

PM 22

50534-204

1997



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

APR 21 1997

Jon M. Gehring
ISK Biosciences Corporation
5966 Heisley Road, P.O. Box 8000
Mentor, OH. 44061-8000

Dear Mr. Gehring:

Subject: Minor Label Amendment-Alternate Company Logo
BRAVO Zn
EPA Registration Number 50534-204
Your amendment application submission dated
February 20, 1997

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is acceptable provided that you make the labeling changes listed below before you release the product for shipment bearing the amended labeling.

1. On the front panel, correct the typographical error in the Spanish statement.
2. Submit one (1) copy of your final printed labeling before you release the product for shipment.

A stamped copy is enclosed for your records.

If you have any question regarding this letter, please contact Marcel Howard at (703)305-6784.

Sincerely yours,

[Signature]
Cynthia Giles-Parker
Product Manger (22)
Fungicide Herbicide Branch
Registration Division(H7505C)

2024



Super Weather Stik™
Sticks and Stays Between Sprays. Guaranteed.

Net Contents: _____ (Container Label)

ISK BIOSCIENCES™

Bravo® Zn
Agricultural Fungicide*

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

Active Ingredient:	
Chlorothalonil (tetrachloroisophthalonitrile)	38.5%
Inert Ingredients:	61.5%
Total:	100.0%

*Patent Pending

Keep Out of Reach of Children

WARNING-AVISO

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

See side panel for additional precautionary statements.

BRAVO is a registered trademark of ISK Biosciences Corporation.

Super Weather Stik logo is a trademark of ISK Biosciences Corporation.

ISK Biosciences Corporation
5966 Heisley Road
P.O. Box 8000
Mentor, Ohio 44061-8000

EPA Reg. No. 50534-204
EPA Est. No. 37429-GA-1

3702-4060-8049-9509

ACCEPTED
with COMMENTS
In EPA Letter Dated

APR 21 1997
**Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.**

50534-204

30/01

Bravo® Zn

A Broad Spectrum Agricultural Fungicide

Read entire label carefully and use only as directed.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

WARNING: Causes eye irritation. May cause skin irritation. May be a potential skin sensitizer.

DO NOT get in eyes. Avoid prolonged contact with skin. Avoid breathing spray mist. **DO NOT** take internally.

Note to User: This product may produce temporary allergic side effects characterized by redness of the eyes, mild bronchial irritation and redness or rash on exposed skin areas. Persons having allergic reaction should contact a physician.

First Aid:

In case of contact with eyes, immediately flush eyes with plenty of water and continue for 15 minutes. Seek medical attention for eyes immediately.

Wash exposed areas of skin with soap and warm water after handling or using.

Note to Physician: Persons having a temporary allergic reaction respond to treatment with antihistamines or steroid creams and/or systemic steroids.

Personal Protective Equipment (PPE):

Applicators and other handlers must wear long-sleeved shirt and long pants, waterproof gloves, shoes plus socks and protective eye wear.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. **DO NOT** reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- * Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- * Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Environmental Hazards

This product is toxic to fish, aquatic invertebrates, and marine/estuarine organisms. Runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. **DO NOT** apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. **DO NOT** contaminate water when disposing of equipment washwaters. **DO NOT** apply when weather conditions favor drift from treated areas.

APPLY ONLY TO AREAS SPECIFIED ON LABEL.

Directions for Use

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

4/0/01

Agricultural Use Requirements

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

STORAGE AND DISPOSAL

DO NOT contaminate water, food or feed by storage or disposal. Open dumping is prohibited.

Storage: Store in a cool place. Protect from excessive heat.

Pesticide Disposal: Pesticide wastes are toxic. 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 Disposal: DO NOT reuse empty container. Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Returnable Refillable Container: If Bravo Zn is packaged in a returnable refillable container, then, after use, do not rinse container. Return container intact to point of purchase. This container must only be refilled with Bravo Zn. DO NOT REUSE THE CONTAINER FOR ANY OTHER PURPOSE. Before refilling, inspect thoroughly for damage such as cracks, punctures, abrasions, and damaged or worn threads on closure devices. Check for leaks after refilling and before transport.

