

264-695

10/24/2007

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

WASHINGTON, D.C. 20460

OFFICE OF  
PREVENTION, PESTICIDES  
AND TOXIC SUBSTANCES

Greg Mattern  
Bayer CropScience  
2 T.W. Alexander Drive; P.O. Box 12014  
Research Triangle Park, NC 27709

OCT 24 2007

SUBJECT: Reason 500 SC Fungicide; EPA Reg. No. 264-695  
Your Submission Dated December 31, 2004 (D353141) and Related Decisions  
(D355519, D355886, D355883, D356030, D353142, D353140, D370414, D355882,  
D55885, D370414, D355880)

Dear Mr. Mattern:

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) as amended to add the following new uses: cotton, carrot, sunflower, brassica vegetables (group 5), leafy (except brassica vegetables (group 4), fruiting vegetables (group 8), and strawberry (rotational crop), is acceptable provided that you submit the following data by December 31, 2009 in one comprehensive submission, and include this letter with that submission:

HEALTH EFFECTS DATA GAPS (See Risk Assessment dated June 21, 2007)

- 28 day inhalation study.
- The following is held in reserve: modified DNT in the Sprague Dawley rat with measurement of the following endpoint: brain weights (samples should be retained for possible morphometric measurements); this study is necessary to confirm the lack of brain weight changes in the Wistar rat DNT.
- Control experiments to determine if the parent/metabolites identified in the carrot metabolism study degrade to aniline when exposed to the base hydrolysis procedures used on the carrot metabolism study. If these experiments do not demonstrate degradation, then submit information concerning the identity and magnitude of the residues in the alkaline hydrolysate of the carrot top (organic and aqueous phase) and carrot root extracts from the metabolism study.
- Degradation of fenamidone to aniline was demonstrated in the tobacco

pyrolysis study. EPA is concerned that fenamidone may be degrading to aniline during the processing or cooking of treated crops. As a result, the petitioner must submit a processing study as designated in Annex 1 of the following European Union document: (<http://ec.europa.eu/food/plant/protection/resources/app-e.pdf>). The procedure involves the hydrolysis of radio labeled fenamidone at various pHs and temperatures and identification of the resulting transformation products, if any (N-phenyl radio labeled fenamidone should be employed). Depending on the results from this study, additional data may be requested.

- Storage stability data validating the confined rotational crop study.
- Submit the Petition Method Validation study (PMV).

ENVIRONMENTAL FATE DATA GAPS

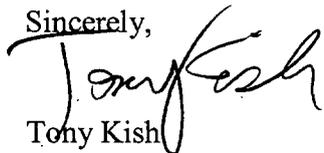
In order to reduce uncertainty in the aquatic risk assessment for fenamidone, submit another fish full life cycle study (72-5) performed to determine the chronic NOAEC. The study must be designed in order to determine the reproductive NOAEC for fish (i.e., test treatments below 8.6 µg/L must be included in the range of concentrations). Given the high variability in the previously submitted study, the study must be conducted using four replicates per treatment level as suggested in the guideline (rather than 2 replicates as in the submitted study).

LABELING REQUIREMENTS

A spreader/sticker on tomatoes is acceptable providing you submit evidence that the tomato field trials actually included a spreader/sticker.

Submit one copy of your final printed labeling before you release the product for shipment. A copy of the label stamped "Accepted With Comments" is enclosed.

If you have any questions regarding this correspondence, contact Rose Kearns of my staff by phone at 703-305-5611 or via email at [kearns.rosemary@epa.gov](mailto:kearns.rosemary@epa.gov) or myself at 703-308-9443 or via email at [kish.tony@epa.gov](mailto:kish.tony@epa.gov).

Sincerely,  
  
 Tony Kish  
 Product Manager (22)  
 Fungicide Branch  
 Registration Division (7505P)

Enclosure

# REASON® 500 SC Fungicide

For control of fungal diseases on various crops.

