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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Theodore D. Head
Product Registration Manager
Nufarm Agriculture USA
1333 Burr Ridge Parkway, Suite 125A
Burr Ridge, IL 60527-0866

DEC 11 2003

Subject: Champ Flowable
EPA Reg. No. 55146-41
Amendment dated September 22, 2003

Dear Mr. Head:

The amended label referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act as amended is acceptable provided the following changes are made:

1. In the First Aid block, delete the word "advise" at the bottom of the block.
2. In the First Aid block, the routes of exposure must be listed in order of decreasing Acute Toxicity category. List the routes of exposure in the following order:
 - If in eyes
 - If swallowed
 - If inhaled
 - If on skin or clothing
3. In the Storage and Disposal block, move the section "Pesticide Storage" to immediately below the sentence "Do not contaminate water...."

One copy of the label stamped "Accepted with comments" is enclosed for your records. Please submit one copy of the final printed label that incorporates the required changes before the product is released for shipment.

If you have any questions, please contact Robert Westin by phone at (703) 305-5721 or via email at westin.robert@epa.gov.

Sincerely,

A handwritten signature in black ink, appearing to be "C/P" or similar initials.

Cynthia Giles-Parker
Product Manager (22)
Fungicide Branch
Registration Division (7505C)

Enclosure

Champ Flowable

KEEP OUT OF REACH OF CHILDREN

CAUTION

Active Ingredient:
 Copper Hydroxide..... 23%
 Inert Ingredients..... 77%
 Total: 100%

(Metallic Copper Equivalent . . 15%)

EPA Reg. No. 55146-41

EPA Est. No.

First Aid

IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

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

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

Have product container with you when calling a poison control center or doctor, or going for treatment advise.

Net Contents:

**ACCEPTED
with COMMENTS
In EPA Letter Dated:**

DEC 11 2003

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

55146-41

PRECAUTIONARY STATEMENTS**HAZARDS TO HUMANS AND DOMESTIC ANIMALS****CAUTION**

Harmful if swallowed, absorbed by skin or inhaled. Avoid contact with skin, eyes or clothing. Causes moderate eye irritation. May cause skin sensitization in certain individuals. Avoid breathing dust.

PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers must wear long-sleeved shirt and long pants, waterproof gloves and shoes plus socks. Follow manufacturer's instructions for cleaning/maintaining personal protective equipment (PPE). If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

ENGINEERING CONTROLS STATEMENT

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

USER SAFETY RECOMMENDATIONS

Users should:

Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

For terrestrial uses, 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. This pesticide is toxic to fish and aquatic organisms. Do not apply where runoff is likely to occur. Do not apply when weather conditions favor drift from treated areas. Drift and runoff from treated areas may be hazardous to fish and aquatic organisms in adjacent aquatic sites.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal. Store in a cool, dry place.

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 Environmental Protection Agency Regional Office for guidance.

CONTAINER DISPOSAL: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incinerate, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

PESTICIDE STORAGE: Store in a cool dry secure area.

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 (WPS), 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 (REI). The requirements in this box only apply to uses of this product that are covered by the WPS.

Do not enter or allow worker entry into treated areas during the REI of 24 hours provided the following instructions are followed:

For at least 7 days following application an eye-flush container, designed specifically for flushing eyes, must be available at the WPS decontamination site for workers entering the area treated with copper hydroxide.

Notify workers of the application by warning them orally that residues in the treated areas may be highly irritating to their eyes and to take precautions such as refraining from rubbing their eyes and if they get residues in their eyes they should immediately flush their eyes using the eye-flush container.

PPE required for early entry to treated areas that is permitted under the WPS and that involves contact with anything that has been treated, such as plants, soil, or water, is coveralls, waterproof gloves and shoes plus socks.

FROST INJURY PROTECTION: Bacterial Ice Nucleation Inhibitor: Application of Champ® Flowable (CHAMP)

made to all crops listed on this label at rates and stages of growth indicated below just prior to anticipated frost conditions will afford control of ice nucleating bacteria (*Pseudomonas syringae*, *Erwinia herbicola* and *Pseudomonas fluorescens*) and may thereafter provide protection against light frost. Use higher rates when bacterial infection is severe. Not recommended in those geographical areas where weather conditions favor severe frost.

