

100-1171

1-23-2004

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U.S. ENVIRONMENTAL PROTECTION AGENCY  
Office of Pesticide Programs  
Registration Division (H7505C)  
401 "M" St., S.W.  
Washington, D.C. 20460

EPA Reg. Number:

100-1171

Date of Issuance:

JAN 23 2004

NOTICE OF PESTICIDE:  
 Registration  
Reregistration

(under FIFRA, as amended)

Term of Issuance:

Conditional

Name of Pesticide Product:

Quadris Opti™

Name and Address of Registrant (include ZIP Code):

Syngenta Crop Protection, Inc.  
P.O. Box 18300  
Greensboro, North Carolina 27419-8300

**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 registered in accordance with FIFRA sec. 3(c)(7)(A) provided that you:

1. Submit and/or cite all data required for registration/reregistration of your product under FIFRA sec. 3(c)(5) when the Agency requires all registrants of similar products to submit such data; and submit acceptable responses required for reregistration of your product under FIFRA section 4.
2. Make the changes to the label that are listed below before you release the product for shipment:
  - a. Revise the EPA Registration Number to read "EPA Reg. No. 100-1171".
  - b. In the third paragraph in the "AGRICULTURAL USE REQUIREMENTS" section, place "and" before "shoes plus socks".

Signature of Approving Official:

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Date:

JAN 23 2004

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c. In the paragraph on page 10 that is directly before the heading "Aerial Spray Drift Precautions", add "and air-blast" after "...within 150 feet (for aerial)".

d. In the "Remarks" column of the "Potatoes" subsection of the "DIRECTIONS FOR USE" section, under "Resistance Management:" either delete ", such as Bravo Weather Stik® or Bravo Ultrex®" or else clarify that it is the Azoxystrobin active ingredient that requires alternation with an active ingredient that has a different mode of action. The two above Bravo products contain Chlorothalonil in common with Quadris Opti™.

3. Submit one copy of your final printed label before you release this product for shipment.

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 stamped copy of the label is attached. If you have any questions about this letter, please contact John Bazuin at (703)305-7381.

Attachments: Product label, stamped "Accepted with Comments"  
Technical Review Branch Acute Toxicology and  
Product Chemistry reviews

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**Quadris Opti™**

**Fungicide**

Broad spectrum fungicide for control of plant diseases on potatoes, tomatoes and vegetables.

**Active Ingredients:**

Azoxystrobin: methyl (E)-2-[2-[6-(2-cyanophenoxy)pyrimidin-4-yloxy]phenyl]-3-methoxyacrylate* .....	4.6%
<u>Chlorothalonil (tetrachloroisophthalonitrile) .....</u>	<u>46.0%</u>
<u>Other Ingredients: .....</u>	<u>49.4%</u>
<b>Total:</b>	<b>100.0%</b>

Contains 0.5 lbs. of azoxystrobin per gallon  
Contains 5.0 lbs. of chlorothalonil per gallon

\*IUPAC

**KEEP OUT OF REACH OF CHILDREN.**

**WARNING/AVISO**

**Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail)**

See additional precautionary statements and directions for use inside booklet.

Reformulation is prohibited. See individual container labels for repackaging limitations.

EPA Reg. No. 100-  
EPA Est.

Product of the UK for distribution by:  
Syngenta

SCP 100-XXXX

XX  
U.S. Standard Measure

**ACCEPTED  
with COMMENTS  
In EPA Letter Dated:**

**JAN 23 2004**

**Under the Federal Insecticide,  
Fungicide, and Rodenticide Act,  
as amended, for the pesticide  
registered under EPA Reg. No.  
100-1121**

<b>FIRST AID</b>	
<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>
<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 do so by a poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</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 eye.</li> <li>• Call a poison control center or doctor for treatment advice.</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>NOTE TO PHYSICIAN</b>	
Persons suffering with temporary allergic skin reactions may respond to treatment with oral antihistamines and topical or oral steroids.	
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>	

**PRECAUTIONARY STATEMENTS**

**Hazards to Humans and Domestic Animals**

**WARNING/AVISO**

May be fatal if inhaled. Harmful if swallowed. Avoid contact with eyes, skin or clothing. Causes moderate eye irritation. Do not breathe spray mist. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

