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

JAN 29 1993

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: ESTIMATES OF USE OF VINCLOZOLIN (RONILAN) ON REGISTERED CROPS (DP BARCODES# D179241, D182456, D181635)

TO: Janet Anderson, Branch Chief
Biological Analysis Branch/BEAD (H7503W)

FROM: Shanaz Bacchus, Chemist 1/22/93
Reregistration Section
Occupational and Residential Exposure Branch
Health Effects Division (H7509C)

THRU: Al Nielsen, Section Head
Reregistration Section
Occupational and Residential Exposure Branch
Health Effects Division (H7509C)

Larry Dorsey, Branch Chief
Occupational and Residential Exposure Branch
Health Effects Division (H7509C)

BASF has submitted a study in response to a request for worker exposure data for vinclozolin (Ronilan WP, EPA Reg. No. 7969-53, and Curalan DF, EPA Reg. No. 7969-85). OREB will need the following use information in order to complete the evaluation of worker exposure assessment:

- the amounts of the pesticide which the mixer/loader and applicator are likely to handle **per day and per year** during treatment of turf and ornamentals;

- the amounts of the pesticide which the mixer/loader and applicator are likely to handle **per year** during typical airblast, groundboom and aerial applications.

This information will be used in conjunction with the previous use data provided by Gail Tomimatsu, who has informed me that the use pattern provided in our earlier meeting has not changed.

Copies of the labels are attached. If you have any further

Recycled/Recyclable
Printed with Soy/Canola Ink on paper that contains at least 50% recycled fiber

questions, please call me at 305-7775.

Thank you for your kind cooperation in this matter.

Attachment

cc: (with Attachment):

Gail Tomimatsu	BEAD/BAB	H7503W
Ronilan (Vinclozolin) File		

(without Attachment):

Shanaz Bacchus	OREB/HED	H7509C
Dennis Szuhay	BEAD/BAB	H7503W
Steve Knott	OREB/HED	H7509C
Correspondence File		

BASF

ACC... wit... in ... Dated:

Label approval pending in California.

Under ... Fungic... amen... regist...

7969-85

Curalan™

fungicide

Fungicide

A water dispersible, granule powder containing:

Active ingredient

Vinclozolin: 3-(3, 5-dichlorophenyl)-5-ethenyl-5-methyl-2, 4-oxazolidinedione 50.0%

Inert ingredients 50.0%

Total 100.0%

EPA Reg. No. 7969-85

EPA Establishment No. 39578-TX-01

KEEP OUT OF REACH OF CHILDREN.

CAUTION

Precautionary statements

Harmful if swallowed, inhaled or absorbed through skin. Causes eye irritation. Do not get on skin, in eyes or on clothing.

When applying this product—wear goggles or face shield, chemical-resistant gloves, coveralls or long-legged pants, socks, long-sleeved shirt and chemical-resistant boots or shoes or shoe coverings. When mixing or loading or when adjusting, repairing or cleaning equipment, wear chemical-resistant gloves extending above the wrist, a chemical-resistant apron, long-legged pants, socks, long-sleeved shirt and chemical-resistant boots or shoes or shoe coverings. Avoid breathing vapor or spray mist. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before re-use.

Application with airblast equipment must be from an enclosed tractor cab or applicator must wear a one- or two-piece protective suit of cotton or coveralls that covers all parts of the body except the head, hands and feet that are worn over a long-sleeved shirt and long pants. Wear chemical-resistant gloves, and chemical-resistant shoes, shoe coverings or boots, and a chemical-resistant hat, and a pesticide mask or respirator jointly approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH). Wash thoroughly with soap and water after handling or use of this product, and wash contaminated clothing and protective equipment thoroughly before re-use.

Statement of practical treatment

If on skin: Wash with plenty of soap and water. Get medical attention.

If inhaled: Remove victim to fresh air. If not breathing give artificial respiration, preferably mouth to mouth. Get medical attention.

If in eyes: Flush with plenty of water. Call a physician if irritation persists.

Environmental hazards

This product is toxic to fish. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters

Net contents 5.5 lbs.

BASF Corporation
PO Box 13528, Research Triangle Park, NC 27709

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Specimen Label

Tank mix product should be added in the following sequence after the tank has been ½-¾ filled and agitation has been started:

1. Add wettable powders to the tank first, allowing them to completely suspend in the tank before proceeding. This process can be hastened by premixing the product in water before adding to the tank.
2. Add flowables (**Curalan DF**) or suspensions next.
3. Add emulsifiable concentrates last.
4. Add the remaining amount of water. Do not leave tank mix combinations in the spray tank for prolonged periods without agitation. Mix and apply the same day.

