



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, D.C. 20460

MEMORANDUM

FFB 24 1992

OFFICE OF PESTICIDES AND TOXIC SUBSTANCES

SUBJECT:

EUP for RH-7592 2F Fungicide on Pecans

DP Barcode: 171954

ID No: 000707-EUP-REL

FROM:

Douglas J. Urban, Acting Chief

Ecological Effects Branch

Environmental Fate and Effects Division (H7507C)

TO:

Cynthia Giles-Parker, PM 22 Fungicide\Herbicide Branch Registration Division (H7505C)

BACKGROUND

Rohm and Haas Company requested an EUP for RH-7592 2F (Fenbuconazole) on pecans. The objectives of this EUP request as proposed by the registrant are to:

- To confirm product performance when applied in standard grower spray schedules and equipment
- To define optimum use rates, application timings, and number of applications required disease control, nut quality, marketable yield
- To provide opportunities to define and demonstrate product performance characteristics for Rohm and Haas Company sales and marketing personnel, agricultural chemical dealers and distributors, university and Cooperative Extension Service personnel. -collect additional efficacy and residue data in certain states.

The company estimates that an EUP program with a duration of 22 months (March 1992 to December 1993) will be required to satisfy all proposed objectives.

CONCLUSIONS

The labeling should be adjusted to read:

This pesticide is toxic to fish and aquatic invertebrates. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high-water mark. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment washwater or rinsate.

Based on available data, the proposed EUP will not pose a significant adverse effect to avian, fish, invertebrate, or insect species.

The proposed EUP also will not pose significant adverse effects to aquatic plants.

Although acute hazard is not anticipated, the possibility exists for chronic hazard as environmental fate data indicates that RH-7592 2F is persistent in both aquatic and terrestrial environments. Therefore, the following studies are required prior to section 3 registration:

- Avian reproduction (preferably with mallard and bobwhite).
- -Fish early life stage with Bluegill sunfish
- -Aquatic invertebrate life-cycle.

If you have any questions, please contact Heather Mansfield (305-5064)

D171954 DPBARCODE (RECORD) 129011 SHAUGHNESSY NO

REVIEW NO.

EEB REVIEW

| DATE I | N: <u>12-12-91</u> OUT | • | |
|---------------------------------------|--|----------------------------|---------------------------------------|
| CASE # SUBMISSION # ID # | : 006620 : S407810 : 000707-EUP-RE | REREG CASE #: LIST L | A, B, C, D |
| DATE OF SUBMISSION | | 10-07-91 | |
| DATE RECEIVED BY E | FED | 12-09-91 | |
| SRRD/RD REQUESTED | COMPLETION DATE | 02-22-92 | : : : : : : : : : : : : : : : : : : : |
| EEB ESTIMATED COMP | PLETION DATE | 02-22-92 | |
| SRRD/RD ACTION COL | E/TYPE OF REVIEW | 710 - EUP | · |
| MRID #(S) | | | |
| DP TYPE 001 | - Submission Rel | ated Data Pack | age |
| PRODUCT MANAGER, N | IO. <u>C. Gile</u> | s-Parker (22) | |
| PRODUCT NAME(S) | | | |
| TYPE PRODUCT F R | INHD Fung | icide | · |
| COMPANY NAME | Rohm | and Haas Comp | any |
| SUBMISSION PURPOSE | | | |
| INCLUDE USE(S) | * | | |
| • • • • • • • • • • • • • • • • • • • | | | |
| COMMON CHEMICAL NA | ME Fenb | uconazole | 9 |

EEB REVIEW RH-7592 2F (Fenbuconazole)

100.0 Submission Purpose and Label Information

100.1 Submission Purpose and Pesticide Use

Request for experimental use permit (EUP) for RH-7592 2F fungicide on pecans.

100.2 Formulation Information

Active ingredient

α-[2-(4-chlorophenyl)ethyl]-αphenyl-1<u>H</u>-1,2,4-triazole-1propanitrile......22.8* Inert ingredients......77.2*

*Equivalent to 2 lbs active ingredient per gallon.

100.3 Application Methods, Directions, Rates

See attached label.

100.4 <u>Target Organisms</u>

Downy Spot (Mycosphaerella sp.)
Leaf Scorch
Powdery Mildew (Microsphaera sp.)
Scab (Cladosporium sp.)

