

PM 21

7969-62

9/4/98

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SEP 4 1998

Dr. Abraham J. Tobia
BASF Corporation
Product Registration
P.O. Box 13528
Research Triangle Park, NC 27709-3528

Dear Dr. Tobia:

Subject: Ronilan FL; Curalan
EPA Reg. No. 7969-62
Ronilan DF; Curalan DF;
Ronilan EG; Curalan EG
EPA Reg. No. 7969-85
Your Submissions of August 4, 1998

The amendments referred to above, submitted in connection with registration under FIFRA sec. 3(c)(7)(A), are acceptable provided that you make the following label revision:

All of the diseases of ornamentals listed on the label must be associated with the plants on which they occur and for which control is intended. On the Curalan, Curalan DF and Curalan EG labels, reinstate the section of the label which named specific plants for *Cibornia*, *Monolinia*, *Ovulinia*, *Sclerotinia* and *Stromatinia*.

Submit one (1) copy of your final printed labeling before you release the product for shipment.

If these conditions are not complied with, the registrations will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

Stamped copies of the labels are enclosed for your records.

Sincerely yours,

Mary L. Waller

Mary L. Waller
Product Manager (21)
Fungicide Branch
Registration Division (7505C)

Enclosures

7505C:CGrable:cg:8/25/98

Curalan[®]

fungicide

Active Ingredient:

Vinclozolin [3-(3, 5-dichlorophenyl)-5-ethenyl-5-methyl-2, 4-oxazolidinedione]	41.3%
Inert Ingredients:	58.7%
Total	100.0%

EPA Reg. No. 7969-62

EPA Establishment No. 39578-TX-01

**KEEP OUT OF REACH OF CHILDREN.
CAUTION**

**ACCEPTED
with COMMENTS
In EPA Letter Dated**

SEP 4 1998

**Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.**

~~7969-62~~ 7969-62

See inside booklet for complete **Precautionary Statements**, **Statement of Practical Treatment**, **Directions For Use**, and **Conditions of Sale and Warranty**.

Net contents: 1 quart, 1 gallon

Precautionary Statements

Hazards to Humans and Domestic Animals

Caution. Harmful if swallowed, inhaled, or absorbed through skin. Causes eye irritation. Do not get on skin, in eyes, or on clothing. Avoid breathing vapor or spray mist. Prolonged exposure or frequently repeated skin contact may cause allergic reactions in some individuals.

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.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Coveralls over long-sleeved shirt and long pants
- Waterproof gloves
- Chemical-resistant footwear plus socks
- Protective eyewear
- Chemical-resistant headgear for overhead exposure
- Chemical-resistant apron when cleaning equipment, mixing, or loading
- For exposure in enclosed areas, a respirator with either an organic vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23-C), or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G)
- For exposure outdoors, dust mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C)

Wash thoroughly with soap and water after handling. Follow the manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls Statement

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-5)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

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 high water mark. Do not contaminate water when disposing of equipment washwaters.

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Directions For Use

It is a violation of federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

This product is not permitted for residential use.

This product may only be used as follows:

Commercial: lawn and landscape areas at business and office complex sites, and turf at professional sports complexes or arenas; ornamental/bedding plants.

Industrial: lawn and landscape areas at manufacturing sites; ornamental/bedding plants

Golf Course: tee boxes, greens and turf mowed at 1' or less.

Greenhouse and Nursery: greenhouses and nurseries associated with the production of plants for commercial purposes

Sod Farms: mechanically harvested turf only.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of **12 hours**.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls over long-sleeved shirt and long pants
- Waterproof gloves
- Chemical-resistant footwear plus socks
- Protective eyewear
- Chemical-resistant headgear for overhead exposure

Nonagricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, nurseries, or greenhouses.

