

# Bravo<sup>®</sup> ZN

GROUP M5 FUNGICIDE

## Agricultural Fungicide

### ACTIVE INGREDIENT: % BY WT.

Chlorothalonil  
(tetrachloroisophthalonitrile) . . . . . 38.5%

OTHER INGREDIENTS: . . . . . 61.5%

TOTAL: . . . . . 100.0%

Bravo<sup>®</sup> ZN is formulated as a suspension concentrate (SC).

Contains 4.17 pounds chlorothalonil per gallon

EPA Reg. No. 66222-278

EPA Est. No. 50534-TX-001<sup>GBY</sup>

070989-AR-001<sup>OMB</sup>

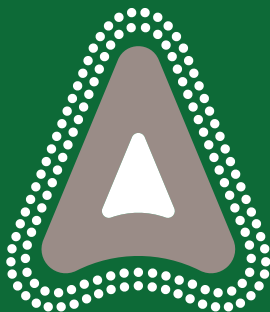
Letter(s) in lot number correspond(s) to superscript in EPA Est. No.

## 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.)

For Precautionary Statements, handling, Directions for Use, (and Storage and Disposal), see inside of this booklet.

How can we help?  
1-866-406-6262



FUNGICIDE

ACCEPTED  
VIA NOTIFICATION  
LABEL NOT REVIEWED

FEB 06 2018

New York State Department  
of Environmental Conservation  
Division of Materials Management  
Pesticide Product Registration

Doc ID: 555509

# ADAMA

<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. 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>
<b>If on skin or clothing</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If in eyes</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</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. For emergency medical treatment information, call 24 hours a day to 1-877-250-9291.	

In case of spills, fire, leaks or accidents call 1-800-535-5053.

**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 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 exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

## Engineering Controls

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 washwaters or rinsate.

## Groundwater Advisory

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

## Surface Water Advisory

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 groundwater, 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.

# DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Bravo® ZN should be used only in accordance with recommendations on this label or in separately published ADAMA supplemental labeling recommendations for this product. DO NOT apply this product in a way that will contact workers, 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 worker entry into treated areas during the restricted entry interval (REI) of 12 hours.**

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- coveralls
- chemical-resistant gloves made of any waterproof material
- 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

## PRODUCT INFORMATION

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

Bravo ZN is an excellent disease control agent when used according to label directions for control of a broad spectrum of plant diseases. Bravo ZN 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 ZN 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 model of fungicidal action. Bravo ZN, 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 ZN 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.
- 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.
- Do not combine Bravo ZN 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 ZN with Dipel<sup>®</sup>, Latron B-1956<sup>®</sup> or Latron AG-98 as phytotoxicity may result from the combination when applied to some crops on this label.

### 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 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.]

#### 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, non-target 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 ZN 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 ZN should be added slowly into the spray tank during filling. With concentrate sprays, premix the required amount of Bravo ZN 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 ZN 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 for dilute sprays and 5 to 10 gallons per acre for concentrate ground sprays and aircraft applications.

For tree and orchard crops, apply Bravo ZN 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.

### **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 ZN 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 ZN 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 ZN 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 ZN 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 ZN for acreage to be covered with water so that the total mixture of Bravo ZN 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 ZN 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 ZN has been cleared from last sprinkler head.

**APPLICATION INSTRUCTIONS**

CROP	DISEASES (Pathogen)	PT PRODUCT/A (lb ai/A)	APPLICATION DIRECTIONS
Bean (Snap)	Rust ( <i>Uromyces appendiculatus</i> )	2 to 4% (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 control. Apply by ground, air or chemigation.
	Botrytis blight (gray mold) ( <i>B. cinerea</i> )	4% (2.25)	

**Specific Use Restrictions:**

- Do not apply more than 17 pints of Bravo ZN (9.0 lb ai) per acre during each growing season.
- Do not apply within 7 days of harvest.



