

# **CABBAGE, CHINESE CABBAGE, ETC. - ALTERNARIA LEAF SPOT, DOWNY MILDEW**

## General Information

### PRODUCT INFORMATION

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

Bravo Ultrex is an excellent fungicide when used according to label directions for control of a broad spectrum of plant diseases. Bravo Ultrex 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 Ultrex is effective for strategic use in programs that attempt to minimize disease resistance to fungicides. Some other fungicides which are at risk from disease resistance exhibit a single-site mode of fungicidal action. Bravo Ultrex, 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 Ultrex in programs which seek to minimize the occurrence of disease resistance to other fungicides.

### USE PRECAUTIONS AND RESTRICTIONS

- DO NOT use on greenhouse-grown crops.
- DO NOT combine Bravo Ultrex in the spray tank with pesticides, adjuvants, surfactants, or fertilizers unless your prior use has shown the combination physically compatible, effective, and noninjurious under your conditions of use. DO NOT combine Bravo Ultrex with Dipel, Latron B-1956, or Latron AG-98 as phytotoxicity may result from the combination when applied to some crops on this label.
- 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.

### 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  $\frac{3}{4}$  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.]

### APPLICATION

Dosage rates on this label indicate pounds of Bravo Ultrex 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 Ultrex should be added slowly into the spray tank during filling. With concentrate sprays, pre-mix the required amount of Bravo Ultrex 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.

Apply Bravo Ultrex in sufficient water to obtain adequate coverage of foliage. Gallonage to be used will vary with crop and amount of plant growth. For field and row crops, 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. For tree and orchard crops, apply Bravo Ultrex in sufficient water and with proper calibration to obtain uniform coverage of tree canopy. For fruit and nut bearing crops, the maximum volume is 300 gallons per acre unless indicated otherwise in the specific use directions. For conifers, the maximum volume is 100 gallons per acre.

#### Application and Calibration Techniques for Chemigation

Apply this product only through center pivot, motorized lateral move, traveling gun, solid set or 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 Ultrex 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.

Posting of areas to be chemigated is required when (1) any part of a treated area is within 300 feet of sensitive areas such as residential areas, labor camps, businesses, day care centers, hospitals, in-patient clinics, nursing homes, or any public areas such as schools, parks, playgrounds, or other public facilities not including public roads, or (2) when the chemigated area is open to the public.

Posting must conform to the following requirements. Treated areas shall be posted with signs at all usual points of entry and along likely routes of approach from the listed sensitive areas. When there are no usual points of entry, signs must be posted in the corners of the treated areas and in any other location affording maximum visibility to sensitive areas. The printed side of the sign should face away from the treated area towards the sensitive area. The signs shall be printed in English. Signs must be posted prior to application and must remain posted until foliage has dried and soil surface water has disappeared. Signs may remain in place

indefinitely as long as they are composed of materials to prevent deterioration and maintain legibility for the duration of the posting period.

All words shall consist of letters at least 2½ inches tall, and all letters and the symbol shall be a color which sharply contrasts with their immediate background. At the top of the sign shall be the words KEEP OUT, followed by an octagonal stop sign symbol at least 8 inches in diameter containing the word STOP. Below the symbol shall be the words PESTICIDES IN IRRIGATION WATER.

This sign is in addition to any sign posted to comply with the Worker Protection Standard.

Bravo Ultrex 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.

Thoroughly mix recommended amount of Bravo Ultrex for acreage to be covered into the 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 Ultrex 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 Ultrex for acreage to be covered with water so that the total mixture of Bravo Ultrex 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. Agitation is recommended. Bravo Ultrex 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 Ultrex has been cleared from last sprinkler head.

#### Limitations, Restrictions, and Exceptions

CABBAGE, CHINESE CABBAGE (TIGHT-HEADED VARIETIES ONLY), CAULIFLOWER, BROCCOLI, CHINESE BROCCOLI, BRUSSELS SPROUTS

#### APPLICATION DIRECTIONS

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 or as necessary (the minimum retreatment interval is 7 days) to maintain control.

Apply by ground, air, or chemigation.

#### Specific Use Restrictions:

- Do not apply more than 14.5 pounds of Bravo Ultrex (12 lb ai) per acre during each growing season.
- Do not apply within 7 days of harvest.

#### Method

[Broadcast/Foliar Air](#)

[Broadcast/Foliar Ground](#)

#### Pre-Harvest Interval

7 days

#### Restricted Entry Interval

12 hours

#### Timings

[Begin applications after transplants are set in field, or shortly after emergence of](#)

field-seeded crop, or when conditions favor disease development.