

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Mr. Ralph P. Burton
ISK Biotech Corporation
P.O. Box 8000
Mentor, OH 44061-8000

Dear Mr. Burton:

Subject: Deletion of Crop Rotation Statement
Bravo S
EPA Registration No. 50534-159
You Submission Dated September 24, 1991 and May 19,
1992

The amendment referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended is acceptable provided that you:

1. Make the labeling changes listed below before you release the product for shipment bearing the amended labeling:

a. Revise the precautionary statements to include the following statements:

Wear goggles or safety glasses. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

b. In the note to user under the directions for use section include the requirement for goggles or safety glasses. When you chose to repeat the personal protective clothing and equipment requirements, all required personal protective clothing and equipment must be listed.

c. Modify the Environmental Hazards Statement to include the following statements:

CONCURRENCES

SYMBOL								
SURNAME								
DATE								

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.

2. Submit one (1) copy of your final printed labeling before you release the product for shipment.

A stamped copy of the labeling is enclosed for your records.

Sincerely yours,

Susan T. Lewis
Product Manager (21)
Fungicide-Herbicide Branch
Registration Division (H7505C)

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ACCEPTED
with COMMENTS
in EPA...

APP-3 1982

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ameid...
registered under EPA Reg. No.

50534-159

Net Contents:

ISK BIOTECH

Bravo[®] S

Agricultural Fungicide/Miticide with Adjuvants

Contains 2.96 Pounds Sulfur and 2.08 Pounds Chlorothalonil Per Gallon

Active Ingredient:

Sulfur 27.3%
Chlorothalonil (tetrachloroisophthalonitrile)* 19.1%

Inert Ingredients: 53.6%

Total: 100.00%

*Covered under U.S. Patent No. 3,290,353,
No. 3,331,735 and No. 3,948,636

Keep Out of Reach of Children

CAUTION:

See side panel for additional precautionary statements

ISK Biotech Corporation
5966 Hershey Road, P.O. Box 8000
Mentor, Ohio 44061-8000

EPA Reg. No. 50534-159

EPA Est. No. 50534-TX-01

2306-0000-9079-8705

Precautionary Statements

Hazards to Humans and Domestic Animals

Caution

Causes eye and skin irritation. May be a potential skin sensitizer.

Do not get in eyes, on skin or on clothing. Wear goggles or eye shield when handling this product. Harmful if swallowed. Avoid breathing spray mist. May cause irritation of nose, throat, or skin. Do not store near feed or foodstuffs.

First Aid

If Swallowed: Give one or two glasses of water and induce vomiting by touching finger to the back of throat.

If on Skin: Wash thoroughly with soap and water.

If In Eyes: Immediately flush eyes with plenty of water for 15 minutes. Call a physician.

Do not apply this product in such a manner as to directly, or through drift, expose workers or other persons. The area being treated must be vacated by unprotected persons.

May produce temporary allergic side effects characterized by redness of the eyes, mild bronchial irritation and redness or rash on exposed skin area. Persons having allergic reaction should contact a physician.

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

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. Do not apply when weather conditions favor drift from treated areas. Do not contaminate water by cleaning of equipment or disposal of wastes.

Apply only to areas specified on label.

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. If frozen may generally be restored by thorough mixing after thawing. Repeated freezing-thawing cycles may impair utility.

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.

A Broad Spectrum Agricultural Fungicide

Read entire label carefully and use only as directed.

General Information

Bravo S is an excellent fungicide combination when used according to label directions for control of a broad spectrum of plant diseases.

Bravo S can be used effectively in dilute or concentrate sprays. Thorough, uniform coverage is essential for disease control. Do not combine Bravo S 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.

The sulfur in Bravo S may cause injury to plants if used improperly or under unfavorable weather conditions. During periods of high temperature sulfur may burn foliage. Do not make Bravo S applications at such times.

