

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

OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION

JAN 10 2012

Adora Clark GB Biosciences Corporation P.O. Box 18300 Greensboro, NC 27419-8300

SUBJECT: Label Amendment

Bravo 500

EPA Reg No. 50534-8; Decision # 455782 Your Submission Dated September 21, 2011

Dear Ms. Clark:

The amended labeling(s) referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) as amended to clarify conifer uses on the chlorothalonil end use product has been reviewed and found acceptable provided that you:

- 1. Add this restriction statement to the "Specific Use Restrictions" on page 24, 'Do not use on forests'.
- 2. Delete the blank column on pages 23 and 24 under 'Diseases'.
- 3. On pages 23 and 24 correct each 4.125 to be 4.17 to match 4.17 on page 1. Also correct each 1.125 on these two pages to be 1.17, correct 1.5 to be 1.43 on page 23.

Submit one copy of your final printed labeling before you release your product for shipment. This label supersedes all previously accepted labels.

If you have any questions regarding this correspondence, contact Rose Kearns of my staff by phone at 703-305-5611 or via email at <a href="kearns.rosemary@epa.gov">kearns.rosemary@epa.gov</a> or myself at 703-308-9443 or via email at <a href="kish.tony@epa.gov">kish.tony@epa.gov</a>.

Sincerely,

Tony Kish

Product Manager 22

Fungicide Branch

Registration Division (7504P)

Bravo® 500

## Agricultural Fungicide

Active Ingredient:	
Chlorothalonil (tetrachloroisophthalonitrile)	40.4%
Other Ingredients:	59.6%
Total:	100.0%

Contains 4.17 Pounds Chlorothalonil Per Gallon (500 grams per liter)

#### 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.

EPA Reg. No. 50534-8

EPA Est. 50534-TX-001

SCP 50534-8 M1A 0709

ACCEPTED
with COMMENTS
In EPA Letter Dated

JAN 1 0 2012

2.5 gallons Net Contents Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No.

	FIRST AID
If inhaled	<ul> <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>
If swallowed	<ul> <li>Call poison control center or doctor immediately for treatment advice.</li> <li>Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to by a poison control center or doctor.</li> <li>Do not give anything by mouth to an unconscious person.</li> </ul>
If in eyes	<ul> <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>
If on skin or clothing	<ul> <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>

#### **NOTE TO PHYSICIAN**

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.

## **HOT LINE NUMBER**

For 24-Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire, or Accident), Call

1-800-888-8372

#### PRECAUTIONARY STATEMENTS

#### Hazards to Humans and Domestic Animals

#### WARNING/AVISO

Harmful if absorbed through skin. Harmful if inhaled. Harmful if swallowed. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Wear long-sleeved shirt and long pants, socks, shoes, and chemical-resistant gloves (such as natural rubber, Selection Category A). Remove and wash contaminated clothing before reuse. Avoid breathing spray mist. Avoid contact with eyes or clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

## Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are made of any waterproof material. If you want more options, follow the instructions for Category A on an EPA chemical resistance category selection chart.

## Mixers, Loaders, Applicators and all other Handlers must wear:

- long-sleeved shirt and long pants
- chemical-resistant gloves made of any waterproof material
- shoes plus socks

Discard clothing and other absorbent materials that have been drenched of 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 PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

#### **Environmental Hazards**

This product 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 waters or rinsate.

This chemical 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.

This chemical 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 overlaying 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.

## CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

**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 GB Biosciences Corporation or Seller. To the extent permitted by applicable law, Buyer and User agree to hold GB Biosciences and Seller harmless for any claims relating to such factors.

GB Biosciences 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 GB Biosciences, and, (2) Buyer and User assume the risk of any such use. TO THE EXTENT PERMITTED BY APPLICABLE LAW, GB BIOSCIENCES 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 GB Biosciences 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 GB BIOSCIENCES 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 GB BIOSCIENCES OR SELLER, THE REPLACEMENT OF THE PRODUCT.

GB Biosciences 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 GB Biosciences.

A Broad Spectrum Agricultural Fungicide

Read entire label carefully and use only as directed.

#### **DIRECTIONS FOR USE**

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

Bravo 500 should be used only in accordance with recommendations on this label or in separately published GB Biosciences 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
- · shoes plus socks
- protective eyewear

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.

#### **GENERAL INFORMATION**

Bravo<sup>®</sup> 500 is an excellent fungicide when used according to label directions for control of a broad spectrum of plant diseases. Bravo 500 is recommended for use in programs which are compatible with the principles of Integrated Pest Management (IPM), which include the use of disease resistant crop varieties, cultural practices, pest scouting and disease forecasting systems which reduce unnecessary applications of pesticides.