CROP	DISEASES (Pathogen)	PT PRODUCT/A (lb ai/A)	APPLICATION DIRECTIONS
<b>Beans (Dry)</b> (except soybeans) 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 catjang chickpea (garbanzo) cowpea lupin, grain lupin bean, rice bean, runner bean, jackbean pea, blackeyed pea, southern	Anthracnose ( <i>Colletotrichum lindemuthianum</i> ) Ascochyta blight ( <i>A. phaseolorum</i> ) Cercospora leaf blotch ( <i>C. cruenta</i> ) Downy mildew ( <i>Phytophthora nicotianae</i> ) Rust ( <i>Uromyces appendiculatus</i> )	2 to 2½ (1.0 to 1.5)	Use in sufficient water to obtain adequate coverage. Begin applications at first onset of disease, which may occur as early as 2 to 4 weeks before flowering. Repeat applications 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. Apply by ground, air or chemigation.
<b>Specific Use Restrictions:</b> <ul style="list-style-type: none"> <li>• Do not apply more than 11.5 pints of Bravo ZN (6 lb ai) per acre during each growing season.</li> <li>• Do not apply within 14 days before harvest.</li> </ul>			

CROP	DISEASES (Pathogen)	PT PRODUCT/A (lb ai/A)	APPLICATION DIRECTIONS
Blueberries	<b>Suppression:</b> Anthracnose (ripe rot) ( <i>C. gloeosporoides</i> ) Mummy berry ( <i>M. vacciniorymbosi</i> )	4¼ to 5¼ (2.25 to 3.0)	Bravo ZN should be integrated into an overall disease management strategy which includes alternation with a fungicide with a different mode of action. Diseases may only be suppressed and russetting may occur under heavy disease pressure or unfavorable environmental conditions. Apply in sufficient water to obtain adequate coverage, normally 20 to 100 gallons per acre. Begin applications at budbreak (green tip) and repeat at 10-day intervals through early bloom (the minimum re-treatment interval is 10 days). Under heavy disease pressure, use the higher rate. Apply by ground or air.
	Rust ( <i>Pucciniastrum vaccinii</i> ) Septoria leaf spot ( <i>Septoria albopunctata</i> )	4¼ to 5¼ (2.25 to 3.0)	<b>Foliar Use After Harvest</b> (after all berries are harvested): To maintain healthy leaves for the following season, apply in sufficient water to obtain adequate coverage (normally 20 to 100 gallons per acre). Repeat at 10- to 14-day intervals (the minimum re-treatment interval is 10 days). Apply by ground or air.

**Specific Use Restrictions:**

- Do not apply more than 17 pints of Bravo ZN (9.0 lb ai) per acre during each growing season.
- Do not apply after full bloom (except for foliar use after harvest) or within 42 days of harvest.

CROP	DISEASES (Pathogen)	PT PRODUCT/A (lb ai/A)	APPLICATION DIRECTIONS
Carrots	Alternaria leaf blight ( <i>A. dauci</i> ) Cercospora leaf spot ( <i>C. carotae</i> )	2¼ to 2¾ (1.17 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. Apply by ground, air or chemigation.

**Specific Use Restrictions:**

- Do not apply more than 29 pints of Bravo ZN (15 lb ai) per acre during each growing season.
- Bravo ZN may be applied the day of harvest.

CROP	DISEASES (Pathogen)	PT PRODUCT/A (lb ai/A)	APPLICATION DIRECTIONS
<b>Cucurbits</b> <b>Cantaloupe</b> <b>Cucumber</b> <b>Honeydew melon</b> <b>Muskmelon</b> <b>Pumpkin</b> <b>Squash</b> <b>Watermelon</b>	Anthracnose <i>(Colletotrichum spp.)</i> Downy mildew <i>(Pseudoperonospora cubensis)</i> Target spot <i>(Corynespora cassiicola)</i>	2¼ to 2¼ (1.17 to 1.5)	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).
	Alternaria leaf blight <i>(A. cucumerina)</i> Alternaria leaf spot <i>(A. alternata)</i> Cercospora leaf spot <i>(C. citrullina)</i> Gummy stem blight /vine decline <i>(Didymella bryoniae)</i> Powdery mildew <i>(Sphaerotheca only)</i> Scab <i>(Cladosporium cucumerinum)</i>	2¼ to 4¼ (1.5 to 2.25)	Note: Spraying mature watermelons may result in sunburn of the upper surface of the fruit. Do not apply Bravo ZN to watermelons when any of the following conditions are present: <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 which may be conducive to increased natural sunburn</li> </ol> Do not combine Bravo ZN 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. Apply by ground, air or chemigation.
<b>Specific Use Restrictions:</b> <ul style="list-style-type: none"> <li>• Do not apply more than 30 pints of Bravo ZN (15.75 lb ai) per acre during each growing season.</li> <li>• Bravo ZN may be applied the day of harvest.</li> </ul>			