**ACTIVE INGREDIENT:**

Fenamidone: (5S)-3,5-dihydro-5-methyl-2-(methylthio)-5-phenyl-3-(phenylamino)-4H-imidazol-4-one ..... 44.4 %

**OTHER INGREDIENTS:** ..... 55.6 %

Equivalent to 500 g/L or 4.13 lbs. active ingredient per gallon.

EPA Reg. No. 264-695

EPA Est. No.:

## KEEP OUT OF REACH OF CHILDREN CAUTION

For MEDICAL And TRANSPORTATION Emergencies ONLY Call 24 Hours A Day 1-800-334-7577

For PRODUCT USE Information Call 1-866-99BAYER (1-866-992-2937)

### FIRST AID

<b>IF ON SKIN OR CLOTHING:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>IF IN EYES:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>IF INHALED:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<p><b>For MEDICAL Emergencies Call 24 Hours A Day 1-800-334-7577.</b></p> <p>Have the product container or label with you when calling a poison control center or doctor or going for treatment.</p>	
<p><b>NOTE TO PHYSICIAN:</b> Possible mucosal damage may contraindicate the use of gastric lavage. May pose an aspiration pneumonia hazard.</p>	

### PRECAUTIONARY STATEMENTS

#### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

##### CAUTION

Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Harmful if inhaled. Avoid breathing spray mist. Remove and wash contaminated clothing before reuse.

##### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear long-sleeved shirt and long pants, shoes plus socks, and chemical resistant gloves made of any waterproof material, such as Nitrile, Butyl, Neoprene and/or Barrier Laminate. Remove contaminated clothing and wash before reuse.

Follow manufacturer's instructions for cleaning/maintaining personal protective equipment (PPE). If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

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) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

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### User Safety Recommendations

- 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.

### ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish, aquatic invertebrates, shrimp and oysters. 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 water adjacent to treated areas. Do not contaminate water when disposing of equipment washwater or rinsate.

### SURFACE WATER ADVISORIES

This product may contaminate water through drift of spray in wind. This product has a high potential for runoff for several months or more after application. Poorly draining soils and soils with shallow water tables are more prone to produce runoff that contains this product. A level, well maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential for contamination of water from rainfall-runoff. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours.

### DIRECTIONS FOR USE

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

Read entire label before using this product.

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.

### 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 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: long-sleeved shirt and long pants, shoes plus socks, and chemical resistant gloves made of any waterproof material, such as Nitrile, Butyl, Neoprene and/or Barrier Laminate.

### STORAGE AND DISPOSAL

#### PESTICIDE STORAGE

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

#### 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

Triple rinse (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.

### GENERAL INFORMATION

REASON® 500 SC Fungicide is a broad-spectrum foliar fungicide for control of certain plant diseases of potatoes and other tuberous and corn vegetables, leafy vegetables, brassica vegetables, carrots, cotton, onions and other bulb vegetables, cucurbit crops, fruiting vegetables, and sunflower (seed treatment). See use directions for list of all crops approved for use. Use of REASON® 500 SC should be integrated into an overall disease, pest management, or IPM program. Not for use on crops grown in greenhouses. REASON® 500 SC may be used with disease forecasting or Extension advisory programs which recommend application timings based on environmental factors favorable to disease development. Consult with your local agricultural authorities for additional IPM strategies established for your area. The higher rates in the rate range or shorter spray intervals may be required under conditions of heavy infection pressure, highly susceptible varieties, or when disease conducive environmental conditions exist. FAILURE TO FOLLOW THE DIRECTIONS AND PRECAUTIONS ON THIS LABEL MAY RESULT IN ILLEGAL RESIDUES, POOR DISEASE CONTROL, AND/OR CROP INJURY.

Applications may be made at the longer spray intervals under low to moderate disease pressure. When environmental conditions are conducive for disease development, when disease has been detected in the area, or under moderate to high disease pressure, the shorter application interval and the higher rates are recommended.