Note: Sulfur will cause severe fruit and leaf injury to sulfur sensitive crops. Do not apply or allow to drift to apricots, d'Anjou and Comice pears, cranberries, cucurbits (cucumbers, cantaloupes, melons, squash) fiberts, spinach, tung trees, walnuts, or other sensitive plants.

DO NOT USE WITHIN FOUR (4) WEEKS OF AN OIL SPRAYING. SULFUR IS HIGHLY CORROSIVE AND EQUIPMENT SHOULD BE CLEANED THOROUGHLY AFTER EACH DAY'S SPRAYING.

Directions for Use

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

See attached folder for directions for use.

Warranty and Limitation of Damages

Seller warrants that this material conforms to its chemical description and is reasonably fit for the purposes stated on the label when used in accordance with directions under normal conditions of use and Buyer assumes the risk of any use contrary to such directions. Seller makes no other express or implied warranty, including any other express or implied warranty of Fitness or of Merchantability, and no agent of Seller is authorized to do so except in writing with a specific reference to this warranty. In no event shall Seller's liability for any breach of warranty exceed the purchase price of the material as to which a claim is made.

INSERT LABEL

ISK-BIOTECH

Bravo S

Agricultural Fungicide/
Miticide with Adjuvants

Contains 2.96 Pounds Sulfur and 2.08 Pounds
Chlorothalonil Per Gallon

Active Ingredient:	
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*Covered under U.S. Patent No. 3,290,353,
No. 3,331,735 and No. 3,948,636

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See side panel for additional precautionary
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3306-0000-8035-8710

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oral warnings are given, warnings shall be given in a language customarily understood by workers. Oral warnings must be given if there is reason to believe that written warnings cannot be understood by workers. Oral and written warnings must include the following information:

CAUTION: Area treated with Bravo S on (date of application) Do not enter for 24 hours. In case of accidental exposure, wash exposed area with plenty of water and get medical attention. For further information see "PRECAUTIONARY STATEMENTS" on the label.

Note: Slowly invert container several times to assure uniform mixture

Pour recommended amount in partially filled spray tank. Keep agitator running during filling and spraying operation. **DO NOT ALLOW MIXTURE TO STAND.** Failure to maintain agitation will cause the sulfur in Bravo S to settle and may necessitate manual stirring to redispense.

Dosage rates on this label indicate pints of Bravo S per acre, unless otherwise stated. Under conditions favoring disease development the high rate specified and shortest application interval should be used except as otherwise provided in this label. Applications should be made in sufficient water to obtain adequate coverage of foliage. Gallonage to be used will vary with crop and amount of plant growth. Spray volume will usually range from 20 to 150 gallons (approximately 80 to 600 liters) per acre for dilute sprays and 5 to 10 gallons (approximately 20 to 40 liters) per acre for concentrate ground sprays and aircraft applications. Either ground or aircraft methods of application may be employed unless specific directions are given for a crop. See application and calibration instructions 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 S 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 S may be used through two basic types of sprinkler irrigation systems as outlined in Sections A and B below. Determine which type of system is in place, then refer to the appropriate directions provided for each type.

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

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

Fill chemical supply tank of injection equipment with water. Operate system for one complete revolution or run across the field, measuring time required, amount of water injected, and acreage covered. Thoroughly mix recommended amount of Bravo S 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 S 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 S for acreage to be covered with water so that the total mixture of Bravo S 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 S 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 S has been cleared from last sprinkler head.

RECOMMENDATIONS:

Rates differ from Bravo 500 Agricultural Fungicide

When growing crops for processing, consult the processor before applying Bravo S.