Bravo 500 is effective for strategic use in programs that attempt to minimize disease resistance to fungicides. Some other fungicides which are at risk of disease resistance

exhibit a single-site mode of fungicidal action. Bravo 500, with a multi-site mode of action, may be used to delay or prevent the development of resistance to single-site fungicides. Consult with your federal or state Cooperative Extension Service representatives for guidance on the proper use of Bravo 500 in programs which seek to minimize the occurrence of disease resistance to other fungicides.

Bravo 500 can be used effectively in dilute or concentrate sprays. Thorough, uniform coverage is essential for disease control.

#### **GENERAL PRECAUTIONS AND RESTRICTIONS**

DO NOT use on greenhouse-grown crops.

DO NOT combine Bravo 500 with with Dipel<sup>®</sup>, Latron B-1956<sup>®</sup> or Latron AG-98<sup>®</sup> as phytotoxicity may result from the combination when applied to the crops on this label.

This product must not be applied within 150 feet (for aerial and airblast 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.

#### **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 conifer 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 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 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

Note: Slowly invert container several times to assure uniform mixture.

Dosage rates on this label indicate pints of Bravo 500 per acre, unless otherwise stated. Under conditions favoring disease development the high rate specified and shortest application interval should be used.

The required amount of Bravo 500 should be added slowly into the spray tank during filling. With concentrate sprays, pre-mix the required amount of Bravo 500 in a clean container and add to the spray tank as it is being filled. Keep agitator running when filling spray tank and during spray operations.

#### Field and Row Crops:

Apply Bravo 500 in sufficient water to obtain adequate coverage of foliage. Gallonage to be used will vary with crop and amount of plant growth. Spray volume usually will range from 20 to 150 gallons per acre (200 to 1400 liters per hectare) for dilute sprays and 5 to 10 gallons per acre (50 to 100 liters per hectare) for concentrate ground sprays and

aircraft applications. Both ground and aircraft methods of application are recommended unless specific directions are given for a crop. Application through sprinkler irrigation systems is not recommended unless specific directions are given for a crop. See application and calibration instruction below.

## Application and Calibration Techniques for Sprinkler Irrigation - Chemigation

Apply this product only through center pivot, motorized lateral move, traveling gun, solid set and portable (wheel move, side roll, end tow, or hand move) irrigation system(s). 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.

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

DO NOT apply this product through irrigation systems connected to a public water system. '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 per year.

Controls for both irrigation water and pesticide injection systems must be functionally interlocked, so as to automatically terminate pesticide injection when the irrigation water pump motor stops. A person knowledgeable of the irrigation system and responsible for its operation shall be present so as to discontinue pesticide injection and make necessary adjustments, should the need arise.

The irrigation water pipeline must be fitted with a functional, automatic, quick-closing check valve to prevent the flow of treated irrigation water back toward the water source. The pipeline must also be fitted with a vacuum relief valve and low pressure drain, located between the irrigation water pump and the check valve, to prevent back-siphoning of treated irrigation water into the water source.

Always inject Bravo 500 into irrigation water after it discharges from the irrigation pump and after it passes through the check valve. Never inject pesticides into the intake line on the suction side of the pump.

Pesticide injection equipment must be fitted with a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump. Interlock this valve to the power system, so as to prevent fluid from being withdrawn from the chemical supply tank when the irrigation system is either automatically or manually turned off.

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 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.

Spray mixture in the chemical supply tank must be agitated at all times, otherwise settling and uneven application may occur. DO NOT apply when wind speed favors drift beyond the area intended for treatment.

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.

Bravo 500 may be used through two basic types of sprinkler irrigation systems as outlined in Sections A and B below. Determine which type of system is in place, then refer to the appropriate directions provided for each type.

## A. Center Pivot, Motorized Lateral Move and Traveling Gun Irrigation Equipment

For injection of pesticides, these continuously moving systems must use a positive displacement injection pump, of either diaphragm or piston type, constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock and capable of injection at pressures approximately 2-3 times those encountered within the irrigation water line. Venturi applicator units cannot be used on these systems.

Fill chemical supply tank of injection equipment with water. Operate system for one complete revolution or run across the field, measuring time required, amount of water injected, and acreage covered. Thoroughly mix recommended amount of Bravo 500 for acreage to be covered into same amount of water used during calibration and inject into system continuously for one revolution or run. Mixture in the chemical supply tank must be continuously agitated during the injection run. Shut off injection equipment after one revolution or run, but continue to operate irrigation system until Bravo 500 has been cleared from last sprinkler head.