Storage and Disposal

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Storage: Do not store below 32° F or above 100° F. Store in a dry place away from heat or open flame.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal

• **Plastic Containers:** Triple rinse container (or equivalent). Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

• **Water-soluble packaging:** This package contains water-soluble bags inside a foil liner (outer bag). The bags will dissolve in water and the contents will disperse. If all the water-soluble bags are not used, carefully reseal the full bag. Do not remove the water-soluble bags from the overwrap bags except for immediate use. If exposed to moisture, the water-soluble bags may break.

In Case of Emergency

In case of large-scale spillage regarding this product, call:

CHEMTREC 800-424-9300
BASF Corporation 800-832-HELP

In case of medical emergency regarding this product, call:

- Your local doctor for immediate treatment.
- Your local poison control center (hospital).
- BASF Corporation (800-832-HELP)

Steps to be taken in case material is released or spilled:

Keep the spilled product dry to reduce volume. Scoop up the recaptured dry product and return it to the original container. Apply product according to normal label directions. If the spilled product gets wet, add a drying agent to contain the spill and dispose of as directed.

I. General Information

Curalan® fungicide is effective on all turfgrasses and ornamentals listed in **Tables 1 and 2**. Refer to the appendix for a list of diseases controlled.

Mode of Action

Curalan is a contact fungicide. It should be applied preventatively to protect susceptible plant tissues from infection. **Curalan** inhibits spore germination. If spores have already germinated, **Curalan** will prevent any further growth of the germ tube.

Crop Tolerance

All listed plants are tolerant to **Curalan** at listed stages of growth. Consult your local representative or agricultural advisor for assistance.

Notice to user: Due to variability within species, and in application techniques and equipment, and the number of possible tank mix combinations, neither the manufacturer nor the seller has determined whether or not **Curalan** can safely be used on all varieties and species of nonbearing food crops, trees, shrubs, ornamentals, bedding plants, ground covers, nursery, turf and other non-food crops under all conditions. It is recommended, therefore, that the professional user determine if **Curalan** can be used safely before broad use by applying the recommended use rate of **Curalan** on a nonlabeled species or variety under the conditions expected to be encountered on a small test area. Any adverse effects should be visible within 14 days.

Irrigation

Allow foliage to dry after application and before irrigation.

Coverage

Thorough coverage of all foliage is important, therefore enough spray volume and pressure must be used to achieve desired disease control.

Cleaning Spray Equipment

Clean application equipment thoroughly using a strong detergent or commercial sprayer cleaner according to the manufacturer's directions before and after applying this product.

II. Application Instructions

Apply **Curalan** as instructed by section VII. **Crop-Specific Information**.

III. Additives

To achieve consistent disease control, an additive, such as a wetting agent, may be needed. Refer to section VII. **Crop-Specific Information** for more details. Consult your local BASF representative for recommendations for your area.

Compatibility Test for Mix Components

Add components in the following sequence using 2 teaspoons for each pound or 1 teaspoon for each pint of recommended label rate per acre.

- 1) **Water:** — For 20 gallons per acre spray volume, use 3.3 cups (800 ml) of water. For other spray volumes, adjust rates accordingly. Use only water from the intended source at the source temperature.
- 2) **Products in PVA bags:** — Cap the jar and invert 10 cycles.
- 3) **Water-dispersible products:** — (dry flowables, wettable powders, suspension concentrates, or suspo-emulsions) Cap the jar and invert 10 cycles.
- 4) **Water-soluble products:** — Cap the jar and invert 10 cycles.
- 5) **Emulsifiable concentrates:** — (oil concentrate or methylated seed oil when applicable) Cap the jar and invert 10 cycles.
- 6) **Water-soluble additives:** — Cap the jar and invert 10 cycles.
- 7) Let the solution stand for 15 minutes.
- 8) **Evaluate** the solution for uniformity and stability. The spray solution should not have free oil on the surface, nor fine particles that precipitate to the bottom, nor thick (clabbered) texture. Do not use any spray solution that could clog spray nozzles.

