% bottl	100	0.000026
	Garden/Ornamental Dust (100% of 1 lb 5% bott	100	0.000026
	Lawn RTU Hose End (15000 ft2 treated)	100	0.000026
	Lawn RTU Hose End (10000 ft2 treated)	100	0.000026
	Lawn RTU Hose End (5000 ft2 treated)	100	0.000026

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Appendix C/'Table 2: Aggregate Cancer Risk and DWLOC Calculations For Risk Mitigation Purposes

Population Subgroup	Scenario	Q1* (mg/kg/day)-1	Negligible Risk Level	Target Maximum Exposure (mg/kg/day)	Chronic Food Exposure (mg/kg/day)	Residential Exposure LADD (mg/kg/day)	Aggregate Cancer Risk (Food & Residential)	Maximum Water Exposure (mg/kg/day)	DWLOC (ug/L or ppb)	EECs Surface Water (all PRZM/EXMS) FL Citrus (ppb)	EECs Surface Water (all PRZM/EXMS) OR Apples (ppb)	EECs Ground Water (SciGrow) (ppb)
Adult Male	Garden/Ornamental Dust (50% of 1 lb 5% bottle)	8.75E-004	1.00E-006	0.001143	0.000031	0.00001371	3.91E-008	0.001098	38.4	28	9	0.8
	Garden/Ornamental Dust (100% of 1 lb 5% bottle	8.75E-004	1.00E-006	0.001143	0.000031	0.00002857	5.21E-008	0.001083	37.9	28	9	0.8
	Lawn RTU Hose End (15000 ft2 treated)	8.75E-004	1.00E-006	0.001143	0.000031	0.00003543	5.81E-008	0.001076	37.7	28	9	0.8
	Lawn RTU Hose End (10000 ft2 treated)	8.75E-004	1.00E-006	0.001143	0.000031	0.00002400	4.81E-008	0.001088	38.1	28	9	0.8
	Lawn RTU Hose End (5000 ft2 treated)	8.75E-004	1.00E-006	0.001143	0.000031	0.00001600	4.11E-008	0.001096	38.4	28	9	0.8
Adult Female	Garden/Ornamental Dust (50% of 1 lb 5% bottle)	8.75E-004	1.00E-006	0.001143	0.000026	0.00001371	3.48E-008	0.001103	33.1	28	9	0.8
	Garden/Ornamental Dust (100% of 1 lb 5% bottle	8.75E-004	1.00E-006	0.001143	0.000026	0.00002857	4.78E-008	0.001088	32.6	28	9	0.8
	Lawn RTU Hose End (15000 ft2 treated)	8.75E-004	1.00E-006	0.001143	0.000026	0.00003543	5.38E-008	0.001081	32.4	28	9	0.8
	Lawn RTU Hose End (10000 ft2 treated)	8.75E-004	1.00E-006	0.001143	0.000026	0.00002400	4.38E-008	0.001093	32.8	28	9	0.8
	Lawn RTU Hose End (5000 ft2 treated)	8.75E-004	1.00E-006	0.001143	0.000026	0.00001600	3.68E-008	0.001101	33.0	28	9	0.8

		cancer risks for residential only
Adult Male	Garden/Ornamental Dust (50% of 1 lb 5% bottle)	1.2E-008
	Garden/Ornamental Dust (100% of 1 lb 5% bottle	2.5E-008
	Lawn RTU Hose End (15000 ft2 treated)	3.1E-008
	Lawn RTU Hose End (10000 ft2 treated)	2.1E-008
	Lawn RTU Hose End (5000 ft2 treated)	1.4E-008
Adult Female	Garden/Ornamental Dust (50% of 1 lb 5% bottle)	1.2E-008
	Garden/Ornamental Dust (100% of 1 lb 5% bottle	2.5E-008
	Lawn RTU Hose End (15000 ft2 treated)	3.1E-008
	Lawn RTU Hose End (10000 ft2 treated)	2.1E-008
	Lawn RTU Hose End (5000 ft2 treated)	1.4E-008

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Appendix D/Table 1: Carbaryl Postapplication Residential Turf Risk Assessment Inputs (Liquid & Granular Comparison)