# B. Solid Set and Portable (Wheel Move, Side Roll, End Tow, or Hand Move) Irrigation Equipment

With stationary systems, an effectively designed in-line venturi applicator unit is preferred which is constructed of materials that are compatible with pesticides; however, a positive-displacement pump can also be used.

Determine acreage covered by sprinkler. Fill tank of injection equipment with water and adjust flow to use contents over a thirty to forty-five minute period. Mix desired amount of Bravo 500 for acreage to be covered with water so that the total mixture of Bravo 500 plus water in the injection tank is equal to the quantity of water used during calibration and operate entire system at normal pressures recommended by the manufacturer of injection equipment used for amount of time established during

calibration. No agitation should be required. Bravo 500 can be injected at the beginning or end of the irrigation cycle or as a separate application. Stop injection equipment after treatment is completed and continue to operate irrigation system until Bravo 500 has been cleared from last sprinkler head.

Metric Conversion Guide 2.125 pints equals 1.0 liter

4.25 pints equals 2.0 liters

# **DIRECTIONS FOR APPLICATION**

CROP	DISEASES	RATE PER ACRE (Ibs. a.i./A)	APPLICATION DIRECTIONS
Bean (Snap)	Rust	2 to 4¼ pts. (1.0 to 2.25)	Use in sufficient water to obtain adequate coverage. Begin applications during early bloom stage or when disease first threatens and repeat as necessary (the minimum re-treatment interval is 7 days) to maintain
	Botrytis blight (gray mold)	41/4 pts. (2.25)	control. DO NOT apply more than 17 pints Bravo 500 (9 lbs. a.i.) per acre during each growing season. DO NOT apply within 7 days of harvest.
Beans (Dry) (except soybeans) bean, adzuki bean, broad bean, dry bean, lablab bean, navy bean, kidney bean, lima bean, moth bean, pinto bean, pinto bean, tepary bean, urd bean, yardlong catjang chickpea (garbanzo) cowpea lupin, grain lupin bean, rice bean, runner bean, jackbean pea, blackeyed pea, southern	Rust Anthracnose Downy mildew Cercospora leaf spot (blackeye only) Ascochyta blight	2 to 2% pts. (1.0 to 1.5)	Use in sufficient water to obtain adequate coverage. Begin applications during early bloom stage and repeat at 7 to 10 day intervals (the minimum re-treatment interval is 7 days). For use only on beans to be harvested dry with pods removed. DO NOT apply more than four times per growing season. DO NOT apply more than 11.5 pints Bravo 500 (6 lbs. a.i.) per acre during each growing season. DO NOT apply within 14 days before harvest.  Bravo 500 may be applied through sprinkler irrigation equipment. See calibration directions preceding this section.

CROP	DISEASES	RATE PER ACRE (ibs. a.i./A)	APPLICATION DIRECTIONS
Cabbage Chinese Cabbage (tight-headed varieties only) Cauliflower Broccoli Chinese Broccoli	Alternaria leaf spot Downy mildew	2¼ pts. (1.125)	Use in sufficient water to obtain adequate coverage. Begin applications after transplants are set in field, or shortly after emergence of field-seeded crop, or when conditions favor disease development. Repeat at 7 to 10 day intervals (the minimum re-treatment interval is 7 days) to maintain control. DO NOT apply more than 23 pints Bravo 500 (12 lbs. a.i.) per acre during each growing season. DO NOT apply within 7 days of harvest to Chinese cabbage or Chinese broccoli.
Brussels Sprouts	Ring spot (California only)	2¾ pts. (1.5)	For field-seeded Brussels sprouts, begin applications at time of early sprout development or when conditions favor disease development. Repeat at 7 to 10 day intervals (the minimum re-treatment interval is 7 days) to maintain control.
Carrot	Cercospora (early) blight Alternaria (late) blight	2¼ to 2¾ pts. (1.125 to 1.5)	Use in sufficient water to obtain adequate coverage. Start applications when disease threatens and repeat at 7 to 10 day intervals (the minimum re-treatment interval is 7 days) to maintain control. DO NOT apply more than 29 pints Bravo 500 (15 lbs. a.i.) per acre during each growing season.
			Bravo 500 may be applied through sprinkler irrigation equipment (solid set, portable wheel move or center pivot systems only). See calibration directions preceding this section.
Celery	Cercospora (early) blight Septoria (late) blight Basal stalk rot (Rhizoctonia solani)	2¾ to 4¼ pts. (1.5 to 2.25)	Use in sufficient water to obtain adequate coverage. Start applications when transplants are set in field and repeat at a 7 day interval as needed to maintain control (the minimum re-treatment interval is 7 days). DO NOT apply more than 34.5 pints Bravo 500 (18 lbs. a.i.) per acre during each growing season. DO NOT apply within 7 days of harvest.
	Pink rot (suppression – 7 day schedule)	4¼ pts. (2.25)	Bravo 500 may be applied through sprinkler irrigation equipment (solid set, portable wheel move or center pivot systems only). See calibration directions preceding this section.
	Early blight Late blight	21/4 to 23/4 pts. (1.125 to 1.5) per 100 gals.	For celery seedbeds, apply in a spray volume of 125 gallons per acre twice weekly or as needed to maintain control. Start applications shortly after crop emergence. Use the higher rate under severe disease conditions.