**Personal Protective Equipment (PPE)**

Some materials that are chemically resistant to this product are listed below. If you want more options follow the instructions for Category A on an EPA chemical resistance category selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants

- Chemical resistant gloves made of any waterproof material such as polyvinyl chloride, nitrile rubber or butyl rubber.
- Shoes plus socks
- and a dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C) or a NIOSH approved respirator with any N, R, P or HE filter

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. 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.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

**Environmental Hazards**

Azoxystrobin can be persistent for several months or longer. Azoxystrobin has degradation products which have properties similar to chemicals which are known to leach through soil to groundwater under certain conditions as a result of agricultural use. Chlorothalonil is known to leach through soil into groundwater under certain conditions as a result of label use. Use of this product in areas where soils are permeable, particularly where the water table is shallow may result in ground water contamination.

Azoxystrobin is toxic to freshwater and estuarine/marine fish and aquatic invertebrates. Chlorothalonil is toxic to aquatic invertebrates and wildlife. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment wash water or rinsate.

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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Notify state and/or Federal authorities and Syngenta immediately if you observe any adverse environmental effects due to use of this product.

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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 should 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. All such risks shall be assumed by Buyer and User, and 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. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and Buyer and User assume the risk of any such use. SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

In no event shall SYNGENTA or Seller be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **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 Limitations 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.

**FAILURE TO FOLLOW THE USE DIRECTIONS AND PRECAUTIONS ON THIS LABEL MAY RESULT IN PLANT INJURY OR POOR DISEASE CONTROL.**

Quadris Opti should be used only in accordance with recommendations on this label or in separately published Syngenta supplemental labeling recommendations for this product.

DO NOT apply this product in a way that will contact workers or other persons, or pets 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 workers to enter 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:** 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
- how to operate the eyeflush container



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## **STORAGE AND DISPOSAL**

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Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited.

### **Storage**

Store in original containers only. Store in a cool place. Protect from excessive heat. Keep container closed when not in use. Do not store near food or feed. In case of spill on floor or paved surfaces, mop and remove to chemical waste storage area until proper disposal can be made if product cannot be used according to the label.

### **Pesticide Disposal**

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative of the nearest EPA Regional Office for guidance.

### **Container Disposal**

#### **Plastic Containers**

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

#### **Returnable Refillable Container**

If Quadris Opti is packaged in a returnable refillable container, then, after use, do not rinse container. The contents of this container cannot be completely removed by cleaning. Return container intact to point of purchase.

This container must only be refilled with Quadris Opti. Refilling with materials other than Quadris Opti will result in contamination and may weaken container. **DO NOT REUSE THE CONTAINER FOR ANY OTHER PURPOSE.** Before refilling, inspect thoroughly for damage such as cracks, punctures, abrasions, and damaged or worn threads on closure devices. Check for leaks after refilling and before transport. Do not refill or transport a damaged or leaking container.

**For Bulk and Minibulk Containers:** 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 IS NOT SAFE FOR FOOD, FEED OR DRINKING WATER.**

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## **GENERAL INFORMATION**

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Quadris Opti Fungicide is a broad spectrum, preventative fungicide with systemic and curative properties recommended for the control of many important plant diseases. Quadris Opti may be applied as a foliar spray in alternating spray programs or in tank mixes with other registered, crop protection products. All applications should be made according to the use directions that follow.

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## **GENERAL USE PRECAUTIONS**

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Crops in this label may be planted immediately after last treatment. Do not plant other crops within 45 days after last application.

Do not use for disease control in greenhouses.

### **ATTENTION**

Quadris Opti is extremely phytotoxic to certain apple varieties.

**AVOID SPRAY DRIFT.** Extreme care must be used to prevent injury to apple trees (and apple fruit).

**DO NOT** spray Quadris Opti where spray drift may reach apple trees.

**DO NOT** spray when conditions favor drift beyond area intended for application. Conditions which may contribute to drift include thermal inversion, wind speed and direction, sprayer nozzle/pressure combinations, spray droplet size, etc. Contact your State extension agent for spray drift prevention guidelines in your area.

**DO NOT** use spray equipment which has been previously used to apply Quadris Opti to spray apple trees. Even trace amounts can cause unacceptable phytotoxicity to certain apple and crabapple varieties.

