

100-1279

2/20/2008

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U.S. ENVIRONMENTAL PROTECTION AGENCY  
Office of Pesticide Programs  
Registration Division (7505P)  
Ariel Rios Building  
1200 Pennsylvania Ave., NW  
Washington, D.C. 20460

EPA Reg. Number:

100-1279

Date of Issuance:

FEB 20 2008

NOTICE OF PESTICIDE:

Registration  
 Reregistration  
(under FIFRA, as amended)

Term of Issuance: **Conditional**

Name of Pesticide Product:

Revus Opti

Name and Address of Registrant (include ZIP Code):

Syngenta Crop Protection, Inc.  
P.O. Box 18300  
Greensboro, NC 27419-8300 Attn. Ruhi Rezaaiyan

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act. Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA sec. 3(c)(7) (B) provided that you:

1. Submit and/or cite all data required for registration of your product under FIFRA Section 3(c)(5) when the Agency requires all registrants of similar products to submit such data; and submit acceptable responses required for re-registration of your product under FIFRA section 4.

2. You must submit two copies of a final printed label within 45 days from the date of this notice which makes the following change:

a. The EPA Registration Number must be 100-1279.

(continued)

Signature of Approving Official:

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

Date:

FEB 20 2008

EPA Reg. No. 100-1279

3. A oxidation/reduction (830.6314) and one year storage stability/corrosion studies (830.6317 and 830.6320) are to be submitted by February 20, 2009.

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

A copy of the label stamped "Accepted with comments" is enclosed for your records.

Sincerely,



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

Enclosures: Stamped label  
Acute Tox Review  
Product Chemistry Review

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Group 40 M5 Fungicides

**Revus Opti™**

**Fungicide**

For control of certain diseases in brassica vegetables, onions, cucurbits, potatoes, and tomatoes

Active Ingredient:	
Mandipropamid (CAS No. 374726-62-2).....	3.33%
Chlorothalonil (CAS No. 6-62-2).....	33.30%
Other Ingredients:	63.37%
<b>Total:</b>	<b>100.00%</b>

Contains 0.33 pounds of mandipropamid active ingredient and 3.33 pounds of chlorothalonil active ingredient per gallon.

**KEEP OUT OF REACH OF CHILDREN.**

**CAUTION**

See additional precautionary statements and directions for use inside booklet.

EPA Reg. 100-RETO

EPA Est.

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Net Contents

**ACCEPTED**  
*w/Comment*  
**FEB 20 2008**  
 Under the Federal Insecticide,  
 Fungicide, and Rodenticide Act,  
 as amended, for the pesticide  
 registered under  
 EPA Reg. No. *100-1279*

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<b>FIRST AID</b>	
<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 eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If swallowed</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to by a poison control center or doctor.</li> <li>• Do not give anything to an unconscious person.</li> </ul>
<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 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 by mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
<b>HOT LINE NUMBER</b> For 24-Hour Medical Emergency Assistance (Human or Animal) Or Chemical Emergency Assistance (Spill, Leak, Fire or Accident) Call <b>1-800-888-8372</b>	

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**PRECAUTIONARY STATEMENTS**

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**Hazards to Humans and Domestic Animals**

**CAUTION**

Harmful if inhaled, swallowed, or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Avoid breathing spray mist. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Remove and wash contaminated clothing before reuse.

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## Personal Protective Equipment (PPE)

### Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Chemical resistant gloves made of any waterproof material such as polyvinyl chloride, nitrile rubber or butyl rubber.

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

## Engineering Control Statements

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.

## 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.

## Environmental Hazards

Chlorothalonil is toxic to aquatic invertebrates and wildlife. DO NOT apply directly to water, 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 wash water or rinsate.

Chlorothalonil is known to leach through soil into groundwater under certain conditions as a result of label use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Chlorothalonil can contaminate surface water through spray drift. Under some conditions, it may also have a high potential for runoff into surface water for several days to weeks after application. These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas over-laying extremely shallow ground water, areas with infield canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas over-laying tile drainage systems that drain to surface water.

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This product may contaminate water through drift of spray in wind. This product has a 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.

Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or regional office of the EPA.