GENERAL INSTRUCTIONS

CHAMP can be used with all types of spraying equipment. The volume per acre will differ depending on the specific crop and the equipment used. Use CHAMP as per instructions on this label.

APPLYING SPRAY MIXTURE: The directions given under each crop are for applying dilute spray mixture unless otherwise shown. The amount of CHAMP applied per acre in concentrate and aerial sprays should be the same as the amount applied per acre in dilute sprays. The required amount should be mixed with enough water to thoroughly cover the crop with spray mixture. The volume of water needed will depend upon the spray equipment used and the size of the crop being sprayed. Read the information below about applying dilute concentrate, and aerial sprays.

APPLYING DILUTE HIGH-VOLUME SPRAYS: On vegetable crops use 25 to 100 gallons of spray mixture per acre; on fruit and nut trees use 250 to 800 gallons per acre. As much as 1,500 gallons per acre may be needed for large trees.

APPLYING CONCENTRATE GROUND SPRAYS: On vegetable crops use 5 to 20 gallons of spray mixture per acre; on fruit and nut trees use 25 to 250 gallons per acre.

APPLYING AERIAL SPRAYS: Use 3 to 30 gallons per acre.

CHEMIGATION: Apply this product only through center pivot, motorized lateral move, end tow, traveler, big gun, plastic solid set, or plastic hand move sprinkler irrigation systems that do not contain aluminum components. Do not apply this product through any other type of irrigation system unless specifically set forth above or as may be specified in the future as additional systems not containing aluminum components come into use. Crop injury, lack of effectiveness or illegal pesticide residues in the crop can result from non-uniform distribution of treated water. 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. 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. 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. For non-public water sprinkler chemigation systems, the system 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. 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 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. 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 non-public water sprinkler chemigation systems, 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. 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. Do not apply when wind speed favors drift beyond the area intended for treatment.

It is recommended that the pesticide supply tank be equipped with a means for continuous agitation either by recirculation or a mechanical agitator. Charge the supply tank with the appropriate amount of water and add the pesticide slowly followed by any sticker-spreaders, insecticides, nutrients, etc. Observe all cautions and limitations on the label of all products used in the mixtures. For fixed position irrigation systems such as center pivot, big gun, etc., the pesticide should be applied towards the end of the irrigation period. Exact timing will depend on the desired pesticide application rate and calibration of the system. For moving systems, the pesticide should be applied continuously. In all cases, thorough coverage of the crop should be achieved.

Do not apply this product through any irrigation system unless the labeling on chemigation is followed.

NOTE: IRRIGATION SYSTEMS AND ASSOCIATED PIPING SHOULD BE THOROUGHLY FLUSHED WITH CLEAN WATER FOLLOWING APPLICATION OF COPPER BASED FUNGICIDES. FLUSHING MUST BE DONE IN A MANNER WHICH WILL NOT WASH THE PRODUCT FROM THE FOLIAGE AND REDUCE DISEASE CONTROL.

No additional surfactants are needed. Add CHAMP slowly to the spray tank followed by any sticker-spreaders, insecticides, nutrients, etc. Observe all cautions and limitations on the label of all products used in mixtures. The specific instructions given on this label are based on general application and circumstances. The recommendations of the State Agricultural Extension Service should be closely followed as to timing, frequency and number of sprays per season.

NOTE: APPLICATION TO PLANT SURFACES SPRAYED WITH THIS PRODUCT WHICH HAVE A LOW pH MAY RESULT IN CHEMICAL RESIDUES THAT MAY CAUSE CROP INJURY.

BERRIES, VINES AND HOPS

BLACKBERRIES

(Santiams, Logans, Boysens, Marions, Auroras, Casades, Chehalems, Thornless Evergreens) *Leaf and Cane Spot*. Apply delayed dormant spray after training in Spring at 5 1/3 pints per acre. Make all spray applications after harvest. Add 1 quart of crop oil per acre.

BLUEBERRIES

(EXCEPT CALIFORNIA) *Bacterial Canker*. Apply at 2/3 to 1 1/3 gallons per acre. Make first application before the Fall rains, preferably the first week in October and a second application four weeks later.

CRANBERRY

Fruit Rot. Apply at 1 1/3 gallons per acre beginning in late bloom. One or two additional applications made at 10 to 14 day intervals may be required, depending on disease pressure.

