

101201

SHAUGHNESSEY NO.

18

REVIEW NO.

EEB BRANCH REVIEW

DATE: IN 2/17/82 **OUT** MAR 1 1982

FILE OR REG. NO. 82-CA-14

PETITION OR EXP. PERMIT NO. _____

DATE OF SUBMISSION 2/5/82

DATE RECEIVED BY HED 2/17/82

RD REQUESTED COMPLETION DATE 3/4/82

EEB ESTIMATED COMPLETION DATE _____

RD ACTION CODE/TYPE OF REVIEW 510/Section 18-old Chemical

TYPE PRODUCT(S): I, D, H, F, N, R, S Insecticide

DATA ACCESSION NO(S). _____

PRODUCT MANAGER NO. D. Stubbs (41)

PRODUCT NAME(S) Monitor 4 Liouid Insecticide

COMPANY NAME State of California

SUBMISSION PURPOSE Proposed Section 18 for Use on Celery

SHAUGHNESSEY NO. **CHEMICAL, & FORMULATION** **Z A.I.**

101201

O,S-Dimethyl Phosphoramidothioate

(Methamidophos)

Monitor 4

100 Section 18 Application

100.1 Nature and Scope of Emergency

The California Department of Food and Agriculture requests an exemption for Monitor 4 for use on celery. The vegetable leafminer has infested the celery fields and seems to be resistant to registered insecticides. Permethrin is presently exempted and being used successfully to control them but there are fears that the pest may quickly develop resistance to that insecticide thus reducing its effectiveness. The proposal is to use both Monitor 4 and Permethrin, alternating the insecticides every other application. This is intended to delay development of resistance of the leafminer to both chemicals.

100.2 Target Organism

Vegetable Leafminer

100.3 Date, Duration

From time of exemption until July 1, 1982

100.4 Application Methods, Direction, Rates

Ground Application

0.5 to 1 lb a.i./acre: Use at 7-10 day intervals as needed. Use no more than ten applications per season. It is recommended that applications of Monitor be alternated with applications of Permethrin to avoid the development of pesticide resistance.

100.5 Treatment Areas

All celery producing areas statewide. There are almost 21,000 acres of celery in California, the primary counties involved are Monterey, Orange, San Diego, Santa Barbara, San Luis Obispo and Ventura.

100.6 Precautionary Labeling

No specific environmental hazard precautionary labeling was included.

100.7 Other Test Program Features

The California Department of Food and Agriculture shall be immediately notified of any adverse effects resulting from the use of Monitor under this exemption.

101 Physical and Chemical Properties

Refer to the EEB review dated 8/30/78 by N. Cook for Monitor 4, Reg. No. 3125-280

102 Behavior in the Environment

Refer to the EEB review dated 8/30/78 by N. Cook for Monitor 4, Reg. No. 3125-280.

Summary of Fate Information

Soil - 1/2 life of 1-6 days

Water - degrades rapidly while leaching
 - 1/2 life of 1 month at 37°C and pH 7

Plants - moves readily from roots to stem and leaves

Animal - bioaccumulation negligible

103 Toxicological Properties

Refer to the EEB review dated 11/6/81 by W. Rabert for Monitor 4.

Summary of Toxicity

Mammal - Rat LD50's from 15 to 21 mg/kg
 Rat NEL in chronic tests 0.3 to 10 ppm

Avian - Bobwhite LD50 10 to 11 mg/kg
 Bobwhite LC50 42 ppm*
 Mallard LC50 1302 ppm
 Bobwhite Reproductive NEL 3 ppm

Fish - Bluegill LC50 34 ppm
 Rainbow Trout LC50 25 ppm

Aquatic

Invertebrate - Daphnia magna LC50 0.026 - 0.050 ppb

Monitor 4 is very highly toxic to some birds and to aquatic invertebrates and highly toxic to mammals.

104 Hazard Assessment

104.1 Discussion

California has requested an exemption to use Monitor on celery. There are almost 21,000 acres of celery in California, most of which is in 6 counties in the Southwest. Ground application at 0.5 to 1 lb a.i./acre, no more than 10 applications per season, and applications at 7-10 day intervals are requested.

*EEB review dated 2/18/82 on Monitor 4 Spray

104.2 Likelihood of Exposure

(From EEB review dated 11/6/81 by W. Rabert) Application of Monitor at the rates proposed here would result in residues in and around treatment areas slightly greater than those calculated by W. Rabert and shown below:

<u>Short Grass</u>	<u>Long Grass</u>	<u>Forage/Insects</u>	<u>Leaves</u>
432 ppm	198 ppm	104 ppm	225 ppm

Many birds and mammals are likely to be exposed to residues of methamidophos. Even though it does not have a long half-life, the numerous applications will keep residues at levels that are lethal to terrestrial wildlife. There are documented reports of a bird kill following an applications of Monitor at the proposed rates. It occurred in Wisconsin in 1980; starlings, sparrows, a barn swallow and kill deer were found dead or incapacitated and chemical analysis showed residues of methamidophos (a.i. of Monitor) at up to 5.8 ppm in their gastro-intestinal tracts. (Letter to W. Faatz dated 1/25/82 in Monitor File) In addition to acute effects, it is likely that the residues will have an adverse effect on avian reproduction for birds nesting near or otherwise exposed to the pesticide.

In the areas of use, methamidophos is expected to have significant adverse effects on birds and mammals.

Methamidophos is not considered toxic to fish, so acute effects to them should be minimal. The chemicals halflife in water is long enough that chronic effects could be a problem. No chronic laboratory data on fish are available.

Methamidophos is very toxic to aquatic invertebrates. A significant rainfall shortly after application could result in concentrations in adjacent waterbodies lethal to the aquatic invertebrates.

The limited acreage involved, short half-life out of water, the low bioaccumulation potential, and method of application (ground spray only) should keep effects to aquatic species to a minimum.

104.3 Endangered Species

The following endangered species are known to occur in the counties where celery is produced.

Mammals

San Joaquin kit fox

Morro Bay kangaroo rat

Reptiles

Blunt-nosed leopard lizard

Insects

Smiths blue butterfly

Bird

California condor
California brown pelican
Light-footed clapper rail
Yuma rail
California least tern

Methamidophos is highly toxic to mammals, birds and insects and presumably reptiles. Therefore it is possible that some of these species would be exposed and if exposed it is likely that they will be adversely affected.

104.4 Data Adequacy

The available data is adequate to assess the hazards of this proposed exemption. The only outstanding data gap for assessing hazards of a full registration of Monitor 4 on celery is a field study to study effects to terrestrial animals.

105 Conclusions

The EEB has completed a risk assessment for a proposed exemption of Monitor 4 on celery. Based on available data we conclude that permitting this exemption will have significant adverse effects on non-target organisms such as birds and mammals and possibly federally listed endangered species.

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