100.5 <u>Precautionary Labeling</u>

Environmental Hazards

This pesticide is toxic to fish and aquatic invertebrates. Do not apply directly to water or wetlands (swamps, bogs, marshes, and potholes). Drift or runoff from treated areas may be hazardous to aquatic organisms in adjacent aquatic sites. Do not contaminate water when disposing of equipment washwaters and rinsates.

101.0 Hazard Assessment

101.1 Discussion

Fenbuconazole, also referred to in this document as RH-7592 2F, has in the past been called several other names: Fenathanil, RH-7592 2F, and RH-57,592.

Rohm and Haas Company has submitted an application to register RH-7592 2F for experimental use on pecans. The company estimates that an EUP program with a duration of 22 months (March 1992 to December 1993) will be required to satisfy all proposed objectives.

The proposed objectives as stated by the registrant are:

- 1. To confirm product performance when applied in standard grower spray schedules and equipment.
- 2. To define optimum use rates, application timings, and number of applications required for disease control, nut quality, and marketable yield.
- 3. To provide opportunities to define and demonstrate product performance characteristics for Rohm and Haas Company sales and marketing personnel, agricultural chemical dealers and distributors, university and Cooperative Extension Service personnel.

The label restrictions entail ground application only, presumably with a mist-blower.

The proposed EUP of RH-7592 2F for pecans will involve the following:

| REGION | STATE | # TRIALS | # ACRES | TOTAL LBS |
|---------|-------------|----------|---------|-----------|
| EASTERN | Alabama | 6 | 30 | 30 |
| 1 | Georgia | 15 | 75 | 75 |
| | Louisiana | 6 | 30 | 30 |
| | Mississippi | 4 | 20 | 20 |
| | Oklahoma | 4 | 20 | 20 |
| | Texas | 5 | 25 | 25 |
| TOTAL | | 40 | 200 | 200 |

101.2 Likelihood of Adverse Effects to Nontarget Organisms

Environmental Fate Data

The following environmental fate and toxicity data was excerpted from a 1989 EEB review by Harry Winnik:

The following data was obtained from the Environmental Fate and Groundwater Branch review of EUP to test RH-7592 2F on stone fruit, submitted by Clinton Fletcher, Chemist, Review Section 1, EFGWD/EFED:

- . RH-7592 2F will be stable to hydrolysis at pH levels found in the environment.
- . RH-7592 2F will degrade in soil under aerobic conditions with a half-life of 285 and 367 days in Lawrenceville silty clay loam and Pasquotank sandy loam soils, respectively.
- . RH-7592 2F will degrade in soil under anaerobic conditions with a half-life of 451 and 655 days in the Lawrenceville silty clay loam and the Pasquotank sandy loam soils, respectively.
- . RH-7592 2F will be only slightly mobile to immobile in soils. Adsorption appears to be associated with percent organic matter present. RH-7592 2F will be slightly mobile in soils containing a low percent organic material (≤1%) and relatively immobile in soils with higher levels of organic material.
- . RH-7592 2F residues have only a slight potential to leach in the soil environment.
- . RH-7592 2F will not bioaccumulate in fish and any residues that are taken up will be depurated when fish are no longer exposed to RH-7592 2F residues.

The above data indicate that RH-7592 2F is quite stable and may be persistent in the environment (under aerobic conditions up to 367 days and under anaerobic conditions up to 655 days).

Terrestrial Hazard

RH-7592 2F may be characterized as practically non-toxic on an acute basis to avian species (Bobwhite quail <u>Colinus virginianus</u>, LD₅₀>2150 mg a.i./kg).

RH-7592 2F may be characterized as slightly toxic on a subacute basis to avian species (Mallard duck Anas platyrhynchos, LC₅₀ of 2013 ppm, and Bobwhite quail Colinus virginianus, LC₅₀ of 4050 ppm).

RH-7592 2F may be characterized as relatively non-toxic to nontarget insects (Honey bee Apis melifera, $LD_{50}>292.18$ ug a.i./bee).

At a maximum application rate of 8 oz/A RH-7592 2F (equivalent to 0.125 lbs a.i./A) the maximum residue expected on food items are as follows:

| Short | Long | Leaves/ | <u>Forage</u> | Pods/ | <u>Fruit</u> |
|--------------|-----------|--------------|---------------|----------------|--------------|
| Range | Range | <u>Leafy</u> | | <u>Insects</u> | |
| <u>Grass</u> | Grass | <u>Crops</u> | | | |
| | 13.8 Am | | | | |
| 30 ppm | Apple ppm | 16 ppm | 7.2 ppm | 1.5 ppm | 1 ppm |

These levels are significantly below 1/5 of the LC_{50} values for Bobwhite quail and Mallard Ducks. On the basis of this data, the proposed EUP does not pose a significant threat to birds or insects.