Transferable Residue (% of Rate) For Object-to-Mouth Ingestion Exposure Assessment:	20
Liquid Adjustment Factor:	1.00
Granular Adjustment Factor For Dermal Exposure From Moses Lake TTR Data (1/235):	0.0043
Granular Adjustment Factor For Mouthing Exposures From Low End Of Clothier et al (1/30):	0.0333
Study Application Rate (lb ai/A in MRID 451143-01):	8.17
Limit of Quantification in MRID 451143-01 (ug/cm2):	0.00035
Transferable Residue (% of Rate) For Hand-to-Mouth Ingestion Exposure Assessment:	5
Predicted Time (0) TTR For Hand-to-Mouth Ingestion For Liquids (ug/cm2):	4.58
Predicted Time (0) TTR For Hand-to-Mouth Ingestion For Granulars (ug/cm2):	0.15
Predicted Time (0) TTR For Object-to-Mouth Ingestion For Liquids (ug/cm2):	18.33
Predicted Time (0) TTR For Object-to-Mouth Ingestion For Granulars (ug/cm2):	0.61
Predicted Time (0) Total Deposition For Soil Ingestion For Liquids (ug/cm2):	91.67
Predicted Time (0) Total Deposition For Soil Ingestion For Granulars (ug/cm2):	91.67
Transferable Residue (% of Rate) From TTR Study (GA Site):	1.20
Short-term/Int-Term TTR Data Source:	MRID 451143-01 (Georgia Data)
Short-term/Int-Term TTR Data Slope of Semilog Regression:	-0.16818
Short-Term/Int-Term TTR Data [Initial] (ug/cm2):	1.122
Toddler Dermal Exposure Duration On Lawns (hr/day):	2
Toddler Hand-to-Mouth Duration On Lawns (hr/day):	2
Short-term Toddler Dermal SOP TC On Lawns (cm2/hr):	5200
ORETF Algorithm (b Factor):	21.74
ORETF Algorithm (a Factor):	5.177
Toddler Hand Surface Area (cm2/both hands):	20
Toddler Short-Term Frequency of Hand-to-Mouth Events (events/hour):	20
Object-to-Mouth Surface Area Contacted (cm2 mouthed):	25
Soil Ingestion (mg soil ingested/day):	100
Soil Density (cm3/gram):	0.67
Saliva Extraction Factor (%):	50
Short-term Uncertainty Factor For Nondietary Ingestion:	100
Short-term NOAEL (mg/kg/day) For Nondietary Ingestion:	1
Source of Short-term NOAEL For Nondietary Ingestion:	Develop. & Acute Neurotoxicity Study - Rat
Short/Intermediate-term Uncertainty Factor For Dermal Exposure:	100
Short/Intermediate-term NOAEL (mg/kg/day) For Dermal Exposure:	20
Source of Short/Intermediate-term NOAEL For Dermal Exposure:	21-day Dermal - Rat
Toddler Body Weight (kg):	15
Short/Intermediate-term Dermal Abs. (%):	100
Source of Short/Intermediate-term Dermal Absorption Factor:	Default for use of dermal tox study

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Appendix D/Table 2: Residue Levels Used For Carbaryl Residential Risk Assessment On Turf (Liquid & Granular Comparison)

DAT	TTRs For Dermal (GA Data) (ug/cm2)		TTRs For HTM Ingestion (GA Data) (ug/cm2)		TTRs For OTM Ingestion (GA Data) (ug/cm2)		[Soil] For Ingestion (GA Data) (ppm)	
	Liquid Formulation	Granular Formulation	Liquid Formulation	Granular Formulation	Liquid Formulation	Granular Formulation	Liquid Formulation	Granular Formulation
0	1.12200	0.00477	4.58337	0.15278	18.33348	0.61112	61.41716	61.41716
1	0.94832	0.00404	3.87387	0.12913	15.49549	0.51652	51.90989	51.90989
2	0.80152	0.00341	3.27420	0.10914	13.09681	0.43656	43.87432	43.87432
3	0.67744	0.00288	2.76736	0.09225	11.06945	0.36898	37.08265	37.08265
4	0.57258	0.00244	2.33898	0.07797	9.35592	0.31186	31.34232	31.34232
5	0.48394	0.00206	1.97691	0.06590	7.90764	0.26359	26.49058	26.49058
6	0.40903	0.00174	1.67089	0.05570	6.68355	0.22278	22.38988	22.38988
7	0.34571	0.00147	1.41224	0.04707	5.64895	0.18830	18.92397	18.92397
8	0.29220	0.00124	1.19362	0.03979	4.77450	0.15915	15.99457	15.99457
9	0.24697	0.00105	1.00885	0.03363	4.03541	0.13451	13.51864	13.51864
10	0.20874	0.00089	0.85268	0.02842	3.41074	0.11369	11.42597	11.42597