CURRANTS & GOOSEBERRY

Leaf Spot. Make three applications at 1 2/3 gallons per acre, starting after harvest, before bloom and after petal fall.

GRAPES

Black Rot, Powdery & Downy Mildew. Apply 2 2/3 pints per acre. Begin application at bud break with additional applications made throughout the season depending upon disease severity.

NOTE: Slight to severe foliage injury may occur in copper-sensitive varieties such as Concord, Delaware, Niagara and Rosette. Either test for sensitivity or add 1 to 3 lbs. of hydrated lime per 2 2/3 pints of CHAMP.

HOPS

Downy Mildew. Apply 2 2/3 pints per acre as a fungicide crown treatment after pruning, but before training. After training, additional fungicide treatments are needed at about 10 day intervals.

NOTE: Discontinue use 2 weeks before harvest.

RASPBERRIES

(EXCEPT CALIFORNIA) *Leaf & Cane Spot.* Apply at 5 1/3 pints per acre as a delayed dormant spray after training in the Spring. Make a Fall application after harvest.

STRAWBERRIES

Leaf Spot, Leaf Blight. Apply 2 2/3 to 4 pints per acre. Begin application when plants are established and continue on a weekly schedule throughout season.

NOTE: Discontinue applications if signs of phytotoxicity appear.

FIELD CROPS

ALFALFA

Cercospora & Leptosphaerulina Leaf Spots. Apply 2 2/3 pints per acre 10 to 14 days before each harvest or earlier if disease threatens.

NOTE: Spray injury may occur with sensitive varieties such as Lahontan.

PEANUTS

Cercospora Leaf Spot.. Begin spraying 35 to 40 days after planting or when disease symptoms first appear. Apply at 2 to 4 pints per acre. Continue applications at 10 to 14 day intervals. One to two quarts of 6 pounds per gallon flowable sulfur may be added. Reduce spray interval to seven days during humid weather. Use higher rates when conditions favor disease.

SUGAR BEETS

Cercospora Leaf Spot.. Start spray when disease threatens and continue for 4 to 5 applications. Spray every 10 to 14 days depending on weather conditions at 2 2/3 to 6 2/3 pints per acre depending on disease severity.

WHEAT & BARLEY

Septoria Leaf & Helminthosporum Spot Blotch. Apply 2 to 2 2/3 pints per acre. Make first application at early heading and follow with second application 10 days later or as necessary. Use higher rates when conditions favor disease.

ORNAMENTALS**LIVE OAK**

(TEXAS and FLORIDA) *Ball Moss*. Apply at 1 gallon per 100 gallons of water, in Spring after heavy rain, using 1 1/2 gallons of spray per foot of tree height. Make sure to wet tufts thoroughly. A second application may be required after 12 months.

NOTE: CHAMP may be injurious to ornamentals grown under Live Oaks.

PHILODENDRON

Bacterial Leaf Spot.. Apply weekly before disease appears at 1 quart of CHAMP per 100 gallons of water.

SYCAMORE

Anthracnose. Make two applications using 2 2/3 to 4 pints per 100 gallons as a full cover spray. Make first application at bud crack and second application 7 to 14 days later at 10% leaf expansion.

For control of diseases on ornamentals in **Greenhouses, Fields and Nurseries**, apply CHAMP at 1 1/3 pints per 100 gallons as a full cover spray beginning at first sign of disease. Repeat at intervals of 7 to 14 days (or shorter) depending on rainfall and disease severity.

ARALIA

Xanthomonas & Cercospora Leaf Spots, Alternaria.

AZALEA

**Cercospora Leaf Spot, Botrytis Blight, Phytophthora Dieback, Powdery Mildew*.

BEGONIA

Xanthomonas Leaf Spot, Anthracnose.

BULBS (EASTER LILY, TULIP, Gladiolus)

Botrytis Blight, Anthracnose.

CARNATION

**Alternaria Blight, Pseudomonas Leaf Spot, Botrytis Blight..*

CHRYSANTHEMUM

**Septoria Leaf Spot, Botrytis Blight..*

COTONEASTER

Botrytis Blight..

EUONYMUS

Botrytis Blight, Anthracnose.