**AVOIDING SPRAY DRIFT IS THE RESPONSIBILITY OF THE APPLICATOR.**

### **Integrated Pest (Disease) Management**

Quadris 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. The specific Use Directions section in this label identifies specific IPM recommendations for each crop. Consult your local agricultural authorities for additional IPM strategies established for your area. Quadris Opti may be used in State Agricultural Extension advisory (disease forecasting) programs which recommend application timing based on environmental factors favorable for disease development.

### **Resistance Management**

The specific Use Directions section in this label provides resistance management strategies specific for each crop and disease. Consult your local or state agricultural authorities for resistance management strategies that are complementary to those in this label. Azoxystrobin, a strobilurin fungicide, is not cross resistant with other classes of fungicides which have different modes of action. Chlorothalonil is a multisite fungicide partner for azoxystrobin.

### **Spraying/Mixing**

Quadris Opti may be applied with all types of spray equipment commonly used for making ground and aerial applications. Do not apply Quadris Opti through any type of ultra low volume (ULV) spray system. Proper adjustments and calibration of spraying equipment to give good

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canopy penetration and coverage is essential for good disease control. 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.

For ground applications, apply Quadris Opti in sufficient water volume for adequate coverage and canopy penetration. For aerial applications, apply Quadris Opti in a minimum of five gallons of water per acre. Where feasible, ground application should be used because it provides better canopy penetration and coverage.

To prepare spray solution, partially fill the spray tank with clean water and begin agitation. Add the specified amount of Quadris Opti to the tank, allowing time for good dispersion. Then add an adjuvant, if recommended. If tankmixes are required, product should be added to the spray tank in the following order: Quadris Opti, WG or dry flowable formulations, wettable powders and flowable (aqueous suspensions) products. Finish filling the tank to the desired volume to obtain the proper spray concentration. Maintain agitation throughout the spraying operation. Do not allow spray mixture to stand overnight or for prolonged periods. Make up only the amount of spray required for immediate use. Sprayers should be thoroughly cleaned immediately after application.

Quadris Opti is compatible with many commonly used fungicides, liquid fertilizers, herbicides, insecticides and biological control products. If tank mixes are desired, observe all directions, precautions, and limitations on labeling of all products used. DO NOT combine with DiPel® or Latron B-1956® as phytotoxicity may result from the combination when applied to the crops on this label. Consult compatibility charts or your local or state agricultural authorities for compatibility information.

Quadris Opti has demonstrated some phytotoxic effects when mixed with products that are formulated as EC's. These effects are enhanced if applications are made under cool, cloudy conditions and these conditions remain for several days following application. In addition, adjuvants that contain some form of silicone have also contributed to phytotoxicity.

Quadris Opti Fungicide may be incompatible with fertilizers when low water volumes are used. Cold temperatures and water quality exacerbate these compatibility problems. Conduct a physical compatibility test as described in the paragraph below before making a field application.

Do not combine Quadris Opti in the spray tank with pesticides, surfactants or fertilizers, unless compatibility charts or your own prior use has shown that the combination is physically compatible, effective and non-injurious under your conditions of use. If physical compatibility is unknown, the following procedure should be followed: Pour the recommended proportions of the products into a suitable container of water, mix thoroughly and allow to stand at least twenty (20) minutes. If the combination remains mixed or can be re-mixed readily, the mixture is considered physically compatible.

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**SPRAY DRIFT MANAGEMENT**

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**ATTENTION**

Quadris Opti is extremely phytotoxic to certain apple varieties.

**AVOID SPRAY DRIFT.** Extreme care must be used to prevent injury to apple trees (and apple fruit).

**DO NOT** spray Quadris Opti where spray drift may reach apple trees.

**DO NOT** spray when conditions favor drift beyond area intended for application. Conditions which may contribute to drift include thermal inversion, wind speed and direction, sprayer nozzle/pressure combinations, spray droplet size, etc. Contact your State extension agent for spray drift prevention guidelines in your area.

**DO NOT** use spray equipment which has been previously used to apply Quadris Opti to spray apple trees. Even trace amounts can cause unacceptable phytotoxicity to certain apple and crabapple varieties.