IV. Mixing Order

- 1) **Water:** Begin by agitating a thoroughly clean sprayer tank half full of clean water.
- 2) **Products in PVA bags:** Place the water-soluble PVA bag into the mixing tank. The water-soluble PVA bag will dissolve in water to allow the contents to disperse. Wait until all water-soluble PVA bags have fully dissolved and the product is evenly mixed in the spray tank before continuing. To prepare spray solution for aerial application, use a mixing tank or mixing vat first to get product into suspension before transferring suspension to air application equipment.
- 3) **Water-dispersible products (such as Curalan):** (dry flowables, wettable powders, suspension concentrates, or suspo-emulsions)
- 4) **Water-soluble products:**
- 5) **Emulsifiable concentrates** oil concentrate or methylated seed oil when applicable)
- 6) **Water-soluble additives** (AMS or UAN when applicable)
- 7) Remaining quantity water

Maintain constant agitation during application. For more information, refer to section V. **Tank Mixing Application.**

V. General Tank Mixing Information

See section VII. **Crop-Specific Information** for more details. Read and follow the applicable **Restrictions and Limitations** and **Directions For Use** on all products involved in tank mixing. The most restrictive labeling applies to tank mixes.

Tank Mix Partners/Components

The following products may be tank mixed with **Curalan** according to the specific tank mixing instructions in this label and respective product labels.

- **Spotrete® fungicide**

BASF does not recommend using tank mixes other than those listed on BASF labeling. Physical incompatibility, reduced disease control, or crop injury may result from mixing **Curalan** with other pesticides (fungicides, herbicides, insecticides, or miticides), additives, or fertilizers. Local agricultural authorities may be a source of information when using other than BASF recommended tank mixes.

VI. General Restrictions and Limitations - All Crops

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- **Maximum seasonal use rate:** Do not apply more than a total of 8 pints of Curalan® per acre (4.40 ounces per 1,000 square feet), per season.
- **Preharvest Interval (PHI):** not applicable.
- **Restricted Entry Interval (REI):** 12 hours.
- Refer to section VII. **Crop-Specific Information** for sequential application intervals for Curalan.
- Do not apply to areas likely to be grazed by livestock and do not feed clippings to livestock or poultry.
- Do not apply through any type of irrigation equipment.
- This product cannot be used to formulate or reformulate any other pesticide product.

Table 1. Crop-Specific Restrictions and Limitations

Crop ¹	Minimum Time from Application to Harvest (PHI)	Maximum Rate Per Acre Per Season	Livestock Grazing or Feeding	Aircraft Application
Herbaceous Ornamentals*	n/a	8 pints	No	Yes ²
Woody Ornamentals*	n/a	8 pints	No	Yes ²
Turfgrasses	n/a	8 pints	No	No

¹ Refer to Table 3. Application Rates for Control of Gray Mold in Ornamentals.

² Field grown flowers only

* Do not exceed Maximum Seasonal Use Rate

VII. Crop-Specific Information

Ornamentals

Curalan® fungicide controls of *Botrytis* spp. on all plant types listed in Table 2. Refer to the appendix for a list of diseases controlled.

Rate: For the ornamental plants listed in Table 2, apply 0.5-1 pint of Curalan per 100 gallons of water as a foliar spray. Reapply every 10-14 days as needed. Use only on nonbearing plants.

Foliar Spray:

Refer to section IV, **Mixing Order** for mixing instructions. Normally 2-6 gallons of spray make-up will cover 1,000 square feet of foliage. Apply until leaves glisten, but not to point of runoff.

Preventative: Apply 0.5-0.75 pint of Curalan® per 100 gallons of water. Refer to Table 4, **Dilution Table for Curalan spray solutions** for mixing instructions.

Curative: Apply 0.75-1 pint of Curalan per 100 gallons of water for medium to high disease pressure.

Notes to user: Ensure that plants dry off quickly after

treatment. Do not drench growth media. Do not spray seedlings until formation of three true leaves.