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**CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY**

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**NOTICE:** Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of SYNGENTA CROP PROTECTION, INC. or Seller. To the extent permitted by applicable law, Buyer and User agree to hold SYNGENTA and Seller harmless for any claims relating to such factors.

SYNGENTA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. To the extent permitted by applicable law: (1) this warranty does not extend to the use of this product contrary to label instructions or under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and, (2) Buyer and User assume the risk of any such use. **TO THE EXTENT PERMITTED BY APPLICABLE LAW, SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS WARRANTED BY THIS LABEL.**

To the extent permitted by applicable law, in no event shall SYNGENTA be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **TO THE EXTENT PERMITTED BY APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SYNGENTA AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF SYNGENTA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

SYNGENTA and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitation of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of SYNGENTA.

## 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.

### 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
- Chemical-resistant gloves made of any waterproof material such as polyvinyl chloride, nitrile rubber or butyl rubber.
- Shoes plus socks

**Special Eye Irritation Provisions:** Chlorothalonil in this product is a severe eye irritant. Although the restricted entry interval expires after 12 hours, for the next 6.5 days entry is permitted only when the following safety measures are provided:

- (1) At least one container designed specifically for flushing eyes must be available in operating condition at the WPS required decontamination site intended for workers entering the treated area.
- (2) Workers must be informed, in a manner they can understand:
  - that residues in the treated area may be highly irritating to their eyes
  - that they should take precautions, such as refraining from rubbing their eyes, to keep the residues out of their eyes
  - that if they do get residues in their eyes, they should immediately flush their eyes using the eyeflush container that is located at the decontamination site or using other readily available clean water, and
  - how to operate the eyeflush container



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## GENERAL USE PRECAUTIONS

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**FAILURE TO FOLLOW DIRECTIONS AND PRECAUTIONS ON THIS LABEL MAY RESULT IN CROP INJURY, POOR DISEASE CONTROL, AND/OR ILLEGAL RESIDUES.**

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## GENERAL INFORMATION

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Revus Opti is a broad spectrum product containing two fungicides. It is best used as a preventative treatment and is recommended for the control of many important plant diseases. Revus Opti provides excellent disease control of many leaf spots and downy mildews. Revus Opti is applied as a foliar spray and can be used in block, alternating spray, or tank mix programs with other crop protection products. All applications must be made according to the use directions that follow.

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## GENERAL USE INSTRUCTIONS

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**Application:** Thorough coverage is necessary to provide good disease control. Mix only the amount of spray solution needed for immediate application. Avoid spray overlap, as crop injury may occur.

**Adjuvants:** For some uses on this label, a spreading/penetrating type adjuvant such as a non-ionic surfactant, crop oil concentrate, silicone based, or blend must be added at the manufacturer's recommended rates. For other crop uses, an adjuvant is recommended. When an adjuvant is to be used with this product, SYNGENTA recommends the use of a Chemical Producers and Distributors Association certified adjuvant.

**Efficacy:** Under certain conditions conducive to extended infection periods, use another registered fungicide for additional applications if maximum amount of Revus Opti has been used. If fungal isolates that are resistant to Group 40 fungicides are present, efficacy may be reduced for certain diseases. The higher rates in the rate range and/or shorter spray intervals may be required under conditions of heavy infection pressure, highly susceptible varieties, or when environmental conditions conducive to disease exist.

**Integrated Pest Management (IPM):** Revus Opti should be integrated into an overall disease and pest management strategy whenever the use of a fungicide is required. Cultural practices known to reduce disease development should be followed. Consult your local agricultural authorities for additional IPM strategies established for your area. Revus Opti may be used in State Agricultural Extension advisory (disease forecasting) programs which recommend application timing based on environmental factors favorable for disease development.

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**Resistance Management:**

Group	40	M5	Fungicide
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Revus Opti contains two fungicides - mandipropamid, a Carboxylic Acid Amide (CAA) fungicide in Group 40 and chlorothalonil, a chloronitrile fungicide in Group M5. Group M fungicides have multi-site mode of action and are not generally susceptible to fungi becoming resistant as single site mode of action fungicides. 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. SYNGENTA encourages responsible resistance management to ensure effective long-term control of the fungal diseases on this label. Revus Opti must not be alternated or tank mixed with any fungicide to which resistance has already developed.