Tank mix compatibility test
Any other product that is to be used with **Curalan DF** should be checked for compatibility. Using a quart jar, check the compatibility of the product using the following procedure:

1. Use only water from intended source and at the source temperature. Fill the jar ½-¾ full.
2. Add ¼ oz. (1½ teaspoons) of **Curalan DF** to the water for each 1 oz./1000 sq. ft., or, if a liquid, 1 teaspoon for each pint of recommended rate.
3. Add the remaining water in the jar, cap, invert for 10 cycles and let stand for 15 minutes. An ideal tank mix combination will be uniform. The compatibility is questionable if there are any oil film or globules on the surface, fine particle flocculation in the liquid or at the bottom, or clabbering—thickening of the liquid resembling yogurt or a curd-like texture as with cottage cheese.

Curalan DF Application Rates and Timing for Control of Diseases on Turfgrasses

Disease	Application Intervals	Application Rate of Curalan DF**			
		Preventive		Curative	
	Days*	lbs./A	Dry Oz. per 1000 sq. ft.	lbs./A	Dry Oz. per 1000 sq. ft.
Dollar Spot	21-28	2.7	1	5.4	2
Leaf Spots and Melting Out	14-28	2.7	1	5.4	2
Red Thread & Pink Patch	14-28	2.7	1	5.4	2
Brown Patch**	14-28	2.7	1	5.4	2
Gray Snow Mold	10-21	5.4	2	11.0	4
Fusarium Patch & Pink Snow Mold	10-21	5.4	2	11.0	4

* Re-treat at shorter intervals or use higher rates if conditions which are favorable to disease development exist.

** To control existing infections, apply at curative rate. Apply subsequent treatments at the preventive rate once control has been achieved.

Restrictions and limitations
In tank mixes, read and follow restrictions on the **Curalan DF** and the respective tank mix product label. The most restrictive labeling applies to tank mixes.

Do not apply **Curalan DF** through any type of irrigation system.

Do not apply more than 12 lbs. of **Curalan DF** per acre in one year.

Do not apply to areas likely to be grazed by livestock and do not feed clippings to livestock or poultry.

General information for ornamental disease control
Curalan DF is effective for disease control on many ornamental plants. **Curalan DF** will control *Botrytis* spp. on all herbaceous and woody ornamentals listed on page 4. **Curalan DF** will also control *Ciborinia*, *Monilinia*, *Ovulinia*, *Sclerotinia* and *Stromatinia* on certain herbaceous and woody ornamentals listed on page 4.

Other uses of **Curalan DF** include:
- Fogging operations.
- Dips of cut flowers, rose budwood, bareroot nursery stock, bulbs, and corms.
- Sprays to field grown flowers.

See specific recommendations on page 4.

Notes to user: Operator must wear a one- or two-piece protective suit of cotton or coveralls that covers all parts of the body except the head, hands and feet that is worn over a long-sleeved shirt and long pants. Operator must wear chemical-resistant gloves, and chemical-resistant shoes, shoe coverings, or boots, and a chemical-resistant hat, and a pesticide mask or respirator jointly approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH). Wash thoroughly with soap and water after handling or use of this product, and wash contaminated clothing and protective equipment thoroughly before re-use. Best results are obtained with treatments made late in the day. Treated area should be ventilated early the next morning. Avoid inhaling vapors. Never fog plants with wet foliage or plants under water stress. Poinsettias should not be fogged once bracts begin to show color.

Cut flowers–gladiolus and rose

Usage: Prevents Gray Mold (*Botrytis gladiorum*) on gladiolus spikes and *Botrytis cinerea* on roses in cold storage or transit.

Application rates and timing: As a postharvest dip, dip flower buds 3 to 4 seconds in solution of 1.5 to 3.0 lbs. **Curalan DF** per 100 gallons of water after grading and prior to cold storage. Addition of wetting agent will enhance spreadability. Maintain suspension by agitation.

Rose budwood and bareroot nursery stock

Usage: Prevents Gray Mold (*Botrytis cinerea*) on budwood and nursery stock in storage.

Application rates and timing: Use as a spray or dip. Spray to runoff, or dip plants in 1.5 lbs. **Curalan DF** per 100 gallons of water. Maintain suspension by agitation. Use after harvest and prior to storage.

Bulb and corm

Plant types: Gladiolus, Hyacinth, Iris, Lily, Narcissus, Scillia, Tulip.

