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MEMORANDUM

Subject: Vinclozolin: Agency Comments on BASF Conifer Seedling Production Reentry Risk Assessment [DP Barcode D273338, Chemical Code 113201, Case 816411]

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The purpose of this memo is to provide comments on the recent submission from BASF regarding a 24C submission pertaining to the use of the fungicide, vinclozolin, in the production of conifer seedlings presumably for reforestation purposes.

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1. Introduction:

The purpose of this memo is to provide comments on the 24C "Reentry Risk Assessment/Vinclozolin, Conifer Seedling Production" document recently submitted by BASF (DP Barcode D273338). The following documents were also considered:

- *The Revised Occupational and Residential Exposure Aspects of the HED Chapter of the Reregistration Eligibility Decision Document (RED) For Vinclozolin, Case 816411, PC Code 113201, DP Barcode 260678*, Author: Jeff Dawson, Issued: February 8, 2000.
- *Response to comments from the BASF Corporation submitted in MRID 451114-01 to the Agency's February 8, 2000 occupational and residential risk assessment for vinclozolin, Case 816411, PC Code 113201, DP Barcode 265676*, Author: Jeff Dawson, Issued: June 27, 2000.
- *Vinclozolin: Revised Occupational Postapplication Exposure and Risk Calculations [Case 816411, PC Code 113201, DP Barcode 268237]*, Author: Jeff Dawson, Issued: August 17, 2000.
- *HED Science Policy For Exposure 3.1: Agricultural Transfer Coefficients*, Revised August 7, 2000.

The previous February 2000 occupational post-application risk assessment for vinclozolin (D260678), examined the risks associated with the use of vinclozolin in the ornamental/greenhouse industries by occupational handlers and post-application workers (e.g., involved in plant propagation activities such as irrigation and harvesting). After the February 2000 RED document was released (D 260678), BASF indicated to the Agency that all ornamental uses were to be canceled (i.e., greenhouse, nursery stock, etc.). In the interim, however, the Agency has received an application for a Section 24C registration for vinclozolin use in conifer seedling production in the forestry industry. Along with this application, a risk assessment has also been submitted which is the document that is reviewed below.

Summaries of the Agency's prior risk calculations and of the risk assessment submitted by BASF are included below in Sections 2 and 3, respectively. Section 4 presents the Agency's comments on the recent conifer seedling 24C request. Section 5 contains an overall summary.

2. Summary of Previous Agency Risk Assessments:

The Agency's February risk assessment for vinclozolin and the subsequent documents are summarized below because each has a bearing on the review of the conifer seedling submission. In the Agency's February 2000 RED document for vinclozolin (D 260678), both occupational handler and postapplication risks were considered for the ornamental uses of vinclozolin. Based on the labels and available use information, it appeared as though vinclozolin could be used to make foliar or fogging applications to woody and herbaceous ornamentals, as a dip on many products (e.g., bulbs, pine seedlings, cut flowers, nursery stock), and as a broadcast spray on turf. The recent BASF submission does not provide updated risk values or exposure data that would alter the Agency's risk values for handlers. As such, the risks presented in the February 2000 document should be consulted for handlers.

The Agency based its postapplication assessment on a series of residue dissipation studies on turf (TTR using aqueous wash and California roller), strawberries, and peaches that BASF had conducted. The strawberry data (i.e., from Michigan and 2 California locations) served as the basis for all ornamental risk

calculations with the exception of turf where the turf specific data were used. The strawberry data were generated at an application rate of 1 lb ai/acre and no adjustments to these data were made based on application rate for the risk assessment. Along with these data, the Agency also considered many different crop/activity combinations in the assessment. To this end, a range of transfer coefficients were used to represent the many different jobs or tasks that can occur in the ornamental/nursery industry. These transfer coefficients included 500 cm^2/hour for mowing turf; 2,500 cm^2/hour for sorting ~~or packing ornamentals~~; 4,000 cm^2/hour for irrigation; and both 5,000 and 10,000 cm^2/hour for cutting flowers and other high contact greenhouse/nursery activities. It should be noted that chronic MOEs and cancer risks were calculated for all ornamental scenarios except turf mowing because the Agency believes that in production greenhouse and nursery facilities it may be likely that exposures are of sufficient duration to consider these kinds of activities. The results of the Agency's February 2000 risk assessment are summarized in Table 1 below (non-turf values only are presented as they are more applicable for the proposed 24C conifer seedling use pattern):