Warranty and Limitation of Damages

Seller warrants to those persons lawfully acquiring title to this product that at the time of the first sale of this product by seller that this product conformed to its chemical description and was reasonably fit for the purposes stated on the label when used in accordance with Seller's directions under normal conditions of use and Buyers and users of this product assume the risk of any use contrary to such directions. EXCEPT AS PROVIDED ELSEWHERE IN WRITING CONTAINING AN EXPRESS REFERENCE TO THIS WARRANTY AND LIMITATION OF DAMAGES, SELLER MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OR GUARANTY, INCLUDING ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR OF MERCHANTABILITY, AND NO AGENT OF SELLER IS AUTHORIZED TO DO SO. In no event shall Seller's liability for any breach of warranty or guaranty exceed the purchase price of the product as to which a claim is made.

Buyers and users of this product are responsible for all loss or damage from use or handling of this product which results from conditions beyond the control of Seller, including, but not limited to, incompatibility with other products unless otherwise expressly provided in the Directions for Use of this product, weather conditions, cultural practices, moisture conditions or other environmental conditions outside of the ranges that are generally recognized as being conducive to good agricultural and/or horticultural practices.

SEE ENCLOSED FOLDER FOR DIRECTIONS FOR USE.

PLACE INSERT POUCH HERE

50801

(INSERT FOLDER)

Bravo® Zn
Agricultural Fungicide*

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Active Ingredient:	
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) See side panel for additional precautionary statements.

BRAVO is a registered trademark of ISK Biosciences Corporation.

ISK Biosciences Corporation

5966 Heisley Road
P.O. Box 8000
Mentor, Ohio 44061-8000

EPA Reg. No. 50534-204
EPA Est. No. 37429-GA-1

3702-4060-8049-9509

)

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APPLY ONLY TO AREAS SPECIFIED ON LABEL.

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Directions for Use

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

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 48 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, waterproof gloves, shoes plus socks, and protective eyewear.

Zinc is incorporated into this formulation as a micronutrient to provide plants with zinc required for growth.

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.

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

DO NOT use on greenhouse-grown crops.

DO NOT combine BRAVO Zn in the spray tank with pesticides, 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 4L, Triton AG-98, or Triton B-1956 as phytotoxicity may result from the combination when applied to some crops on this label.

Dipel is a registered trademark of Abbott Laboratories. Triton AG-98 and Triton B-1956 are trademarks of Rohm and Haas Company.

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.

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The required amount of BRAVO Zn should be added slowly into the spray tank during filling. With concentrate sprays, pre-mix 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.

Field and Row Crops:

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. 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

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.

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.

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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 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. No agitation should be required. 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.

Metric Conversion Guide

2-1/8 pints equals 1.0 liter

4-1/4 pints equals 2.0 liters

CROP	DISEASES	RATE PER ACRE	APPLICATION DIRECTIONS
Bean (Snap)	Rust	2 to 4-1/4 pts	Use in sufficient water to obtain adequate coverage. Begin applications during early bloom stage or when disease first threatens and repeat at weekly intervals or as necessary to maintain control. Do not apply within 7 days of harvest. Do not graze treated areas or feed treated plant parts to livestock.
	Botrytis blight (gray mold)	4-1/4 pts	

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CROP	DISEASES	RATE PER ACRE	APPLICATION DIRECTIONS
Beans (Dry) Navy, Pinto, Kidney, Lima, Blackeye	Rust, Anthracnose, Downy mildew, Cercospora leaf spot (blackeye only) Ascochyta blight	2 to 3 pts	Use in sufficient water to obtain adequate coverage. Begin applications during early bloom stage and repeat at 7 to 10 day intervals. For use only on beans to be harvested dry with pods removed. Do not apply more than 4 times per growing season. Do not apply within 14 days before harvest. Do not allow livestock to graze in treated areas or feed treated plant parts to livestock. BRAVO Zn may be applied through sprinkler irrigation equipment. See calibration directions preceding this section.
Cabbage, Chinese Cabbage (tight-headed varieties only) Cauliflower, Broccoli, Chinese Broccoli, Brussels Sprouts	Alternaria leaf spot, Downy mildew Ring spot (California only)	2-1/4 pts 2-3/4 pts	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 to maintain control. Do not apply within 7 days of harvest to Chinese cabbage or Chinese broccoli. 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 or as necessary to maintain control.
Carrot	Cercospora (Early) blight, Alternaria (Late) blight	2-1/4 to 2-3/4 pts	Use in sufficient water to obtain adequate coverage. Start applications when disease threatens and repeat at 7 to 10 day intervals or as necessary to maintain control. BRAVO Zn may be applied through sprinkler irrigation equipment (solid set, portable wheel move or center pivot systems only). See calibration directions preceding this section.

