

113501  
SHAUGHNESSEY NO.

REVIEW NO.

EEB BRANCH REVIEW

DATE: IN 6/17/81 OUT 6/26/81

FILE OR REG. NO. 100-607

PETITION OR EXP. PERMIT NO. \_\_\_\_\_

DATE OF SUBMISSION 6/9/81

RD REQUEST COMPLETION DATE 6/17/81

EEB ESTIMATED COMPLETION DATE 8/27/81

RD ACTION CODE/TYPE OF REVIEW 330/Amendments - Label Revisions

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

DATA ACCESSION NO(S). No new data

PRODUCT MANAGER NO. H. Jacoby (21)

PRODUCT NAME(S) Ridomil 2E

COMPANY NAME Ciba-Geigy

SUBMISSION PURPOSE Proposed conditional registration of

Avocados Use

SHAUGHNESSEY NO.

113501

CHEMICAL, & FORMULATION

Ridomil 2E

& A.I.

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## 100.0 Pesticide Use

This review will evaluate the proposed conditional registration of Ridomil 2E (Metalaxyl) for use on avocados. Ridomil is currently registered for tobacco and is under consideration for registration for many major and minor crops throughout the U.S. Ridomil is used on avocados to control root rot caused by Phytophthora cinnamomi.

## 100.1 Application Method/Directions/Rates

Applications are recommended at the start of the growing season or at transplanting with two additional applications made at 3 month intervals. No applications are needed during the winter months of November through February. Suggested application methods include: 1) a uniform soil surface spray under the tree canopy; 2) equal concentrations applied under the drip emitters of a drip irrigation system; or 3) injection into irrigation waters of either a sprinkler or drip irrigation system.

The maximum application of Ridomil 2E is 24 gal (48 lb. a.i.) per acre/year. Applied in 3 equal applications, each application will place a maximum of 16 lbs a.i./acre.

## 100.3 Precautionary Labeling

The general label accepted March 17, 1981 carries the following labeling.

The signal word is DANGER.

Keep out of lakes, streams or ponds. Apply only as specified on this label. Do not apply when weather conditions favor drift from treated areas. Do not contaminate water by cleaning of equipment and disposal of wastes.

101.0

THRU:

103.0 \*

} See the Tice review dated 6-26-81 for chemical properties,  
} behavior in the environment and toxicological properties.

\* SECTION 103.0 ATTACHED JB.

## 104.0 Discussion

This review will address the increase risk of possible adverse effects to fish and wildlife associated with the use of Ridomil on avocados. As mentioned above, Ridomil currently is registered and the manufacturer has applied for a conditional registration for many more crops. Avocados represent yet another avenue for the introduction of Ridomil into the environment.

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It is this increase use of Ridomil in 4 states and its effect on fish and wildlife that will be investigated.

## AVOCADOS

The avocado is a tropical tree which cannot withstand temperatures much lower than 2°-3°F for long periods of time. There are 3 races of trees, the West Indian, Guatemalan and Mexican. The West Indian race prefers hot humid tropics, and has a smooth shiny leathery skinned fruit. This fruit which is the largest of the three types generally matures in early June, July and August. The Guatemalan race prefers dry cooler tropics and has a fruit which is characterized as having a warty to pebbly, brittle skin. The fruit generally matures between September and December. The Mexican race has the smallest fruit and is characterized as a smooth to pebbly soft skin, very dark green to black in color. This race prefers cooler dryer tropical areas and also matures late in the season between September and December. The Guatemalan and Mexican race or crosses of these are grown in Florida while the West Indian race is grown in the west.

The acreage involved in avocado production is growing rapidly. The following table identifies the states and associated acreages involved in avocado production.

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Total Acreage Planted in Avocados

<u>STATE</u>	<u>1974</u>	<u>1979-80</u>
California	28,711	55,452
Florida	4,801	10,495
Hawaii	82	350
Texas	129	500+
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TOTAL	33,723	66,797
* Arizona	51	0

\* Arizona was reported to produce avocados however the state Ag census representative knows of no production in the state either in 1974 or today. (Personal communications)

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It is interesting to note that the total acreage planted has doubled between 1974 and 1980. The Ag representatives in Hawaii, California and Florida all said that trees are being planted anywhere there is room to plant them. (Personal communications with Mr. Goldwebber, U. of Florida County Extension Agent for Dade County.)