Table 1: Post Application Risks In Ornamental Industry Presented In February 2000 Agency Assessment

Scenario	TC (cm^2/hour)	Short-/Int.-Term MOE ($t \geq 100$ in days)	Chronic MOE ($t \geq 100$ in days)	Cancer Risks ($t \leq 1x10^{-4}$ in days)
2-Sorting/packing	2500	21	31	>50 (MOE = 1930)
3-Irrigation	4000	27	37	>50 (MOE = 1207)
4-Cutting Flowers	5000	30	39	>50 (MOE = 966)
	10000	39	48	>50 (MOE = 483)

Subsequent to the February 2000 Agency risk assessment, BASF submitted comments on different inputs and analytical methods/techniques. The Agency responded to these comments in June, 2000 (D265676). In particular, BASF commented on the transfer coefficients selected by the Agency and the way that the dissipation kinetics analyses were completed. Of particular interest to the latest submission on conifer seedling nursery production, is the passage excerpted from the Agency's response document:

> "The major issue that drives the differences between the REIs proposed by BASF and the risk values calculated by the Agency is the method that has been used to calculate the DFR or TTR levels. The Agency used a pseudo-first order kinetics approach as outlined in the Series 875/Group B guideline for postapplication exposure assessment. This is consistent with the tiered approach that the Agency routinely uses in the analysis of residue dissipation data. The correlation coefficients for all regression analyses were high, but the residuals of the plots were not randomly distributed as would be optimal. Even given the issue with the residuals, the Agency was comfortable with the pseudo-first order approach because of the uncertainties associated with the extrapolations completed with data (e.g., from crop to crop, weather events, and using different application rates). BASF disagreed with the Agency approach and opted to apply a more sophisticated curve fitting technique to the data regardless of the uncertainties and without addressing issues such as having a large enough dataset to statistically justify such an approach. The only justification provided by BASF is that the residuals of the curve are not randomly distributed with which the Agency concurs. The bottom line of the analysis completed by both the Agency and BASF is that current label requirements for a 12 hour Restricted Entry Interval should be significantly lengthened. ... At a minimum, modifying the current labels to the REI values

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proposed by BASF would be a logical first step. Data should also be collected on the remaining crops if the curve-fitting approach is adopted to confirm the analysis. If confirmatory data are not collected, risk managers should carefully consider the use of the pseudo-first order analysis completed by the Agency in light of the unique attributes of the data currently available for vinclozolin."

In August 2000, the Agency revised the occupational postapplication risk assessment (D268237) because its transfer coefficient policy was revised (i.e., Policy 3.1 revision completed August 7, 2001) and because of the conclusions reached in the response to BASF comments. Crop/activity combinations for 4 crop groups were considered in that assessment including low/medium field row crops; turf and sod; leafy vegetables; and vine/trellis crops. Non-turf ornamental crops were not considered in this revision to the risk assessment because at this point in time, BASF had indicated to the Agency that all ornamental uses for vinclozolin would be voluntarily withdrawn. In this revision, the Agency presented risk values based on updated transfer coefficients and, more importantly for this discussion, using both Agency and BASF-proposed TTR and DFR values with the stipulation that additional data be collected to confirm the dissipation patterns if the BASF-proposed values were used for risk management (see D265676 and D268237 for further information).

3. Summary of BASF Conifer Seedling Risk Assessment:

In this risk assessment BASF is proposing a 24C label amendment "to support the continued use of vinclozolin for seedling production, as a tool for botrytis control." The submission also contains the following statements:

"Conifer seedlings can be produced either indoors (greenhouses) or outdoors. Regardless of the location, reentry tasks are similar. After application, there are routinely three tasks to deal with; irrigation, weeding, and harvest."

"Proposed Use: Up to four applications of product at 1.5 lb ai/acre (3 lb product) with a minimum of 10 days between applications and a maximum seasonal use rate of up to 6 lb ai/acre. The Agency has indicated that it could support this use through the Section 24C process, provided that the occupational and worker reentry risks were not prohibitive."

