

US EPA ARCHIVE DOCUMENT

EEB REVIEW

Chemical: Ronilan (Vinclozolin)

100 Submission Purpose and Label Information

100.1 Submission Purpose and Pesticide Use

The States of Oregon and New York are requesting emergency exemptions (Section 18's) for the use of Ronilan fungicide to control white mold and gray mold on snap beans. No new data were submitted with this request.

100.2 Formulation Information

Active Ingredient (Ronilan 50W):
 Vinclozolin: 3-(3,5-dichlorophenyl)-
 5-ethenyl-5-methyl-2,4-
 oxazolidinedione 50%
 Inert Ingredients 50%

100.3 Application Methods, Directions, Rates

- Oregon: Application rate is 1.0 lb Ronilan 50W (0.5 lb ai) per acre, maximum of two applications. May be applied by air or ground.
- New York: Application rate is 1.0 to 1.5 lb Ronilan 50W (0.5 to 0.75 lb ai) per acre, maximum of two applications. May be applied by air or ground.

100.4 Target Organisms

Target organisms are white mold, Sclerotinia sclerotiorum, and gray mold, Botrytis cinerea.

101 Hazard Assessment

101.1 Discussion

The States of Oregon and New York are requesting emergency exemptions for the use of Ronilan (vinclozolin) to control white mold and gray mold in snap beans. Maximum application rate is 0.75 lb ai per acre for New York, 0.5 lb ai per acre for Oregon, with two applications allowed. Total acreage to be treated is 20,000 acres in Oregon (statewide), 16,000 acres in New York (Cattaraugus, Chautauqua, Erie, Genesee, Monroe, Oneida, Orleans, Wayne, and Wyoming Counties).

101.2 Likelihood of Adverse Effects on Nontarget Organisms

Terrestrial Organisms

Data previously reviewed in EEB indicate that vinclozolin is practically nontoxic to birds on both an acute oral basis and a dietary basis. The available data on rats suggest that the chemical also has a low mammalian acute toxicity. Thus, significant acute hazards to populations of nontarget terrestrial organisms are not anticipated from the proposed use at 0.75 lb ai/acre or less.

A number of partial reports and data tables have been submitted concerning the toxicity of vinclozolin to honey bees. Although none of the reports are sufficient to satisfy the data requirement, all the submitted data suggest that vinclozolin is no more than slightly toxic to honey bees.

Our major concern with vinclozolin is potential chronic hazard to avian species. Data on avian reproduction suggest that the chemical may affect egg fertility at a dietary concentration of 5 ppm.

Following an initial application at 0.75 lb ai/acre, estimated residues on avian food items would range from 5.25 ppm on fruit to 180 ppm on short grass. Although these residues are well below acute toxicity triggers for birds, they exceed reproductive effect levels. At 0.5 lb ai/acre, residues would range from 3.5 to 120 ppm, exceeding reproductive effect levels on most avian food items.

The registrant (BASF Wyandotte Corp.) is currently conducting a special avian reproduction study to more clearly assess chronic effects of vinclozolin in birds. Until this study is submitted and evaluated, EEB cannot assess avian reproduction hazard under the proposed exemptions. However, the following points apply:

1) On the basis of information already reviewed, there is significant potential for vinclozolin to affect reproduction in birds exposed to the chemical via residues on food items. Use under the proposed exemptions will result in residues which exceed the level at which effects on avian reproduction have been noted.

2) By way of mitigating the impact, maximum acreage to be treated under the exemptions is 36,000 acres. Also, use on bean fields does not represent a high exposure situation for birds.

Aquatic Organisms

Data from previous EEB reviews indicate that vinclozolin is no more than moderately toxic to freshwater fish (bluegill LC50 = 47.3 mg/L; rainbow trout LC50 > 18 mg/L). LC50 for Daphnia magna was determined to be 3.65 mg/L, indicating moderate toxicity.

Rough calculation of an aquatic EEC (see attached) provides a value

of 30.20 ppb in a pond 1 foot deep, residues being derived from drift and runoff. This EEC value is well below any hazard triggers for freshwater organisms. Thus, use under the proposed exemptions is not expected to adversely affect nontarget aquatic organisms.

101.3 Endangered Species Considerations

As noted above, the primary concern with vinclozolin relates to potential reproductive impairment in birds. EEB's Endangered Species files show 4 federally listed species of birds in Oregon: bald eagle, Aleutian Canada goose, brown pelican, and American peregrine falcon. Bald eagle is the only species listed for the subject counties in New York.

Hazard to these species should be negligible, as use on snap beans represents a minimal exposure situation for these species.

On the basis of toxicity data and estimated EEC's, hazard to listed non-avian species is not anticipated.

101.4 Adequacy of Toxicity Data

The existing database is not adequate to assess hazards to nontargets under the proposed exemption. Chronic hazard to birds cannot be assessed until the special avian reproduction testing is completed.

103 Conclusions

EEB has reviewed the proposed emergency exemptions for the use of Ronilan (vinclozolin) on snap beans. EEB concludes that the proposed use may represent a reproductive hazard to birds, although use on beans represents a low exposure situation. Hazard to other nontargets is not anticipated.

There are no federally listed endangered/threatened species in Oregon or New York that will be adversely affected by the proposed use.

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Attachment A

EEC CALCULATION SHEET

I. For un-incorporated ground application

A. Runoff

$$\underline{\quad} \text{ lb(s)} \times \frac{0.0}{(\% \text{ runoff})} \times 10 \text{ (A)} = \underline{\quad} \text{ lb(s)} \text{ (tot. runoff) drainage basin}$$

EEC of 1 lb a.i. direct application to 1 A. pond 6-foot deep = 61 ppb

Therefore, EEC = 61 ppb x (lb) = ppb

II. For incorporated ground application

A. Runoff

$$\underline{\quad} \text{ lb(s)} \div \frac{\underline{\quad} \text{ (cm)}}{\text{(depth of incorporation)}} \times \frac{0.0}{(\% \text{ runoff})} \times 10 \text{ (A)} = \underline{\quad} \text{ lb(s)} \text{ (tot. runoff) d.basin}$$

Therefore, EEC = 61 ppb x (lbs) = ppb

III. For aerial application (or mist blower)

A. Runoff

$$\underline{0.75} \text{ lb(s)} \times \frac{0.6}{\text{(appl. efficiency)}} \times \frac{0.01}{(\% \text{ runoff})} \times 10 \text{ (A)} = \underline{0.045} \text{ lb(s)} \text{ (tot. runoff) d.basin}$$

B. Drift

$$\underline{0.76} \text{ lb(s)} \times \frac{0.05}{(5 \% \text{ drift})} = \underline{0.0375} \text{ lb(s)} \text{ (tot. drift)}$$

$$\text{Tot. loading} = \underline{0.045} \text{ lb(s)} \text{ (tot. runoff)} + \underline{0.0375} \text{ lb(s)} \text{ (tot. drift)} = \underline{0.0825} \text{ lb(s)}$$

Therefore, EEC = 61 ppb x 0.0825 (lbs) = 5.0325 ppb

x 6 = 30.2 ppb
(1' pond)