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CROP	DISEASES	RATE PER ACRE	APPLICATION DIRECTIONS
Celery	Cercospora (Early) blight, Septoria (Late) blight, Basal stalk rot (<i>Rhizoctonia solani</i>)	1-1/2 to 2-1/8 pts semi-weekly or 3 to 4-1/4 pts weekly	Use 1-1/2 to 2-1/8 pts per acre on a 3 to 5 day spray schedule or 3 to 4-1/4 pts per acre on a 7 day schedule. Start applications when transplants are set in the field. Apply in sufficient water to obtain adequate coverage.
	Pink rot (Suppression)	4-1/4 pts	BRAVO Zn may be applied through sprinkler irrigation equipment (solid set, portable wheel move or center pivot systems only). See calibration directions preceding this section. Do not apply within 7 days of harvest.
	Early blight Late blight	2-1/4 to 2-3/4 pts/100 gal.	For celery seedbeds, apply 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.
Corn (sweet), Corn grown for seed	Helminthosporium leaf blights, Rust	1-1/8 to 2-3/4 pts	Use in sufficient water to obtain adequate coverage. Begin applications when conditions favor disease development and repeat at 4 to 7 day intervals or as required to maintain control. Under severe disease conditions, use 2-1/4 to 2-3/4 pts per acre. 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	6 to 10 pts	Apply at early bloom and repeat at 10 to 14 day intervals. Under severe disease conditions use the 10 pts/acre rate on a 10 day schedule. Do not apply BRAVO Zn more than 3 times per season, or within 50 days before harvest. Do not apply to bogs when flooded or allow release of irrigation water from bogs for at least 3 days following application. BRAVO Zn 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.

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CROP	DISEASES	RATE PER ACRE	APPLICATION DIRECTIONS
Cucurbits: Cucumber, Cantaloupe, Muskmelon, Honeydew melon, Watermelon, Squash, Pumpkin	Anthraco n ose, Downy mildew, Target spot	2-1/4 to 2- 3/4 pts	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. Under severe disease conditions, shorten spray interval. BRAVO Zn may be applied through sprinkler irrigation equipment (solid set, portable wheel move or center pivot systems only). See calibration directions preceding this section.
	Cercospora leaf spot, Gummy stem blight (black rot), Alternaria leaf blight, Scab, Powdery mildew (Sphaerotheca only)	2-3/4 to 4- 1/4 pts	
	Cucumber belly rot (<i>Rhizoctonia solani</i>)	12 pts	Use BRAVO Zn in sufficient water to obtain runoff to soil surface. Make a single application when vines begin to form. BRAVO Zn may be applied through sprinkler irrigation equipment as directed above.
Grasses Grown for Seed	Stem rust, Leaf rust, Stripe rust, Septoria leaf spot, Glume blotch, Bipolaris and Drechslera leaf spots	1-1/2 to 2 pts	Use in sufficient water to obtain adequate coverage. Begin applications during stem elongation when conditions favor disease development. Re-apply at flag (top) leaf emergence and repeat applications at 14 day intervals. Do not apply within 14 days of harvest. Do not allow livestock to graze in treated areas or feed treated plant parts to livestock.
	Selenophoma (eyespot)	1-1/2 to 3 pts	
Mint	Rust, Septoria leaf spot	2 pts	Use in sufficient water to obtain adequate coverage, normally 20 to 150 gallons per acre for dilute sprays and 5 to 10 gallons per acre for concentrate ground and aircraft applications. Begin applications when emerging plants are 4 - 8 inches high. Repeat applications at 7 to 10 day intervals or as necessary to maintain control. Do not apply more than 3 times per season. Do not apply within 80 days of harvest. Do not feed fresh or extracted mint hay from treated fields to livestock. Based on available residue data, use of Bravo Zn on mint is restricted to Indiana, Michigan and Wisconsin.