The BASF submission touched on occupational handler risks indicating that Curalan EG "is only sold in water soluble packaging thus mitigating most occupational handler risk concerns." It was also indicated that backpack sprayers would be deleted from the label because "acceptable margins of exposure have been determined for all application types except the use of backpack sprayers."

The primary focus of the submission was on occupational postapplication exposures. The transfer coefficients used by the Agency in its February 2000 risk assessment, the use of the strawberry DFR data, and a presentation of revised risk estimates with the transfer coefficients proposed by BASF were the key elements of the document.

On the transfer coefficients used, BASF did not agree that data selected by the Agency in its February 2000 document (D260678) for defining transfer coefficients (e.g., Brouwer et al, generated on cut flowers in greenhouses) were the most appropriate exposure metrics (see Table 1 above). BASF also indicated that

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exposures would be less frequent than predicted by the Agency as "typically the product's use season for this application is late August through December." Rather than the transfer coefficients used by the Agency in its February 2000 assessment, BASF proposed the following values summarized in Table 2 below:

Table 2: Transfer Coefficients Proposed By BASF For Seedling Conifer Production		
Scenario	TC (cm^2/hour)	Source
Irrigation and Weeding	500	*Science Advisory Council For Exposure Policy 3.1, Agricultural Transfer Coefficients, Revised (August 7, 2000)*, selected vine/trellis values for same activities
Irrigation and Weeding	1000	*Science Advisory Council For Exposure Policy 3.1, Agricultural Transfer Coefficients, Revised (August 7, 2000)*, selected Christmas tree values for same activities
Harvesting	2500	February Agency Assessment D260678, (low end of range in Brouwer et al)

The second key element of the BASF submission was the discussion focused on the DFR data. This essentially reiterated what has already been summarized in Section 2 above. BASF used the results of their curve fitting analysis of the strawberry data discussed extensively in the Agency's June 2000 response to BASF comments (D265676). Essentially, the same values were used as the basis of the risk assessment by BASF as were used by the Agency in its August 2000 revised occupational postapplication risk assessment (D268237). The only modification to the DFR values was that they were adjusted for differences in application rate (i.e., 1 lb ai/acre versus 1.5 lb ai/acre in the conifer seedling assessment).

The results of the BASF risk assessment are summarized in Table 3 below. No chronic duration or cancer risk calculations were completed in the assessment.

Table 3: Post Application Risks For Conifer Seedling Production Presented By BASF		
Scenario	TC (cm^2/hour)	Short-/Int.-Term MOE ($t \geq 100$ in days)
Irrigation and Weeding	500	3
Irrigation and Weeding	1000	7
Harvesting	2500	14

4. Agency Comments On Conifer Seedling Submission By BASF:

The Agency has reviewed the recent submission from BASF and has identified the following technical and policy issues:

- The occupational handler risks for uses in the ornamental industry were addressed by the Agency in its February 2000 risk assessment (D260678). To date, BASF has provided no information that would preclude the Agency from defining risk management options based on that document. Additionally, it should be noted that there were no monitoring data available for the ornamental/nursery industries (e.g., dipping pine seedlings in propagation nurseries) which were used in the completion of that assessment. The Agency used the best available data to complete the risk calculations.

- The ornamental and nursery industry has long been considered a key data gap by the Agency. The Brouwer data that served as the basis for the Agency's previous transfer coefficient values for this use pattern were believed at that time by the Agency to be the most appropriate source of information available even though they do not directly reflect the conifer seedling production use pattern. The consideration that this industry represents a key data gap is further reinforced by the fact that the Agency did not select the Brouwer data or any data for that matter to represent nursery production, including conifer seedling production, in its recently revised transfer coefficient policy. This is because it is believed, given the current standards for clustering crop/activity combinations, that the activities monitored by Brouwer or any other usable, currently available data do not sufficiently represent crop/activity combinations found in the ornamental/nursery industry.

- BASF is a member of the Agricultural Reentry Task Force (ARTF). As a member, BASF should be aware that the ARTF is in the process of completing two key studies in the area of greenhouse and nursery production (i.e., mum bud pinching and nursery harvesting/maintenance). Additional information from these studies should be submitted as soon as possible to support the transfer coefficient values proposed by BASF. These data would certainly provide better justification for altering the Agency's risk values than the subjective analysis provided in the BASF submission.