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## FUNGICIDE RESISTANCE STATEMENT

REASON® 500 SC Fungicide is an imidazolinone fungicide that exhibits no known cross-resistance to fungicide chemistry such as sterol-inhibitors, dicarboximides, benzimidazoles, anilinopyridines, or phenylamides. REASON® 500 SC is an inhibitor of the Qo (quinone outside) site within the electron transport system (QoI inhibitor) in several plant pathogenic fungi species. REASON® 500 SC exhibits cross-resistance in certain plant-pathogenic fungi to fungicides of the QoI Group, which includes certain strobilurin compounds such as azoxystrobin and trifloxystrobin. Fungal pathogens can develop resistance to products with the same mode of action when used repeatedly. Because resistance development cannot be predicted, use of this product should conform to resistance management strategies established for the crop and use area. Consult your local or State agricultural authorities for resistance management strategies that are complementary to those in this label. Resistance management strategies may include rotating and/or tank-mixing with products having different modes of action or limiting the total number of applications per season. Bayer encourages responsible resistance management to ensure effective long-term control of the fungal diseases on this label.

In situations requiring multiple fungicide sprays, develop season long spray programs for Group 11 fungicide. When using a Group 11 fungicide as a solo product, the number of applications should be no more than 1/3 the total number of fungicide applications. In programs in which tank mixes or pre-mixes of a Group 11 fungicide with a fungicide of another Group are utilized, the number of Group 11 fungicide (QoI)- containing application should be no more than 1/2 the total number of fungicide applications per season. Avoid alternation of REASON® 500 SC Fungicide with other fungicides in the QoI group. REASON® 500 SC should not be alternated or tank mixed with any fungicide to which resistance has already developed.

## HOW TO USE REASON® 500 SC FUNGICIDE

### Ground Application

Apply in a minimum of 15 gallons of water per acre. Thorough uniform coverage is essential for effective disease control.

### Aerial Application

Apply REASON® 500 SC using fixed wing or rotary aircraft equipment in a minimum of 5 gallons of water per acre. Thorough and uniform coverage is essential for effective disease control.

### Mixing Instructions

Prepare no more spray mixture than is needed for immediate operation. Add approximately 1/2 of the required amount of water to the mix tank. Start the agitator running before adding the required amount of REASON® 500 SC Fungicide. Continue agitation while filling the tank to ensure thorough mixing. Maintain agitation during application and apply with properly calibrated application equipment. Do not allow spray mixture to stand overnight or for prolonged periods. A high quality spreader/sticker, approved for use on growing crops, should be used with REASON® 500 SC. Do not use a spreader/sticker on carrots. REASON® 500 SC should be added to the tank before the addition of any adjuvant. Consult the adjuvant label or manufacturer for crop tolerance and safety information when used with REASON® 500 SC.

### Compatibility

REASON® 500 SC is compatible with most commonly used fungicide, herbicide, insecticide, and foliar nutrient products. However, the physical compatibility of REASON® 500 SC with all potential tank mix partners has not been fully investigated. If tank mixing with other pesticides is desirable, conduct a jar test with the volumes and rates typically used in agricultural application. Using a small container of water, add the proportionate amounts of the products, wettable powders and water-dispersible granular products first, then liquid flowables and emulsifiable concentrates last. After thoroughly mixing, let stand for at least 15 minutes. Look for signs of separation, globules, sludge, flakes, or other precipitates. Physical compatibility is indicated if the combination remains mixed or can be remixed readily. THE CROP SAFETY OF ALL POTENTIAL TANK MIXES WITH REASON® 500 SC, INCLUDING ADDITIVES AND OTHER PESTICIDES HAS NOT BEEN TESTED ON ALL CROPS. BEFORE APPLYING ANY TANK MIXTURE NOT SPECIFICALLY RECOMMENDED ON THIS LABEL, SAFETY TO THE TARGET CROP(S) SHOULD BE CONFIRMED.

## ROTATIONAL CROP RESTRICTION

Registered crop uses (brassica vegetables, carrots, cotton, cucurbits, fruiting vegetables, leafy vegetables, onions and other listed bulb vegetables, potatoes and other listed tuberous and corn vegetables) may be replanted immediately following the last application of REASON® 500 SC. Do not plant strawberries or wheat for 30 days, sugarbeets for 7 months, and all other crops (those not listed above) for one year following the last application of REASON® 500 SC.