IVY

**Xanthomonas Leaf Spot..*

PACHYSANDRA

Volutella Leaf Blight..

PERIWINKLE

Phomopsis Stem Blight..

PYRACANTHA

Fireblight, Scab.

ROSE

**Powdery Mildew, Black Spot..*

YUCCA (ADAMS NEEDLE)

Cercospora & Septoria Leaf Spots.

* On some varieties a discoloration may occur on foliage or blooms. To prevent residues on commercial plants, do not spray just before selling season.

NOTE: Phytotoxicity may occur on certain varieties. Apply on a few plants at the recommended rate and observe for a few days to see if phytotoxicity will occur. Due to the large number of species and varieties of ornamentals and nursery plants, a preliminary trial is recommended to determine plant tolerance for plant species and varieties which are not listed above.

TREE CROPS

ALMONDS

Coryneum Blight (Stigmina carpophila), Blossom Brown Rot, Bacterial Blast (Pseudomonas). Use 1 1/3 to 2 gallons CHAMP per acre as a dormant application before foliage buds swell. If frequent rainfall occurs a second application should be made during the early bloom stage (popcorn) at 1 to 1 1/3 gallons per acre.

NOTE: To avoid plant injury, do not use above rate after full bloom. For blast control in sprinkler irrigated orchards or where disease is severe apply 2 to 4 CHAMP sprays or as many as required, at 1 1/3 to 4 pints per acre at two week post bloom intervals or just before sprinkling.

NOTE: In sensitive varieties, such as Peerless and Mission, slight leaf injury may occur from post bloom spray.

APPLE

Anthracnose, European Canker, Pseudomonas. Apply before Fall rains at 2 to 2 2/3 gallons per acre.

NOTE: Use on yellow varieties may cause discoloration. To avoid, pick before spraying.

Fireblight. Apply at 1 1/3 to 2 2/3 gallons per acre. Make application as a full cover spray between silver-tip and green-tip.

NOTE: Phytotoxicity may occur from late application. After green-tip apply at 1 1/3 pints per acre.

Crown or Collar Rot. Mix 5 1/3 pints 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 Fall after harvest each year.

NOTE: Do not use if soil pH is below 5.5 or copper toxicity may result.

APRICOTS

Coryneum Blight (Shot Hole), Blossom Brown Rot. Apply at popcorn to full bloom using 1 1/3 to 2 gallons per acre.

NOTE: To avoid spray injury, do not apply after bloom

AVOCADOS

Scab. Apply when bloom buds begin to swell at 1 1/3 to 2 gallons per acre. Continue application at monthly intervals for 5 to 6 applications. Use higher rate when conditions favor disease.

CHERRY

Dead Bud (Pseudomonas syringae), Coryneum Blight. Apply 1 1/3 to 2 gallons per acre in Fall (before heavy Fall rains) and again in Winter. In orchards where the disease is severe, a spray should also be applied shortly after harvest. *Brown Rot Blossom Blight.* For adequate control apply 1 1/3 to 2 gallons per acre as a full cover spray at popcorn and full bloom.

CITRUS

Melanose, Scab, Pink Pitting. Apply 2/3 to 2 gallons per acre, depending on disease severity, as a pre-bloom and post-bloom spray. *Greasy Spot.* Apply 1/3 to 1 gallon per acre using higher rates when conditions favor disease. *Brown Rot.* Apply 2/3 to 1 1/3 gallons 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 pound of high quality lime per gallon of CHAMP. *Citrus Canker.*

(SUPPRESSION ONLY) Apply 2 gallons per acre, spraying flushes 7 to 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 1/3 pints of CHAMP with 1 gallon 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.

FILBERTS

Bacterial Blight. Apply 2 2/3 to 4 gallons per acre as a post-harvest spray. In seasons of heavy rainfall, apply another spray when three-fourths of the leaves have dropped. Add 1 pint of superior type oil per 100 gallons of water. *Eastern Filbert Blight.* Apply 2 2/3 to 4 gallons per acre in sufficient water to obtain thorough coverage. Make initial application at budswell to budbreak. Additional applications should be made on 10 to 14 day intervals depending on disease severity or when conditions are conducive for disease development. Add 1 pint of superior type oil per 100 gallons of water.