CROP	DISEASES (Pathogen)	Pt Product/A (lb ai/A)	APPLICATION DIRECTIONS																		
<b>Onion</b> (Dry bulb) and <b>Garlic</b>	Botrytis leaf blight ( <i>Botrytis</i> spp.) Purple blotch ( <i>Alternaria porri</i> ) <b>Suppression:</b> Botrytis neck rot Downy mildew ( <i>Peronospora destructor</i> )	1½ to 4¼ (0.75 to 2.25)	Apply in sufficient water to obtain thorough coverage of tops. Bravo ZN is recommended for use with disease monitoring systems which adjust fungicide rates and frequency of application according to disease hazard. Apply as follows: <table border="1" style="margin-left: auto; margin-right: auto;"><tr><td colspan="2" style="text-align: center;"><b>Low Disease Hazard &amp; Prior to Infection</b></td></tr><tr><td>Rate per Acre</td><td>1½ pt</td></tr><tr><td>Frequency</td><td>10 days</td></tr><tr><td colspan="2" style="text-align: center;"><b>Low Disease Hazard &amp; Some Disease Present</b></td></tr><tr><td>Rate per Acre</td><td>2 pt</td></tr><tr><td>Frequency</td><td>7 to 10 days</td></tr><tr><td colspan="2" style="text-align: center;"><b>High Disease Hazard</b></td></tr><tr><td>Rate per Acre</td><td>4¼ pt</td></tr><tr><td>Frequency</td><td>7 days</td></tr></table> For suppression of neck rot ( <i>Botrytis</i> spp.) during storage, a minimum of three weekly applications prior to lifting, using 2 to 4¼ pints of Bravo ZN per acre, is recommended. The minimum re-treatment interval is 7 days. Apply by ground, air or chemigation.	<b>Low Disease Hazard &amp; Prior to Infection</b>		Rate per Acre	1½ pt	Frequency	10 days	<b>Low Disease Hazard &amp; Some Disease Present</b>		Rate per Acre	2 pt	Frequency	7 to 10 days	<b>High Disease Hazard</b>		Rate per Acre	4¼ pt	Frequency	7 days
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**Specific Use Restrictions:**

- Do not apply more than 29 pints of Bravo ZN (15 lb ai) per acre during each growing season.
- Do not apply within 7 days of harvest.

CROP	DISEASES (Pathogen)	Pt Product/A (lb ai/A)	APPLICATION DIRECTIONS
<b>Onion</b> (green bunching) <b>Leek</b> <b>Shallots</b> <b>Onion and Garlic</b> (grown for seed)	Botrytis leaf blight ( <i>Botrytis</i> spp.) Purple blotch ( <i>Alternaria porri</i> ) <b>Suppression:</b> Downy mildew ( <i>Peronospora destructor</i> )	2¼ to 4¼ (1.17 to 2.25)	Use in sufficient water to obtain thorough coverage of tops. Begin applications prior to favorable infection periods, and repeat at 7- to 10-day intervals for 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. Apply by ground, air or chemigation.

**Specific Use Restrictions:**

- Do not apply more than 13 pints of Bravo ZN (6.75 lb ai) per acre during each growing season.
- Do not apply within 7 days of harvest on garlic.
- Do not apply within 14 days of harvest on green bunching onions, leeks or shallots.

