

PM 22 45002-4

10/19

Please read instructions on reverse before completing form.

Form Approved. OMB No. 2070-0060. Approval expires 05-31-98



United States
Environmental Protection Agency
Washington, DC 20460

☐ Registration
☐ Amendment
☒ Other

OPP Identifier Number

249125

Application for Pesticide - Section I

1. Company/Product Number 45002-4	2. EPA Product Manager C. Giles-Parker	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Blue Shield® DF	PM# 22	
5. Name and Address of Applicant (Include ZIP Code) Cuproquim Corporation P.O. Box 171357 Memphis, TN 38187 <input type="checkbox"/> Check if this is a new address		6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____

Section - II

<input type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input checked="" type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Notification to Change Chemigation Adv. Statement

NOV 2 1996

NOTIFICATION
NOV 2 1996

Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes* <input type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____	
* Certification must be submitted		If "Yes" Unit Packaging wgt. No. per container	If "Yes" Package wgt. No. per container		
3. Location of Net Contents Information <input type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container		5. Location of Label Directions <input type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product	
6. Manner in Which Label is Affixed to Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled		<input type="checkbox"/> Other _____			

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)			
Name Alice Walker, Ph.D.	Title Regulatory Consultant	Telephone No. (Include Area Code) 601-562-5995	
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.			6. Date Application Received (Stamped)
2. Signature Alice Walker	3. Title Regulatory Consultant		
4. Typed Name Alice Walker, Ph.D.	5. Date October 29, 1996		

2019

CUPROQUIM

BLUE SHIELD® DF FUNGICIDE/BACTERICIDE

ACTIVE INGREDIENT:

Cupric Hydroxide*	77.0%
INERT INGREDIENTS:	23.0%
TOTAL	100.0%

*(Metallic copper equivalent 50%)

*CAS No. 20427-59-2

NOTIFICATION **KEEP OUT OF REACH OF CHILDREN**

DANGER - PELIGRO

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).

STATEMENT OF PRACTICAL TREATMENT

If in Eyes: Hold eyelids open and flush with a steady stream of water for 15 minutes. Get medical attention.

If Inhaled: Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

If Swallowed: Drink promptly a large quantity of milk, egg white, or gelatin solution, or, if these are not available, large quantities of water. Get medical attention.

If on Skin: Rinse off material and wash with soap and water. Get medical attention if irritation persists.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate use of gastric lavage.

See additional precautions on side or back panel.

Manufactured for:
CUPROQUIM CORPORATION
P. O. Box 171357
Memphis, TN 38187-1357

EPA Reg. No. 45002-4
EPA Est. No. 45002-MX-2
PRODUCT OF MEXICO

NET CONTENTS _____ LBS _____ KG

PRECAUTIONARY STATEMENTS

DANGER

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Corrosive. Causes irreversible eye damage. May cause skin sensitization reactions in certain individuals. Do not get in eyes or on clothing. Harmful if swallowed or absorbed through skin. Avoid contact with skin.

PERSONAL PROTECTIVE EQUIPMENT

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

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.

USER SAFETY RECOMMENDATIONS

Users should remove personal protective equipment immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish and aquatic organisms. 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.

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.

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Do not enter treated areas without protective clothing until sprays have dried.

STORAGE AND DISPOSAL

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

STORAGE: Store in a cool, secure, dry area in original container.

PESTICIDE DISPOSAL: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, 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: Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

GENERAL INSTRUCTIONS

BLUE SHIELD DF may be applied by aerial, or by dilute or concentrated ground sprayers, or chemigation on crops and at rates given on this label unless specifically prohibited for that crop use. Sufficient spray volume and spray pressure are essential to thoroughly penetrate the plant canopy and give thorough spray coverage. On crops sensitive to copper fungicides use higher volumes of spray water per acre. Use higher dosage rates on mature trees or when disease pressure is severe or weather conditions warrant.

When using adjuvants or other pesticides in combination with this product, always observe the precautionary statements on the product's label and required days before harvest. Sprays of BLUE SHIELD DF may be applied up to day of harvest. Before mixing with other products in spray tank, be sure that products are compatible. If compatibility is in question, use the compatibility jar test before mixing a whole tank. BLUE SHIELD DF should not be applied in spray water having a pH of less than 6.5 as phytotoxicity may result. Use a buffering agent to increase the pH to 6.5 - 7.0 if your water source is below 6.5. Also avoid using water having a pH of greater than 9.0 as effectiveness may be reduced.

MIXING INSTRUCTIONS FOR SPRAY APPLICATION

Fill the spray tank three-fourths to four-fifths full with clean water. Start agitation (NOTE: Proper agitation creates a rippling or rolling action on the liquid surface). Add BLUE SHIELD DF at the recommended rate.