Ornamental Specific Application Instructions:

Thermal Fogger in Greenhouses: When using a thermal fogger, apply 3-6 ounces of Curalan to the volume of fogging solution specified in Table 4. Thermal foggers with a built-in agitator may be used to apply Curalan. In a separate container prepare fogging solution of 19 fluid ounces of VK-11 carrier solution and 51 fluid ounces of water. Then add the appropriate amount of Curalan (see Table 3, **Application Rates for Ornamental Uses**). This solution will cover 10,000 square feet of greenhouse area.

Preventative: Add 0.2 pint of Curalan® to the volume of fogging solution specified. Repeat every 10-14 days as needed.

Curative: Apply 0.4 pint of Curalan to the volume of fogging solution. Repeat every 10-14 days as long as disease conditions prevail.

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Table 2. Plant Types Tolerant to Curalan

Herbaceous	African Violet	Coral Bells	Geranium	Marigold	Saintpaulia
	Ajuga	Crossandra	Gerbera	Mathiola	Salvia
	Alyssum	Croton	Gladiolus	Monarda	Saxifraga
	Anthurium	Cyclamen	Gynura	Narcissus	Scindapsus
	Artemisia	Daffodil	Gypsophila	Orchid (<i>Dendrobium</i>)	Senecio
	Aster	Delphinium	Hoya	Pelargonium	Shasta Daisy
	Begonia	Dianthus	Hyacinth	Peperomia	Sinningia
	Bleeding Heart	Dieffenbachia	Impatiens	Petunia	Snapdragon
	Calceolaria	Dracaena	Iris	Philodendron	Statice
	Carnation	Easter Lily	Ivy	Phlox	Tulip
	Chrysanthemum	Episcia	Kalanchoe	Poppy, Oriental	Violet
	Cineraria	Euphorbia	Liatris	Pilea	Zinnia
	Coleus	Fuchsia	Lily	Primrose	
Columbine	Gazania	Lupine	Primula		
Woody	Almond, Flowering	Crape Myrtle	Ivy	Plum	Schefflera
	Azalea	Elm	Juniper	Poinsettia	Spruce
	Camellia	Euonymous	Oregon Grape	Polyscias	Vinca
	Cedar	Ficus	Pachysandra	Protea spp.	
	Cherry, Ornamental	Fir	Palm, Areca	Redwood	
	Chokecherry	Hydrangea	Pine	Rhododendron	

Do not spray poinsettias in color or after November 1. Some cultivars may be sensitive to leaf spotting. Do not use on poinsettia cultivar V-14 Glory.

Table 3. Application Rates for Control of Gray Mold in Ornamentals

Plant	Preventative Treatments		Curative Treatments
	Dip Rate per 100 gallons of water	Spray Rate per 100 gallons of water	Spray Rate per Acre
Bulb and Corm	1-2 pints	—	—
Cut Flowers	1.5-3 pints	1.5-3 pints	—
Field Grown	—	—	1.5-2* pints
Rose Budwood	1.5 pints	1.5 pints	—
Eareroot Nursery Stock	1.5 pints	1.5 pints	—

* For aerial applications, use 1.5 pints in 20-25 gallons of water per acre. For ground applications, use 1.5-2 pints in 100 gallons of water.

Table 4. Dilution Table for Curalan Spray Solution

water volume	Rate of Curalan					
	8 ounces	12 ounces	16 ounces	24 ounces	32 ounces	48 ounces
100 gallons	8 ounces	12 ounces	16 ounces	24 ounces	32 ounces	48 ounces
50 gallons	4 ounces	6 ounces	8 ounces	12 ounces	16 ounces	24 ounces
25 gallons	2 ounces	3 ounces	4 ounces	6 ounces	8 ounces	12 ounces

BULB AND CORM

Rate: As a dip, apply 1-2 pints per 100 gallons of water.

Timing: Apply after harvest and prior to storage.