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CROP	DISEASES	RATE PER ACRE	APPLICATION DIRECTIONS												
Onion (dry bulb)	Botrytis leaf blight/blast, Botrytis neck rot (suppression), Purple blotch	1-1/2 to 2-3/4 pts	<p>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:</p> <table border="0"> <tr> <td></td> <td style="text-align: center;">Low Disease</td> <td></td> </tr> <tr> <td style="text-align: center;">Low Disease Hazard & Prior to Infection</td> <td style="text-align: center;">Low Disease Hazard & Some Disease Present</td> <td style="text-align: center;">High Disease Hazard</td> </tr> <tr> <td style="text-align: center;">Rate per 1-1/2 pt acre:</td> <td style="text-align: center;">2 pts</td> <td style="text-align: center;">3 pts</td> </tr> <tr> <td style="text-align: center;">Frequency:</td> <td style="text-align: center;">10 days</td> <td style="text-align: center;">7 to 10 days 7 days</td> </tr> </table> <p>For suppression of neck rot (<i>Botrytis</i> spp.) during storage, a minimum of three weekly applications prior to lifting, using 2 to 3 pints of BRAVO Zn per acre, is recommended. Do not apply within 7 days of harvest.</p>		Low Disease		Low Disease Hazard & Prior to Infection	Low Disease Hazard & Some Disease Present	High Disease Hazard	Rate per 1-1/2 pt acre:	2 pts	3 pts	Frequency:	10 days	7 to 10 days 7 days
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Rate per 1-1/2 pt acre:	2 pts	3 pts													
Frequency:	10 days	7 to 10 days 7 days													
Onion (green bunching), Leek, Shallot, Garlic, Onion grown for seed	Botrytis leaf blight (blast), Purple blotch, Downy mildew (suppression)	2 to 4-1/4 pts	<p>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 for as long as conditions favor disease. Use the high rate and a 7 day schedule of applications when heavy dew or rain persist. Do not apply within 7 days of harvest on garlic. 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.</p>												
Papaya	Alternaria fruit spot, Anthracnose, Stem end rot	3 to 5-3/4 pts	<p>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 treatments at 14 day intervals until weather conditions no longer favor disease development. Do not graze livestock in treated area or feed processing by-products to livestock.</p>												

14/201

CROP	DISEASES	RATE PER ACRE	APPLICATION DIRECTIONS
Parsnip	Alternaria leaf spot, Downy mildew, Anthracnose, Botrytis blight (gray mold), Bottom rot (Rhizoctonia)	2 to 3 pts	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. Do not apply more than 4 times per season or within 10 days of harvest. Do not feed treated plant parts to livestock.
Passion Fruit (Hawaii only)	Alternaria fruit and leaf spot, (passion fruit brown spot)	2-3/4 pts	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. Do not graze in treated area or feed vines or processing by-products to livestock used for food.
Peanut	<i>Cercospora</i> (early) leafspot <i>Cercosporidium</i> (late) leafspot	1-1/2 to 2-1/8 pts	Apply in sufficient water for coverage when leaf wetness first occurs or 30 to 40 days after planting. Repeat at 10 to 14 day intervals. When conditions favor late leafspot or when rust or web blotch occur, apply 2-1/8 pints per acre at 10 day intervals for the remainder of the 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 Zn may be applied through sprinkler irrigation equipment. Use 2-1/8 pints per acre in solid set, portable wheel move, center pivot or traveling gun sprinkler irrigation equipment. See calibration directions preceding this section.
	Rust, Web blotch	2-1/8 pts	