Mix thoroughly and then add enough water to fill spray tank. Maintain sufficient agitation during mixing and during application of sprays to ensure a uniform spray mixture. When tank mixing with other products, follow the mixing sequence below: (1) micronutrients and fertilizers, (2) wettable powders, dry flowables, and water dispersible granules, (3) liquid flowables, (4) emulsifiable concentrates, and (5) adjuvants. Before adding a second pesticide, be sure that the prior product is well mixed and suspended before adding the next ingredient.

MINIMUM RECOMMENDED SPRAY VOLUME IN GALLONS PER ACRE (GPA)

If a crop is sensitive to copper sprays, higher volumes of spray water will decrease potential injury. A full dilute spray on tree crops means the maximum amount of spray when uniformly applied that an acre of such trees will hold to the point that excess spray begins to drip off. Thus the dilute spray volume per acre will depend on tree size and leaf surface per acre. The following listed dilute spray volumes is the volume that will generally provide such coverage on average size full leafed trees. A concentrate spray is a spray applied in less volume than dilute. The extent of the concentration varies by equipment used. Thus the following spray volumes for a concentrated spray are the minimum volumes recommended per acre.

Use BLUE SHIELD DF as noted below unless indicated otherwise in the specific crop directions. BLUE SHIELD DF is adaptable to spraying from aircraft and ground spraying equipment. Depending on the equipment used and the specific crop, the volume applied per acre will differ. Refer to recommended volumes below:

	Aerial	Ground	
		Dilute	Concentrate
Vegetables and Field Crops	3	20	--
Small Fruits	5	150	50
Vines	5	150	50
Fruit and Nut Trees*	10	300-400	50
Citrus	10	800-1,000	100 (50 Florida)

*On young fruit trees, use a minimum of 1 gallons spray per acre; for other tree crops depending on size, use up to 800 gallons per acre.

GENERAL CHEMIGATION INSTRUCTIONS

Do not apply this product through any irrigation system using aluminum parts or components as damage to the system may occur. Such application is prohibited regardless of whether the irrigation system is flushed with water after use of this product.

Apply this product only through one or more of the following types of systems: sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move irrigation system(s) which contain no aluminum parts or components. Do not apply this product through any other type of irrigation system. **PRECAUTION:** ~~Corrosion of aluminum and carbon steel irrigation sprinkler systems may be experienced with the use of copper based fungicides. The end user assumes all responsibility for use of this product through such systems. If the user elects to apply this product through such systems, it is essential that all application equipment containing this product be thoroughly flushed with clean water after each day's use. Continue to operate system with clean water until all product has cleared the last sprinkler head.~~ Crop injury, or lack of effectiveness, can result from nonuniform distribution of treated water. If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place. A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

A. Center Pivot, Traveler, Big Gun, Motorized Lateral Move, End Tow, and Side (Wheel) Roll Irrigation Equipment: Operate system and injection equipment at normal pressures recommended by the manufacturer of injection equipment used. Fill tank or injection equipment with water. Operate system for one complete circle for center pivot or one complete run for the other recommended equipment, measuring time required, amount of water injected, and acreage

contained in circle or run. Mix recommended amount of product for acreage to be covered into same amount of water used during calibration and inject into system continuously for one revolution or run, but continue to operate irrigation system until the product has been cleared from last sprinkler head. Spray mixture in the chemical supply tank must be agitated at all times, otherwise settling and uneven application may occur.

B. Solid Set and Hand Move Irrigation Equipment: 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 product for acreage to be covered into 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. Provide constant mechanical agitation in the mix tank to insure that the product will remain in suspension during the injection cycle. This product 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 pesticide is cleared from last sprinkler head.

SAFETY DEVICES

(1) The systems designated above must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow. (2) All pesticide injection pipelines must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump. (3) The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down. (4) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops. (5) 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. (6) 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. (7) Do not apply when wind speed favors drift beyond the area intended for treatment.

SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

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 out of the year. Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete

physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops or, in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

For additional instructions on safety precautions refer to statements (2), (3), (4), (6), and (7) in the section on SAFETY DEVICES.

POSTING INSTRUCTIONS

Posting of areas to be chemigated is required when any part of a treated area is within 300 feet of sensitive areas such as residential areas, labor camps, businesses, day care centers, hospitals, inpatient clinics, nursing homes, or any public areas such as schools, parks, playgrounds, or other public facilities not including public roads, or when chemigated area is open to the public, such as golf courses or retail greenhouses.

Posting must conform to the following requirements: Treated areas shall be posted with signs at all usual points of entry and along likely routes of approach from the listed sensitive areas. This sign is in addition to any sign posted to comply with the Worker Protection Standard. When there are no usual points of entry, signs must be posted in the corners of the treated areas and in any other location affording maximum visibility to sensitive areas. The printed side of the sign should face away from the treated area towards the sensitive area. The signs shall be printed in English. Signs must be posted prior to application and must remain posted until foliage has dried and soil surface water has disappeared. Signs may remain in place indefinitely as long as they are composed of material to prevent deterioration and maintain legibility for the duration of the posting period.