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Appendix D/Table 3: Toddler Dermal Risk Values For Carbaryl On Turf (Liquid & Granular Comparison)

DAT	TTRs For Dermal (GA Data) (ug/cm2)		Dose (mg/kg/day)				MOEs			
	Liquid Formulation	Granular Formulation	Liquid Form. SOPs	Granular Form. SOPs	Liquid Form. ORETF	Granular Form. ORETF	Liquid Form. SOPs	Granular Form. SOPs	Liquid Form. ORETF	Granular Form. ORETF
0	1.12200	0.00477	0.7779	0.0033	6.5347	0.1751	26	6042	3	114
1	0.94832	0.00404	0.6575	0.0028	5.9531	0.1521	30	7148	3	132
2	0.80152	0.00341	0.5557	0.0024	5.4188	0.1317	36	8458	4	152
3	0.67744	0.00288	0.4697	0.0020	4.9283	0.1137	43	10006	4	176
4	0.57258	0.00244	0.3970	0.0017	4.4784	0.0978	50	11839	4	204
5	0.48394	0.00206	0.3355	0.0014	4.0659	0.0839	60	14008	5	238
6	0.40903	0.00174	0.2836	0.0012	3.6880	0.0717	71	16573	5	279
7	0.34571	0.00147	0.2397	0.0010	3.3421	0.0610	83	19608	6	328
8	0.29220	0.00124	0.2026	0.0009	3.0257	0.0517	99	23200	7	387
9	0.24697	0.00105	0.1712	0.0007	2.7366	0.0436	117	27449	7	459
10	0.20874	0.00089	0.1447	0.0006	2.4725	0.0365	138	32476	8	547

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Appendix D/Table 4: Toddler Hand-to-Mouth Risk Values For Carbaryl On Turf (Liquid & Granular Comparison)

DAT	TTRs For HTM Ingestion (GA Data) (ug/cm2)		Dose (mg/kg/day)		MOEs	
	Liquid Formulation	Granular Formulation	Liquid Formulation	Granular Formulation	Liquid Formulation	Granular Formulation
0	4.58337	0.15278	1.22E-001	4.07E-003	8	245
1	3.87387	0.12913	1.03E-001	3.44E-003	10	290
2	3.27420	0.10914	8.73E-002	2.91E-003	11	344
3	2.76736	0.09225	7.38E-002	2.46E-003	14	407
4	2.33898	0.07797	6.24E-002	2.08E-003	16	481
5	1.97691	0.06590	5.27E-002	1.76E-003	19	569
6	1.67089	0.05570	4.46E-002	1.49E-003	22	673
7	1.41224	0.04707	3.77E-002	1.26E-003	27	797
8	1.19362	0.03979	3.18E-002	1.06E-003	31	943
9	1.00885	0.03363	2.69E-002	8.97E-004	37	1115
10	0.85268	0.02842	2.27E-002	7.58E-004	44	1319

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Appendix D/Table 5: Toddler Object-to-Mouth Risk Values For Carbaryl On Turf (Liquid & Granular Comparison)

DAT	TTRs For OTM Ingestion (GA Data) (ug/cm2)		On Residential Turf Dose (mg/kg/day)		MOEs	
	Liquid Formulation	Granular Formulation	Liquid Formulation	Granular Formulation	Liquid Formulation	Granular Formulation
0	18.33348	0.61112	3.06E-002	1.02E-003	33	982
1	15.49549	0.51652	2.58E-002	8.61E-004	39	1162
2	13.09681	0.43656	2.18E-002	7.28E-004	46	1374
3	11.06945	0.36898	1.84E-002	6.15E-004	54	1626
4	9.35592	0.31186	1.56E-002	5.20E-004	64	1924
5	7.90764	0.26359	1.32E-002	4.39E-004	76	2276
6	6.68355	0.22278	1.11E-002	3.71E-004	90	2693
7	5.64895	0.18830	9.41E-003	3.14E-004	106	3186
8	4.77450	0.15915	7.96E-003	2.65E-004	126	3770
9	4.03541	0.13451	6.73E-003	2.24E-004	149	4461
10	3.41074	0.11369	5.68E-003	1.89E-004	176	5277

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Appendix D/Table 6: Toddler Soil Ingestion Risk Values For Carbaryl On Turf (Liquid & Granular Comparison)