CROP	DISEASES	RATE PER ACRE	APPLICATION DIRECTIONS
Bean (Snap)	Rust	4 to 8 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)	8 pts	
	Powdery mildew Red spider mites		
Cabbage, Cauliflower, Broccoli, Brassica Sprouts	Alternaria leaf spot Downy mildew	4-1/2 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.
	Ring spot (California only)	5-1/2 pts	
	Powdery mildew Red spider mites	5-1/2 pts	
Peanut	Early leaf spot (Cercospora) Late leaf spot (Cercosporidium)	3 to 4-1/4 pts	Use in sufficient water to obtain adequate coverage. Start applications when disease first appears and repeat at 10 to 14 day intervals or as necessary to maintain control. Under severe disease conditions, use the 4-1/4 pints per acre rate at 10 day intervals.
	Rust, Web blight	4-1/4 pts	
Potato	Early blight, Late blight, Botrytis vine rot (Botrytis spp)	3 to 4-1/4 pts	Use in sufficient water to obtain adequate coverage. Begin applications when plants are 6 to 8 inches high or when disease threatens, and continue at 7 to 10 day intervals or as needed to maintain disease control. Under severe disease conditions, use 4-1/4 pints per acre on a 7 day schedule. Bravo S may be applied through sprinkler irrigation equipment (solid set, portable wheel move or center pivot systems only). Do not exceed a 10 day interval between applications when using this technique. See calibration directions preceding this section.
	Early blight, Late blight, (Dryland culture only)	2-1/4 to 4-1/4 pts	
	Powdery mildew	4-1/4 pts	

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CROP	DISEASES	RATE PER ACRE	APPLICATION DIRECTIONS
Tomato	Early blight, Late blight, Gray leaf spot, Gray leaf mold, Septoria leaf spot	4-1/2 to 5-1/2 pts	Use in sufficient water to obtain adequate coverage. Begin applications when disease threatens and repeat at 7 to 10 day intervals. Under moderate to severe disease conditions, use the highest rate specified and shorten spray interval.
	Anthracnose	5-1/2 to 8-1/2 pts	
	Phytophthora fruit rot, Botrytis gray rot, Tomato russet mite	8-1/2 pts	

Tree and Orchard Crops

Apply Bravo S in sufficient water with spray equipment properly calibrated to obtain uniform coverage of tree canopy. Application through ground equipment is recommended. When concentrate sprays are used or when treating non-bearing or immature trees, the lower rate of Bravo S may be used. The following spray volumes are recommended as gallons of spray per acre:

CROP	SPRAY VOLUME (Gallons per Acre)	
	Dilute	Concentrate
Peach, Nectarine, Tart Cherry, Plum, Prune	300	50 to 150
Sweet Cherry	400	65 to 200

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CROP	DISEASES	BRAVO S RATE PER		APPLICATION DIRECTIONS
		ACRE	100 GAL*	
Peach, Nectarine, Cherry, Plum, Prune	Leaf curl, Coryneum blight (shot-hole) on Peach, Nectarine	9 to 12 pts	3 to 4 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 S for control of leaf curl may be made at any time prior to budswell the following spring. Where Coryneum blight (shot-hole) occurs, also apply at budbreak to protect newly emerging leaves and at shuck-split to prevent... all infections
	Small Trees			
	Brown rot Blossom blight Powdery mildew on peaches nectarines	9 to 12 pts	3 to 4 pts	Use 12 to 16 pints per acre on trees taller than 20 ft. and 9 to 12 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.
	Large Trees			
	Scab on peaches nectarines	12 to 16 pts	4 to 6 pts	In addition to the bloom applications listed above, make one application at shuck-split. Do not apply Bravo S after shuck-split and before harvest. If additional disease control is needed before harvest, use another registered fungicide. For control of cherry leafspot after harvest, make one application to foliage within 7 days after fruit is removed. In orchards with a history of high leafspot incidence, make a second application 10-14 days later.
	Cherry leafspot Peach Nectarine Scab	9 to 12 pts	3 to 4 pts	

*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 or disposal. Open dumping is prohibited.

Storage: Store in a cool place. Protect from excessive heat. If frozen may generally be restored by thorough mixing after thawing. Repeated freezing-thawing cycles may impair utility.

Pesticide Disposal: Pesticide wastes are toxic. Improper disposal of excess pesticide, pesticide spray or residue 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.

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