As part of a resistance management strategy:

- Apply a maximum of 4 sprays containing a Group 40 fungicide during one crop cycle.
- Apply no more than 2 sequential applications unless otherwise stated in the crop section.
- When tank mixing or alternating, use an effective partner – one that provides satisfactory disease control when used alone at the mixture rate.
- Do not use Revus Opti in transplant production.

**Rotational Crops:** To avoid possible illegal residues, do not plant any other crop within 30 days of a Revus Opti application to the preceding crop unless the crop appears on this label.

**Crop Tolerance:** Plant tolerance has been found acceptable for all crops on the label, however, not all possible tank mix combinations have been tested under all conditions. When possible, it is recommended to test the combinations on a small portion of the crop to ensure a phytotoxic response will not occur as a result of application.

**Spray Drift Management:** To avoid spray drift, do not apply when conditions favor drift beyond the target area. The interaction of many equipment and weather related factors determine the potential for spray drift. AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR AND THE GROWER. More information on managing spray drift can be found on the SYNGENTA CROP PROTECTION website under Stewardship ([http://syngentacropprotection-us.com/enviro/driftmanagement/index.asp?nav=drift\\_management](http://syngentacropprotection-us.com/enviro/driftmanagement/index.asp?nav=drift_management)).

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## MIXING AND APPLICATION METHODS

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### Spray Equipment

#### Nozzles

- Equip sprayers with nozzles that provide accurate and uniform application.
- Nozzles should be the same size and uniformly spaced across the boom.
- Calibrate sprayer before use.
- It is suggested that screens be used to protect the pump and to prevent nozzles from clogging.
- Screens placed on suction side of pump should be *16-mesh or coarser*.
- Do not place a screen in the recirculation line.
- Use 50-mesh or coarser screens between the pump and boom, and where required, at the nozzles.
- Check nozzle manufacturer's recommendations.

#### Pump

- Use a pump with capacity to:
  - (1) maintain 35-40 psi at nozzles
  - (2) provide sufficient agitation in tank to keep mixture in suspension - this requires recirculation of 10% of tank volume per minute.
- Use a jet agitator or liquid sparge tube for agitation.
- Do not air sparge.

For more information on spray equipment and calibration, consult sprayer manufacturers and state recommendations. For specific local directions and spray schedules, consult the current state agricultural recommendations.

### Mixing Instructions

- Prepare no more spray mixture than is required for the immediate operation.
- Thoroughly clean spray equipment before using this product.
- Agitate the spray solution before and during application.
- Rinse spray tank thoroughly with clean water after each day's use and dispose of pesticide rinsate by application to an already treated area.
- Do not allow spray mixture to stand overnight or for prolonged periods of time (more than 3 hours) without agitation.

#### Revus Opti Alone (no tank mix):

- Add  $\frac{1}{2}$ - $\frac{2}{3}$  of the required amount of water to the spray or mixing tank.
- With the agitator running, add the Revus Opti to the tank.
- Continue agitation while adding the remainder of the water.
- Begin application of the spray solution after the Revus Opti has completely dispersed into the mix water.
- Maintain agitation until all of the mixture has been sprayed.

**Revus Opti + Tank Mixtures:** Revus Opti is usually compatible with all tank mix partners. If tank mixes are desired, observe all directions precautions, and limitations on labeling of all products used.

**It is important to mix only the amount of product that can be sprayed immediately. Continuous agitation is recommended. If circumstances cause a delay of more than 3 hours, the product(s) may settle and be difficult to re-suspend. If this occurs, good agitation is required for a minimum of 15 minutes before and during spray operation.**

#### **Mixing in the Spray Tank**

- Add  $\frac{1}{2}$ - $\frac{2}{3}$  of the required amount of water to the spray or mixing tank.
- With the agitator running, add the tank mix partner(s) into the tank in the same order as described above.
- Allow the material to completely dissolve and disperse into the mix water. Continue agitation while adding the remainder of the water and the Revus Opti to the spray tank.
- Allow the Revus Opti to completely disperse.
- Spray the mixture with the agitator running.