### BRASSICA (COLE) LEAFY VEGETABLES

(Broccoli, Broccoli (Chinese, gai lan), Broccoli raab (rapini), Brussels sprouts, Cabbage, Cabbage Chinese (bok choy), Cabbage Chinese (Napa), Cabbage Chinese mustard (gai choy), Cauliflower, Cavalo broccolo, Collards, Kale, Kohlrabi, Mizuna, Mustard greens, Mustard spinach, Rape greens)

HOW TO USE	DISEASE	USE RATE	COMMENTS
<p>Apply using ground equipment, chemigation, or by air.</p> <p>Under conditions favorable for disease development, shorten the spray intervals and/or switch to the higher rate for improved control.</p>	<p><b>Downy mildew</b> (<i>Peronospora parasitica</i>)</p>	<p><b>fl oz/A</b> 5.5 – 8.2</p> <p><b>lb. ai/A</b> 0.178 – 0.267</p>	<p>For optimum results, begin applications as soon as crop and/or environmental conditions become favorable for disease development. Applications should be made on a 5 -10 day interval depending upon disease conditions. Always consult your agricultural advisor, University contact or Extension Service for recommended pest management practices for your area.</p>
	<p><b>Cercospora leaf spot</b> (<i>Cercospora brassicicola</i> - Suppression Only)</p>	<p><b>fl oz/A</b> 8.2</p> <p><b>lb. ai/A</b> 0.267</p>	
	<p><b>White rust</b> (<i>Albugo candida</i>)</p>		

**Restrictions:** Do not apply more than 24.6 fl oz of REASON® 500 SC (0.80 lb. ai/A) per growing season to brassica vegetables. Do not apply within 2 days of harvest. Do not make more than one application of REASON® 500 SC before alternating with a fungicide from a different resistance management group.

### BULB VEGETABLES

(Onion (green, dry bulb and welsh), garlic, great-headed garlic, leek, and shallot)

HOW TO USE	DISEASE	USE RATE	COMMENTS
<p>Apply using ground, air, or chemigation equipment.</p> <p>Under conditions favorable for disease development, utilize a 5 day spray interval for improved control.</p>	<p><b>Onion downy mildew</b> (<i>Peronospora destructor</i>)</p>	<p><b>fl oz/A</b> 5.5</p> <p><b>lb. ai/A</b> 0.178</p>	<p>For optimum results, begin applications as soon as crop and/or environmental conditions become favorable for disease development. Applications should be made on a 5 -10 day interval depending upon disease conditions. Always consult your agricultural advisor, University contact or Extension Service for recommended pest management practices for your area.</p>
	<p><b>Purple blotch</b> (<i>Alternaria porri</i>)</p>		

**Restrictions:** Do not apply more than 22 fl oz of REASON® 500 SC (0.71 lb. ai/A) per growing season to bulb vegetables. Do not apply within 7 days of harvest. Do not make more than one application of REASON® 500 SC before alternating with a fungicide from a different resistance management group.

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**CARROT**

HOW TO USE	DISEASE	USE RATE	COMMENTS
Foliar application using ground or chemigation equipment.	Cavity Spot ( <i>Pythium</i> spp.)	fl oz/A 8.2  lb. ai/A 0.267	Apply only in a 1:1 alternation with a mefenoxam-containing fungicide such as Ridomil® Gold. Follow all current label requirements for the mefenoxam-containing product. The first foliar application can be Reason® or a mefenoxam-containing product. A 14- to 21- day spray interval is recommended.  When applying with ground equipment, direct spray to the base of the plant and follow immediately with at least 0.25 inch of irrigation to move the product into the root zone.  Always consult your agricultural advisor, University contact or Extension Service for recommended pest management practices for your area.