CROP	DISEASES	RATE PER ACRE (Ibs. a.i./A)	APPLICATION DIRECTIONS
Corn (Sweet) Corn Grown for Seed	Helminthosporium leaf blights Rust	1 1/8 to 2 <sup>3</sup> / <sub>4</sub> pts. (0.6 to 1.5)	Use in sufficient water to obtain adequate coverage. Begin applications when conditions favor disease development and repeat at 7 day intervals as required to maintain control (the minimum re-treatment interval is 7 days). Under severe disease conditions, use 2½ to 2¾ pts. Bravo 500 per acre. DO NOT apply more than 17 pints Bravo 500 (9 lbs. a.i.) per acre during each growing season. DO NOT apply within 14 days of harvest. DO NOT apply to sweet corn to be processed. DO NOT allow livestock to graze in treated fields. DO NOT ensile treated corn or use as livestock forage.
Cranberry	Fruit rots Lophodermium leaf/twig blight	5% to 9% pts. (3.0 to 5.0)	Apply at early bloom and repeat at 10 to 14 day intervals (the minimum re-treatment interval is 10 days). Under severe disease conditions use the 9½ pts./acre rate on a 10 day schedule. DO NOT apply Bravo 500 more than 3 times per season. DO NOT apply more than 29 pints Bravo 500 (15 lbs. a.i.) per acre during each growing season. DO NOT apply within 50 days of harvest. DO NOT apply to beds when flooded or allow release of irrigation water from beds for at least 3 days following application.  Bravo 500 may be applied through sprinkler irrigation equipment. Use 300 gallons of water per acre through solid set systems only. See calibration directions preceding this section.
Cucurbits Cucumber Cantaloupe Muskmelon Honeydew melon Watermelon Squash Pumpkin	Target spot Anthracnose Downy mildew  Cercospora leaf spot Gummy stem blight (black rot) Alternaria leaf blight Scab Powdery Mildew (Sphaerotheca only)	2½ to 2¾ pts. (1.125 to 1.5) 2¾ to 4¼ pts. (1.5 to 2.25)	Use in sufficient water to obtain adequate coverage. Begin applications when plants are in first true leaf stage or when conditions are favorable for disease development. Repeat applications at 7 day intervals (the minimum re-treatment interval is 7 days). DO NOT apply more than 30 pints Bravo 500 (15.75 lbs. a.i.) per acre during each growing season.  Bravo 500 may be applied through sprinkler irrigation equipment (solid set, portable wheel move or center pivot systems only). See calibration directions preceding this section.  NOTE: Spraying mature watermelons may result in sunburn of the upper surface of the fruit. DO NOT apply Bravo 500 to watermelons when any of the following conditions are present:  1. Intense heat and sunlight 2. Drought conditions 3. Poor vine canopy 4. Other crop or environmental conditions which may be conducive to increased natural sunburn  Do not combine Bravo 500 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 for use.