#### **Application Instructions**

Revus Opti may be applied with all types of spray equipment commonly used for making ground and aerial applications. Proper adjustments and calibration of spraying equipment to give good canopy penetration and coverage is essential for good disease control.

#### **Ground Application:**

- Apply in a minimum of 10 gals. of water per acre, unless specified otherwise.
- Do not apply through any ultra-low volume (ULV) spray system.
- Thorough coverage is necessary to provide good disease control.

#### **Aerial Application:**

- Use only on crops where aerial applications are indicated.
- Thorough coverage is necessary to provide good disease control.
- Apply in a minimum of 5 gals of water per acre unless specified otherwise.
- Avoid application under conditions when uniform coverage cannot be obtained or when excessive spray drift may occur.
- Do not apply directly to humans or animals.
- Do not apply through any ultra-low volume (ULV) spray system.

#### **Spray Drift Precautions**

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 applications using dry formulations.

1. The distance of the outer most nozzles on the boom must not exceed  $\frac{3}{4}$  the length of the wingspan or rotor.

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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**.

### **Aerial Drift Reduction Advisory Information**

[This section is advisory in nature and does not supersede the mandatory label requirements.]

#### **Information on Droplet Size**

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 conditions (See **Wind, Temperature**).

#### **Controlling Droplet Size**

- **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 the 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 potential.

#### **Boom Length**

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

#### **Application Height**

Applications should not be made at a height greater than 10 ft. 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**

When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the upwind 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**

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**

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**

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.

### **Sensitive Areas**

The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, nontarget crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

### **Application Through Irrigation Systems (Chemigation) –**

- Use only on crops for which chemigation is specified on this label.
- Apply this product only through center pivot, solid set, hand move, or moving wheel irrigation systems. 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.
- Apply Revus Opti use rates in 0.1 – 0.25 inches/acre. Excessive water may reduced efficacy.
- If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers, or other experts.

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- Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system, unless the pesticide label-prescribed safety devices for public water systems are in place.
- A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

### Operating Instructions

1. 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.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check-valve to prevent the flow of fluid back toward the injection pump.
3. 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 shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. 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.
6. 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.
7. Do not apply when wind speed favors drift beyond the area intended.

### Center Pivot Irrigation Equipment

**Notes:** (1) Use only with drive systems which provide uniform water distribution. (2) Do not use end guns when chemigating Revus Opti through center pivot systems because of non-uniform application.

- Determine the size of the area to be treated.
- Determine the time required to apply  $1/8$ - $1/2$  inch of water over the area to be treated when the system and injection equipment are operated at normal pressures as recommended by the equipment manufacturer. When applying Revus Opti through irrigation equipment use the lowest obtainable water volume while maintaining uniform distribution. Run the system at 80-95% of the manufacturer's rated capacity.

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- Using water, determine the injection pump output when operated at normal line pressure.
- Determine the amount of Revus Opti required to treat the area covered by the irrigation system.
- Add the required amount of Revus Opti and sufficient water to meet the injection time requirements to the solution tank.
- Make sure the system is fully charged with water before starting injection of the Revus Opti solution. Time the injection to last at least as long as it takes to bring the system to full pressure.
- Maintain constant solution tank agitation during the injection period.
- Continue to operate the system until the Revus Opti solution has cleared the sprinkler head.

#### **Solid Set, Hand Move, and Moving Wheel Irrigation Equipment**

- Determine the acreage covered by the sprinklers.
- Fill injector solution tank with water and adjust flow rate to use the contents over a 20 to 30-minute interval. When applying Revus Opti through irrigation equipment use the lowest obtainable water volume while maintaining uniform distribution.
- Determine the amount of Revus Opti required to treat the area covered by the irrigation system.
- Add the required amount of Revus Opti into the same quantity of water used to calibrate the injection period.
- Operate the system at the same pressure and time interval established during the calibration.
- Stop injection equipment after treatment is completed. Continue to operate the system until the Revus Opti solution has cleared the last sprinkler head.