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CROP	DISEASES	RATE PER ACRE	APPLICATION DIRECTIONS
Potato	Early blight, Late blight, Botrytis vine rot	1 pt — then — 1-1/2 to 2-1/8 pts	<p>Begin applications at the low rate when vines are first exposed and leaf wetness occurs.</p> <p>Repeat applications at 7 to 10 day intervals. Begin applying the higher label rates at 5 to 10 day intervals when any one of the following events occurs:</p> <ul style="list-style-type: none"> • Vines close between rows; • Late blight forecasting measures 18 disease severity values (DSV); • The crop reaches 300 P-days <p>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 23 pints of BRAVO Zn per acre during each growing season. Do not apply within 7 days of harvest.</p> <p>BRAVO Zn may be applied through sprinkler irrigation equipment (solid set, portable wheel move, motorized lateral move or center pivot systems only). Do not exceed a 10 day interval between applications when using this technique. Follow calibration and application directions preceding this section.</p>

1/20/21

CROP	DISEASES	RATE PER ACRE	APPLICATION DIRECTIONS
Soybean - Determinate (Southern) Varieties	Anthracnose, Diaporthe pod and stem blight, Frogeye leaf spot (<i>Cercospora sojina</i>), Purple seed stain, Cercospora leaf blight(<i>Cercospora kikuchii</i>), Septoria brown spot	2.0 to 3-1/2 pts	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 Zn may be applied through sprinkler irrigation equipment. Follow application and calibration directions preceding this section. Do not exceed total of 3 applications per season. Do not apply within 6 weeks of harvest. Do not feed treated parts to livestock or allow grazing in treated fields.
		1-1/2 to 2- 3/4 pts	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.
		1-1/2 pts	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 (<i>Diaporthe phaseolorum var. caulivora</i>)	1-1/2 pts	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 trifoliolate leaves (V2). If conditions favor stem canker disease make a second and a third application. Make all applications at 10 to 14 day intervals.

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CROP	DISEASES	RATE PER ACRE	APPLICATION DIRECTIONS
Soybean - Indeterminate (Northern) Varieties	Anthracnose, Diaporthe pod and stem blight, Frogeye leaf spot (<i>Cercospora sojina</i>), Purple seed stain, Cercospora leaf blight (<i>Cercospora kikuchii</i>), Septoria brown spot	2.0 to 3-1/2 pts	<p>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 Zn may be applied through sprinkler irrigation equipment. Follow application and calibration directions preceding this section. Do not exceed total of 3 applications per season. Do not apply within 6 weeks of harvest. Do not feed soybean hay or threshings from treated fields to livestock.</p> <p>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. BRAVO Zn may be co-applied with Benlate® 50WP as a tank mix for disease control in indeterminate (northern) soybeans. Use 1-1/2 pts of BRAVO Zn plus 8 ounces of Benlate 50WP per acre. Make the first application when pods near the top of plants are 1/2 to 1 inch in length and a second application 14 days later.</p>
		1-1/2 to 2- 3/4 pts	<p>Three application program — Make the first application one week after first flowering and continue applications at 14 day intervals.</p>

*Benlate is a registered trademark of E.I. DuPont de Nemours and Co., Inc.

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CROP	DISEASES	RATE PER ACRE	APPLICATION DIRECTIONS
Tomato	FOLIAGE (apply every 7-10 days): Early blight, Late blight, Gray leaf spot, Gray leaf mold, Septoria leaf spot, Target spot	2 to 3 pts	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. BRAVO Zn 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 of tomatoes. Check the copper manufacturer's label for specific instructions, precautions and limitations prior to mixing with BRAVO Zn. Do not use with Copper-Count* N in concentrated spray suspensions. BRAVO Zn may be applied through sprinkler irrigation equipment (solid set or portable wheel move systems only). See calibration directions preceding this section. *Copper-Count is a registered trademark of Mineral Research and Development Corporation.
	FRUIT (apply every 7-14 days beginning at fruit set): Anthracnose, Alternaria fruit rot (black mold), Rhizoctonia fruit rot, Botrytis gray mold, Late blight fruit rot	3 to 4 pts	