**AVOIDING SPRAY DRIFT IS THE RESPONSIBILITY OF THE APPLICATOR.**

Do not apply when weather conditions favor drift from treated areas to non-target aquatic habitat.

This product must not be applied within 150 feet (for aerial applications) or 25 feet (for ground applications) of marine/estuarine water bodies unless there is an untreated buffer area of that width between the area to be treated and the water body.

**Aerial 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 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*.

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

[This section is advisory in nature and does not supercede 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.

#### **Wind**

Drift potential is lowest between wind speeds of 2-10mph. 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.

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### **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.

### **Directions for Use Through Sprinkler Chemigation Systems**

**Spray Preparation:** Chemical tank and injector system should be thoroughly cleaned. Flush system with clean water.

**Application Instructions:** Apply Quadris Opti at rates and timings as described in this label.

### **Use Precautions for Sprinkler Applications:**

**Sprinkler Irrigation:** Apply this product through sprinkler irrigation systems including center pivot, lateral move, end tow, side [wheel] roll, traveler, big gun, solid set, or hand move irrigation systems. Do not apply this product through any other type of irrigation system except as specified on this label.

Apply with center pivot or continuous-move equipment distributing 1/2 acre-inch or less during treatment. In general, use the least amount of water required for proper distribution and coverage. If stationary systems (solid set, handlines or wheel lines other than continuous-move) are used, this product should be injected into no more than the last 20-30 minutes of the set. Do not apply when winds are greater than 10-15 mph to avoid drift or wind skips. Do not apply when wind speed favors drift beyond the area intended for treatment. Plant injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform treated water. Thorough coverage of foliage is required for good control. Good agitation should be maintained during the entire application period.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

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 shut down.

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.

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, or under the supervision of the responsible person, 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 pesticide label-prescribed safety devices for public water systems are in place.

**Specific Instructions for Public Water Systems:**

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 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.

Crop	Target Diseases	Use Rate Pints/A	Remarks
<b>Beans, dry (except soybean)</b> bean, adzuki bean, broad bean, dry bean, lablab bean, navy bean, kidney bean, lima bean, moth bean, mung bean, pink bean, pinto bean, tepary bean, urd bean, yardlong bean, rice bean, runner bean, jackbean pea, blackeyed pea, southern catjang chickpea (garbanzo) lupin, grain lupine	Bean rust ( <i>Uromyces appendiculatus</i> )  Anthracnose ( <i>Colletotrichum lindemuthianum</i> )  Alternaria leaf spot ( <i>Alternaria alternata</i> )  Ascochyta leaf spot ( <i>Ascochyta phaseolorum</i> )  Rust ( <i>Phakospora</i> spp.)  Web blight ( <i>Rhizoctonia solani</i> )  Ascochyta blight ( <i>Mycosphaerella pinodes</i> )  Ascochyta leaf and pod spot ( <i>Ascochyta</i> spp.)  Alternaria blight ( <i>Alternaria</i> spp.)	1.6-2.4	<p><b>Integrated Pest (Disease) Management:</b> Quadris Opti should be integrated into an overall disease management strategy that includes selection of varieties with disease tolerance, optimum plant populations, proper fertilization, plant residue management, crop rotation and proper timing and placement of irrigation.</p> <p><b>Resistance Management:</b> Do not apply more than two foliar applications of Quadris Opti or other strobilurins before alternating with a fungicide that has a different mode of action. Do not make more than four (4) foliar applications of Quadris Opti or other strobilurin fungicides per crop per acre per year.</p> <p><b>Application Directions:</b> Quadris Opti applications should begin prior to disease development and continue throughout the season every 7-14 days following the resistance management guidelines. Applications may be made by ground, air or chemigation.</p> <p>Mixtures of Quadris Opti and other pesticides or adjuvants may result in phytotoxicity. Any potential mixtures should first be evaluated for compatibility and crop safety before making large-scale applications.</p> <p>Quadris Opti should not be tank mixed with COC, MSO or silicon adjuvants.</p>

Specific Use Restrictions: For use only on beans to be harvested dry with pods removed. Do not apply more than 1.5 lb. a.i. of azoxystrobin per acre per year.  
 Do not apply more than 6 lb. a.i. of Chlorothalonil or Chlorothalonil-containing products per acre per year.  
 Do not apply within 14 days of harvest.