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#### **SPECIFIC INSTRUCTIONS FOR PUBLIC WATER SYSTEMS**

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1. Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
2. Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, back-flow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system



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should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

3. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
4. The pesticide injection pipeline must 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 shut down.
5. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. 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.
7. Do not apply when wind speed favors drift beyond the area intended for treatment.

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**SPECIFIC DIRECTIONS FOR USE**

Crop	Disease	Rate Pints/Acre	Remarks
<p><b>Brassica</b></p> <p>Broccoli Broccoli, Chinese [gai lon] Brussels sprouts Cabbage Cabbage, Chinese [napa] (tight-headed varieties only) Cauliflower</p>	<p>Downy mildew (<i>Peronospora parasitica</i>)</p> <p>Alternaria leaf spot (<i>Alternaria</i> spp.)</p>	<p>2.0 – 2.75</p>	<p>Begin applications prior to disease development and continue throughout the season on a 7-10 day interval. Make no more than 2 consecutive applications before switching to another effective non-CAA fungicide. Use the shorter interval and/or higher rates under high pressure or when conditions are conducive to disease.</p> <p>A spreading/penetrating type adjuvant such as a silicone based adjuvant, non-ionic surfactant, crop oil concentrate, or blend must be added at recommended rates when applied by ground or air.</p>
<p><b>Application:</b> For best results, use sufficient water volume to provide thorough coverage. Revus Opti may be applied by ground, chemigation, or aerial application.</p>			

**Specific Use Restrictions:**

- Do not apply more than 12 pints/A/season of Revis Opti.
- Do not apply within 7 day of harvest (7day PHI).
- Do not apply more than 0.52 lb ai of mandipropamid containing products/A/season
- Do not apply more than 12 lb ai of chlorothalonil containing products/A/season.

19/28

Crop	Disease	Rate Pints/Acre	Remarks
<p><b>Bulb Vegetables</b></p> <p><b>Dry bulb</b> Onion, bulb Garlic Shallot</p> <p><b>Green Onion</b> Onions, green Leek Welch onion</p>	<p>Downy mildew (<i>Peronospora destructor</i>)</p> <p>Botrytis leaf blight (<i>Botrytis</i> spp.)</p> <p>Purple blotch (<i>Alternaria porri</i>)</p>	<p>2.0 – 3.0</p>	<p>Begin applications prior to disease development and continue throughout the season on a 7-10 day interval. Make no more than 2 consecutive applications before switching to another effective non-CAA fungicide. Use the shorter interval and/or higher rates under high pressure or when conditions are conducive to disease.</p> <p>A silicone-based adjuvant must be added at recommended rates when applied by ground or air.</p>
<p><b>Application:</b> For best results, use sufficient water volume to provide thorough coverage. Revus Opti may be applied by ground, chemigation, or aerial application.</p>			

**Specific Use Restrictions:**

- Do not apply more than 12 pints/A/season of Revis Opti.
- Do not apply within 7 days of harvest (7 day PHI) for dry bulb onions and garlic.
- Do not apply within 14 days of harvest (14 day PHI) for green onions, shallots, or leeks.
- Do not apply more than 0.52 lbs ai of mandipropamid containing products/A/season.
- Do not apply more than 6.75 lbs ai of chlorothalonil containing products/A/season.

2/28

Crop	Disease	Rate Pints/Acre	Remarks
<p><b>Cucurbits</b></p> <p>Cantaloupe Cucumber Honeydew Muskmelon Watermelon Pumpkin Squash</p>	<p>Downy mildew (<i>Pseudoperonospora cubensis</i>)</p> <p>Anthracnose (<i>Colletotrichum</i> spp.)</p> <p>Target spot (<i>Corynespora cassiicola</i>)</p>	<p>2.75 – 3.0</p>	<p>Begin applications prior to disease development and continue throughout the season on a 7-10 day interval. Make no more than 2 consecutive applications before switching to another effective non-CAA fungicide. Use the shorter interval and/or higher rates under high pressure or when conditions are conducive to disease.</p> <p>The addition of a spreading/penetrating type adjuvant such as a non-ionic surfactant or crop oil concentrate or blend may enhance the activity of Revus Opti when applied by ground or air.</p>
	<p>Cercospora leafspot (<i>C. citrullina</i>)</p> <p>Gummy stem blight /vine decline (<i>Didymella bryoniae</i>)</p> <p>Alternaria leaf blight (<i>A. cucumerina</i>)</p> <p>Alternaria leafspot (<i>A. alternata</i>)</p> <p>Scab (<i>Cladosporium cucumerinum</i>)</p> <p>Powdery mildew (<i>Sphaerotheca</i> only)</p>	<p>3.0</p>	<p>For control of these diseases, tank mix an additional 0.25 – 1.0 lb ai chlorothalonil (0.33 – 1.3 pts/A Bravo Weather Stik®).</p>
<p><b>Application:</b> For best results, use sufficient water volume to provide thorough coverage. Revus Opti may be applied by ground, chemigation, or aerial application.</p>			