At the time of this review there was no mammalian toxicity data available. Therefore, a hazard assessment to mammals is not possible.

Aquatic Hazard

RH-7592 2F, with a 96-hour LC₅₀ of 1.5 mg a.i./L for Rainbow trout <u>Salmo gairdneri</u>, is considered moderately toxic to coldwater fish. Data for the Bluegill sunfish (<u>Lepomis macrochirus</u>), 96-hour LC₅₀ of 0.68 mg a.i./L, indicate that RH-7592 2F is highly toxic to warmwater fish.

The 48-hour EC₅₀ for <u>Daphnia magna</u> of 2.3 mg a.i./L indicates that RH-7592 2F is moderately toxic to freshwater invertebrates.

Based on the EEB scenario of a 10-acre drainage basin draining into a one acre farm pond, the maximum estimated environmental concentration (EEC) for the maximum application rate (mist blower) of 0.125 lbs a.i./A would be approximately 1.3 ppb. If the calculations are done for unincorporated ground application, an EEC of approximately 1.5 ppb is obtained. These concentration are far less than 1/10 the LC_{50} values for coldwater fish, warmwater fish and

freshwater invertebrates. As such, RH-7592 2F does not pose a significant hazard to aquatic organisms as a result of single applications. However, according to the label instructions the potential exists for multiple applications of RH-7592 2F. Subsequently, the EPA Pesticide Residue Fate Simulation computer program was used to estimate the maximum and average residues expected from drift and runoff from a 10 acre treated area into a 1 acre pond, 6 ft. deep as a result of multiple applications of RH-7592 2F.

The EPA Pesticide Residue Fate Simulation computer program was run with the following parameters:

| | SET | SET | SET | SET |
|-----------------------------------|------|------|------|------|
| | 1 | 3 | 5 | 6 |
| EEC/APPLICATION1 | 1.3 | 1.3 | .93 | .93 |
| | ppb | ppb | ppb | ppb |
| HALF LIFE ² | 655 | 285 | 655 | 285 |
| | days | days | days | days |
| # OF APPLICATIONS3 | 8 | 8 | 11 | 11 |
| APPLICATION INTERVAL ⁴ | 14 | 14 | 14 | 20 |
| | days | days | days | days |
| LENGTH OF SIMULATION | 100 | 100 | 200 | 200 |
| | days | days | days | days |
| RESIDUE | 9.8 | 9.3 | 9.5 | 9.2 |
| | ppb | ppb | ppb | ppb |

¹The EEC sheet for a single application is attached (attachment A).

² 655 days is the anaerobic half-life of RH-7592 2F in sandy loam soil, which best approximates the half-life of RH-7592 2F that would be found in water affected from drift and runoff from use on stone fruit crops. 285 days is the aerobic half-life of RH-7592 2F in silty clay loam. This value was employed to find the range of possible residues (attachment B).

³The maximum number of applications possible when there is a maximum of 1 pound per acre active ingredient applied per season.

According to the label, the application interval for repeat applications ranges from 10 to 14 days through pollination and 14 to 21 days after.

RH-7592 2F is extremely persistent in the aquatic environment. With repeat applications at the various intervals recommended by the label, there are several triggers for the fish early life stage and invertebrate life cycle studies:

- 1/100 of the LC_{50} for Bluegill sunfish is surpassed whether the half-life is considered to be 655 days (sandy loam soil anaerobic half-life) or 285 days (silty clay loam soil aerobic half-life) and with all application rates (.09 to .125 lb a.i./acre).
- the LC_{50} for the acute toxicity to warmwater fish is < 1 ppm
- RH-7592 2F is extremely persistent in water. The half-life from photolysis in water is 1283 days and the compound is stable to hydrolysis at pH range of 5-9.

The avian reproduction study, preferably with bobwhite and mallard, is also triggered by RH-7592 2F's persistence in the environment.

Plant Hazard

Due to the low water solubility of RH-7592 2F (3.8 ppm) the hazard to aquatic plants should be minimal and aquatic plant growth testing on the freshwater green alga <u>Selenastrum capricornutum</u> will not be required at this time.

101.1 Endangered Species Consideration

The proposed EUP extension does not pose a hazard to aquatic or terrestrial endangered species.