17/22

Crop	Target Diseases	Use Rate Pints/A	Remarks
Carrot	<p>Early blight (<i>Cercospora carotae</i>)</p> <p>Late blight (<i>Alternaria dauci</i>)</p>	2.4	<p><b>Integrated Pest (Disease) Management:</b> Quadris Opti should be integrated into an overall disease management strategy that includes selection of varieties with disease tolerance, optimum plant populations, proper fertilization, plant residue management, crop rotation and proper timing and placement of irrigation.</p> <p><b>Resistance Management:</b> Do not apply more than two foliar applications of Quadris Opti or other strobilurins before alternating with a fungicide that has a different mode of action. Do not make more than six (6) foliar applications of Quadris Opti or other strobilurin fungicides per crop per acre per year.</p> <p><b>Application Directions:</b> Quadris Opti applications should begin prior to disease development and continue throughout the season every 7-14 days following the resistance management guidelines. Applications may be made by ground, air or chemigation.</p> <p>Mixtures of Quadris Opti and other pesticides or adjuvants may result in phytotoxicity. Any potential mixtures should first be evaluated for compatibility and crop safety before making large-scale applications.</p> <p>Quadris Opti should not be tank mixed with COC, MSO or silicon adjuvants.</p>

Specific Use Restrictions: Do not apply more than 1.5 lb. a.i. of azoxystrobin per acre per year.  
Do not apply more than 15 lb. a.i. of Chlorothalonil or Chlorothalonil-containing products per acre per crop.  
May be applied the day of harvest.

Celery	<p>Early blight (<i>Cercospora apii</i>)</p> <p>Late blight (<i>Septoria apicola</i>)</p> <p>Basal stalk rot (<i>Rhizoctonia solani</i>)</p>	2.4-3.7	<p><b>Integrated Pest (Disease) Management:</b> Quadris Opti should be integrated into an overall disease management strategy that includes selection of varieties with disease tolerance, optimum plant populations, proper fertilization, plant residue management, crop rotation and proper timing and placement of irrigation.</p> <p><b>Resistance Management:</b> Do not apply more than two foliar applications of Quadris Opti or other strobilurins before alternating with a fungicide that has a different mode of action. Do not make more than six (6) foliar applications of Quadris Opti or other strobilurin fungicides per crop per acre per year.</p> <p><b>Application Directions:</b> Quadris Opti applications should begin prior to disease development and continue throughout the season every 7-14 days following the resistance management guidelines. Applications may be made by ground, air or chemigation.</p> <p>Mixtures of Quadris Opti and other pesticides or adjuvants may result in phytotoxicity. Any potential mixtures should first be evaluated for compatibility and crop safety before making large-scale applications.</p> <p>Quadris Opti should not be tank mixed with COC, MSO or silicon adjuvants.</p>
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Specific Use Restrictions: Do not apply more than 1.5 lb. a.i. of azoxystrobin per acre per year.  
Do not apply more than 18 lb. a.i. of Chlorothalonil or Chlorothalonil-containing products per acre per crop.  
Do not apply within 7 days of harvest.

