043801

(2)

EEE BRANCH REVIEW

DATE: IN 12/16/76 OUT 1/11/77 IN _____ OUT _____ IN _____ OUT _____

FISH & WILDLIFE ENVIRONMENTAL CHEMISTRY EFFICACY

FILE OR REG. NO. /

PETITION OR EXP. PERMIT NO. 275-EUP-13

DATE DIV. RECEIVED November 10, 1976

DATE OF SUBMISSION

DATE SUBMISSION ACCEPTED

TYPE PRODUCT(S): I, D, H, F, N, R, S Plant Growth Regulator

PRODUCT MGR. NO. L. Zink

PRODUCT NAME(S) PROMALIN

COMPANY NAME Abbott Laboratories

SUBMISSION PURPOSE EUP Renewal

CHEMICAL & FORMULATION (1) Gibberellins — 043801

(2) N-(phenylmethyl)-1H-purine-6 amine 281700

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ENVIRONMENTAL SAFETY

100.0 Pesticidal Use

A plant growth regulator for use on Red Delicious apples.

100.1 Application Methods/Directions

Use 1 pint of PROMALIN per 100 gallons of spray solution (1.25 ml/liter). Apply 100 to 200 gallons of spray solution per acre (900 to 1800 l/ha) as a fine mist spray, using properly calibrated and adjusted sprayer that insures uniform coverage. The spray volume should be adjusted to tree volume which is dependent upon tree size, number of trees and area covered by trees.

Time of Application

A. Application should be made at start of King blossom to mid petal fall. Maximum response should be obtained when applied from King bloom to early petal fall.

B. Apply when wind conditions will not cause excessive spray drift.

C. If timing of bloom conditions permit, apply during conditions favoring maximum adsorption of PROMALIN. High relative humidity, cool weather, damp and slow drying conditions at time of spraying or shortly thereafter improves adsorption. Spray in the early morning or evening. Conditions favoring rapid drying of spray should be avoided.

D. Delay applying PROMALIN after a rain until flower parts and leaves are free of surface droplets. Application should be made only when a 6 hour rain free period is expected. If rain falls within 6 hours of application reduced response should be anticipated.

E. Do not apply when temperatures are expected to be less than 45°F or greater than 90°F.

100.2 Proposed EUP

This request for an extension of the experimental use permit for 1977 is based on the need to evaluate Promalin on a broader scale of commercial orchard practices and utilizing earlier application (near King bloom) and larger spray volumes.

The proposed 1977 program consists primarily of a grower oriented program: a) 7,500 acres in 16 states in the east and b) 96 acres in five states in the west.

In addition, other types of research programs will be initiated. The first will be directed to evaluating Promalin on Red Delicious apples through the extension personnel and may include a number of grower cooperators.

The second program will be directed to research trials on other varieties of apples.

These trials require a maximum of 25 acres in each of 36 (900 total acres) states in the Field Development Program. For these programs supplemental labeling will be used.

A summary of the total proposed acreage to be treated in the different states under the proposed experimental use permit during 1977 is attached. It is proposed that 7,500 acres will be treated in the East and 96 acres in the West in commercial orchards and a maximum of 900 acres may be involved in state extension and Field Research and Development work. Thus, a total of 8,496 acres may be treated during 1977 at an average application rate of 1.5 pints per acre. Thus, this program requires a maximum 12,744 pints of Promalin. Since each pint contains 9.48 grams each of Gibberellin GA_4A_7 and 9.48 grams of 6-BA, the experimental permit should authorize use of 120.8 kg of GA_4A_7 (266.34 lbs) and 120.8 kg of 6-BA (266.34 lbs), during 1977.

Promalin in 16 eastern states will be made available for sale for use on 7500 acres. Promalin in 5 western states will be made available for use on 96 acres at no charge to the grower.