All words shall consist of letters at least 2 1/2 inches tall, and all letters and the symbol shall be a color which sharply contrasts with their immediate background. At the top of the sign shall be the words KEEP OUT, followed by an octagonal stop sign symbol at least 8 inches in diameter containing the word STOP. Below the symbol shall be the words PESTICIDES IN IRRIGATION WATER.

FROST INJURY PROTECTION: Bacterial ice nucleation inhibitor - Application of BLUE SHIELD DF made to all crops listed on this label at rates and stages of growth indicated on this label at least 24 hours and not more than 72 hours prior to anticipated frost conditions will afford control of ice nucleating bacteria (*Pseudomonas syringae*, *Erwinia herbicola*, and *Pseudomonas fluorescens*) and may thereby provide some protection against light frost. The degree of frost protection will vary with weather conditions and other factors. Not recommended for those geographical areas where weather conditions favor severe frost.

ALFALFA: Cercospora & Leptosphaerulina leaf spots. - Apply 2 lbs per acre 10-14 days before each harvest or earlier if disease threatens. Apply with ground or aerial equipment. Spray injury may occur with sensitive varieties.

ALMONDS: *Coryneum Blight* and *Blossom Brown Rot* - Apply a dormant application of 8-12 lbs. per acre. Apply before foliage buds begin to swell. Use higher rates when rainfall is heavy and disease pressure is high. Use 6-8 lbs. per acre in early bloom popcorn application. Apply before full bloom. Use higher rates when rainfall is heavy and disease pressure is high. **NOTE:** To avoid plant injury, do not use above rate after full bloom. **Bacterial Blast (*Pseudomonas*)** - Apply 12-16 lbs. at dormant to early pink bud. For control in sprinkler irrigated orchards or where disease is severe, apply 1 lb. per acre at 2 week post-bloom intervals or just before sprinkling. **NOTE:** Injury may occur from post-bloom sprays, especially on sensitive varieties.

APPLES: *Anthracnose*, *Pseudomonas*, *European canker* - Apply 3-4 lbs before fall rains in 100 gallons of water, using 300-400 gallons water per acre or 12 -16 lbs. per acre as a concentrate spray. **NOTE:** Use on yellow varieties may cause discoloration. **Fire blight** - Apply 2-4 lbs per 100 gallons of water as full cover spray or 8-16 lbs. per acre as a concentrate at silver and green tip stages. Do not apply after green tips reach 1/2 inch because phytotoxic problems may occur at later applications. **Crown or Collar Rot** - Apply 4 lbs. per acre in 100 gallons of water. Apply 4 gallons of suspension as a drench on the lower trunk area of each tree. Apply either in early spring or in late fall after harvest. **NOTE:** Do not use if soil pH is below 5.5 since copper toxicity may result.

APRICOTS: *Coryneum Blight (Shot Hole)* & *Blossom Brown Rot* - Apply at popcorn to full bloom using 8-12 lbs per acre. Use higher rate when conditions favor disease. Do not apply after bloom as crop injury may result.

ATEMOYA: *Anthracnose* - Apply 3 lbs per acre. Make initial application just before flowering and repeat on a weekly schedule until just before harvest. Apply in sufficient water for thorough coverage.

AVOCADOS: *Scab* - Apply when bloom buds begin to swell at 8-12 lbs. per acre. Continue applications at monthly intervals for 5 or 6 applications. Use the higher rate when conditions favor disease.

BANANAS: *Sigatoka* - Apply by air at 2 lbs per acre in 3 gallons of water containing 0.5 gallons agricultural oil. Apply on a 14-day schedule throughout the wet season. Apply at 21 day intervals during dry periods. **Black Pitting** - Apply 4 lbs per 100 gallons directly to the fruit stem and include the basal portion of the leaf crown. Apply during the first and second weeks after fruit emergence.

BEANS: *Bacterial blight (Halo, Brown spot and Common)* - For protective sprays, apply first application when plants have second trifoliolate leaves or are about five or six inches high. Apply on 7-14 day schedule depending on local conditions. Use 1 to 3 lbs per acre depending on disease severity.

BLACKBERRIES: (*Santiams, Logans, Boysens, Marions, Auroras, Cascades, Chehalems, and Thornless Evergreens*) - *Leaf & Cane spot* - Apply delayed dormant spray after training in

spring at 4 lbs plus 1 quart crop oil per 100 gallons. Apply again in late spring at 2 lbs plus 1 quart crop oil per 100 gallons and when leaf buds begin to open and repeat when flower buds show white. Make fall spray applications after harvest using 4 lbs plus 1 quart crop oil per 100 gallons.

BLUEBERRIES: Bacterial canker - Apply 4 to 8 pounds per acre. Make first application before fall rains, preferably the first week in October and a second application four weeks later.