21/28

Crop	Disease	Rate Pints/Acre	Remarks
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**Specific Use Restrictions:**

- Do not apply more than 12 pints/A/season of Revus Opti.
- May be applied the day of harvest (0 day PHI).
- Do not apply more than 0.52 lbs ai of mandipropamid containing products/A/season.
- Do not apply more than 15.75 lbs ai of chlorothalonil containing products/A/season.

22/08

Crop	Disease	Rate pints/Acre	Remarks
Potatoes	Late blight ( <i>Phytophthora infestans</i> ) Early blight ( <i>Alternaria solani</i> ) Botrytis vine rot ( <i>B. cinerea</i> )	2.0-2.75	Begin applications prior to disease development and continue throughout the season on a 7-10 day interval. Make no more than 2 consecutive applications before switching to another effective non-CAA fungicide. Use the shorter interval and/or higher rates under high pressure or when conditions are conducive to disease.  The addition of a spreading/penetrating type adjuvant such as a non-ionic surfactant or crop oil concentrate or blend is recommended when applying by ground or air.
<p><b>Application:</b> For best results, use sufficient water volume to provide thorough coverage. Revus Opti may be applied by ground, chemigation, or aerial application.</p>			

**Specific Use Restrictions:**

- Do not apply more than 12 pints/A/season of Revus Opti.
- Do not apply within 14 days of harvest (14 day PHI).
- Do not apply more than 0.52 lbs ai of mandipropamid containing products/A/season.
- Do not apply more than 11.25 lbs ai of chlorothalonil containing products/A/season.

23/18

Crop	Disease	Rate Pints/Acre	Remarks
<b>Tomatoes</b>	Late blight ( <i>Phytophthora infestans</i> )	2.5 – 3.0	<p>Begin applications prior to disease development and continue throughout the season on a 7-10 day interval. Make no more than 2 consecutive applications before switching to another effective non-CAA fungicide. Use the shorter interval and/or higher rates under high pressure or when conditions are conducive to disease.</p> <p>The addition of a spreading/penetrating type adjuvant such as a non-ionic surfactant or crop oil concentrate or blend is recommended when applying by ground or air.</p> <p>For fruit infections, switch to Bravo or another fungicide registered for that use.</p>
	Early blight ( <i>Alternaria solani</i> )		
	Gray leafspot ( <i>Stemphyllium botryosum</i> )		
	Gray leaf mold ( <i>Fluvia fluva</i> ; <i>Cladosporium</i> )		
	Septoria leafspot ( <i>S. lycopersici</i> )		
	Target spot ( <i>Corynespora cassiicola</i> )		
<b>Application:</b> For best results, use sufficient water volume to provide thorough coverage. Revus Opti may be applied by ground, chemigation, or aerial application.			

**Specific Use Restrictions:**

- Do not apply more than 12 pints/A/season of Revus Opti.
- Do not apply within 1 day of harvest (1 day PHI).
- Do not apply more than 0.52 lbs ai of mandipropamid containing products/A/season.
- Do not apply more than 15.1 lbs ai of chlorothalonil containing products/A/season.

**Conversion Table**

Pints Revus Opti/A	Lb ai/A Mandipropamid	Lb ai/A Chlorothalonil
2	0.085	0.85
2.5	0.11	1.05
2.75	0.12	1.2
3.0	0.13	1.3

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## **STORAGE AND DISPOSAL**

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

### **Pesticide Storage**

Store in original container only. Store in a cool, dry and well-ventilated place. Protect from excessive heat. Keep container closed when not in use. Do not store near food or feed.