Tree and Orchard Crops

Apply BRAVO Zn 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 Zn 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 Zn 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)	
	300 (full dilute)	
Sweet Cherry	20 (concentrate)	
	400 (full dilute)	
Conifers	Dilute	Concentrate
Forest stands	Not used	10 to 20 (aircraft)
Christmas trees	100	10 to 50 (aircraft or ground equipment)
Nursery beds	100	5 to 10 (ground equipment only)

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BRAVO Zn RATE PER

Crop	Diseases	Acre	100 GAL*	Application Directions
Peach, Nectarine, Apricot, Cherry, Plum, Prune	Leaf curl, Coryneum blight (shothole)	4-1/2 to 6 pts	1-1/2 to 2 pts	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 Coryneum blight (shothole) occurs, also apply at budbreak to protect newly emerging leaves and at shuck split to prevent fruit infections.
	Brown rot blossom blight Lacy (russet) scab (plum/prune)	4-1/2 to 8 pts	1-1/2 to 2 pts	Use 6 to 8 pints per acre on trees taller than 20 feet and 4-1/2 to 6 pints per acre on smaller trees. 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	4-1/2 to 6 pts	1-1/2 to 2 pts	In addition to the bloom applications 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.

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Crop	Diseases	BRAVO Zn RATE PER		Application Directions
		Acre	100 GAL*	
Conifers	Swiss needlecast	4 to 8 pts	4 to 8 pts	Single application technique: In Christmas plantations or forest stands make one application in the spring when new shoot growth is 1/2 to 2 inches in length.
	Scleroderris canker (pines), Swiss needlecast	2 to 4 pts	2 to 4 pts	Make the first application in spring when new shoot growth is 1/2 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.
	Sirococcus tip blight	3 to 5 pts	3 to 5 pts	
	Rhizosphaera needlecast (spruces), Scirrhia brown spot (pines)	8 pts	8 pts	
	Cyclaneusma and Lophodermium needlecasts (pines)	4 to 8 pts	4 to 8 pts	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 (Douglas-fir)	2 to 4 pts	2 to 4 pts	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	2 to 4 pts	2 to 4 pts	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.

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

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STORAGE AND DISPOSAL

DO NOT contaminate water, food or feed by storage or disposal. Open dumping is prohibited.

Storage: Store in a cool place. Protect from excessive heat.

Pesticide Disposal: Pesticide wastes are toxic. 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 Disposal: DO NOT reuse empty container. Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Returnable Refillable Container: If Bravo Zn is packaged in a returnable refillable container, then, after use, do not rinse container. Return container intact to point of purchase. This container must only be refilled with Bravo Zn. **DO NOT REUSE THE CONTAINER FOR ANY OTHER PURPOSE.** Before refilling, inspect thoroughly for damage such as cracks, punctures, abrasions, and damaged or worn threads on closure devices. Check for leaks after refilling and before transport.

Warranty and Limitation of Damages

Seller warrants to those persons lawfully acquiring title to this product that at the time of the first sale of this product by Seller that this product conformed to its chemical description and was reasonably fit for the purposes stated on the label when used in accordance with Seller's directions under normal conditions of use, and Buyers and users of this product assume the risk of any use contrary to such directions. EXCEPT AS PROVIDED ELSEWHERE IN WRITING CONTAINING AN EXPRESS REFERENCE TO THIS WARRANTY AND LIMITATION OF DAMAGES, SELLER MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OR GUARANTY, INCLUDING ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR OF MERCHANTABILITY, AND NO AGENT OF SELLER IS AUTHORIZED TO DO SO. In no event shall Seller's liability for any breach of warranty or guaranty exceed the purchase price of the product as to which a claim is made.

Buyers and users of this product are responsible for all loss or damage from use or handling of this product which results from conditions beyond the control of Seller, including, but not limited to, incompatibility with other products unless otherwise expressly provided in the Directions for Use of this product, weather conditions, cultural practices, moisture conditions or other environmental conditions outside of the ranges that are generally recognized as being conducive to good agricultural and/or horticultural practices.

(EPA Stamped Label 3/18/94; amendment 9/27/94; amendment 8/15/95; amendment 9/22/95; EPA Stamped Label 5/16/96)

2/18/97 (revised logo)