- No use/usage records were submitted to support the BASF claim that most use of vinclozolin for conifer seedling production would be from August to December. Also, no cultural practice data were submitted to also illustrate that irrigation, weeding, and harvest were the only key postapplication activities. For example, there was no discussion of the potential exposures associated with personnel involved in reforestation (transplanting) activities using vinclozolin-treated seedlings.

- BASF did not address any of the comments and concerns repeatedly made by the Agency over its use of the strawberry DFR data coupled with a curve-fitting statistical analysis approach that were summarized above and in the Agency's response to their comments (D268237 and D265676). The following excerpt from the Agency response should be considered "At a minimum, modifying the current labels to the REI values proposed by BASF would be a logical first step. Data should also be collected on the remaining crops if the curve-fitting approach is adopted to confirm the analysis. If confirmatory data are not collected, risk managers should carefully consider the use of the pseudo-first order analysis completed by the Agency in light of the unique attributes of the data currently available for vinclozolin."

- BASF did not address other concerns raised in the February 2000 Agency assessment such as the potential for exposure after fogging where special respiratory protections might be needed. It is not even clear that fogging would be an allowed application method under the proposed 24C label.

Based on the residue dissipation and human exposure data currently available to the Agency as well as the stipulations contained in the current transfer coefficient policy (i.e., no data specifically selected for this

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scenario), the Agency is reluctant to provide a quantitative estimate of risks for this scenario. Likewise, the Agency does not concur with the risk estimates provided by BASF. More refined data this scenario could alter this position (e.g., crop-specific DFR dissipation and exposure data such as those anticipated from the ARTF). It is clear, however, that risk managers need a mechanism with which to decide upon the BASF 24C application for vinclozolin use in conifer seedling production. To this end, the Agency does not use the risk estimates provided by BASF as the basis for the 24C decision but recommends using newly calculated rangefinder risk estimates based on the current transfer coefficients for cut flowers as outlined in the revised policy 3.1 until more refined data become available (See Table 4 below for a summary and Appendix A for complete calculations). [Note: These values were calculated for rangefinder purposes only (which is consistent with the U.S. EPA Guidelines For Exposure Assessment). This approach is not intended to refine the Agency transfer coefficient policy. The policy will likely be refined based on upcoming ARTF greenhouse and nursery data.] All toxicity and other inputs remain unchanged from previous vinclozolin risk assessments including use of the strawberry DFR data. A complete summary of all inputs used is provided in Appendix A. As with the August 2000 revision (D268237) to the February 2000 Agency risk assessment (D 260678), the Agency has presented risk values calculated using the Agency analysis of the strawberry DFR data and the BASF analysis of the same data with the stipulation for confirmatory crop-specific residue dissipation data.

Table 4: Post Application Risks For Conifer Seedling Production Calculated By Agency

Scenario	TC (cm^2/hour)	Short-/Int.-Term MOE ($t \geq 100$ in days)	
		Agency DFR	BASF DFR
Low Exposure (e.g., Weeding)	2500	26	14
Medium Exposure (e.g., Irrigation)	4000	32	17
High Exposure (e.g., Pruning, Pinching, Harvesting)	7000	39	23

Finally, it should be noted that chronic duration and cancer risks were not calculated by the Agency based on the use/usage information that was provided by BASF. This information indicates the major use period for vinclozolin in conifer seedling production is from August through December (i.e., this interval does not meet the criteria for chronic exposures of essentially every working day). Use and usage data are also required to confirm this conclusion. If such data are not submitted, the Agency would consider completion of the appropriate chronic duration and cancer risk calculations.