CROP	DISEASES (Pathogen)	Pt Product/A (lb ai/A)	APPLICATION DIRECTIONS
Potato	Black dot ( <i>Colletotrichum coccodes</i> ) Botrytis vine rot ( <i>B. cinerea</i> ) Early blight ( <i>Alternaria solani</i> ) Late blight ( <i>Phytophthora infestans</i> )	1 1/8 (0.6) - then - 1½ to 2¼ (0.75 to 1.17)	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). Begin applying the higher label rates at 5- to 10-day intervals when any one of the following events occur: <ul style="list-style-type: none"> <li>• Vines close within the rows</li> <li>• Late blight forecasting measures 18 disease severity values (DSV)</li> <li>• The crop reaches 300 P-days</li> </ul> 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. Apply by ground, air, or chemigation. Do not exceed a 10-day interval between applications when using chemigation.

**Specific Use Restrictions:**

- Do not apply more than 21.5 pints of Bravo ZN (11.25 lb ai) per acre during each growing season.
- Do not apply within 7 days of harvest.

CROP	DISEASES (Pathogen)	Pt Product/A (lb ai/A)	APPLICATION DIRECTIONS
Tomato	<b>FOLIAGE</b> Early blight ( <i>Alternaria solani</i> ) Gray leaf mold ( <i>Fluvia fluvia</i> ; <i>Cladosporium</i> ) Gray leaf spot ( <i>Stemphyllium botryosum</i> ) Late blight ( <i>Phytophthora infestans</i> ) Septoria leaf spot ( <i>S. lycopersici</i> ) Target spot ( <i>Corynespora cassicola</i> )	2 to 2¼ (1.0 to 1.5)	Apply in sufficient water to obtain adequate coverage. Begin applications when dew or rain occur and disease threatens. Apply on a 7- to 10-day interval for foliage diseases. For fruit diseases, begin at fruit set and apply on a 7- to 14-day interval. Use the highest rate and shortest interval specified when disease conditions are severe. The minimum re-treatment interval is 7 days. Apply by ground, air, or chemigation.
	<b>FRUIT</b> Alternaria fruit rot (black mold) ( <i>A. alternata</i> ) Anthracnose ( <i>Colletotrichum</i> spp.) Botrytis gray mold ( <i>B. cinerea</i> ) Late blight fruit rot ( <i>P. infestans</i> ) Rhizoctonia fruit rot ( <i>R. solani</i> )	2¼ to 4 (1.5 to 2.1)	

**Specific Use Restrictions:**

- Do not apply more than 28.5 pints of Bravo ZN (15 lb ai) per acre during each growing season.
- Bravo ZN may be applied the day of harvest.

## Tree and Orchard Crops

Apply Bravo ZN 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.

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 ZN may be applied with aircraft using at least 20 gallons of spray per acre.

When concentrate sprays are used or when treating non-bearing or immature trees, the lower rate of Bravo ZN listed may be used. Do not allow livestock to graze in treated areas.

CROP	DISEASES (Pathogen)	Pt Product PER (lb ai per)		APPLICATION DIRECTIONS
		Acre	100 gal*	
Cherry	Leaf curl ( <i>Taphrina deformans</i> ) Shot hole ( <i>Wilsonomyces carpophilus</i> )	4½ to 6 (2.3 to 3.1)	1½ to 2 (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 ZN for control of leaf curl may be made at any time prior to budswell the following spring. Where shothole occurs, also apply at budbreak to protect newly emerging leaves and at shuck split to prevent fruit infections. Apply by ground or air.
	Brown rot blossom blight <i>Monilinia</i> spp.	4½ to 6 (2.3 to 3.1)	1½ to 2 (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.