BROCCOLI, BRUSSELS SPROUT, CABBAGE, CAULIFLOWER & COLLARDS: Downy mildew (*Peronospora*) - Apply 0.5 to 1 lb per acre at 7 day intervals. **CABBAGE ONLY:** Black rot (*Xanthomonas*) & Black leaf spot (*Alternaria*) - Apply 2 lbs per acre at 7-10 day intervals. (Precaution: A slight reddening of older leaves may occur on cabbage at the 2 lb rate). For control of disease on these crops, begin application after transplants are set in the field, or shortly after emergence of field seeded crops or when conditions favor disease development.

CACAO: Black pod - Begin applications at the start of the rainy season and continue while infection conditions persists. Spray should be made as often as 14 to 21 days in high rainfall areas at varying rates from 2 to 4.5 lbs per acre depending on disease severity. For drier areas, where 2 to 4 applications are recommended during critical infection periods and at long intervals, use 6.5 to 8.5 lbs per acre, according to disease incidence and planting density.

CARAMBOLA: Anthracnose - Apply 6 lbs per acre. Make initial application just before flowering and repeat on a weekly schedule until just before harvest. Apply in sufficient water for thorough coverage.

CARROTS: Carrot blight (*Cercospora*) - When disease threatens, apply 2 lbs per acre at 7 to 14 day intervals depending on disease severity.

CELERY & CELERIAC: Early, Late and Bacterial blights - Apply as soon as plants are first established in the field at 1-2 lbs per acre, then every 3-7 days depending on severity and weather.

CHERRIES: Dead bud (*Pseudomonas syringae*) and Coryneum blight - Apply 8-12 lbs. per acre before heavy rains fall and again in late dormant. In orchards where the disease is severe, a spray should also be applied in August. Brown rot blossom blight - Apply 2 to 3 lbs per 100 gallons water as a full cover spray, applied at popcorn and full bloom.

CHIVES: Downy mildew - Apply 2 lbs per acre. Begin applications when plants are established in the field. Repeat applications every 7-10 days as dictated by disease conditions.

CITRUS: Melanose, Pink pitting, and Scab - Apply 4-12 lbs. per acre, depending on disease severity, as a pre-bloom and post-bloom spray. Greasy Spot - Apply 2-6 lbs. per acre using higher rates when conditions favor disease. Brown Rot - Apply 4-8 lbs. per acre beginning in fall and continuing as needed. Apply to skirts of trees to a height of at least 4 feet. Apply also to bare ground one foot beyond skirt. Use higher rates when conditions favor disease. NOTE: In

California, in areas subject to copper injury, add 1/3 to 1 lb. of high quality lime per pound of BLUE SHIELD DF. **Citrus Canker** (suppression only) - Apply 12 lbs. per acre, spraying flushes 7-14 days after shoots begin to grow. Young fruit may require an additional application. Number and timing of applications will be dependent on disease pressure. Under heavy disease pressure, each flush of new growth should be sprayed. **Phytophthora** - Mix 1 lb. of BLUE SHIELD DF with 1 gal. of water and paint trunks of trees from the soil surface to the lowest scaffold limbs. Apply in May prior to summer rains and/or in the fall prior to wrapping trees for freeze protection. Treatment serves as protection for up to one year, but does not cure existing infections.

COFFEE: Iron spot (*Cercospora coffeicola*) and **Pink disease** (*Costicium salmonicolor*) - Apply 2 lbs per acre. Begin treatment at start of wet season and continue at monthly intervals for three applications. **Coffee berry disease** (*Collectotrichum coffeanum*) - Apply 6 to 8 lbs per acre. Make first spray after flowering and before onset of long rains and repeat at 21 to 28 day intervals until picking. Use higher rates and shorter intervals when rainfall is heavy and disease pressure is high. **Bacterial blight** (*Pseudomonas syringae*) - Apply 6 to 8 lbs per acre. Begin spray program before onset of the long rains and continue throughout the rainy season at 14 to 21 day intervals. The critical time of spraying to control this disease is just before, during and after flowering(s), especially when coinciding with wet weather. Use higher rates and shorter intervals when rainfall is heavy and disease pressure is high. **Leaf rust** (*Hemileia vastatrix*) - Apply 3.5 to 5.5 lbs per acre for average density plantings. High density plantings may require 7 to 8 lbs per acre. Make first application before the onset of rains and then continue at 21 day intervals while the rains continue and disease conditions continue. Use the higher rates when rainfall is heavy and disease pressure is high.

CRANBERRY: Fruit rot - Apply 8 lbs per acre beginning in late bloom (mid July), followed by two additional applications made at 10 to 14 day intervals.