CROP	DISEASES	RATE PER ACRE (Ibs. a.i./A)	A	PPLICATION	ON DIRECTIO	DNS
<b>Grasses</b> Grown for Seed	Stem rust Leaf rust Stripe rust Septoria leaf spot Glume blotch Bipolaris & Drechslera leaf spots	1½ to 2¼ pts. (0.75 to 1.125)	(top) leaf emery intervals (the m DO NOT apply a.i.) per acre du within 14 days	ons during s r disease de gence and r ninimum re-t more than uring each g of harvest.	stem elongation evelopment. depeat applicate treatment inte 8.5 pints Braverowing season DO NOT allo	on when Reapply at flag tions at 14 day rval is 14 days). to 500 (4.5 lbs. n. DO NOT apply w livestock to
	Selenophoma (eyespot)	1½ to 2¾ pts. (0.75 to 1.5)	graze in treated livestock.	areas or fe	eed treated pl	ant parts to
Mint (Indiana, Michigan and Wisconsin only)	Rust Septoria leaf spot	2 pts. (1.0)	to 10 gallons per applications. B are 4-8 inches intervals to mai interval is 7 day season. DO NO	150 gallons er acre for degin applications. Rependant contrology. DO NO Tapply more during earlys of har	per acre for disconcentrate grations when e at application of the minimu T apply more than 5.75 pach growing servest. DO NO	flute sprays and 5 cound and aircraft merging plants is at 7 to 10 day m re-treatment than 3 times per bints Bravo 500 (3 eason. DO NOT T feed fresh or
Onion (dry bulb) and Garlic	Botrytis leaf blight/blast Botrytis neck rot (suppression) Purple blotch	1½ to 4¼ pts. (0.75 to 2.25)	Apply in sufficie tops. Bravo 50 monitoring syst frequency of ap Apply as follow	0 is recomn ems which oplication ac	nended for us adjust fungici	de rates and
	Downy mildew (Suppression)			Low Disease Hazard & Prior to Infection	Low Disease Hazard & Some Disease Present	High Disease Hazard
			Rate per Acre	1½ pts	2 pts	41/4 pts
			Frequency	10 days	7 to 10 days	7 days
			For suppression a minimum of the using 2 to 41/4 precommended.	rree weekly	applications	
			The minimum reapply more that acre during each days of harvest	n 29 pints o h growing s	f Bravo 500 (1	

CROP	DISEASES	RATE PER ACRE (Ibs. a.i./A)	APPLICATION DIRECTIONS
Onion (green bunching) Leek Shallot Onion Grown for Seed	Botrytis leaf blight/blast Purple blotch Downy mildew (suppression)	2¼ to 4¼ pts. (1.125 to 2.25)	Use in sufficient water to obtain thorough coverage to tops. Begin applications prior to favorable infection periods, and repeat at 7 to 10 day intervals as long as conditions favor disease (the minimum re-treatment interval is 7 days). Use the high rate and a 7 day schedule of applications when heavy dew or rain persist.
			DO NOT apply more than 13 pints of Bravo 500 (6.75 lbs. a.i.) per acre during each growing season. DO NOT apply more than 3 times per season or within 14 days of harvest on green bunching onions, leeks or shallots. If additional disease control is needed before harvest, use another registered fungicide.
Papaya	Alternaria fruit spot Anthracnose Stem end rot	2¼ to 4¼ pts. (1.125 to 2.25)	Apply with ground equipment only, in sufficient water to obtain adequate coverage of fruit and leaves. Begin treatment when conditions favor development of disease and continue treatment at 14 day intervals until weather conditions no longer favor disease development (the minimum re-treatment interval is 14 days).
			DO NOT apply more than 13 pints of Bravo 500 (6.75 lbs. a.i.) per acre during each growing season.
Parsnip	Alternaria leaf spot Downy mildew Anthracnose Botrytis blight (gray mold) Bottom rot ( <i>Rhizoctonia</i> )	2¼ to 2¾ pts. (1.125 to 1.5)	Apply in sufficient water to obtain adequate coverage. Make the first application at the first sign of disease or when conditions are favorable for infection. Continue applications on a 7 to 10 day schedule (the minimum re-treatment interval is 7 days).  DO NOT apply more than 4 times per season or within 10 days of harvest. DO NOT apply more than 11.5 pints of Bravo 500 (6 lbs. a.i.) per acre during each growing season.
Passion Fruit	Alternaria fruit and leaf spot (passion fruit brown spot)	2¾ pts. (1.5)	Apply with ground equipment in sufficient water to obtain adequate coverage of fruit and leaves. Begin treatment when fruit spots appear (April to July) and continue treatments at 14 day intervals until weather conditions no longer favor disease development (the minimum re-treatment interval is 14 days).  DO NOT apply more than 14.5 pints of Bravo 500 (7.5 lbs. a.i.) per acre during each growing season.