### **Pesticide Disposal**

Pesticide wastes may be toxic. Improper disposal of unused pesticide, spray mixture, or rinse water is a violation of federal law. If these wastes cannot be used according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance in proper disposal methods.

### **Container Disposal**

Triple rinse (or equivalent); then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or alternatives allowed by state and local authorities.

### **For Bulk and Minibulk Containers:**

**Container Disposal:** Reseal container and offer for reconditioning, or triple rinse (or equivalent) and offer for recycling or reconditioning, or clean in accordance with manufacturer's instructions.

**Container Precautions:** Before refilling, inspect thoroughly for damage, such as cracks, punctures, bulges, dents, abrasions and damaged or worn threads on closure devices.


**Refill Only With Revus Opti.** The contents of this container cannot be completely removed by cleaning. Refilling with materials other than Revus Opti will result in contamination and may weaken container.

After filling and before transporting, check for leaks.

Do not refill or transport damaged or leaking container.

**CONTAINER IS NOT SAFE FOR FOOD, FEED, OR DRINKING WATER.**

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For non-emergency (e.g., current product information), call  
Syngenta Crop Protection at 1-800-334-9481.

Manufactured for:  
Syngenta Crop Protection, Inc.  
P.O. Box 18300  
Greensboro, North Carolina 27419-8300  
[www.syngenta-us.com](http://www.syngenta-us.com)

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Container Label

Group	40	M5	Fungicides
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**Revus Opti™**

**Fungicide**

For control of certain diseases in brassica vegetables, onions, cucurbits, potatoes, and tomatoes

Active Ingredient:	
Mandipropamid (CAS No. 374726-62-2).....	3.33%
Chlorothalonil (CAS No. 6-62-2).....	33.30%
<hr/>	
Other Ingredients:	63.37%
Total:	100.00%

Contains 0.33 lbs. of mandipropamid active ingredient and 3.33 lbs of chlorothalonil active ingredient per gallon.

**KEEP OUT OF REACH OF CHILDREN.**

**CAUTION**

See additional precautionary statements and directions for use inside booklet.

**AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

EPA Reg. 100-RETO

EPA Est.

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Net Contents

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<b>FIRST AID</b>	
<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 eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If swallowed</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to by a poison control center or doctor.</li> <li>• Do not give anything to an unconscious person.</li> </ul>
<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 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 by mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
<b>HOT LINE NUMBER</b> For 24-Hour Medical Emergency Assistance (Human or Animal) Or Chemical Emergency Assistance (Spill, Leak, Fire or Accident) Call <b>1-800-888-8372</b>	

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**PRECAUTIONARY STATEMENTS**

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**Hazards to Humans and Domestic Animals**

**CAUTION**

Harmful if inhaled, swallowed, or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Avoid breathing spray mist. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Remove and wash contaminated clothing before reuse.

**Environmental Hazards**

This product may contaminate water through drift of spray in wind. This product has a 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

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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.

Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or regional office of the EPA.

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## **STORAGE AND DISPOSAL**

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

### **Pesticide Storage**

Store in original container only. Store in a cool, dry and well-ventilated place. Protect from excessive heat. Keep container closed when not in use. Do not store near food or feed.

### **Pesticide Disposal**

Pesticide wastes may be toxic. Improper disposal of unused pesticide, spray mixture, or rinse water is a violation of federal law. If these wastes cannot be used according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance in proper disposal methods.

### **Container Disposal**

Triple rinse (or equivalent); then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or alternatives allowed by state and local authorities.

**CONTAINER IS NOT SAFE FOR FOOD, FEED, OR DRINKING WATER.**

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Manufactured for:  
Syngenta Crop Protection, Inc.  
P.O. Box 18300  
Greensboro, North Carolina 27419-8300  
[www.syngenta-us.com](http://www.syngenta-us.com)

Revus Opti 2-6-07B 2-7-08 Clean – df – 2/7/08  
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