Crop	Target Diseases	Use Rate Pints/A	Remarks
<p><b>Cucurbits</b> (Including cultivars and/or hybrids of these)</p> <p>Cantaloupe Chayote Chinese-waxgourd Cucumber Gourds Honeydew Melons <i>Momordica</i> spp. (bitter melon, balsam apple) Muskmelon Watermelon Pumpkin Squash Zucchini</p>	<p>Anthracnose (<i>Colletotrichum lagenarium</i>)</p> <p>Belly Rot (<i>Rhizoctonia solani</i>)</p> <p>Downy Mildew (<i>Pseudoperonospora cubensis</i>)</p> <p>Gummy Stem Blight (<i>Didymella bryoniae</i>)</p> <p>Leaf spots (<i>Alternaria</i> spp., <i>Cercospora</i> spp.)</p> <p>Myrothecium canker (<i>Myrothecium roridum</i>)</p> <p>Powdery Mildew (<i>Sphaerotheca fuliginea</i>, <i>Erysiphe cichoracearum</i>)</p>	<p>3.2</p>	<p><b>Integrated Pest (Disease) Management:</b> Quadris Opti should be integrated into an overall disease management strategy that includes selection of varieties with disease tolerance, optimum plant populations, proper fertilization, plant residue management, crop rotation and proper timing and placement of irrigation.</p> <p><b>Resistance Management:</b> Do not apply more than one foliar application of Quadris Opti or other strobilurins before alternating with a fungicide that has a different mode of action. Do not make more than four (4) foliar applications of Quadris Opti or other strobilurin fungicides per crop per acre per year.</p> <p>Do not use in locations where strobilurin resistance to gummy stem blight has been confirmed.</p> <p><b>Application Directions:</b> Make preventative applications on a 5-7 day schedule. For belly rot control, the first application should be made at the 1-3 leaf crop stage with a second application just prior to vine tip over or 10-14 days later whichever occurs first. For all other diseases, Quadris Opti applications should begin prior to disease development and continue throughout the season every 7-14 days following the resistance management guidelines. Applications may be made by ground, air or chemigation.</p> <p>Mixtures of Quadris Opti and other pesticides or adjuvants may result in phytotoxicity. Any potential mixtures should first be evaluated for compatibility and crop safety before making large-scale applications.</p> <p>Quadris Opti should not be tank mixed with COC, MSO or silicon adjuvants.</p> <p>Quadris Opti should not be tank mixed with Malathion®, Kelthane®, Thiodan®, Phaser®, Lannate®, Lorsban™, M-Pede® or Botran®.</p> <p>Note: Spraying mature watermelons may result in sunburn of the upper surface of the fruit. DO NOT apply when any of the following conditions are present:</p> <ol style="list-style-type: none"> <li>1. Intense heat and sunlight</li> <li>2. Drought conditions</li> <li>3. Poor vine canopy</li> <li>4. Other crop and environmental conditions that may be conducive to sunburn</li> </ol> <p>Do not combine with anything except water for application to watermelons unless your prior use has shown the combination to be non-injurious to watermelons under your conditions of use.</p>

Specific Use Restrictions: Do not apply more than 1.0 lb. a.i. of azoxystrobin per acre per year.  
Do not apply more than 15.75 lb. a.i. of Chlorothalonil or Chlorothalonil-containing products per acre per crop.  
Do not apply within 1 day of harvest.

19/22

Crop	Target Diseases	Use Rate Pints/A	Remarks
Onion (green bunching)  Leek Shallot	Purple blotch ( <i>Alternaria porri</i> )  Rust ( <i>Puccinia allii</i> )	1.6-3.2	<p><b>Integrated Pest (Disease) Management:</b> Quadris Opti should be integrated into an overall disease management strategy that includes selection of varieties with disease tolerance, optimum plant populations, proper fertilization, plant residue management, crop rotation and proper timing and placement of irrigation.</p> <p><b>Resistance Management:</b> Do not apply more than one foliar application of Quadris Opti or other strobilurins before alternating with a fungicide that has a different mode of action. Do not make more than three (3) foliar applications of Quadris Opti or other strobilurin fungicides per crop per acre per year.</p>
	Downy mildew ( <i>Peronospora destructor</i> )	2.4-3.7	<p><b>Application Directions:</b> Quadris Opti applications should begin prior to disease development and continue throughout the season every 7-14 days following the resistance management guidelines. For downy mildew control, use a 5-7 day spray interval. Use sufficient water to obtain thorough coverage of tops. Applications may be made by ground, air or chemigation.</p> <p>Mixtures of Quadris Opti and other pesticides or adjuvants may result in phytotoxicity. Any potential mixtures should first be evaluated for compatibility and crop safety before making large-scale applications.</p> <p>Quadris Opti should not be tank mixed with COC, MSO or silicon adjuvants.</p>

Specific Use Restrictions: Do not apply more than 1.5 lb. a.i. of azoxystrobin per acre per year.  
Do not apply more than 6.75 lb. a.i. of Chlorothalonil or Chlorothalonil-containing products per acre per year.  
Do not apply within 14 days of harvest.