Application rates and timing: As a dip, use a solution containing 1.0 to 2.0 lbs. **Curalan DF** per 100 gallons of water. Maintain suspension by agitation. Use after harvest and prior to storage.

Field grown flowers

Usage: Controls Gray Mold (*Botrytis* spp.) during production.

Application rates and timing: For aerial application, use 1.5 lbs. **Curalan DF** in 20 to 25 gallons of water per acre. Apply when conditions for disease prevail. Repeat every 10 to 14 days as needed.

For ground application use a solution containing 1.5 to 2.0 lbs. **Curalan DF** per 100 gallons of water. Repeat every 10 to 14 days as needed.

Notes to user: Due to variability within species and in application techniques neither the manufacturer nor the Seller has determined whether or not **Curalan DF** can safely be used on all varieties and species of nonbearing food crops, trees, shrubs, ornamentals, bedding plants, ground covers, nursery and other nonfood crops under all conditions. It is therefore recommended that the professional user determine if **Curalan DF** can be used safely prior to broad use.

This determination can be made in the following manner: On a small test area apply recommended use rate of **Curalan DF** on a non-labeled species or variety under the conditions expected to be encountered. Any adverse effects should be visible within 14 days.

Restrictions and limitations

Do not apply more than a total of 12 pounds of product per acre in one year.

Do not apply this product through any type of irrigation system.

Spray Solution Table for Ornamental Uses

Rates of Curalan DF to use with different amounts of desired spray solution.

Gallons of Water	Rate of Curalan DF					
100	1/2 lb.	3/4 lb.	1 lb.	1 1/2 lbs.	2 lbs.	3 lbs.
50	4 oz.*	6 oz.	8 oz.	3/4 lb.	1 lb.	1 1/2 lbs.
25	2 oz.	3 oz.	4 oz.	6 oz.	8 oz.	3/4 lb.
20	1.6 oz.	2.4 oz.	3.2 oz.	4.8 oz.	6.4 oz.	9.8 oz.
10	0.8 oz.	1.2 oz.	1.6 oz.	2.4 oz.	3.2 oz.	4.8 oz.
5	1 1/4 Tbs.	1 2/3 Tbs.	2 1/4 Tbs.	3 1/3 Tbs.	4 1/2 Tbs.	6 2/3 Tbs.
1	2/3 tsp.	2/3 tsp.	1 1/3 tsp.	2 tsp.	2 2/3 tsp.	4 tsp.

*Dry ounce

The following is a list of diseases discussed in this labeling:

Diseases	
Common Name	**Scientific Name**
Anthracnose	*Colletotrichum graminicola*
Brown Patch	*Rhizoctonia solani*
Dollar Spot	*Sclerotinia homoeocarpa; Lanzia* sp.; *Moellerodiscus* sp.
Fusarium Patch; Pink Snow Mold	*Fusarium nivale; Microdochium* sp.
Gray Mold	*Botrytis cinerea*
Gray Snow Mold	*Typhula incarnata*
Helminthosporium Leaf Spots Melting Out	 *Drechslera* spp. *Bipolaris* sp.
Pink Patch	*Limonomyces roseipellis*
Red Thread	*Leetisaria fuciformis*

January 12, 1989

SUPPLEMENTAL LABELING

RONILAN®WP FUNGICIDE

(EPA Reg. No. 7969-53)

ACCEPTED
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 7969-53

For Control of Diseases on Turfgrass

FOR PROFESSIONAL USE ONLY. NOT INTENDED FOR DOMESTIC USE, EXCEPT BY PROFESSIONAL APPLICATORS.

All applicable directions, restrictions, precautions and Conditions of Sale and Warranty on the EPA-registered label are to be followed. This labeling must be in possession of the user at the time of application.

Re-entry and Workers' Protection Statement

Do not apply this product in such a manner as to directly or through drift expose workers or other persons. The area being treated must be vacated by unprotected persons.

Do not enter treated areas without protective clothing until sprays have dried.

Because certain states may require more restrictive reentry intervals for various crops treated with this product, consult your State Department of Agriculture for further information.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

GENERAL INFORMATION

RONILAN is effective on all turfgrasses for control of Dollar Spot (Sclerotinia homoeocarpa); Helminthosporium Leaf Spots and Melting Out (Drechslera spp) Pink Patch and Red Thread (Limonomyces roseipellis and Laetisaria fuciformis, respectively); and Fusarium Patch (Fusarium nivale) if prolonged snow cover does not occur.