**Restrictions:** Do not apply more than 24.6 fl oz of REASON® 500 SC (0.8 lb. ai/A) per growing season to carrots. Do not apply within 14 days of harvest. Do not make more than one application of REASON® 500 SC before alternating with a fungicide from a different resistance management group.

**COTTON**

HOW TO USE	DISEASE	FL OZ PER 1000 FT OF ROW	OUNCES PER ROW SPACING PER ACRE	COMMENTS
Apply in furrow using ground equipment.	Pythium damping-off ( <i>Pythium</i> spp.)	0.45	40" = 6.0 38" = 6.3 36" = 6.7 30" = 8.0	Apply at planting using spray nozzles mounted on the planter to deliver the spray solution to the open seed furrow. Direct the spray in furrow immediately behind the seed drop tube and before the furrow closure devices. Apply in a spray volume of 3 to 5 gallons per acre. Apply in a tank-mix with the labeled rate of Rovral to provide control of <i>Rhizoctonia solani</i> damping-off. Always consult your agricultural advisor, University contact or Extension Service for recommended pest management practices for your area.
Apply as a seed treatment.	Pythium seed and seedling decay ( <i>Pythium</i> spp.)	1.55 fl oz/cwt		Applications should be made using standard slurry or mist-type seed treatment equipment. A water and chemical slurry dilution will enhance coverage. This product is for commercial or on-farm application. This product is not intended for direct application into a planter box and drill-box. Uniform application to seed is necessary to ensure seed safety and best disease control. Seed should be sound and well cured prior to treatment. Always consult your agricultural advisor, University contact or Extension Service for recommended pest management practices for your area.

**Restrictions:** Do not apply more than 8.2 fl oz of REASON® 500 SC (0.267 lb. ai/A) per growing season to cotton. REASON (fenamidone) applied in furrow at the full rate and may be applied over seed treated with the full labeled seed treatment rate. Not for direct application into a planter box and drill-box. The purchaser of this product is responsible for ensuring that all seed treated with this product is adequately dyed with an EPA approved dye/colorant (Refer to 40 CFR Part 153.155) to prevent its accidental use as a food for man or feed for animals.

**Seed Labeling:** To meet U.S. Federal Seed Act requirements, all seed treated with REASON® 500 SC should be labeled as follows: TREATED SEED. DO NOT USE FOR FOOD, FEED OR OIL PURPOSES. Treated with fenamidone.

**CUCURBIT VEGETABLES:**

(Chayote, chinese waxgourd, citron melon, cucumber, gherkin, edible gourds, momordica spp., muskmelon, pumpkin, squash (summer and winter) and watermelon)

HOW TO USE	DISEASE	USE RATE	COMMENTS
Apply using ground, air, or chemigation equipment.  Under conditions favorable for disease development, utilize a 5 day spray interval for improved control.	<b>Downy mildew</b> ( <i>Pseudoperonospora cubensis</i> )	<b>fl oz/A</b>  5.5	For optimum results, begin applications as soon as crop and/or environmental conditions become favorable for disease development. Applications should be made on a 5 -10 day interval depending upon disease conditions. Always consult your agricultural advisor, University contact or Extension Service for recommended pest management practices for your area.
	<b>Alternaria leaf spot</b> ( <i>Alternaria cucumerina</i> )	<b>lb. ai/A</b>  0.178	

**Restrictions:** Do not apply more than 22 fl oz of REASON® 500 SC (0.71 lb. ai/A) per growing season to cucurbits. Do not apply within 14 days of harvest. Do not make more than one application of REASON® 500 SC before alternating with a fungicide from a different resistance management group. Do not make more than four total Group 11 fungicide applications per season.