#### ROOT ROT PROBLEMS

Goldwebber, the Extension Agent in Dade County, said that Phytophthora root rot was one of the biggest problems in avocado's all over the U.S. In many areas of California and Florida extensive "sterile" procedures are enforced to reduce the spread of the disease. Procedures include driving field vehicles through tanks of "sheep dip" and having field and nursery personnel walk through a sterilizing solution. Infected ground in Florida must remain fallow two or more years before replanting. California ground must be fumigated (sterilized) prior to planting. Despite research attempts to develop a resistant variety, none have been found thus extensive measures must be used to reduce the spread of the organism.

#### 104.1 Discussion

##### Application Rate

The proposed label provides for either direct ground applications or applications via irrigation waters. Instructions call for 3 applications throughout the growing season using a maximum of 24 gal of product (48 lbs a.i.) applied per acre per year. The single application rate of 16 lb. a.i./acre is the greatest application rate requested thus far. The estimated residues for various substrates are listed in the following table.

<u>Substrate</u>	<u>Estimated Concentration</u>	<u>5X</u>
6" water	6.0 ppm	30 ppm
Soil (top .5")	70.0 ppm	350 ppm
Short grasses	4440 ppm	22,000 ppm
leaves	2000 ppm	10,000 ppm
Pods containing seeds (legumes)	192 ppm	960 ppm

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These estimated residues seem high compared to other uses of Ridomil and other chemicals. If this product were to be applied like "conventional" sprays, concern would be in order. However, this is not the case. Ridomil is to be applied directly to the ground cover under the trees. In most cases the ground cover is removed (mowed or herbicided) thus vegetation residues will be minimal for hazard considerations. In addition, when used in conjunction with irrigation equipment, Ridomil residues will be washed into the soil thus greatly decreasing residues available to wildlife. Since Ridomil costs in excess of \$100 per gallon of product the grower will insure that every precious drop will reach the intended target, the roots.

#### 104.1.1 Likelihood of Exposure of Nontarget Organisms.

As with all pesticide applications in the environment, exposure to nontarget organisms is possible. The groves in Florida experience some wildlife however the numbers are few due to the mowing and vegetation clearing between trees. The animals that do visit or nest in the area are squirrels, rabbits, mice, rats, snakes, and cedar waxwings. Other small mammals and birds have been known to "pass through" the groves but not be a resident of groves. (Personal communication, Mr. Goldwebber Dade County, Florida extension agent, 8-248-3311). Since direct soil application is the most efficient method of applying the product, it is difficult to believe that the wildlife associated with avocado groves will be exposed to the maximum environmental concentrations estimated above.

#### Comparison of Residues and Toxicities

The ratios of estimated residues to LD<sub>50</sub> or LC<sub>50</sub> for birds and mammals are at or below the 1/5 level as set forth in the "Regulations". Despite this "close" relationship this reviewer does not believe that a hazardous condition exists for the following reasons:

1. agricultural practice keeps vegetation under the trees (ground cover) to a minimum - bare preferably;
2. applications are expected to be aimed <sup>as applied to</sup> at the ground;
3. Ridomil is expected to leach into the soil or be washed off vegetation rapidly as it is a mobile compound; and
4. if applied via overhead sprinkler Ridomil is expected to be rapidly taken into the plants as it is a systemic fungicide.

#### 104.2 Endangered Species Considerations

The exposure to endangered species in the four states growing avocados have been considered. It is this reviewer's opinion

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that the use of Ridomil on avocados does not pose a hazard to the existence of any population which may be associated with the crop.

104.4 Additional Data Required.

With the large concentration of Ridomil being applied as compared to the concentration used on other crops, it would be interesting to read EFB's evaluation of the leaching potential in light of the citrus studies being conducted in Florida.

There will be no new toxicity tests requested as a result of this conditional registration.

107.0 Conclusions

The Ecological Effects Branch has no objection to the conditional registration of Ridomil 2E for use on avocados to control Phytophthora root rot.

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