KIWIFRUIT

Blossom Blight (Bud Rot), Leaf Spot (Phomopsis). Make two to three applications at 2 2/3 to 4 pints per acre during dormant season. Do not apply at time of or after leaf emergence.

MACADAMIA NUTS

(EXCEPT CALIFORNIA) *Blossom & Raceme Blight.* Apply 6 to 12 pints per acre depending upon disease pressure in 50 to 300 gallons of water during peak raceme development and bloom periods. For aerial application apply 6 to 12 pints per acre in 10 to 30 gallons of water.

OLIVES

(CALIFORNIA) *Peacock Spot*.. Make first application at 1 1/3 to 2 gallons per acre before Winter rains fall. A second application in early Spring should be made if disease is severe.

PEACHES & NECTARINES

Leaf Curl, Coryneum Blight (Shot Hole). Apply 1 1/3 to 2 2/3 gallons per acre after leaf fall as a dormant application. Use the higher rate when rainfall is very heavy and disease pressure is high. May be used with an agricultural spray oil. *Brown Rot Blossom Blight*. Apply 1 1/3 to 2 gallons per acre as a full cover spray at pink bud. Application at this time affords some control of *Leaf Curl* and *Coryneum Blight*. *Bacterial Spot*.. Apply 1 1/3 gallons per acre as a dormant spray. As a post-bloom spray, apply 1 1/3 pints per acre at first and second cover sprays.

NOTE: Do not apply three weeks prior to harvest. Use only recommended rates. Spotting of leaves and defoliation may occur from use in cover sprays.

PEARS

Fireblight.. Apply at 1 1/3 pints per acre at five day intervals throughout bloom period. *Pseudomonas Blight*.. Apply before Fall rains at a rate of 2 to 2 2/3 gallons per acre and again at dormant before Spring growth starts.

NOTE: Excessive dosages may cause fruit russet.

PISTACHIO

Botrytis Blight, Botryosphaeria Panicle, Shoot Blight, Septoria Leaf Blight, Late Blight (Alternaria alternate). Apply 2/3 to 1 1/3 gallons per acre beginning at bud swell. Repeat at 14 to 28 day intervals depending on disease conditions. If disease conditions are severe, use the high rate and the short spray interval.

PLUMS & PRUNES

Coryneum Blight (Shot Hole). Apply 1 1/3 to 2 2/3 gallons per acre as a dormant spray. *Brown Rot, Blossom Blight*. Apply 1 1/3 to 2 gallons per acre as a full cover spray at early white bud stage. Use higher rates when rainfall is heavy and/or disease pressure is high.

WALNUT

Walnut Blight.. Apply 1 1/3 to 2 1/8 gallons per acre. Apply first spray at early pre-bloom prior to or when catkins are partially expanded. Make additional applications during bloom and early outlet stage as needed. Additional applications may be necessary when frequent rainfall occurs.

NOTE: When applied as a dilute spray, 1 pint of summer oil emulsion may be added per 100 gallons of spray. Adequate control may not be obtained when copper tolerant species of *Xanthomonas Bacteria* are present.

TROPICAL CROPS

BANANAS

Sigatoka. Apply by air at 2 2/3 pints per acre in 3 gallons of water containing 1/2 gallon agricultural oil. Apply on a 14 day schedule throughout the wet season. Apply at 21 day intervals during dry periods. *Black Pitting*. Apply at 5 1/3 pints 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.

CACAO

Black Pod. Begin applications at the start of the rainy season and continue while infection conditions persist. Sprays should be made as often as 14 to 21 days in high rainfall areas at varying rates from 2 2/3 to 6 pints 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 8 2/3 to 11 1/3 pints per acre, according to disease pressure incidence and planting density.

COFFEE

Coffee Berry Disease (Collectotrichum coffeanum). Apply first spray at 1 to 1 1/3 gallons per acre after flowering and before onset of long rains and then at 21 to 28 days interval until picking. Use higher rates when rainfall is heavy and disease pressure is high. *Bacterial Blight (Pseudomonas syringae)*. Apply 1 to 1 1/3 gallons 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 the higher rates when rainfall is heavy and disease pressure is high. *Leaf Rust (Hemileia vastatrix)*. Apply 2 2/3 to 5 1/3 pints per acre before the onset of rain and then at 21 day intervals while the rains continue. Use higher rates when rainfall is heavy and disease pressure is high. *Iron Spot (Cercospora coffeicola)*, *Pink Disease (Corticium salmonicolor)*. Apply 2 2/3 pints per acre as a concentrate or dilute spray. Begin treatment at the start of wet season and continue at monthly intervals for three applications.