101.0 Chemical and Physical Properties

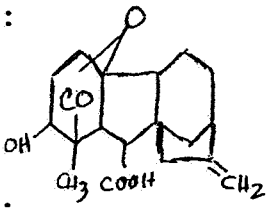
101.1 Chemical and Common Names

A. Gibberellins A_4A_7
(also known as Abbott Compound X-1928)

B. N(phenylmethyl)-1H-purin-6-amine
(also known as 6-benzyladenine; 6-benzylamino-purine)

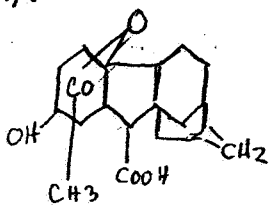
101.3 Structural Formulae

A_4:



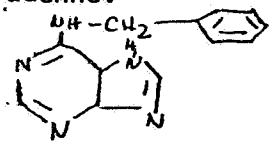
$C_{19}H_{24}O_5$ Molecular weight: 332.19
white to off-white granular powder

A_7:



$C_{19}H_{22}O_5$ Molecular weight: 330.19
white to off-white granular powder

6-Benzyladenne:



$C_{12}H_{11}N_5$ Molecular weight: 225.26
white granular powder

102.0 Behavior in the Environment

No data submitted or on file.

103.0 Toxicological Properties

103.1 Acute toxicity: The following data extracted from Environmental Safety Review Files.

103.1.1 Mammalian

Mouse acute oral LD_{50} - 1690 mg/kg - 6-benzyladenine

Mouse acute oral LD_{50} - > 5000 mg/kg - gibberellins A_4A_7

103.1.2 Fish

Bluegill Sunfish 96 hr LC_{50} - 37.87 ppm - 6-benzyladenine

Bluegill Sunfish 96 hr LC_{50} - 20.32 ppm - gibberellic acid A_4A_7

103.1.3 Aquatic Invertebrate

Pink Shrimp 96 hr TL_{50} = > 750 < 870 mg/L - Gibberelic Acid

Mud Crab 96 hr TL_{50} = > 1000 mg/L - Gibberelic Acid

103.2 Subacute Toxicity - Avian

Ringneck Pheasant 8-day LC_{50} > 8000 ppm - equal parts gibberellins and 6-benzyladenine

Mallard Duck 8-day LC_{50} > 8000 ppm - equal parts gibberellins and 6-benzyladenine

104.0 Hazard Assessment

104.1 Discussion

Promalin plant growth regulator consists of a combination of two plant regulating substances, the cytokinin N-(phenyl (methyl)-1H-purin-6-amine and the Gibberellin A_4A_7. Each of these substances is present in the formulation on a 2% w/w basis. The cytokinin promotes the development of perminent calyx points. The Gibberellin A_4A_7 promotes the elongation of Red Delicious apples. At the recommended use level of 1 pint per 100 gallons of spray solution, the solution will contain 25 ppm of each active ingredient.

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104.1.1 Adequacy of Toxicity Data

Adequate for this EUP

104.1.2 Additional Data Required

Prior to consideration for final registration the following basic data must be submitted or referenced along with the other data cited in 103.0.

A. Avian acute oral LD_{50} data for one species of waterfowl or one species of upland game bird.

B. 96 hour LC_{50} data for a coldwater fish (i.e., Rainbow trout).

104.1.3 Likelihood of Exposure to Non-target Organisms

If the rates of application are followed appropriately, the use of this product should not pose a threat to Avian species utilizing apple orchards.

105.0 Conclusions

(1) The Environmental Safety Review Section concurs with the EUP on PROMALIN.

(2) The following Fish and Wildlife toxicity must be submitted or referenced to support final registration.

A. Avian acute oral LD_{50} data on a waterfowl or upland game bird.

B. 96 hr LC_{50} data on a coldwater fish.

(3) Environmental precautions on proposed label are adequate.

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Environmental Safety Review
Efficacy & Ecological Effects Branch

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