**LEAFY VEGETABLES (EXCEPT BRASSICA)**

(Amaranth (leafy amaranth, chinese spinach, tampala), Arugula (rocket), Cardoon, Celery, Chinese celery, Celtuce, Chervil, Chrysanthemum (edible-leaved), Chrysanthemum (garland), Corn salad, Cress (garden), Cress (upland), Dandelion, Dack (sorrel), Endive (escarole), Fennel Florence (finocchio), Lettuce (head and leaf), Orach, Parsley, Purslane (garden), Purslane (winter), Radicchio (red chicory), Rhubarb, Spinach, Spinach New Zealand, Spinach vine (Malabar spinach, Indian spinach), Swiss chard)

HOW TO USE	DISEASE	USE RATE	COMMENTS
Apply using ground equipment, chemigation, or by air.  Under conditions favorable for disease development, shorten the spray intervals and/or switch to the higher rate for improved control.	<b>Downy mildew</b> ( <i>Bremia lactucae</i> )	<b>fl oz/A</b>  5.5 – 8.2	For optimum results, begin applications as soon as crop and/or environmental conditions become favorable for disease development. Applications should be made on a 5 -10 day interval depending upon disease conditions. Always consult your agricultural advisor, University contact or Extension Service for recommended pest management practices for your area.
	<b>White rust</b> ( <i>Albugo occidentalis</i> )	<b>lb. ai/A</b>  0.178 – 0.267	
	<b>Late blight of celery</b> ( <i>Septoria apiicola</i> - Suppression Only)		

**Restrictions:** Do not apply more than 24.6 fl oz of REASON® 500 SC (0.80 lb. ai/A) per growing season. Do not apply within 2 days of harvest. Do not make more than one application of REASON® 500 SC before alternating with a fungicide from a different resistance management group.

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### POTATOES AND OTHER TUBEROUS AND CORM VEGETABLES

(Arracacha, arrowroot, artichoke (chinese), artichoke (jerusalem), canna (edible), cassava (bitter and sweet), chayote (root), chufa, dasheen, ginger, leren, potato, sweet potato, taniar, turmeric, yam (bean and true))

HOW TO USE	DISEASE	USE RATE	COMMENTS
Apply using ground equipment, chemigation, or by air.  Under conditions favorable for disease development, shorten the spray intervals and/or switch to the higher rate for improved control.	<b>Early blight</b> <i>(Alternaria solani)</i>	<b>fl oz/A</b> 5.5 - 8.2	For optimum results, begin applications as soon as crop and/or environmental conditions become favorable for disease development. Applications should be made on a 5 -10 day interval depending upon disease conditions. Tuber blight ( <i>Phytophthora infestans</i> ) suppression typically results as a consequence of good foliar blight control, complete killing of vines before harvest, and proper tuber storage conditions. Always consult your agricultural advisor, University contact or Extension Service for recommended pest management practices for your area.
	<b>Late blight</b> <i>(Phytophthora infestans)</i>	<b>lb. ai/A</b> 0.178 - 0.267	
	<b>Black dot</b> <i>(Colletotrichum coccodes</i> - Suppression only)		
	<b>White Rust</b> <i>(Albugo ipomoeae-panduratae)</i> -Sweet Potato only		

**Restrictions:** Do not apply more than 24.6 fl oz of REASON® 500 SC (0.80 lb. ai/A) per growing season to potatoes and other tuberous and corm vegetables, except sweet potatoes. Do not apply more than 16.4 fl oz of REASON® 500 SC (0.53 lb. ai/A) per growing season to sweet potatoes. Do not apply within 14 days of harvest. Do not make more than one application of REASON® 500 SC before alternating with a fungicide from a different resistance management group.

### TOMATOES, PEPPERS, AND OTHER FRUITING VEGETABLES (EXCEPT CUCURBITS)

(Eggplant, Groundcherry, Pepino, Pepper (bell, chill, cooking, pimento, sweet), Tomatillo, Tomato)