DAT	[Soil] For Ingestion (GA Data) (ppm)		On Residential Turf Dose (mg/kg/day)		MOEs	
	Liquid Formulation	Granular Formulation	Liquid Formulation	Granular Formulation	Liquid Formulation	Granular Formulation
0	61.41716	61.41716	4.09E-004	4.09E-004	2442	2442
1	51.90989	51.90989	3.46E-004	3.46E-004	2890	2890
2	43.87432	43.87432	2.92E-004	2.92E-004	3419	3419
3	37.08265	37.08265	2.47E-004	2.47E-004	4045	4045
4	31.34232	31.34232	2.09E-004	2.09E-004	4786	4786
5	26.49058	26.49058	1.77E-004	1.77E-004	5662	5662
6	22.38988	22.38988	1.49E-004	1.49E-004	6699	6699
7	18.92397	18.92397	1.26E-004	1.26E-004	7926	7926
8	15.99457	15.99457	1.07E-004	1.07E-004	9378	9378
9	13.51864	13.51864	9.01E-005	9.01E-005	11096	11096
10	11.42597	11.42597	7.62E-005	7.62E-005	13128	13128

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Appendix D/Table 7: AggregateToddler Risk Values For Carbaryl On Turf (Liquid & Granular Comparison) Based On Dermal TC From SOPs

DAT (days)	MOEs Based On Dermal TC From SOPs									
	Liquid Formulations					Granular Formulations (Using Carbaryl Adjusted TTRs)				
	Dermal	Hand-to-Mouth	Object-to-Mouth	Soil Ingestion	Aggregate	Dermal	Hand-to-Mouth	Object-to-Mouth	Soil Ingestion	Aggregate
0	25.7	8.2	32.7	2442.3	5.2	6041.8	245.5	981.8	2442.3	176.4
1	30.4	9.7	38.7	2889.6	6.2	7148.3	290.4	1161.6	2889.6	208.8
2	36.0	11.5	45.8	3418.9	7.3	8457.5	343.6	1374.4	3418.9	247.0
3	42.6	13.6	54.2	4045.0	8.6	10006.5	406.5	1626.1	4045.0	292.2
4	50.4	16.0	64.1	4785.9	10.2	11839.2	481.0	1923.9	4785.9	345.7
5	59.6	19.0	75.9	5662.4	12.1	14007.5	569.1	2276.3	5662.4	409.1
6	70.5	22.4	89.8	6699.5	14.3	16573.0	673.3	2693.2	6699.5	484.0
7	83.4	26.6	106.2	7926.5	16.9	19608.3	796.6	3186.4	7926.5	572.6
8	98.7	31.4	125.7	9378.2	20.0	23199.6	942.5	3770.0	9378.2	677.5
9	116.8	37.2	148.7	11095.8	23.7	27448.6	1115.1	4460.5	11095.8	801.6
10	138.2	44.0	175.9	13128.0	28.0	32475.8	1319.4	5277.4	13128.0	948.4

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Appendix D/Table 8: AggregateToddler Risk Values For Carbaryl On Turf (Liquid & Granular Comparison) Based On ORETF Dermal Algorithm

DAT (days)	MOEs Based On ORETF Dermal Algorithm									
	Liquid Formulations					Granular Formulations (Using Carbaryl Adjusted TTRs)				
	Dermal	Hand-to-Mouth	Object-to-Mouth	Soil Ingestion	Aggregate	Dermal	Hand-to-Mouth	Object-to-Mouth	Soil Ingestion	Aggregate
0	3.1	8.2	32.7	2442.3	2.1	114.2	245.5	981.8	2442.3	70.1
1	3.4	9.7	38.7	2889.6	2.3	131.5	290.4	1161.6	2889.6	81.6
2	3.7	11.5	45.8	3418.9	2.6	151.9	343.6	1374.4	3418.9	95.1
3	4.1	13.6	54.2	4045.0	3.0	175.9	406.5	1626.1	4045.0	111.0
4	4.5	16.0	64.1	4785.9	3.3	204.4	481.0	1923.9	4785.9	129.9
5	4.9	19.0	75.9	5662.4	3.7	238.4	569.1	2276.3	5662.4	152.3
6	5.4	22.4	89.8	6699.5	4.2	279.1	673.3	2693.2	6699.5	178.9
7	6.0	26.6	106.2	7926.5	4.7	328.0	796.6	3186.4	7926.5	210.8
8	6.6	31.4	125.7	9378.2	5.2	387.2	942.5	3770.0	9378.2	249.0
9	7.3	37.2	148.7	11095.8	5.9	459.2	1115.1	4460.5	11095.8	295.1
10	8.1	44.0	175.9	13128.0	6.6	547.5	1319.4	5277.4	13128.0	350.9