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SHAUGHNESSEY NO.

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FILE OR REG. NO 35977 - EUP - RG

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TYPE PRODUCT(S) : I, D, H, F, N, R, S Fire Ant Bait

DATA ACCESSION NO(S). _____

PRODUCT MANAGER NO. P. Hutton (17)

PRODUCT NAME(S) LOGIC

COMPANY NAME Maag Agrochemicals

SUBMISSION PURPOSE Proposed EUP for use on abandoned
pineapple fields

SHAUGHNESSEY NO.	CHEMICAL, & FORMULATION	% A.I.
_____	Fenoxycarb	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

E E B R E V I E W

FENOXYCARB

100. Pesticide Information

100.1 Pesticide Use

Proposed experimental use permit for use on abandoned pineapple fields to control big-headed ants in Hawaii.

100.2 Formulation Information

LOGIC (EPA Reg. No. 35977-4)

Active Ingredient

Fenoxycarb	1%
Inert Ingredient	99%

100%

100.3 Application Methods, Directions, Rates

LOGIC Ant Bait should be applied when ants are actively foraging. This is usually when soil temperatures are above 60 F. Avoid application when vegetation is wet. Heavy rainfall within three hours of application may reduce effectiveness by making the bait less attractive to the ants. Always broadcast LOGIC. Broadcast the bait uniformly over the infested area to achieve best control.

LOGIC Ant Bait may be applied at any time in Hawaii, but applications made between April and June are most effective in providing long-term control. In cases where reinfestation occurs or when very large colonies remain active, retreatment may be desirable after six months. Do not make more than two applications within 60 days. Do not apply more than a total of 4.0 lbs. of LOGIC Ant Bait within six months.

Broadcast Application: Apply LOGIC Ant Bait uniformly with ground equipment calibrated to apply 2.0 or 4.0 lb/A.

Single Treatment: Broadcast LOGIC Ant Bait at 4.0 lb/A.

Sequential Treatment: Broadcast LOGIC Ant Bait at 2.0 lb/A two to four weeks after the first application, broadcast LOGIC Ant Bait again at 2.0 lb/A.

100.4 Target Organisms

Big-headed Ants

100.5 Precautionary Labeling

This product is toxic to fish and aquatic invertebrates. Drift and runoff from treated sites may be hazardous to aquatic invertebrates in adjacent aquatic sites. Do not apply directly to water. Do not contaminate water by cleaning of equipment or disposal of wastes.

101.0 Hazard Assessment

LOGIC Ant Bait is a free-flowing granular product that is convenient to apply. It contains an insect growth regulator and not a toxicant. Therefore, LOGIC Ant Bait is slow-acting, but effective for the control of big-headed ants. Following application, LOGIC Ant Bait is collected by worker ants and distributed throughout the colony. The product prevents the production of new worker brood in the nest. Ant populations begin to decline within six to eight weeks after treatment.

The experimental program proposes the distribution of 175 lbs of LOGIC 1 % bait to conduct efficacy trials at three different sites in the state. The fields used for this limited EUP will be so-called "ratoon" fields from which all fruit have been previously harvested and are not currently in production.

Unvalidated environmental fate summaries within Section A of the EUP indicate that fenoxycarb is relatively insoluble in water at 6 ppm. The chemical is very stable under normal storage conditions. It is not subject to hydrolysis at normal pH (3-9) or to photolysis in the absence of water. The photolytic half-life of fenoxycarb in water in the laboratory is <6 hours. Breakdown of the chemical in the outdoor environment is largely ascribed to the action of microorganisms. The half-life of fenoxycarb in water is <24 hours and on soil a few days. Although it is chemically a carbamate, unlikely the N-methyl or N-ethyl carbamate, fenoxycarb does not inhibit cholinesterase. Since the phenoxyphenoxy ring system in fenoxycarb is unsubstituted, the chemical is readily

subject to metabolic breakdown in plants, animals and the outdoors environment.