101.4 <u>Adequacy of Toxicity Data</u>

Prior to section 3 registration the following data will be required:

- . Avian reproduction (preferably Mallard and Bobwhite)
- . Fish early life stage (with Bluegill sunfish)
- . Invertebrate life cycle

Following review of required EEB data, submission of additional toxicity data may be necessary.

101.5 Adequacy of Labeling

The labeling for the current proposed use of RH-7592 2F should read:

This pesticide is toxic to fish and aquatic invertebrates. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high-water mark. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment washwater or rinsate.

Classification 102.0

Not classified.

103.0 Conclusions

Based on available data, the proposed EUP will not pose a significant adverse effect to avian, fish, invertebrate, or insect species.

RH-7592 2F has a low water solubility. Consequently, the proposed EUP will not pose significant adverse effects to aquatic plants.

Although acute hazard is not anticipated, the possibility exists for chronic hazard as environmental fate data indicates that RH-7592 2F is persistent in both aquatic and terrestrial environments. Therefore, the following studies are required prior to section 3 registration:

- Avian reproduction (preferably with mallard and bobwhite).
- -Fish early life stage with Bluegill sunfish
- -Aquatic invertebrate life-cycle.

Heather Mansfield, Zoologist, Section 2

Ecological Effects Branch

Environmental Fate and Effects Division (H7507C) 2/19/92

Allen Vaughan, Acting Head, Section 2 Went Vaughan Ecological Effects Branch Environmental Fate and Effects Division (H7507C) 2:19-92

Douglas J. Urban, Acting Chief Ecological Effects Branch

Environmental Fate and Effects Division (H7507C)

I. For un-incorporated ground application

A. Runoff

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

Therefore, EEC = 61 ppb $\times 0.025(1b) = 1.525$ ppb

II. For incorporated ground application

A. Runoff

$$\frac{-1b(s)}{(\text{depth of } (2s) \text{ runoff})} (10 \text{ A}) = \frac{-1b(s)}{(\text{depth of } (2s) \text{ runoff})} (10 \text{ A}) = \frac{-1b(s)}{(\text{depth of } (2s) \text{ runoff})}$$

Therefore, EEC = 61 ppb x ____(lbs) = ____ppb

III. For aerial application (or mist blower)

B. Drift
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| hemical name | FENBUCONAZOLE 1.3 | | | |
|---|-------------------|------------|--|-------------|
| alf-life | 655 | * | | |
| number of application pplication interval | 8 14 | | | |
| ength of simulation (day) | 100 | | | |
| AY RESIDUE (PPM) | | | | |
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| 0 1.3 1 1.298625 | 1- Off. | | | |
| 2 1.297252 3 1.295879 | , | | | |
| 4 1.294509 | | | | |
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| 7 1.290406 8 1.289041 | | | | |
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| 12 1.283596 13 1.282238 | | | | |
| 14 2.580882 15 2.578152 | 2 | | | 4 |
| 16 2.575425 | | | | |
| 18 2.56998 | | | | |
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| 2 5.03287 3 5.027546 | | | | |
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| 64 6.258403 65 6.251783 | | | | |
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| 6.225376 7.518791 | 1 application | · r | 7700 | 507 |
| 68 6.231967 69 6.225376 70 7.518791 71 7.510839 72 7.502895 | | | | |
| 1.302053 | | | | |

9.880154 5.159456

DAILY ACCUMULATED PESTICIDE RESIDUES --- MULTP. APPL.

| Half-life A number of | centration (ppm) application | | RH-7592 2 .93 655 11 |
|----------------------------|------------------------------|-------------|--|
| Application Length of s | | | 14 200 |
| DAY | RESIDUE (PPM) | * * * | |
| | | | |
| O | .93 | | |
| 1 | .9290164 | | *** |
| 2 | .9280338 | • | |
| 3 | .9270522 | | |
| 4 | .9260716 | | |
| 5 | .9250922 | | |
| 6 | .9241138 | | |
| 7 | .9231363 | | |
| 8 | .9221599 | | - |
| 9 | .9211846 .9202102 | | |
| 10 11 | .9202102 | • | |
| 12 | .9192509 | | |
| 13 | .9172935 | | |
| 14 | 1.846323 | | |
| 15 | 1.844371 | | |
| 16 | 1.84242 | | |
| 17 | 1.840471 | | |
| 18 | 1.838524 | | |
| 19 | 1.83658 | | |
| 20 | 1.834637 | | |
| 21 | 1.832697 | | |
| 22 | 1.830758 | | en e |
| 23 | 1.828822 | | |
| 24 | 1.826888 | | |
| 25 | 1.824956 | | |
| 26 | 1.823025 | | |
| 27 | 1.821097 | • | |
| 28 | 2.749171 2.746263 | | |
| 29 | 2.743359 | | |
| 30 31 | 2.743359 | | * |
| 31 32 | 2.740457 | | |
| 33 | 2.734663 | | • |
| 34 | 2.731771 | | • |
| 35 | 2.728881 | | |
| 36 | 2.725995 | | |
| . 37 | 2.723112 | | |
| 38 | 2.720232 | | |
| 39 | 2.717354 | | |
| 40 | 2.71448 | | |
| 41 | 2.711609 | | |
| 42 | 3.638741 | | |
| 43 | 3.634893 | | • |