CUCURBITS (CUCUMBERS, CANTALOUPE, HONEYDEWS, MUSKMELONS, PUMPKINS, SQUASH & WATERMELONS): **Alternaria leaf spot, Angular leaf spot, Anthracnose, Downy mildew, Powdery mildew, Gummy stem blight, Watermelon bacterial fruit blotch** (suppression) - Apply 1.5 to 3 lbs per acre. Begin application when conditions are favorable for disease development. Repeat at 5-10 day intervals. Use higher rates when conditions favor disease. NOTE: Crop injury may occur from application at higher rates and shorter intervals. Discontinue use if injury occurs.

CURRENTS & GOOSEBERRY: Anthracnose & Leaf spot - Make three applications of BLUE SHIELD DF at 10 lbs per acre, starting after harvest, before bloom and after petal fall.

DILL: Phoma leaf spot, Rhizoctonia foliage blight - Apply 2 to 3 lbs per acre. Begin applications when plants are first established in the field and repeat at 7-10 day intervals depending upon disease severity and environmental conditions. Use higher rates when conditions favor disease.

DOUGLAS FIR: Rhabdocline needlecast - Apply 2 lbs per acre. Begin applications at bud break and repeat at 3-4 week intervals. Apply in a tank mix with another registered pesticide if moderate to severe disease pressure is present.

EGGPLANT: Alternaria blight, Anthracnose, Phomopsis - Use 2 lbs BLUE SHIELD DF per acre before disease appears. Repeat at 7 to 10 day intervals.

FILBERT: Bacterial blight - Use 16 to 24 lbs per 100 gallons as a post-harvest spray in late August or early September. In seasons of heavy rainfall, apply another spray when three-quarters of leaves have dropped. For Eastern filbert blight - Apply as a dilute spray in sufficient water for thorough coverage. Make initial application after harvest in October before heavy winter rains begin. Repeat application in late February to early March and again 4 weeks later.

GINSENG: Alternaria leaf & Stem blight - Apply 2.6 lbs per acre in a tank mix with 2 lbs Rovral® 50W used in 100 gallons of water. Begin BLUE SHIELD DF-Rovral applications as soon as plants emerge in spring. Applications should be repeated every 7 days until plants become dormant in fall. If scheduled application is to be made before a rain shower, apply fungicides at least 8 hours before the rain, giving the fungicides time to dry on the plants. Use of a spreader-sticker or sticker is advised. NOTE: Alternaria leaf and Stem blight are most severe in humid conditions such as those found in the dense canopies of 2-4 year old ginseng. It is very important that the stems be thoroughly covered with fungicide; therefore, use a spray apparatus which distributes the fungicide throughout the canopy.

GRAPES: Black rot, Powdery mildew & Downy mildew - Apply 2 lbs BLUE SHIELD DF plus 1-3 lbs hydrated lime per acre as a dilute or concentrate spray. Use for the last one or two late summer applications following early season application of another fungicide. Follow State schedule for exact timing. (PRECAUTION: Slight to severe foliage injury may occur on copper sensitive varieties.

GUAVA: Anthracnose, Red algae - Apply 3 lbs per acre. Make initial application just before flowering and repeat on a weekly schedule until just before harvest. Apply in sufficient water for thorough coverage.

HOPS: Downy mildew - Apply 2 lbs as a fungicide crown treatment (after pruning, but before training) as needed. After training, additional fungicide treatments are needed at about 10 day intervals. Discontinue use 2 weeks before harvest.

KIWI: Blossom blight (Bud rot) & Leaf spot (Phomopsis) - Make two to three applications at 1 to 1.5 lbs per acre in 5-20 per acre during dormant season. Do not apply at time of or after leaf emergence. Pseudomonas syringae, Erwinia herbicola & Pseudomonas fluorescens - Apply 8 lbs in 200 gallons of water per acre. Make applications on a monthly basis. A maximum of 3 applications may be made.

LETTUCE, ENDIVE & ESCAROLE: Downy mildew - Apply 1 to 2 lbs per acre in 5-20 gallons of water by ground, or 3-20 gallons of water by air. Begin treatment when disease first appears

and repeat every 3-7 days as needed to suppress disease. NOTE: The application rates recommended may cause yellowing of leaf margins. Sensitivity may vary due to varieties and weather conditions. Increasing the volume of spray water will frequently decrease phytotoxicity potential.

LITCHI: Anthracnose - Apply 3 lbs per acre. Make initial application just before flowering and repeat on a weekly schedule until just before harvest. Apply in sufficient water for thorough coverage.

LIVE OAK: Ball moss & Spanish moss - Mix 6 lbs in 100 gallons of water. Apply in spring after heavy rain. Thoroughly wet tree and moss, applying about 1.5 gallons per foot of tree height. A second application may be required after 12 months.

MACADAMIA NUTS: Anthracnose - Apply 6 lbs per acre. Initiate sprays at first sign of flowering and repeat on a weekly schedule until just before harvest. Apply in sufficient water for thorough coverage. Blossom blight & Raceme blight - Apply 3 to 6 lbs per acre depending on disease pressure in 50-300 gallons of water during peak raceme development and bloom period.