CROP	DISEASES (Pathogen)	Pt Product PER (lb ai per)		APPLICATION DIRECTIONS
		Acre	100 gal*	
Cherry cont.	Black knot (cherry) ( <i>Apiosporina morbosus</i> ) Cherry leaf spot ( <i>Blumeriella jaapii</i> ) Scab ( <i>Cladosporium carpophilum</i> )	4½ to 6 (2.3 to 3.1)	1½ to 2 (0.75 to 1.0)	In addition to the bloom application listed above, make one application at shuck split. Do not apply Bravo ZN 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 10-14 days later.  Apply by ground or air.

**Specific Use Restrictions:**

- Do not apply more than 29.5 pints of Bravo ZN (15.5 lb ai) per acre during each growing season.
- The minimum re-treatment interval is 10 days.
- Bravo ZN may be applied through shuck split. Bravo ZN may then again be applied after harvest as indicated.

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

## STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage and 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 [greater than 5 gallons]**

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the person refilling. To clean container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

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

## LIMITATION OF WARRANTY AND LIABILITY

Read the entire directions for use, conditions of warranties and limitations of liability before using this product. If terms are not acceptable, return the unopened product container at once.

By using this product, user or buyer accepts the following **CONDITIONS, DISCLAIMER OF WARRANTIES** and **LIMITATIONS OF LIABILITY**.

**CONDITIONS:** The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of ADAMA. All such risks shall be assumed by the user or buyer.

**DISCLAIMER OF WARRANTIES:** To the extent consistent with applicable law, ADAMA makes no other warranties, express or implied, of merchantability or of fitness for a particular purpose or otherwise, that extend beyond the statements made on this label. No agent of ADAMA is authorized to make any warranties beyond those contained herein or to modify the warranties contained herein. To the extent consistent with applicable law, ADAMA disclaims any liability whatsoever for special, incidental or consequential damages resulting from the use or handling of this product.

**LIMITATIONS OF LIABILITY:** To the extent consistent with applicable law, the exclusive remedy of the user or buyer for any and all losses, injuries or damages resulting from the use or handling of this product, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the purchase price paid or at ADAMA's election, the replacement of product.

Bravo is a registered trademark of an ADAMA Group Company.

Dipel is a registered trademark of Valent BioSciences Corporation.

Latron B-1956 are trademarks of J.R. Simplot Company Corporation.

Manufactured for:

Makhteshim Agan of North America, Inc. (d/b/a ADAMA)

3120 Highwoods Blvd., Suite 100

Raleigh, NC 27604

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091817-2.0



# Bravo<sup>®</sup> ZN

## Agricultural Fungicide

ACTIVE INGREDIENT:	% BY WT.
Chlorothalonil (tetrachloroisophthalonitrile) . . . . .	38.5%
<b>OTHER INGREDIENTS:</b> . . . . .	61.5%
<b>TOTAL:</b> . . . . .	100.0%

Bravo<sup>®</sup> ZN is formulated as a suspension concentrate (SC).  
Contains 4.17 pounds chlorothalonil per gallon

EPA Reg. No. 66222-278

EPA Est. No. 50534-TX-001<sup>SEB</sup>  
070989-AR-001<sup>OMB</sup>

Letter(s) in lot number correspond(s) to superscript in EPA Est. No.

## 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.)

### 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.

For additional Precautionary Statements, handling, Directions for Use, (and Storage and Disposal), see inside of the booklet.

## How can we help? 1-866-406-6262

Manufactured for:  
Makhteshim Agan of North America, Inc.  
(d/b/a ADAMA)  
3120 Highwoods Blvd.  
Raleigh, NC 27604



FUNGICIDE

# ADAMA

## Net Contents 1000 gallons

GROUP M5 FUNGICIDE

### FIRST AID

**If inhaled** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

**If swallowed** Call a poison control center or doctor immediately for treatment advice. 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. Do not give anything by mouth to an unconscious person.

**If on skin or clothing** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

**If in eyes** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

**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. For emergency medical treatment information, call 24 hours a day to 1-877-250-9291.

In case of spills, fire, leaks or accidents call 1-800-535-5053.

## STORAGE AND DISPOSAL

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### Pesticide Disposal

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PEEL BACK BOOK HERE