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| 45 | • , | 3.627208 |
| | | 3.623371 |
| 46 | | |
| 47 | | 3.619539 |
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| 48 | | 3.615711 |
| 49 | | 3.611886 |
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| 50 | | 3.608066 |
| 51 | | 3.60425 |
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| 52 | | 3.600438 |
| 53 | | 3.59663 |
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| 54 | | 3,592826 |
| 55 | | 3.589026 |
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| 56 | | 4.515229 |
| 57 | | 4.510454 |
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| 58 | | 4.505683 |
| 59 | 4 | 4.500918 |
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| 60 | | 4.496157 |
| 61 | | 4.491402 |
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| 62 | | 4.486652 |
| 63 | | 4.481906 |
| | | |
| 64 | | 4.477165 |
| 65 | | 4.47243 |
| | | |
| 66 | | 4.467699 |
| 67 | | 4.462974 |
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| 68 | | 4.458254 |
| 69 | | 4.453538 |
| | | |
| 70 | | 5.378828 |
| 71 | | 5.373139 |
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| 72 | | 5.367456 |
| 73 | | 5.361779 |
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| 74 | | 5.356107 |
| 75 | | 5.350443 |
| | | |
| 76 | | 5.344784 |
| | | 5.339131 |
| 77 | | |
| 78 | | 5.333483 |
| 79 | | 5.327842 |
| | | 3.32/642 |
| 80 | | 5.322207 |
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| 81 | | 5.316578 |
| 82 | | 5.310955 |
| | | 5.305338 |
| 83 | | |
| 84 | | 6.229726 |
| | | 6.223138 |
| 85 | | |
| 86 | | 6.216555 |
| | | 6.209979 |
| 87 | | |
| 88 | | 6.203412 |
| | | |
| 89 | | 6.196851 |
| 90 | | 6.190296 |
| | | |
| 91 | | 6.183749 |
| 92 | | 6.177208 |
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| 93 | 7 | 6.170675 |
| 94 | | 6.164149 |
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| 95 | | 6.157628 |
| 96 | | 6.151116 |
| | | |
| 97 | | 6.14461 |
| 98 | | 7.068111 |
| | | |
| 99 | | 7.060635 |
| 100 | | 7.053167 |
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| 104 | w | 7.023374 |
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| 105 | | 7.015946 |
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| 112 | | 7.894166 |
| 113 | | 7.885817 |
| 114 | | 7.877476 |
| 115 | | 7.869144 |
| 116 | | 7.860821 |
| 117 | | 7.852507 |
| | | |
| 118 | | 7.844201 |
| 119 | * | 7.835905 |
| 120 | | 7.827617 |
| 121 | | 7.819338 |
| 122 | | 7.811068 |
| 123 | | 7.802806 |
| 124 | • | 7.794553 |
| 125 | | 7.786309 |
| 126 | | 8.708072 |
| 127 | | 8.698863 |
| 128 | | 8.689662 |
| 129 | | 8.680471 |
| | | |
| 130 | | 8.671291 |
| 131 | | 8.662119 |
| 132 | | 8.652956 |
| 133 | | 8.643804 |
| 134 | 4 | 8.634662 |
| 135 | | 8.62553 |
| 136 | | 8.616408 |
| 137 | | 8.607293 |
| 138 | | 8.598189 |
| 139 | | 8.589095 |
| 140 | | 9.510012 |
| 141 | | 9.499952 |
| | | |
| 142 | | 9.489906 |
| 143 | | 9.479867 |
| 144 | | 9.469841 |
| 145 | | 9.459826 |
| 146 | | 9.449819 |
| 147 | | 9.439824 |
| 148 | | 9.429839 |
| 149 | | 9.419866 |
| 150 | | 9.409902 |
| 151 | | 9.39995 |
| 152 | | 9.390007 |
| 153 | , | 9.380076 |
| 154 | | 9.370156 |
| | | |
| 155 | | 9.360245 |
| 156 | | 9.350344 |
| 157 | | 9.340455 |
| 158 | | 9.330576 |
| 159 | | 9.320708 |
| 160 | | 9.310848 |
| 161 | | 9.300999 |
| 162 | | 9.291164 |
| 163 | | 9.281337 |
| | | <i></i> |

```
164.
              9.271519
              9.261713
165
 166
              9.251916
              9.242131
 167
 168
              9.232355
 169
              9.222591
 170
              9,212838
 171
              9.203092
 172
              9.193359
 173
              9.183636
              9.173922
 174
 175
              9.164218
 176
              9.154526
 177
              9.144843
 178
              9.135171
 179
              9.125509
 180
              9.115856
 181
              9.106216
 182
              9.096583
 183
              9.086962
 184
              9.077352
 185
              9.06775
 186
              9.05816
 187
              9.048579
 188
              9.039008
 189
              9.029448
 190
              9.019898
 191
              9.010358
 192
              9.000827
 193
              8.991308
 194
              8.981798
 195
              8.972298
 196
              8.962808
              8.953328
 197
              8.943858
 198
 199
              8.934399
 200
              8.924949
Maximum residue -----
                                         9.510012
                                         6.183112
Average residue -----
DAILY ACCUMULATED PESTICIDE RESIDUES --- MULTP. APPL.
                                        RH-7592 2F
Chemical name -----
                                         .93
Initial concentration (ppm) -----
Half-life -----
                                        655
A number of application -----
                                         11
Application interval -----
                                        20
Length of simulation (day) ----
                                        200
```