MAMEY SAPOTE: Anthracnose, Algal leaf spot - Apply 6 to 8 lbs per acre. Apply when conditions favor disease development. Repeat on 14-30 day schedule as disease severity and environmental conditions dictate. Use higher rates when conditions favor disease.

MANGO: Anthracnose - Apply 8-10 lbs. per acre monthly after fruit set until harvest.

OLIVES: Peacock spot, Olive knot - Use 8-12 lbs per acre before fall rains begin. A second application in early spring should be made if disease is severe.

ONIONS: Purple blotch & Downy mildew - Apply 2 lbs BLUE SHIELD DF per acre when plants are 4 to 6 inches high and repeat at 7 to 10 day intervals. Addition of a spreader-sticker at recommended rates may improve wetting of onion foliage.

PAPAYA: Anthracnose - Mix 2 lbs per 100 gallons water on a dilute spray basis. Addition of a sticker may be desirable. Begin treatment before rains when disease is expected. Repeat at 10 to 14 day intervals during periods of heavy rainfall.

PARSLEY: Bacterial blight (*Pseudomonas* sp.) - Apply 3 lbs per acre. Begin applications when plants are first established in the field and repeat at 5-7 day intervals depending upon disease severity and environmental conditions.

PASSION FRUIT: Anthracnose - Apply 6 lbs per acre. Make initial application just before flowering and repeat on a weekly schedule until just before harvest. Apply in sufficient water for thorough coverage.

PEACHES & NECTARINES: Leaf curl & Coryneum blight (Shot hole) - Apply 8 to 20 lbs per acre at leaf fall. Use the higher rates per acre when rainfall is heavy and disease pressure is high.

Addition of an agricultural spray oil may be desired. **Brown rot blossom blight** - Apply 8 to 12 lbs per acre as a full cover spray at pink bud. (Application at this time also affords some control of Leaf Curl and Coryneum Blight). **Bacterial spot** - Apply 12 to 16 lbs per acre as a dormant application. If Bacterial spot infection is potentially heavy, two post bloom sprays applying 1/4 lb per 100 gallons at first and second cover sprays in full dilute spray may aid control. Do not spray later than three weeks prior to harvest. Do not use at rates above those recommended. (PRECAUTION: Slight defoliation and spotting of leaves may occur from use in cover sprays).

PEANUTS: Cercospora leaf spot - Begin spraying 25 to 40 days after planting or when disease symptoms appear. Make ground or aerial application at 1.5 to 3 lbs per acre. Continue applications at 10-14 day intervals. Use sufficient water to get adequate coverage.

PEARS: Fire blight - Apply 1 pound per acre at 5 day intervals throughout bloom period. **Pseudomonas blight** - Apply 12-16 lbs. per acre before fall rains. Make a second application during dormancy before spring growth begins. The higher rate is required when increased disease pressure is present or when conditions favor development of the disease. (PRECAUTION: May cause fruit russet).

PEAS: Powdery mildew - Begin spray treatment when disease symptoms first appear. Use 1.5 to 3 lbs per acre according to disease severity. Repeat applications at weekly intervals.

PECANS: Shuck and Kernel rot (Phytophthora cactorum) and Zonate leaf spot (Cristulariella pyramidalis) - For suppression, apply 2 to 4 lbs per acre in sufficient water for good coverage at 2 to 4 week intervals starting at kernel growth and continuing until shucks open. Use the higher rate and shorter intervals if frequent rainfall occurs. **Mosses, Algae, and Lichen** - Mix 6 lbs per 100 gallons spray plus spreader-sticker on a dilute spray basis and apply in dormant season before buds swell, thoroughly wetting limbs and mosses.

PEPPERS: Bacterial spot - When disease threatens, apply 2 to 3 lbs per acre at 7 to 14 day intervals depending on disease severity.

PISTACHIOS: Botrytis blight, Botryosphaeria panical and Shoot blight, Septoria leaf blight, Late blight (Alternaria) - Apply 4 to 8 lbs per acre. Make initial application at bud swell and repeat on a 14-28 day schedule. Use higher rates when conditions favor disease.

PLUMS & PRUNES: Coryneum blight (Shot hole) - Apply 8-16 lbs. per acre as a dormant spray. Use the higher rate when rainfall is heavy and/or disease pressure is high. **Brown rot blossom blight** - Apply 8-12 lbs. per acre full cover application at pink, red or early white bud stage. Use the higher rate when disease pressure is heavy or conditions favor disease development.

POTATOES: Early and Late blight - Apply at 7 to 10 day intervals starting when plants are 4 to 6 inches high and continue until harvest. Use 1 to 1.5 lbs per acre in those locations where disease is light and up to 3-4 lbs per acre where disease is more severe. If late blight is a problem, apply prior to digging or in vine kill spray.