Refer to **Table 2. Plants Types Tolerant to Curalan** for a complete list of plants.

CUT FLOWERS (gladiolus and rose):

Apply **Curalan** herbicide to prevent gray mold (*Botrytis gladiorum*) on gladiolus spikes as well as *Botrytis cinerea* on roses in cold storage or transit.

Rate: As a postharvest dip, dip flower buds 3-4 seconds in solution of 1.5-3 pints per 100 gallons of water.

Timing: Apply after grading and prior to cold storage. Addition of a wetting agent will enhance spreadability. Maintain suspension by agitation.

FIELD GROWN FLOWERS:

Apply **Curalan** fungicide to field grown flowers to control gray mold (*Botrytis spp.*). Repeat every 10-14 days.

Air Application

Rate: Apply 1.5 pints of **Curalan** per acre in 20-25 gallons of water.

Timing: Apply during production.

Ground Application

Rate: Apply 1.5-2 pints of **Curalan** per acre in 100 gallons of water.

Timing: Apply during production.

ROSE BUDWOOD AND BAREROOT NURSERY

STOCK:

Rate: When applying as a spray or dip to rose budwood and bareroot nursery stock, use 1.5 pints per 100 gallons of water.

Timing: Apply after harvest and prior to storage to control gray mold (*Botrytis cinerea*).

Turfgrass

Rate: Apply **Curalan**® at the rates indicated in **Table 5** in 1-4 gallons of water per 1,000 square feet (40-60 gallons per acre) after mowing. The preventative rate of **Curalan** should be applied before the disease is expected to appear. Apply subsequent treatments at the preventative rate once control has been achieved.

Table 5. Application Rates and Timing for Turfgrasses

Disease	Application Intervals*	Preventative Treatment	
		rate per acre	rate per 1,000 square feet
Dollar Spot	21-28 days	2.7 pints	1 ounce
Leaf Spots and Melting Out	14-28 days	2.7 pints	1 ounce
Red Thread and Pink Patch	14-28 days	2.7 pints	1 ounce
Brown Patch	14-28 days	2.7 pints	1 ounce
Gray Snow Mold	10-21 days	2.7 pints	1 ounce
Fusarium Patch & Pink Snow Mold**	10-21 days	2.7 pints	1 ounce

* Re-treat at shorter intervals or use higher rates if conditions favorable to disease exist.
 ** Tank mix with Fungo® or Spotrete® for improved control.

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Crops:

This product can be used on the following crops:

**Ornamentals (Herbaceous, Woody)
Turfgrasses**

Look inside for complete **Restrictions and Limitations and Application Instructions.**

Diseases listed in this label:

Common Name	Scientific Name
Anthracnose	<i>Colletotrichum graminicola</i>
Blossom Blight	<i>Monolinia laxa</i>
Brown Patch	<i>Rhizoctonia solani</i>
Brown Rot	<i>Monolinia fruticola</i>
Corn Rot	<i>Stromatinia</i>
Dollar Spot	<i>Sclerotinia homoeocarpa</i> ; <i>Lanzia sp.</i> ; <i>Moellerodiscus sp.</i>
Flower Blight	<i>Ovulinia</i>
Fusarium Patch	<i>Fusarium nivale</i>
Pink Snow Mold	<i>Microdochium</i>
Ray Mold	<i>Botrytis cinerea</i>
Gray Snow Mold	<i>Typhula incarnata</i>
Helminthosporium	<i>Helminthosporium</i>
Leaf Spots	<i>Drechslera spp.</i>
Melting Out	<i>Bipolaris sp.</i>
Pink Patch	<i>Limonomyces roseipellis</i>
Red Thread	<i>Laetisaria fuciformis</i> <i>Gibberinia</i>

Additional Information

For additional information, call BASF's **COMM SERV**® at 1-800-878-8060.

Conditions of Sale and Warranty

The **Directions For Use** of this product reflect the opinion of experts based on 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 OF 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.

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