HOW TO USE	DISEASE	USE RATE	COMMENTS
Apply using ground, air, or chemigation equipment.  Under conditions favorable for disease development, shorten the spray intervals and/or switch to the higher rate for improved control.	<b>Early blight</b> <i>(Alternaria solani)</i>	<b>fl oz/A</b> 5.5 - 8.2	For optimum results, begin applications as soon as crop and/or environmental conditions become favorable for disease development. Applications should be made on a 5 -10 day interval depending upon disease conditions. Always consult your agricultural advisor, University contact or Extension Service for recommended pest management practices for your area.
	<b>Late blight</b> <i>(Phytophthora infestans)</i>	<b>lb. ai/A</b> 0.178 - 0.267	
	<b>Septoria leaf spot</b> <i>(Septoria lycopersici</i> - Suppression Only)		
	<b>Phytophthora blight of foliage and fruit</b> <i>(Phytophthora capsici</i> - Suppression Only)	<b>fl oz/A</b> 8.2  <b>lb. ai/A</b> 0.267	Ground application only. Assure good coverage of fruit and foliage.

**Restrictions:** Do not apply more than 24.6 fl oz of REASON® 500 SC (0.80 lb. ai/A) per growing season to pepper and fruiting vegetables. Do not apply within 14 days of harvest. Do not make more than one application of REASON® 500 SC before alternating with a fungicide from a different resistance management group.

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**SUNFLOWER**

HOW TO USE	DISEASE	USE RATE	COMMENTS
Apply as a seed treatment.	Downy mildew ( <i>Plasmopara halstedii</i> )	5.8 fl oz/cwt	<p>Applications should be made using standard slurry or mist-type seed treatment equipment. A water and chemical slurry dilution will enhance coverage. This product is for commercial or on-farm application. This product is not intended for direct application into a planter box and drill-box. Uniform application to seed is necessary to ensure seed safety and best disease control. Seed should be sound and well cured prior to treatment.</p> <p>For early-season protection against downy mildew (<i>Plasmopara halstedii</i>), apply REASON® 500 SC at 5.8 fl oz/cwt sunflower seed, plus Allegiance® FL at 0.75 fl oz/cwt seed.</p> <p>Improved protection against downy mildew and additional Pythium control will be provided by a combination of Reason and a metalaxyl/mefanoxam containing seed treatment fungicide.</p> <p>Always consult your agricultural advisor, University contact or Extension Service for recommended pest management practices for your area.</p>
<p><b>Restrictions:</b> Not for direct application into a planter box and drill-box. The purchaser of this product is responsible for ensuring that all seed treated with this product is adequately dyed with an EPA approved dye/colorant (Refer to 40 CFR Part 153.155) to prevent its accidental use as a food for man or feed for animals.</p> <p><b>Seed Labeling:</b> To meet U.S. Federal Seed Act requirements, all seed treated with REASON® 500 SC should be labeled as follows: TREATED SEED. DO NOT USE FOR FOOD, FEED OR OIL PURPOSES. Treated with fenamidone.</p>			

**SPRAY DRIFT**

**SENSITIVE AREAS:** This pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitats for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses or to applications using dry formulation.

1. The distance of the outer most nozzles on the boom must not exceed ¾ the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they should be observed. The applicator should be familiar with and take into account the information covered in the *Aerial Drift Reduction Advisory Information*.

**ENDANGERED SPECIES**

If endangered aquatic invertebrate species occur in the proximity of the application site, the following mitigation measures are required to avoid adverse effects: Apply when the wind direction is away from permanent water bodies (lakes, ponds, rivers, streams, springs) that are adjacent to the treatment area. To determine whether your county has an endangered aquatic invertebrate species, consult <http://www.epa.gov/espp/usa-map.htm>. Endangered Species Bulletins may also be obtained from extension offices or state pesticide agencies. If the bulletin is not available from your specific area, check with the appropriate local state agency to determine if known populations of endangered aquatic invertebrates occur in the area to be treated.

**INFORMATION ON DROPLET SIZE:** (This section is advisory in nature and does not supersede the mandatory label requirements)

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions below).

**CONTROLLING DROPLET SIZE:** (This section is advisory in nature and does not supersede the mandatory label requirements)

- Volume - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- Pressure - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- Number of nozzles - Use the minimum number of nozzles that provide uniform coverage.
- Nozzle Orientation - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- Nozzle Type - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

**BOOM LENGTH:** (This section is advisory in nature and does not supersede the mandatory label requirements)

For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

**APPLICATION HEIGHT:** (This section is advisory in nature and does not supersede the mandatory label requirements)

Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

**SWATH ADJUSTMENT:** (This section is advisory in nature and does not supersede the mandatory label requirements)

When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.)