CROP	DISEASES	RATE PER ACRE (Ibs. a.i./A)	APPLICATION DIRECTIONS
Peanut	Cercospora (early) leafspot Cercosporidium (late) leafspot	1½ to 2¼ pts. (0.75 to 1.125)	Apply in sufficient water for adequate coverage when leaf wetness first occurs or 30 to 40 days after planting; repeat at 14 day intervals (the minimum re-treatment interval is 14 days). When conditions favor late leafspot or when rust or web blotch occur, apply 2½ pints Bravo 500 per acre at
	Rust Web blotch	2¼ pts. (1.125)	14 day intervals for the remainder of the season. DO NOT apply more than 17 pints Bravo 500 (9 lbs. a.i.) per acre during each growing season. DO NOT apply within 14 days of harvest. DO NOT allow livestock to graze in treated areas. DO NOT feed hay or threshings from treated fields to livestock.
			Bravo 500 may be applied through sprinkler irrigation equipment. Use 2¼ pints Bravo 500 per acre in solid set, portable wheel move, center pivot or traveling gun sprinkler irrigation equipment. See calibration directions preceding this section.
Potato	Early blight Late blight Botrytis vine rot	1 1/8 pt. (0.6) then	Begin applications at the low rate when vines are first exposed and leaf wetness occurs. Repeat applications at 5 to 10 day intervals (the minimum re-treatment interval is 5 days).
		1½ to 2½ pts. (0.75 to 1.125)	Begin applying the higher label rates at 5 to 10 day intervals when any one of the following events occur:  Vines close between rows Late blight forecasting measures 18 disease severity values (DSV) The crop reaches 300 P-days  Increase water spray volume as canopy density increases. Use the highest rate and shortest interval when plants are rapidly growing and disease conditions are severe. DO NOT apply more than 21.5 pints of Bravo 500 (11.25 lbs. a.i.) per acre during each growing season. DO NOT apply within 7 days of harvest.  Bravo 500 may be applied through sprinkler irrigation equipment (solid set, portable wheel move, center pivot or motorized lateral move systems only). DO NOT exceed a 10 day interval between applications when using this technique. Follow calibration and application directions preceding this section.

CROP	DISEASES	RATE PER ACRE (Ibs. a.i./A)	APPLICATION DIRECTIONS
Determinate (Southern) Varieties	Anthracnose Diaporthe pod and stem blight Frogeye leaf spot (Cercospora sojina) Purple seed stain Cercospora leaf Blight (Cercospora kikuchii) Septoria brown		Apply in sufficient water to obtain complete coverage, using at least five gallons of water per acre for aerial application. Use the three application program in areas having a history of moderate to severe disease intensity. Bravo 500 may be applied through sprinkler irrigation equipment. Follow application and calibration directions preceding this section. The minimum re-treatment interval is 14 days. DO NOT exceed total of 3 applications per season. DO NOT apply more than 8.5 pints of Bravo 500 (4.5 lbs. a.i.) per acre during each growing season. DO NOT apply within 6 weeks of harvest. DO NOT feed treated parts to livestock or allow grazing in treated fields.
	spot	2½ to 3½ pts. (1.125 to 1.7)	Two application program — Make the first application at early pod set (R3 stage, when majority of pods are 1/8 to 3/8 inch in length) and the second at beginning seed formation (R5) which occurs about 14 days later.
	-	1½ to 2¾ pts. (0.75 to 1.5)	Three application program — Make the first application at the beginning of flowering (R1), the second at early pod set (R3) and the third at beginning of seed formation (R5).
	Stem canker (Diaporthe phaseolorum var. caulivora)	1½ pts. (0.75)	Apply in 10 to 20 gallons of water per acre, as a band treatment directing spray to provide coverage of entire plant. Make the first application at time of emergence of the second trifoliate leaves (V2). If conditions favor stem canker disease make a second and a third application. Make all applications at 14 day intervals.
Soybean Inderterminate (Northern) Varieties	Inderterminate (Northern) Diaporthe pod and stem blight		Apply in sufficient water to obtain complete coverage, using at least five gallons of water per acre for aerial application. Use the three application program in areas having a history of moderate to severe disease intensity. Bravo 500 may be applied through sprinkler irrigation equipment. Follow application and calibration directions preceding this section. The minimum re-treatment interval is 14 days. DO NOT exceed total of 3 applications per season. DO NOT apply more than 8.5 pints of Bravo 500 (4.5 lbs. a.i.) per acre during each growing season. DO NOT apply within 6 weeks of harvest. DO NOT feed soybean hay or threshings from treated fields to livestock.
sp	spot	2¼ to 3¼ pts. (1.125 to 1.7)	Two application program — Make the first application when largest pods are 1 to 1-1/2 inches in length and make the second application 14 days later.
		1½ to 2¾ pts. (0.75 to 1.5)	Three application program — Make the first application one week after first flowering and continue applications at 14 day intervals.

