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RECORD NO.

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SHAUGHNESSEY NO.

REVIEW NO.

EEB REVIEW

DATE: IN _____9-25-89_____ OUT _____12|6|89_____

FILE OR REG. NO _____35977 - EUP - RG_____

PETITION OR EXP. NO. _____

DATE OF SUBMISSION _____9-6-89_____

DATE RECEIVED BY EFED _____9-21-89_____

RD REQUESTED COMPLETION DATE _____12-18-89_____

EEB ESTIMATED COMPLETION DATE _____12-18-89_____

RD ACTION CODE/TYPE OF REVIEW _____F-40_____

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	

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100.   <u>Pesticide Information</u>

100.1   <u>Pesticide Use</u>

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

100.2   <u>Formulation Information</u>

<u>LOGIC</u>   (EPA Reg. No. 35977-4)

<u>Active Ingredient</u>

Fenoxycarb 1%
Inert Ingredient . . . .   <u>99%</u>

100%

100.3   <u>Application Methods, Directions, Rates</u>

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.

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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 efficicacy 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 previoualy harvested and
are not currently in production.

Unvalidated environmental fate summaries within Section
A of the EUP indicate that fenoyxcarb 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

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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
Daphnia magna 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
Daphnia magna (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

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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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Attachment A

EEC CALCULATION SHEET

I. For un-incorporated ground application

A. Runoff

0.04 lb(s)   x   0.01   x   10 (A)   = 0.004 lb(s)
             (_% runoff)   (from 10 A. (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 .004 (lb) = 0.244 ppb (0.00024 pp

at 0.5 ft   734   x 0.004 = 2.9 ppb (0.002 ppb)

II. For incorporated ground application

A. Runoff

___lb(s) ÷ _____ (cm) x 0.0_ x 10 (A) = _____lb(s)
           (depth of   (_% runoff) (10 A (tot.runoff)
           incorporation)   d.basin)

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

III. For aerial application (or mist blower)

A. Runoff

_____ lb(s) x   0.6   x 0.0_ x 10 (A) = _____lb(s)
              (appl.   (_%   (10 A. (tot.runoff)
           efficiency) runoff) d.basin)

B. Drift

_____ lb(s) x   0.05   = _____ lb(s) (tot. drift)
            (5 % drift)

Tot. loading = _____ lb(s) + _____ lb(s) = _____lb(s)
           (tot. runoff)   (tot. drift)

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

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