101.1

Likelihood of Adverse Effects to Nontarget Organisms

Toxicity Profile (reflecting only those studies reporting the lowest toxicity values)

Rat LD ₅₀ = >16800 mg/kg	Practically nontoxic
Bobwhite Quail LC ₅₀ = 11,574 ppm	Practically nontoxic
Mallard Duck LD ₅₀ = 3999 mg/kg	Practically nontoxic
Rainbow Trout LC ₅₀ = 1.6 ppm	Moderately toxic
<u>Daphnia magna</u> LC ₅₀ = 0.4 ppm	Highly toxic
Tidewater silverside LC ₅₀ = 1.074 ppm	Moderately toxic
Oyster embryo-larvae EC ₅₀ = 0.15 ppm	Highly toxic
Shrimp LC ₅₀ = 2.2 ppm	Moderately toxic
<u>Daphnia magna</u> (chronic) MATC => 1.6 pptr. <2.3 pptr	-----
Rainbow trout (chronic) MATC = <0.062 ppm	-----
Honeybee LC ₅₀ = >1000 ppm	Practically nontoxic

Terrestrial

No adverse input to terrestrial nontarget organisms is expected because of the low toxicity, low application rate, and transport of the bait to subsurface ant colonies. It is difficult to determine if the applied fenoxycarb will have an effect on nontarget soil invertebrates (i.e., earthworms) because of the lack of pertinent studies.

Aquatic

The low application rate, mode of action, and removal of the bait by the ants from surface substrates to subsurface colony environments is expected to minimize impact to aquatic organisms. Under a worst-case scenario of rainfall induced transport of the bait to adjacent aquatic environments, a 2% runoff (based on a 6 ppm water solubility and lack of ant activity) would produce estimated environmental concentrations (EEC) in a one-acre pond receiving drainage from a 10-acre basin would yield 0.005 ppm at 0.5 feet. depth and 0.0004 ppm at 6.0 feet depth. Under the prescribed label conditions, it would be difficult for runoff to be achieved because the label instructs users to use the product only when ants are actively foraging and not when there is anticipated rainfall or when the ground is saturated with moisture. Once the pesticide

bait is relocated within the ant colony, runoff potential becomes even more remote. As a result, adverse impact to nontarget organisms is not anticipated. Acute toxicity levels are not attainable, given the conditions of exposure. Chronic toxicity levels similiarly cannot be maintained because of the limited applications.

101.3 Endangered Species Considerations

Endangered species are not expected to be adversely impacted by the pesticide use. The endangered species unacceptable risk criterion ($EEC \geq 1/20LC_{50}$) has not been exceeded.

101.4 Adequacy of Label

The environmental hazards statements are acceptable.

101.5 Adequacy of Toxicity Data

The available data base is sufficient for making hazard assessments for the proposed EUP use. The efficacy trials should further determine the appropriate application rates, methods, and conditions for registration purposes. Such course of action enable the Agency to consider possible changes in the existing hazard assessment and the possible requirement of additional data requirements (i.e., environmental fate, field studies, etc.,).

102.0 Classification

No change in classification is required.

103.0 Conclusions

Adverse impact to nontarget organisms is not anticipated because of fenoxycarb's low toxicity profile, low application rate, and transport of pesticide-laced bait by big-headed ants from field surfaces to subsurface colonies.

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11/30/89

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Fenoxycarb
pineapple

Attachment A

EEC CALCULATION SHEET

I. For un-incorporated ground application

A. Runoff

$$0.04 \text{ lb(s)} \times \frac{0.01}{(\% \text{ runoff})} \times \frac{10 \text{ (A)}}{\text{(from 10 A. drainage basin)}} = \frac{0.004 \text{ lb(s)}}{\text{(tot. runoff)}}$$

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

$$\text{Therefore, EEC} = 61 \text{ ppb} \times \frac{0.004 \text{ (lb)}}{\text{at 0.5 ft } 734} = \frac{0.244 \text{ ppb}}{\text{(0.00024 ppb)}} \times 0.004 = \underline{2.9 \text{ ppb}} \text{ (0.002 ppb)}$$

II. For incorporated ground application

A. Runoff

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

$$\text{Therefore, EEC} = 61 \text{ ppb} \times \text{___ (lbs)} = \text{___ ppb}$$

III. For aerial application (or mist blower)

A. Runoff

$$\text{___ lb(s)} \times \frac{0.6}{\text{(appl. efficiency)}} \times \frac{0.0}{(\% \text{ runoff})} \times \frac{10 \text{ (A)}}{\text{(10 A. d.basin)}} = \text{___ lb(s)} \text{ (tot. runoff)}$$

B. Drift

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

$$\text{Tot. loading} = \text{___ lb(s)} \text{ (tot. runoff)} + \text{___ lb(s)} \text{ (tot. drift)} = \text{___ lb(s)}$$

$$\text{Therefore, EEC} = 61 \text{ ppb} \times \text{___ (lbs)} = \text{___ ppb}$$