Tank mixes of RONILAN and FUNGO-50 effectively control the above diseases plus complexes of Brown Patch (Rhizoctonia solani) and Anthracnose (Colletotrichum graminicola) on all turf grasses.

TIME, RATE AND METHOD OF APPLICATION

Apply indicated rates of RONILAN in 2-4 gal. of water per 1,000 sq. ft. of turf after mowing and allow foliage to dry before irrigation.

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RESTRICTIONS AND LIMITATIONS FOR TURFGRASS

Do not exceed label rates.

Do not irrigate until sprays have dried.

Do not mix RONILAN with any product which has a label prohibition against mixing with RONILAN or VORLAN.

Do not apply this product through any type of irrigation system.

CONDITIONS OF SALE AND WARRANTY

The Directions for Use of this product reflect the opinion of experts based of field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of BASF CORPORATION ("BASF") or the Seller. All such risks shall be assumed by the Buyer.

BASF warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the Directions for Use, subject to the inherent risks referred to above. BASF MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY. IN NO CASE SHALL BASF OR THE SELLER BE LIABLE FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES RESULTING FORM THE USE OR HANDLING OF THIS PRODUCT. BASF and the Seller offer this product, and the Buyer and User accept it , subject to the foregoing Conditions of Sale and Warranty which may be varied only by agreement in writing signed by a duly authorized representative of BASF.

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Application Rates and Timing for Disease Control

PLANT TYPES AND REMARKS

HERBACEOUS ORNAMENTALS

African Violet	Hoya
Ajuga	Hyacinth
Alyssum	Impatiens
Anthurium	Iris
Aphelandra	Ivy
Artemesia	Kalanchoe
Aster	Liatris
Begonia	Lily
Bleeding Heart	Lupine
Calceolaria	Marigold
Carnation	Monarda
Chrysanthemum	Narcissus
Cineraria	Orchard (Dendrobium)
Coleus	Pelargonium
Columbine	Peperomia
Coral Bells	Petunia
Crossandra	Philodendron
Croton	Phlox
Cyclamen	Pilea
Daffodil	Primrose
Delphinium	Primula
Dianthus	Saintpaulia
Dieffenbachia	Saliva
Dracaena	Saxifraga
Easter Lily	Scindapsus
Episcia	Senecio
Euophorbia	Shasta Daisy
Fuchsia	Sinningia
Gazania	Snapdragon[6]
Geranium	Statice
Gerbera	Tulip
Gladiolus	Violet
Gynura	Zinnia[6]
Gypsophila	

WOODY ORNAMENTALS

Almond, flowering[1,4]	Hydrangea
Azalea[5]	Juniper
Camellia[3]	Pachysandra
Cedar	Palm, Areca
Cherry, ornamental[1,4]	Pine
Chokecherry[1,4]	Plum[1,4]
Crape Myrtle	Poinsettia[2]
Elm	Polyscias
Euonymous	Redwood
Ficus[1]	Rhododendron
Fir	Schefflera
	Spruce
	Vinca

FOLIAR SPRAY

As a preventive measure, apply 0.5 to 0.75 lb product per 100 gal. of water when conditions for disease prevail. Repeat every 10 to 14 days during this period.

As a curative measure, apply 0.75 to 1.0 lb product per 100 gal. of water for medium to high disease pressure. Repeat every 10 to 14 days.

Normally, 2 to 6 gal. of spray solution will cover 1,000 sq. ft. of foliage.

Apply until leaves glisten.

Care should be taken to see that plants dry off quickly after treatment

Do not spray stressed plants

Do not drench growth media.

Do not spray seedlings until formation of three true leaves.

CUT FLOWERS

For prevention of Gray Mold (*Botrytis cinerea*) on the following cut flowers in cold storage or transit.

Alstroemeria	Iris
Carnation	Leptospermum
Chrysanthemum	Shasta Daisy
Corn Flower	Statice
Daisy	Sweet William
Gypsophila	

POSTHARVEST SPRAY

Apply 0.75 to 1.5 lb per 100 gal. of water after harvest and grading, prior to cold storage and shipment.

CONDITIONS OF SALE AND WARRANTY

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BASF warrants that this product conforms to the chemicals description on the label and is reasonably fit for the purposes referred to in the Directions for Use, subject to the inherent risks referred to above. BASF MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY. IN NO CASE SHALL BASF OR THE SELLER BE LIABLE FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT. BASF and the Seller offer this product, and the Buyer and User accept it, subject to the foregoing Conditions of Sale and Warranty which may be varied only by agreement in writing signed by a duly authorized representative of BASF.