CROP	DISEASES	RATE PER ACRE (Ibs. a.i./A)	APPLICATION DIRECTIONS
Tomato	FOLIAGE (apply every 7-10 days) Early blight Late blight Gray leaf spot Gray leaf mold Septoria leaf spot Target spot FRUIT (apply every 7-14 days beginning at fruit set) Anthracnose Alternaria fruit rot (black mold) Rhizoctonia fruit	2 to 2¾ pts. (1.0 to 1.5) 2¾ to 4 pts. (1.5 to 2.1)	Apply in sufficient water to obtain adequate coverage. Begin applications when dew or rain occur and disease threatens. Use the highest rate and shortest interval specified when disease conditions are severe. The minimum re-treatment interval is 7 days).  DO NOT apply more than 28.5 pints Bravo 500 (15 lbs. a.i.) per acre during each growing season.  Bravo 500 may be combined in the spray tank with EPA-registered pesticide products that claim copper as the active ingredient and are labeled for control of bacterial diseases on tomatoes. Check the copper manufacturer's label for specific instructions, precautions and limitations prior to mixing with Bravo 500. DO NOT use with Copper Count® N in concentrated spray suspensions.
	rot Botrytis gray mold Late blight fruit rot		Bravo 500 may be applied through sprinkler irrigation equipment (solid set or portable wheel move systems only). See calibration directions preceding this section.

## **Tree and Orchard Crops**

Apply Bravo 500 in sufficient water and with proper calibration to obtain uniform coverage of tree canopy. Application with ground equipment is preferable to aerial application because ground applications generally give better coverage of the tree canopy. If application with ground equipment is not feasible, Bravo 500 may be applied with aircraft using at least 20 gallons per acre. When concentrate sprays are used or when treating non-bearing or immature trees, the lower rate of Bravo 500 listed may be used. DO NOT allow livestock to graze in treated areas. The following spray volumes are recommended as gallons of spray per acre:

CROP	SPRAY VOLUME (Gallons Per Acre)	
Peach, Nectarine, Apricot, Tart Cherry, Plum, Prune	20 (concentrate) to 300 (full dilute)	
Sweet Cherry	20 (concentrate) to 300 (full dilute)	
Conifers Conifer stands Christmas trees and bough production plantations Nursery beds Tree seed orchards	Dilute Cond Not used 100 100	centrate 10 to 20 (aircraft) 10 to 50 (aircraft or ground equipment) 5 to 10 (ground equipment only)

		BRAVO 500 RATE PER			
CROP	DISEASES	ACRE	100 GALS.*	APPLICATION DIRECTIONS	
Peach Nectarine Apricot Cherry Plum Prune	Leaf curl Coryneum blight (shothole)	4½ to 6 pts. (2.3 to 3.1)	1½ to 2 pts. (0.75 to 1.0)	For best control of both diseases apply at leaf fall in late autumn, using sufficient water and proper sprayer calibration to obtain uniform coverage. When conditions favor high disease levels use the high rate of application and apply once or twice more in mid to late winter before budswell. If the leaf fall application is not practical, application of Bravo 500 for control of leaf curl may be made at any time prior to budswell the following spring. Where Coryneum blight (shothole) occurs, also apply at budbreak to protect newly emerging leaves and at shuck split to prevent fruit infections.	
	Lacy (russet) scab (plum/ prune)	4½ to 6 pts. (2.3 to 3.1)	1½ to 2 pts. (0.75 to 1.0)	Make one application at popcorn (pink, red or early white bud) and a second application at full bloom. If weather conditions favor disease development, make an additional application at petal fall.	
	Cherry leaf spot Peach, Nectarine, Apricot scab	4½ to 6 pts. (2.3 to 3.1)	1½ to 2 pts. (0.75 to 1.0)	In addition to the bloom application listed above, make one application at shuck split. DO NOT apply Bravo 500 after shuck split and before harvest. If additional disease control is needed before harvest, use another registered fungicide.  For control of cherry leaf spot after harvest, make one application to foliage within 7 days after fruit is removed. In orchards with a history of high leaf spot incidence, make a second application 10 to 14 days later.	
	DO NOT apply more than 29.5 pints of Bravo 500 (15.5 lbs. a.i.) per acre during each growing season. The minimum re-treatment interval is 10 days.				

## Conifers

Apply Bravo 500 in sufficient water and with proper calibration to obtain uniform coverage of tree canopy. Applications may be made by ground or air. DO NOT allow livestock to graze in treated areas.

