107901

(4)

EEE BRANCH REVIEW

DATE: IN 1/31/77 OUT 2/1/77 IN _____ OUT _____ IN _____ OUT _____

FISH & WILDLIFE ENVIRONMENTAL CHEMISTRY EFFICACY

FILE OR REG. NO. _____

PETITION OR EXP. PERMIT NO. _____

DATE DIV. RECEIVED 1/26/77

DATE OF SUBMISSION _____

DATE SUBMISSION ACCEPTED _____

TYPE PRODUCT(S): I, D, H,(F) N, R, S Aerial application to blueberries

PRODUCT MGR. NO. Rodei

PRODUCT NAME(S) Funginex-E.C.

COMPANY NAME Department of Agriculture Washington State

SUBMISSION PURPOSE Special Exemption

CHEMICAL & FORMULATION (N,N-[1,4-piperazinediylbis(2,2,2-trichloroethylidene)] bis[formamide])

100.0 Pesticidal Use

A foliar application to blueberries in Western Washington State for control of the fungus Monilinia vaccinii.

100.1 Application methods/directions and rates:

(i) 24 fluid ounces of Funginex EC (0.3 lb/acre ai) per application. Maximum of three applications.

(ii) Washington counties: West of the crest of the Cascade Mountains

(iii) Ground application 24 fluid ounces Funginex in 100 gallons of water per acre or sufficient water to obtain good coverage. Aerial application 24 fluid ounces Funginex in five gallons of water per acre.

(iv) A maximum of three applications beginning with bud bread at seven to ten day intervals with last application prior to blossom opening. (prior to fruit formation). Minimum 60 days will lapse between application of triforine and harvest.

(v) Applications to be made by licensed commercial applicators or certified private applicators. Information pertaining to timing, rates and procedures will be made available to the applicators through the Washington State University Extension Service.

101.0 Chemical and Physical properties.

101.1 Chemical name

(N,N-[1,4-piperazinedizlbis(2,2,2-trichloro-ethylidene(]bix [formamide])

101.2 Common name

Triforine

101.3-103.0 See previous reviews by S. Fredericks 3/20/76 and J. Edmundson 4/11/75.

The following toxicity data copied directly from the Toxicity Branch files (#1278) are not included in previous F+W reviews:

103.1 Acute

103.1.1 Mammalian

A.O. $LD_{50}$ rat > 6000 mg/kg

no clinical symptoms

A.O. $LD_{50}$ mouse > 6000 mg/kg

no clinical symptoms

A.O. $LD_{50}$ > 2000 mg/kg besides emetic effect no toxic symptoms. effect no toxic symptoms

Insects Bees: 1000 ppm produced no toxic symptoms.

103.2.0 Subacute

Rat: 13 week dietary study results: N.E. level ≥ 500 ≤ 2500 ppm one rate died at the highest level (20,000 ppm)

Dogs: 13 weeks dietary study results: N.E. level ≥100 600 ppm ≤ no mortality even at highest level (30,000 ppm)

104.0 Hazard assessment

104.1.1 Discussion

Triforine residues at 0.3 lb ai/A

| Substrate | Residues (ppm) |
|---|---|
| 6" $H_2O$ | 0.220 |
| 0.1" soil | 6.6 |
| long grass | 33.0 |

Although triforine will be aerially applied in areas and the resulting drift may contaiminate streams, etc.; the low toxicity, short half life and low application rate should not create an environmental hazard.

104.1.1 Adequacy of toxicity data.

Data are adequate to support the request for the Section 18.

104.1.2 Additional data required.

No additional data required for this Section 18. If registration is sought, it will be necessary to submit an acute study on an aquatic invertebrate.

104.1.3 Likelihood of exposure to non-target organisms.

There will be much activity on the part of most terrestrial wildlife during this early spring period. Birds will begin their courting, large mammals will be browsing and small mammals will be foraging seeds, dormant insects etc. while nursing their young. However, as stated in the discussion, the toxicity and short half life of triforine suggests little or no hazard.

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105.0 Conclusions
The Environmental Safety Staff has no objection to the Special Exemption of triforine for use on blueberries in Western Washington State.

If future registration of this use is sought, an acute $LC_{50}$ study on an aquatic invertebrate, preferably daphnia will be required.

H. T. Craven H.T. Craven
Feb., 1, 1977
Environmental Safety Section
Efficacy and Ecological Effects Branch