5. Summary:

In February 2000 the Agency completed an occupational risk assessment for vinclozolin (D260678) that addressed the postapplication exposures of workers in the greenhouse and nursery industries. After the release of that assessment, BASF indicated that those uses were to be voluntarily canceled which was the case until the recent request by BASF for a 24C registration for conifer seedling production. Additionally, after the release of the February 2000 assessment, BASF provided comments on the Agency risk assessment including

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on how the Agency completed its DFR kinetics analysis. The comments were responded to by the Agency in June 2000 (D265676). One aspect of the response was to accept the kinetics analysis approach proposed by BASF if additional, crop-specific DFR data were collected because none of the DFR data submitted to date were from crops that were still registered (e.g., strawberry data was used for all field crops, but strawberries are no longer registered). As a follow-up to this review of BASF comments and as a result of the revision of the Agency policy on transfer coefficients, the Agency revised its postapplication risk assessment in August 2000 (D268237). In this revised assessment, for a more informed risk management decision, the Agency presented risk values that were based on both the Agency approach and the BASF approach to DFR dissipation kinetics. The revised assessment did not contain risk values for ornamentals but is of interest because of the residue kinetics analysis and the associated stipulations.

These prior documents are key to considering the current request by BASF for a 24C on conifer seedling production. The current submission included a risk assessment that addressed occupational handler as well as postapplication exposures. No information was presented in the recent submission that would refine the occupational handler assessment. As such, the February 2000 Agency risk assessment (D 260678) should be consulted for appropriate risk values. The only differences in the postapplication risk assessments are with the DFR and transfer coefficient values. BASF proposed that transfer coefficients be selected from the vine/trellis crop group and Christmas tree crop numbers to represent conifer seedling production. The Agency does not concur with this approach. In fact, it should be noted that when the Agency revised its transfer coefficient policy it did not select transfer coefficients for the forestry and nursery industries and identified this industry as a key data gap. It is clear, however, that because of this submission that risk managers need some basis for making a decision on the BASF 24C conifer seedling request. To this end, the Agency completed a rangefinder risk assessment using the transfer coefficients from the cut flower crop group contained in the latest policy on transfer coefficients. The Agency also used the same strawberry data it had used in its previous risk assessments and adjusted the values for the conifer seedling application rate of 1.5 lb ai/acre. As with the August 2000 revised risk assessment (D268237), crop-specific DFR data should be collected to better represent conifer seedlings if the less conservative BASF curve-fitting DFR kinetics approach is selected for risk management purposes. The other key item to consider is that BASF is a member of the Agricultural Reentry Task Force which has recently completed exposure studies in a greenhouse and in a commercial nursery operation. These data should be referenced as soon as possible to refine the assessment.

In summary, the Agency does not concur with the risk values presented by BASF in the request for a conifer seedling 24C registration. There are key differences between the Agency's revised transfer coefficient policy and those proposed by BASF. Additionally, BASF has not developed DFR dissipation data that would confirm the applicability of using the strawberry data in risk assessments for other crops, particularly if the BASF curve fitting kinetics approach is selected for risk management purposes. To allow risk managers to make an informed decision about this action, a rangefinder risk assessment has been completed. The values calculated by the Agency using the BASF curve fitting approach are the ones that would be recommended for label development (i.e., 14 to 23 days depending on the activity for MOE =100) if confirmatory residue dissipation data are generated. Finally, it is expected that the Agency assessment could be significantly refined upon receipt of the ARTF nursery and greenhouse studies. If updated DFR data are not received, risk managers should consider using the Agency's kinetics approach which results in higher risks (i.e., 26 to 39 days depending on the activity for MOE =100).

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APPENDIX A

RANGEFINDER POST-APPLICATION EXPOSURE & RISK CALCULATIONS FOR VINCLOZOLIN IN CONIFER SEEDLING PRODUCTION

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Appendix A/Table 1: Vinclozolin Rangefinder Risk Assessment For Conifer Seedling Production Inputs

Reason:	Rangefinder Risk Assessment For Conifer Seedlings
Date:	4/2/01
Assessor:	Jeff Dawson
Transfer Coefficient Group:	Unassigned (forestry, nursery) [Cut Flowers Used]
Specific Crop(s) Considered:	Conifer Seedlings
Application Rate of Crop (lb ai/A):	1.5

Applicable TC Groups:

Unassigned (Nursery and ornamentals)

[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:	
Uncertainty Factor:	100
NOAEL (mg/kg/day):	3
Source of NOAEL:	Rat Developmental Tox
Adult Exposure Duration (hrs/day):	8
Adult Body Weight (kg):	60
Dermal Abs. (%):	25.2