QUINCE: Fire blight - Apply 1 lb per acre. Apply at 5 day intervals through bloom period. Apply in adequate water for thorough coverage.

RASPBERRY: Leaf & Cane spot - Apply 4 lbs. per acre as a delayed dormant spray after training in the spring. Make fall application after harvest. Add 1 qt. of crop oil per acre.

SPINACH: Anthracnose, Cercospora leafspot, Downy mildew, & White rust - Apply 2-4 lbs. per acre. Begin treatment when disease first appears and repeat every 7-10 days as needed to suppress disease.

STRAWBERRIES: Downy mildew, Leaf spot and Leaf blight - Use 2 to 3 lbs per 100 gallons water per acre. Begin spray when plants are established and continue on a weekly schedule throughout the season. Discontinue applications if signs of phytotoxicity appear. May be used in nursery and field plantings.

SUGAR APPLE (Annona): Anthracnose - Apply 12 lbs per acre. Make initial application just before flowering and repeat on a weekly schedule until just before harvest. Apply in sufficient water for thorough coverage.

SUGAR BEETS & TABLE BEETS: Cercospora leaf spot - Start spray when disease threatens and continue for 4 to 5 applications. Spray 10-14 days depending on weather conditions at 2 to 5 lbs per acre depending on disease severity. Addition of suitable agricultural spray oil is recommended.

SYCAMORE: Anthracnose - Make two applications using 2 to 3 lbs per 100 gallons as a full cover spray. Make first application at bud crack and second application 7-14 days later at 10% leaf expansion.

TOMATOES: Early blight, Anthracnose, Bacterial speck, Gray leaf spot, Gray leaf mold, Late blight, Septoria leaf spot - When disease threatens, apply 2 to 3 lbs per acre at 7 to 10 day intervals. Use more frequent application when disease pressure is high. Bacterial spot - When disease threatens, apply 2 to 4 lbs per acre at 7 to 10 intervals, more frequently when disease is severe. May be tank-mixed with 1.5 to 2 lbs per acre of maneb or coordination product of maneb and zinc (80% active ingredient) if product is labeled for use on tomatoes. Follow all directions for use and days between last spray and harvest on those product labels. Do not use above named fungicides in the tank-mix unless they are registered for use on tomatoes. Addition of a Chlorothalonil like Bravo*, controls target leaf spot and may enhance control of some of the other listed diseases on this label with a tank-mix.

TURFGRASS: Algae - Apply 1/2 lb per 1,000 square feet in 5 gallons of water. May be used as a maintenance spray as needed. May be used alone or in combination with fungicides such as dithiocarbamates. Phytotoxicity may depend on varietal differences. Apply the recommended rate to a small area and observe 7-10 days for phytotoxicity. If phytotoxicity occurs, discontinue use.

WALNUTS: Bacterial blight - Apply 8 to 12.5 lbs per acre. Make first application at early pre-bloom prior to or when catkins are partially expanded. Make additional applications during bloom and early nutlet stage or as needed if frequent rainfall occurs.

WATERCRESS: Cercospora leaf spot - Apply 2 lbs per acre. Begin application when plants are first established in the field, repeating at 7-14 day intervals depending on disease severity and environmental conditions. Do not exceed 4 applications per crop. Apply using ground spray equipment at no less than 50 gallons of spray solution per acre.

WHEAT, OATS & BARLEY: Septoria leaf blotch, Helminthosporium spot blotch - Apply 1.5 to 2 lbs per acre. Make first application at early heading and follow with second application 10 days later.

ORNAMENTALS

Notice to User: Plant sensitivities to BLUE SHIELD DF have been found to be acceptable in specific genera and species listed on this label; however, phytotoxicity may occur. Due to the large number of species and varieties of ornamentals and nursery plants, it is impossible to test every one for sensitivity to BLUE SHIELD DF. Neither the manufacturer nor seller has determined whether or not BLUE SHIELD DF can be safely used on ornamental or nursery plants not listed on this label. The user should determine if BLUE SHIELD DF can be used safely prior to commercial use. In a small area, apply the recommended rates to the plants in question, i.e., bedding plants, foliage, etc., and observe for 7-10 days for symptoms of phytotoxicity prior to commercial use.

Use BLUE SHIELD DF on container, bench, or bed-grown ornamentals in greenhouses or outdoor nurseries, for professional use on ornamentals grown for indoor and outdoor landscaping, and for control of bacterial and fungal diseases of foliage, flowers and stems.

Apply as a thorough coverage spray using 1 lb. BLUE SHIELD DF per 100 gallons of water. Begin application at first sign of disease and repeat at 7-14 day intervals as needed; use shorter interval during periods of frequent rains or when severe disease conditions persist.