20/22

Crop	Target Diseases	Use Rate Pints/A	Remarks
Potatoes	Early Blight ( <i>Alternaria solani</i> )  Late Blight ( <i>Phytophthora infestans</i> )  Black dot ( <i>Colletotrichum coccodes</i> )  Powdery mildew ( <i>Erysiphe cichoracearum</i> )	1.6	<p><b>Integrated Pest (Disease) Management:</b> Quadris Opti should be integrated into an overall disease management strategy that includes removal of plant debris in which inoculum overwinters, selection of varieties with tolerance to disease, clean certified seed, seedpiece treatment, and disease forecasting.</p> <p><b>Resistance Management:</b> Do not make more than one foliar application of Quadris Opti before alternation with fungicides that have a different mode of action, such as Bravo Weather Stik® or Bravo Ultrex®. Make applications on a 5-7 day schedule. Do not alternate or tank-mix with fungicides to which resistance has developed. Do not make more than six (6) foliar applications Quadris Opti or other strobilurin-containing fungicides per acre per year.</p> <p><b>Application Directions:</b> For both early and late blight, maintain the alternation program described above. Use a 7-day application schedule and the 1.6 pt product/A rate. If conditions are conducive for severe epidemics, the spray schedule should be shortened to 5 days.</p> <p>For all other diseases, Quadris Opti applications should begin prior to disease development and continue throughout the season every 7-14 days following the resistance management guidelines. Use the shorter interval if disease epidemics are severe. Applications may be made by ground, air or chemigation.</p>

Specific Use Restrictions: Do not apply more than 1.5 lb. a.i. of azoxystrobin per acre per year.  
 Do not apply more than 11.25 lb. a.i. of Chlorothalonil or Chlorothalonil-containing products per acre per year.  
 Do not apply within 14 days of harvest.

21/22

Crop	Target Diseases	Use Rate Pints/A	Remarks
Tomatoes	<p>Anthracnose (<i>Colletotrichum coccodes</i>)</p> <p>Black Mold (<i>Alternaria alternata</i>)</p> <p>Buckeye Rot (<i>Phytophthora spp.</i>)</p> <p>Early Blight (<i>Alternaria solani</i>)</p> <p>Powdery Mildew (<i>Oidiopsis sicula</i>)</p> <p>Septoria Leaf spot (<i>Septoria lycopersici</i>)</p> <p>Target spot (<i>Corynespora cassicola</i>)</p> <p>Late Blight (<i>Phytophthora infestans</i>)</p>	1.6	<p><b>Integrated Pest (Disease) Management:</b> Quadris Opti should be integrated into an overall disease management strategy that includes proper selection of varieties with disease tolerance, removal of plant debris in which inoculum overwinters, plant residue management, crop rotation and proper timing and placement of irrigation.</p> <p><b>Resistance Management:</b> No more than one application of Quadris Opti or other strobilurins should be made before alternating with a fungicide with a different mode of action. Do not make more than five (5) foliar applications of Quadris Opti or other strobilurin fungicides per acre per year.</p> <p><b>Application Directions:</b> Quadris Opti applications should begin prior to disease development and continue throughout the season following the resistance management guidelines.</p> <p>Quadris Opti should be applied on a 5-7 day schedule for control of late blight. For all other diseases, make applications on a 7-21 day schedule. If conditions are favorable for severe epidemics, use the shorter application intervals. Applications may be made by ground, air or chemigation.</p> <p>Quadris Opti should not be applied until 21 days after transplanting or 35 days after seeding.</p> <p>Quadris Opti should not be applied within +/- 6 days of a postemergence broadcast application of Sencor®.</p> <p>Adjuvants should not be used as they may increase the potential for severe phytotoxicity.</p>

Specific Use Restrictions: Do not apply more than 0.5 lb. a.i. of azoxystrobin per acre per year.  
Do not apply more than 15.0 lb. a.i. of Chlorothalonil or Chlorothalonil-containing products per acre per year.  
May be applied the day of harvest.

**Quadris Opti Rate Conversion Chart**

Pints/A	lb. a.i./A azoxystrobin	lb. a.i./A chlorothalonil	Treated Acres/ Gal. Product
1.6	0.1	1.0	5
2.4	0.15	1.65	3.3
3.2	0.2	2.0	2.5
3.7	0.23	2.5	2.1

22/22

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