		BRAVO 500	RATE PER	-
CROP	DISEASES	ACRE		APPLICATION DIRECTIONS
Conifers (including Christmas trees)  For use in 1) conifer nursery beds 2) Christmas tree and bough production plantations and 3) tree seed orchards	Swiss Needlecast (Phaeocryptopus gaeumannii) Interior needle blight (Mycosphaerella spp. and Phaeocryptopus nudus)	4 to 8 pts. (2.1 to 4.125)		One to Two Applications: In Christmas tree plantations or conifer stands, make one application in the spring when new shoot growth is ½ to 2 inches in length. Under high disease pressure, a second application may be made 10-14 days after the first application.  When using aerial applications, use the highest rate.
	Scleroderris canker  (Gremmeniella abietina)  Swiss Needlecast (P. gaeumannii)  Interior needle blight (Mycosphaerella spp. and Phaeocryptopus nudus)	2¼ to 4 pts. (1.125 to 2.1)		Multiple Applications: Make the first application in spring when new shoot growth is ½ to 2 inches in length. Make additional applications at 3 to 4 week intervals until conditions no longer favor disease development. For use in nursery beds, apply the highest rate specified on a 3-week schedule.  When using aerial applications, use the highest rate.
	Sirococcus tip blight (S. conigenus)	2¾ to 5 pts. (1.5 to 2.6)		
	Rhizosphaera needlecast	8 pts. (4.125)		
	(Rhizosphaera spp.)			
	Scirrhia brown spot			
	(Mycosphaerella deamessii)			

Cylaneusma and Lophodermium needlecasts	4 to 8 pts. (2.1 to 4.125)		Apply in early spring prior to budbreak. Repeat applications at approximately 6 to 8 week intervals, until spore release ceases in late fall. Apply monthly during periods of frequent rainfall, and where Lophodermium infections occur during dormancy (Pacific Northwest). During drought periods, applications may be suspended, then resumed upon next occurrence of needle wetness.		
Rhabdocline needlecast	2½ to 4 pts. (1.125 to 2.1)		Apply at budbreak and repeat at 3 to 4 week intervals until needles are fully elongated and conditions no longer favor disease development. In plantations of mixed provenance, or when irregular budbreak occurs, apply weekly until all trees have broken bud, then every 3 to 4 weeks as specified above. In nursery beds, use the high rate on a 3-week schedule.		
Botrytis seedling blight Phoma twig blight	2¼ to 4 pts. (1.125 to 2.1)		Begin applications in nursery beds when seedlings are 4 inches tall and when cool, moist conditions favor disease development. Make additional applications at 7 to 14 day intervals as long as disease favorable conditions persist.		
Weir's cushion rust (Chrysomyxa weirii)	5½ (4.125)		Begin applications when 10% of buds have broken and twice thereafter at 7-10 day intervals.		
DO NOT apply more than 31.5 pints of Bravo 500 (16.5 lbs. a.i.) per acre during each growing season.					

<sup>\*</sup>Volumetric rates to be used only with full dilute spray volume specified on this label for tree and orchard crops.

MUSHROOMS: Verticillium brown spot and dry bubble - Apply 4 to 8 fl. oz. of Bravo 500 per 1,000 sq. ft. of mushroom bed. Apply as a drench to the mushroom bed surface in at least 12.5 gallons of water per 1,000 sq. ft. of mushroom bed. Make two applications. Apply the high rate (8 fl. oz.) of Bravo 500 in the first application and the low rate (4 fl. oz.) of Bravo 500 in the second application. The first application should be made within two days of top-dressing the spawn-colonized mushroom compost with a casing layer. The second application should be made at pinning. DO NOT apply within five days of first harvest. Make no more than two applications per cropping cycle. DO NOT apply more than 12 fl. oz. of Bravo 500 per cropping cycle.

#### STORAGE AND DISPOSAL

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

#### **Pesticide Storage**

Store in a cool place. Protect from excessive heat.

#### **Pesticide Disposal**

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, pesticide spray 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 at the nearest EPA Regional Office for guidance.

#### Container Handling [less than 5 gallons]

Non-refillable container. Do not reuse or refill this container. Offer for recycling if available. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or mix tank or store rinsate for later use and disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

#### Container Handling [greater than 5 gallons]

Non-refillable container. Do not reuse or refill this container. Offer for recycling if available. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least once complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into

application equipment or a mix tank or store rinsate for later use and disposal. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

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

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