| • | • • • • |
|-----|---------------|
| DAY | RESIDUE (PPM) |
| | |
| | |
| 0 | .93 |
| 1 | .9290164 |
| 2 | .9280338 |
| 3 | .9270522 |
| 4 | .9260716 |
| ₹ | • |
| | |

| _ | | |
|-----|-----|--|
| 5 | | .9250922 |
| | | 0041120 |
| 6 | | .9241138 |
| 7 | | 0921262 |
| / | | .9231363 |
| 0 | | .9221599 |
| 8 | | • 266TO22 |
| ^ | | .9211846 |
| 9 | | .9211846 |
| | | 0000100 |
| 10 | | .9202102 |
| | | 0100060 |
| 11 | | .9192369 |
| | * | 0100615 |
| 12 | | .9182647 |
| | | |
| 13 | | .9172935 |
| | | |
| 14 | | .9163233 |
| | | |
| 15 | | .9153541 |
| | | |
| 16 | | .9143859 |
| | | |
| 17 | | .9134188 |
| | | |
| 18 | | .9124527 |
| | | and the second s |
| 19 | | .9114876 |
| | | • |
| 20 | | 1.840524 |
| | | |
| 21 | | 1.838577 |
| | | |
| 22 | 4 | 1.836632 |
| | | |
| 23 | | 1.83469 |
| | | |
| 24 | | 1.832749 |
| 24 | | T' |
| 25 | | 1.830811 |
| 23 | | 1.020011 |
| 26 | | 1.828874 |
| 26 | | 1.0200/4 |
| 27 | | 1.82694 |
| 27 | | 1.02094 |
| 20 | | 1 025000 |
| 28 | | 1.825008 |
| ~~ | | 4 0000077 |
| 29 | | 1.823077 |
| | | |
| 30 | | 1.821149 |
| | | |
| 31 | | 1.819223 |
| | | 1.50 |
| 32 | | 1.817299 |
| | | |
| 33 | | 1.815377 |
| | | |
| 34 | | 1.813457 |
| | | |
| 35 | | 1.811539 |
| J J | | 1.01100 |
| 36 | | 1.809622 |
| 20 | · . | 1.009022 |
| 37 | | 1.807709 |
| J / | | 1.00//09 |
| 38 | | 1.805796 |
| 20 | | 1.003/30 |
| 20 | | 1.803887 |
| 39 | | 1.003001 |
| 40 | | 2.731979 |
| 40 | | 2./313/3 |
| 4 1 | | 2.729089 |
| 41 | | 2./29089 |
| 40 | | 2 726202 |
| 42 | | 2.726203 |
| | | 0 700010 |
| 43 | | 2.723319 |
| | | 0.700400 |
| 44 | | 2.720439 |
| | | 0 515561 |
| 45 | | 2.717561 |
| | | |
| 46 | | 2.714687 |
| | | |
| 47 | | 2.711816 |
| | | |
| 48 | | 2.708948 |
| | | |
| 49 | | 2.706082 |
| | | |
| 50 | | 2.70322 |
| | | |
| 51 | | 2.700361 |
| | | |
| 52 | | 2.697505 |
| | | |
| 53 | | 2.694652 |
| | | |
| 54 | | 2.691802 |
| | | |
| 55 | | 2.688955 |
| J | | |
| E C | | 2.686111 |
| 56 | | 5.000111 |
| E7 | | 2.68327 |
| 57 | | 2.00321 |
| E 0 | | 2 600421 |
| 58 | | 2.680431 |
| | | |
| 59 | | 2.677596 |
| | | |
| 60 | | 3.604765 |
| | | |
| 61 | | 3.600952 |
| | | |
| 62 | | 3.597143 |
| | | |
| 63 | | 3.593339 |
| | | |
| 64 | | 3.589538 |
| | | |
| | | |

```
3.585741
65
                3.581949
66
67
                3.57816
68
                3.574376
69
                3.570595
70
                3.566818
71
                3.563046
72
                3.559277
73
                3.555513
74
                3.551753
75
                3.547996
76
                3.544243
77
                3.540494
78
                3.536749
79
                3.533009
80
                4.459273
81
                4.454556
82
                4.449844
83
                4.445138
84
                4.440437
85
                4.43574
86
                4.431048
87
                4.426361
88
                4.42168
89
                4.417003
90
                4.412331
91
                4.407665
92
                4.403003
93
                4.398346
94
                4.393694
95
                4.389046
96
                4.384404
97
                4.379767
98
                4.375135
99
                4.370507
100
                5.295884
101
                5.290283
102
                5.284688
103
                5.279098
104
                5.273515
105
                5.267937
106
                5.262365
107
                5.256799
108
                5.251239
109
                5.245685
110
                5.240137
111
                5.234595
112
                5.229058
113
                5.223527
114
                5.218002
115
                5.212484
116
                5.20697
117
                5.201463
118
                5.195961
119
                5.190466
120
                6.114976
121
                6.108508
122
                6.102047
123
                6.095593
124
                6.089146
```