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: Vinclozolin Rangefinder Risk Assessment For Conifer Seedling Production Using Agency DFR Analysis

Reason:	Rangefinder Risk Assessment For Conifer Seedlings
Date:	4/2/01
Assessor:	Jeff Dawson
Transfer Coefficient Group:	Unassigned (forestry, nursery) [Cut Flowers Used]
Specific Crop(s) Considered:	Conifer Seedlings
Application Rate of Crop (lb ai/A):	1.5

DFR Data Summary

Data Source (enter 1 if data available, 0 if defaults):	1
Source:	Strawberry DFR (MRID 43013004) - Agency Analysis
Slope of Semilog Regression:	-0.07801406
[Initial] (ug/cm2):	1.742
Study Application Rate (lb ai/A):	1
Limit of Quantification (ug/cm2):	0.001

[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	2500	2400 to 13000	Irrigation, scouting, thinning, weeding immature/low foliage plants
Medium	4000	2400 to 13000	Irrigation, scouting mature/high foliage plants
High	7000	2400 to 13000	hand harvesting, pruning, thinning, pinching
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	1.742	2.613	0.2195	0.3512	0.6146	13.7	8.5	4.9
1	1.611	2.417	0.2030	0.3248	0.5685	14.8	9.2	5.3
2	1.490	2.236	0.1878	0.3005	0.5258	16.0	10.0	5.7
3	1.378	2.068	0.1737	0.2779	0.4863	17.3	10.8	6.2
4	1.275	1.913	0.1607	0.2570	0.4498	18.7	11.7	6.7
5	1.179	1.769	0.1486	0.2378	0.4161	20.2	12.6	7.2
6	1.091	1.636	0.1374	0.2199	0.3848	21.8	13.6	7.8
7	1.009	1.513	0.1271	0.2034	0.3560	23.6	14.7	8.4
8	0.933	1.400	0.1176	0.1881	0.3293	25.5	15.9	9.1
9	0.863	1.295	0.1088	0.1740	0.3045	27.6	17.2	9.9
10	0.798	1.198	0.1006	0.1610	0.2817	29.8	18.6	10.7
11	0.739	1.108	0.0931	0.1489	0.2605	32.2	20.1	11.5
12	0.683	1.025	0.0861	0.1377	0.2410	34.9	21.8	12.4
13	0.632	0.948	0.0796	0.1274	0.2229	37.7	23.6	13.5
14	0.584	0.877	0.0736	0.1178	0.2062	40.7	25.5	14.6
15	0.541	0.811	0.0681	0.1090	0.1907	44.0	27.5	15.7
16	0.500	0.750	0.0630	0.1008	0.1764	47.6	29.8	17.0
17	0.462	0.694	0.0583	0.0932	0.1632	51.5	32.2	18.4
18	0.428	0.642	0.0539	0.0862	0.1509	55.7	34.8	19.9
19	0.396	0.593	0.0499	0.0798	0.1396	60.2	37.6	21.5
20	0.366	0.549	0.0461	0.0738	0.1291	65.1	40.7	23.2
21	0.338	0.508	0.0426	0.0682	0.1194	70.3	44.0	25.1
22	0.313	0.470	0.0394	0.0631	0.1105	76.0	47.5	27.2
23	0.290	0.434	0.0365	0.0584	0.1022	82.2	51.4	29.4
24	0.268	0.402	0.0337	0.0540	0.0945	88.9	55.6	31.7
25	0.248	0.372	0.0312	0.0499	0.0874	96.1	60.1	34.3
26	0.229	0.344	0.0289	0.0462	0.0808	103.9	64.9	37.1
27	0.212	0.318	0.0267	0.0427	0.0748	112.3	70.2	40.1
28	0.196	0.294	0.0247	0.0395	0.0692	121.4	75.9	43.4
29	0.181	0.272	0.0228	0.0366	0.0640	131.3	82.1	46.9
30	0.168	0.252	0.0211	0.0338	0.0592	141.9	88.7	50.7
31	0.155	0.233	0.0195	0.0313	0.0547	153.5	95.9	54.8
32	0.144	0.215	0.0181	0.0289	0.0506	165.9	103.7	59.3
33	0.133	0.199	0.0167	0.0268	0.0468	179.4	112.1	64.1
34	0.123	0.184	0.0155	0.0248	0.0433	193.9	121.2	69.3
35	0.114	0.170	0.0143	0.0229	0.0401	209.7	131.0	74.9
36	0.105	0.158	0.0132	0.0212	0.0371	226.7	141.7	81.0
37	0.097	0.146	0.0122	0.0196	0.0343	245.1	153.2	87.5
38	0.090	0.135	0.0113	0.0181	0.0317	265.0	165.6	94.6
39	0.083	0.125	0.0105	0.0168	0.0293	286.5	179.0	102.3
40	0.077	0.115	0.0097	0.0155	0.0271	309.7	193.6	110.6