BLUE SHIELD DF may be used as a maintenance spray alone or in combination with other fungicides such as the dithiocarbamates.

ORNAMENTAL/DISEASES:

Althea (Rose of Sharon)/Bacterial leaf spot
Aralia/Xanthomonas & Cercospora leaf spots, Alternaria
Arborvitae/ Alternaria twig blight, Cercospora leaf blight
Azalea*/Cercospora leaf spot, Botrytis blight, Phytophthora dieback, & Powdery mildew
Begonia/Xanthomonas leaf spot
Bougainvillea/ Anthracnose, Bacterial leaf spot
Bulbs (Easter lily**, Tulip, Gladiolus)/ Anthracnose, Botrytis blight
Camellia/ Anthracnose, Bacterial leaf spot
Camphor Tree/Pseudomonas leaf spot
Canna/Pseudomonas leaf spot
Carnation*/ Alternaria blight, Pseudomonas leaf spot, & Botrytis blight
Chinese Tallow Tree/Bacterial leaf spot (Xanthomonas sp., Pseudomonas sp.)
Chrysanthemum*/Septoria leaf spot & Botrytis blight
Cotoneaster/Botrytis blight
Dahlia/ Alternaria leaf spot, Botrytis gray mold, Cercospora leaf spot
Date Palm/Pestalotia leaf spot
Dianthus/Bacterial spot, Bacterial soft rot
Dogwood/ Anthracnose
Dusty Miller/Bacterial leaf spot (Pseudomonas cichorii)

Echinacea/Bacterial leaf spot (*Pseudomonas cichorii*)
Elm "Drake"/*Xanthomonas* leaf Spot
Euonymus/Botrytis blight & Anthracnose
European Fan Palm/*Pestalotia* leaf spot
Gardenia/*Alternaria* leaf spot, Botrytis bud rot, *Cercospora* leaf spot
Geranium/*Alternaria* leaf spot, Botrytis gray mold, *Cercospora* leaf spot
Gladiolus/*Alternaria* leaf spot, Botrytis gray mold, Bacterial leaf blight
Golden Rain Tree/Bacterial leaf spot
Hibiscus/Bacterial leaf spot
Holly Fern/*Pseudomonas* leaf spot
Impatiens/Bacterial leaf spot
India Hawthorn (greenhouse)/****Entomosporium* leaf spot
Ivy*/*Xanthomonas* leaf spot
Ixora/*Xanthomonas* leaf spot
Juniper (Eastern Red Cedar)/ Anthracnose
Lantana/Bacterial leaf spot
Lilac/*Cercospora* leaf spot
Loblolly Bay/ Anthracnose
Loquat/*Entomosporium maculata*, *Colletotrichum* sp.
Magnolia (Southern)/ Algal leaf spot, Anthracnose, Bacterial leaf spot
Mandevillas/ Anthracnose
Marigold/*Alternaria* leaf spot, Botrytis leaf and Flower rot, *Cercospora* leaf spot
Mulberry, Weeping/Bacterial leaf spot
Oak, Laurel/ Algal leaf spot (*Cephaleuros virescens*)
Oleander/Bacterial leaf spot, Fungal leaf spot
Pachysandra/*Volutella* leaf blight
Pansy/Downy mildew
Pear (Flowering)/Fireblight, Leaf spot
Pentas (Egyptian Star)/Bacterial leaf spot (*Xanthomonas* sp.)
Peony/Botrytis blight
Periwinkle/*Phomopsis* stem blight
Philodendron/Bacterial leaf spot
Phlox/*Alternaria* leaf spot
Photinia (Red Tip)/ Anthracnose, *Entomosporium* leaf spot
Pistachio/ Anthracnose
Plantain Lily/Bacterial leaf spot
Powder Puff Plant/Bacterial leaf spot
Pyracantha/Fireblight & Scab
Queen Palm/*Exosporium* leaf spot, *Phytophthora* bud rot
Rhododendron/*Alternaria* flower spot
Rose*/Powdery mildew, Black spot
Verbena/*Xanthomonas* leaf spot
Viburnum/ Anthracnose
Washingtonia Palm/*Pestalotia* leaf spot
Weeping Willow/ Anthracnose

Yucca (Adams Needle)/Cercospora & Septoria leaf spot

*Discoloration of foliage and/or blooms have been noted on some varieties. To prevent residues on commercial plants, do not spray just before selling season.

**Apply 3-5 lbs. in 20-100 gallons of water per acre.

***For India Hawthorn, use 2-4 lbs. per 100 gallons.

NOTICE: Seller warrants that the product conforms to its chemical description and is reasonably fit for the purposes stated on this label when used in accordance with directions under normal conditions of use; but neither this warranty nor any other warranty of merchantability or fitness for a particular purpose, expressed or implied, extends to the use of this product contrary to label instructions not reasonably foreseeable to seller; the buyer assumes the risk of any such use.

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