| 125 | | 6.082706 |
|-----|---|----------|
| | | |
| 126 | | 6.076272 |
| 127 | | 6.069846 |
| 128 | | 6.063425 |
| 129 | | 6.057012 |
| | | |
| 130 | | 6.050606 |
| 131 | | 6.044206 |
| 132 | | 6.037814 |
| 133 | | 6.031428 |
| | | 6.025048 |
| 134 | | |
| 135 | | 6.018676 |
| 136 | | 6.01231 |
| 137 | | 6.00595 |
| | | 5.999598 |
| 138 | | |
| 139 | | 5.993252 |
| 140 | | 6.916914 |
| 141 | | 6.909598 |
| 142 | | 6.90229 |
| | | |
| 143 | | 6.894989 |
| 144 | | 6.887697 |
| 145 | | 6.880412 |
| | | 6.873134 |
| 146 | | |
| 147 | | 6.865865 |
| 148 | | 6.858603 |
| 149 | | 6.851348 |
| | | 6.844102 |
| 150 | | |
| 151 | | 6.836863 |
| 152 | | 6.829632 |
| 153 | | 6.822408 |
| 154 | | 6.815192 |
| | | |
| 155 | | 6.807984 |
| 156 | | 6.800783 |
| 157 | | 6.793591 |
| 158 | | 6.786405 |
| | | |
| 159 | | 6.779227 |
| 160 | | 7.702057 |
| 161 | | 7.693911 |
| 162 | | 7.685773 |
| | | |
| 163 | | 7.677644 |
| 164 | | 7.669523 |
| 165 | • | 7.661411 |
| 166 | | 7.653308 |
| | | |
| 167 | | 7.645214 |
| 168 | | 7.637127 |
| 169 | | 7.62905 |
| 170 | | 7.620981 |
| | | |
| 171 | • | 7.612919 |
| 172 | | 7.604868 |
| 173 | | 7.596824 |
| 174 | | 7.588789 |
| | | |
| 175 | | 7.580763 |
| 176 | | 7.572745 |
| 177 | | 7.564735 |
| 178 | | 7.556734 |
| | | |
| 179 | | 7.548742 |
| 180 | | 8.470758 |
| 181 | | 8.461798 |
| 182 | | 8.452848 |
| | | |
| 183 | | 8.443908 |
| 184 | | 8.434977 |
| | | |