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Appendix A/Table 3: Vinclozolin Rangefinder Risk Assessment For Conifer Seedling Production Using BASF DFR Analysis

Reason:	Rangefinder Risk Assessment For Conifer Seedlings
Date:	4/2/01
Assessor:	Jeff Dawson
Transfer Coefficient Group:	Unassigned (forestry, nursery) [Cut Flowers Used]
Specific Crop(s) Considered:	Conifer Seedlings
Application Rate of Crop (lb ai/A):	1.5

DFR Data Summary

Data Source (enter 1 if data available, 0 if defaults):	1
Source:	Strawberry DFR (MRID 43013004) - BASF Analysis
Slope of Semilog Regression:	NA
[Initial] (ug/cm2):	1.742
Study Application Rate (lb ai/A):	1
Limit of Quantification (ug/cm2):	0.001

[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	2500	2400 to 13000	Irrigation, scouting, thinning, weeding immature/low foliage plants
Medium	4000	2400 to 13000	Irrigation, scouting mature/high foliage plants
High	7000	2400 to 13000	hand harvesting, pruning, thinning, pinching
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	1.890	2.835	0.2381	0.3810	0.6668	12.6	7.9	4.5
1	1.557	2.336	0.1962	0.3139	0.5493	15.3	9.6	5.5
2	1.292	1.938	0.1628	0.2605	0.4558	18.4	11.5	6.6
3	1.080	1.620	0.1361	0.2177	0.3810	22.0	13.8	7.9
4	0.909	1.364	0.1145	0.1833	0.3207	26.2	16.4	9.4
5	0.769	1.154	0.0969	0.1550	0.2713	31.0	19.4	11.1
6	0.655	0.983	0.0825	0.1320	0.2311	36.4	22.7	13.0
7	0.560	0.840	0.0706	0.1129	0.1976	42.5	26.6	15.2
8	0.482	0.723	0.0607	0.0972	0.1700	49.4	30.9	17.6
9	0.416	0.624	0.0524	0.0839	0.1468	57.2	35.8	20.4
10	0.361	0.542	0.0455	0.0728	0.1274	66.0	41.2	23.6
11	0.315	0.473	0.0397	0.0635	0.1111	75.6	47.2	27.0
12	0.275	0.413	0.0347	0.0554	0.0970	86.6	54.1	30.9
13	0.242	0.363	0.0305	0.0488	0.0854	98.4	61.5	35.1
14	0.213	0.320	0.0268	0.0429	0.0751	111.8	69.9	39.9
15	0.188	0.282	0.0237	0.0379	0.0663	126.6	79.2	45.2
16	0.167	0.251	0.0210	0.0337	0.0589	142.6	89.1	50.9
17	0.148	0.222	0.0186	0.0298	0.0522	160.9	100.5	57.5
18	0.132	0.198	0.0166	0.0266	0.0466	180.4	112.7	64.4
19	0.118	0.177	0.0149	0.0238	0.0416	201.8	126.1	72.1
20	0.106	0.159	0.0134	0.0214	0.0374	224.6	140.4	80.2
21	0.095	0.143	0.0120	0.0192	0.0335	250.6	156.6	89.5
22	0.086	0.129	0.0108	0.0173	0.0303	276.9	173.0	98.9
23	0.077	0.116	0.0097	0.0155	0.0272	309.2	193.3	110.4
24	0.070	0.105	0.0088	0.0141	0.0247	340.1	212.6	121.5
25	0.064	0.096	0.0081	0.0129	0.0226	372.0	232.5	132.9

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