**WIND:** (This section is advisory in nature and does not supersede the mandatory label requirements)

Drift potential is lowest between wind speeds of 2 - 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

**TEMPERATURE AND HUMIDITY:** (This section is advisory in nature and does not supersede the mandatory label requirements)

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

**TEMPERATURE INVERSIONS:** (This section is advisory in nature and does not supersede the mandatory label requirements)

Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

**DIRECTIONS FOR USE THROUGH SPRINKLER IRRIGATION SYSTEMS**

Apply this product only through sprinkler irrigation systems including microjet, solid set, wheel lines and center pivot. Do not apply this product through any other type of irrigation system. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.

For specific information about calibration, contact State Extension Service Specialists, equipment manufacturers or other irrigation experts.

**SPRAY PREPARATION:** Remove scale, pesticide residues, and other foreign matter from the chemical tank and entire injector system. Flush with clean water.

**APPLICATION INSTRUCTIONS:** First prepare a suspension of REASON® 500 SC Fungicide in a mix tank. Fill tank with 1/2 to 3/4 the desired amount of water. Start mechanical or hydraulic agitation. Add the required amount of REASON® 500 SC and then the remaining volume of water. Then set sprinkler to deliver no more than 0.4 inch of water per acre. Start sprinkler and uniformly inject the suspension of REASON® 500 SC into the irrigation water line so as to deliver the desired rate per acre. The suspension of REASON® 500 SC should be injected with a positive displacement pump into the main line ahead of a right angle turn to insure adequate mixing. If you should have any other questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

**NOTE:** When treatment with REASON® 500 SC has been completed, further field irrigation over the treated area should be avoided for 24 hours to prevent washing the chemical off the crop.

### GENERAL PRECAUTIONS FOR APPLICATIONS THROUGH SPRINKLER IRRIGATION SYSTEMS

Maintain continuous agitation in mix tank during mixing and application to assure a uniform suspension. Greater accuracy in calibration and distribution will be achieved by injecting a larger volume of a more dilute solution per unit time. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump. The pesticide injection pipeline must also contain a functional, normally closed solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shutdown. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected. Systems must use a metering pump, such as a positive displacement injection pump (e. g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock. Do not apply when wind speed favors drift beyond the area intended for treatment. If you are unsure of wind conditions, contact your local extension agent.

Do not apply when wind speed favors drift, when system connection or fittings leak, when nozzles do not provide uniform distribution or when lines containing the product must be dismantled and drained. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop may result from non-uniform distribution of treated water.

Allow sufficient time for pesticide to be flushed through all lines and all nozzles before turning off irrigation water. A person knowledgeable of the chemigation system and responsible for its operation shall shut the system down and make necessary adjustments should the need arise.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the label-prescribed safety devices for public water supplies are in place.

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**IMPORTANT: READ BEFORE USE**

Read the entire Directions for Use, Conditions, Disclaimer of Warranties and Limitations of Liability before using this product. If terms are not acceptable, return the unopened product container at once.

By using this product, user or buyer accepts the following Conditions, Disclaimer of Warranties and Limitations of Liability.

**CONDITIONS:** The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the 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 the manner of use or application, all of which are beyond the control of Bayer CropScience. All such risks shall be assumed by the user or buyer.

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**NET CONTENTS: 2.5 GALLONS**

REASON® 500 SC is a registered trademark of Bayer.

**ACCEPTED  
with COMMENTS  
In EPA Letter Dated**

**OCT 24 2007**  
**Under the Federal Insecticide,  
Fungicide, and Rodenticide Act  
as amended, for the pesticide  
registered under EPA Reg. No.**

264-695

**PRODUCED FOR**



**Bayer CropScience**

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