| Average | residue | | - | 4.780933 |
|---------|---------|--------|-----|----------|
| Maximum | residue | | | 9.223359 |
| 200 | 9. | 223359 | | |
| 199 | 8. | 30214 | | |
| 198 | 8. | 310931 | | |
| 197 | 8. | 31973 | . , | |
| 196 | 8. | 328539 | | |
| 195 | 8. | 337357 | | |
| 194 | 8, | 346185 | | |
| 193 | 8. | 355021 | | |
| 192 | 8. | 363868 | | |
| 191 | 8. | 372723 | | |
| 190 | 8. | 381589 | | |
| 189 | 8. | 390464 | | 1 . |
| 188 | 8. | 399346 | | |
| 187 | 8. | 408241 | | |
| 186 | 8. | 417143 | * | |
| 185 | 8. | 426056 | | |
| | | | | |

DAILY ACCUMULATED PESTICIDE RESIDUES --- MULTP. APPL.

| Half-life A number of Application | centration (ppm) - application | | RH-7592 2F 1.3 285 8 14 100 |
|---|-----------------------------------|-----|--|
| DAY | RESIDUE (PPM) | | |
| . 0 | 1.3 | | |
| i | 1.296842 | * / | |
| 2 | 1.293692 | . " | |
| 3 | 1.290549 | | |
| 4 | 1.290349 | | |
| | 1.284287 | | |
| 5 | 1.281167 | • | |
| 6 | 1.278055 | | |
| 7 | | | |
| 8 | 1.274951 | | |
| 9 | 1.271854 | | |
| 10 | 1.268764 | | |
| 11 | 1.265682 | | |
| 12 | 1.262608 | | · · |
| 13 | 1.259541 | | , |
| 14 | 2.556481 | | |
| 15 | 2.550271 | | |
| 16 | 2.544076 | | - " |
| 17 | 2.537896 | | |
| 18 | 2.531731 | | |
| 19 | 2.525581 | | |
| 20 | 2.519446 | | |
| 21 | 2.513326 | | |
| 22 | 2.507221 | | |
| 23 | 2.50113 | | |
| 24 | 2.495055 | | |
| 25 | 2.488994 | | |
| 26 | 2.482948 | | |
| 27 | 2.476916 | • | |
| 28 | 3.7709 | | |
| 29 | 3.76174 | | |
| 30 | 3.752602 | | |
| 31 | 3.743486 | | |
| 32 | 3.734393 | | |
| 33 | 3.725321 | | |
| 34 | 3.716272 | | |
| 35 | 3.707245 | | |
| 36 | 3.698239 | | |
| 37 | 3.689256 | | |
| 38 | 3.680294 | | |
| 39 | 3.671354 | 8 S | |
| 40 | 3.662436 | | • |
| 41 | 3.653539 | | • |
| 42 | 4.944664 | | |
| 42 | 4.944004 | • | |

4.932653

```
4.920671
 44
 45
                 4.908718
 46
                 4.896794
 47
                 4.884899
 48
                 4.873033
 49
                 4.861196
 50
                 4.849387
 51
                 4.837607
 52
                 4.825856
 53
                 4.814133
 54
                 4.802439
 55
                 4.790774
 56
                 6.079136
 57
                 6.064369
 58
                 6.049638
 59
                 6.034942
 60
                 6.020282
 61
                 6.005658
 62
                 5.99107
 63
                 5.976517
 64
                 5.961999
 65
                 5.947516
 66
                 5.933069
 67
                 5.918657
                 5.904279
 68
 69
                 5.889938
 70
                 7.17563
 71
                 7.158199
 72
                 7.14081
 73
                 7.123465
 74
                 7.10616
 75
                 7.088899
 76
                 7.071679
 77
                 7.054501
 78
                 7.037364
 79
                 7.02027
 80
                 7.003217
 81
                 6.986204
 82
                 6.969234
 83
                 6.952305
 84
                 8.235416
 85
                 8.215412
 86
                 8.195456
 87
                 8.175548
 88
                 8.155688
 89
                 8.135876
 90
                 8.116114
 91
                 8.096398
 92
                 8.076731
 93
                 8.057112
 94
                 8.03754
 95
                 8.018015
 96
                 7.998539
 97
                 7.979109
 98
                 9.259726
 99
                 9.237233
 100
                 9.214794
Maximum residue
Average residue
```

9.259726

4.92204

RIN 3477-95

| EEB FENBUCONAZOCE PLEVEW |
|---|
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