MANGO

(FLORIDA) *Anthracnose*. Apply monthly after fruit set until harvest at 1 1/3 to 1 2/3 gallons per acre.

PAPAYA

Anthracnose. Apply 1/2 to 1 2/3 gallons per acre beginning before disease is expected to appear. Repeat at 10 to 14 day intervals or at 5 to 7 day intervals during periods of heavy rainfall. Use the higher rates when conditions favor disease. The addition of a suitable spreader-sticker may be desirable especially during periods of heavy rains.

VEGETABLE CROPS

BEANS

Bacterial Blight (Halo & Common). For protective sprays, apply first application when plants are six inches high. Apply on 7 to 14 day schedule depending on local conditions. Use 1 1/3 to 4 pints per acre depending on disease severity.

BROCCOLI, BRUSSELS SPROUT & CAULIFLOWER

Downy Mildew. Apply 2/3 to 1 1/3 pints per acre at seven day intervals. Use higher rates when conditions favor disease.

NOTE: Reddening of older leaves may occur on Broccoli at the higher rate.

CABBAGE

Downy Mildew. Apply 2/3 to 1 1/3 pints per acre at 7 day intervals. Use higher rate when conditions favor disease. *Black Rot (Xanthomonas) & Black Leaf Spot (Alternaria).* Apply 2 2/3 pints per acre at 7 to 10 day intervals beginning after transplants are set in field or shortly after emergence of field seeded crops or when conditions favor disease development.

NOTE: Flecking of wrapper leaves may occur at the 2 2/3 pint rate.

CANTALOUPE, HONEYDEWS & MUSKMELONS

Downy Mildew. Apply at 2 2/3 pints per acre beginning when conditions are favorable for disease development and repeat at 5 to 7 day intervals as needed depending on disease severity.

CARROTS

Carrot Blight (Cercospora). When disease threatens apply 2 2/3 pints per acre at 7 to 14 day intervals depending on disease severity.

CELERY & CELERIAC

Early, Late & Bacterial Blights. Apply as soon as plants are first established in the field at 2 2/3 pints per acre, then every 5 to 7 days depending on disease severity and weather.

CUCUMBERS

Angular Leaf, Downy Mildew. Apply weekly once the plants begin to vine. Use at 2 to 2 2/3 pints per acre.

EGGPLANT

~~(EXCEPT CALIFORNIA) *Alternaria Blight, Anthracnose, Phomopsis.* Use 2 2/3 pints per acre before disease appears. Repeat at 7 to 10 day intervals.~~

ENDIVE & ESCAROLE

Downy Mildew. Apply 1 1/3 to 2 2/3 pints per acre. Begin treatment when disease first appears and repeat every 7 to 10 days as needed to suppress disease.

GINSENG

Alternaria Leaf & Stem Blight. CHAMP may be applied at 3 1/2 pints per acre as a tankmix with two pounds Iprodione 50WP in 100 gallons of water per acre. Begin Iprodione 50WP-CHAMP applications as soon as plants have emerged in Spring. Applications should be repeated every seven days until plants become dormant in Fall. Apply fungicides at least eight hours before rain, giving the fungicides time to dry on the plants. Use of a spreader-sticker is advised.

NOTE: *Alternaria Leaf & Stem Blight* is most severe in humid conditions such as those found in the dense canopies of two-, three- and four-year old ginseng. Complete and thorough spray coverage is required for control.

LETTUCE

Downy Mildew. Apply 1 1/3 to 2 2/3 pints per acre. Begin treatment when disease first appears and repeat every 7 to 10 days as needed to suppress disease.

ONION

Purple Blotch, Downy Mildew. Apply at 2 2/3 pints per acre when plants are 4 to 6 inches high and repeat at 7 to 10 day intervals.

PEAS

Powdery Mildew. Begin spray treatment when disease symptoms first appear. Use 2 to 4 pints per acre according to disease severity. Repeat applications at weekly intervals.

PEPPERS

Bacterial Spot. When disease threatens apply 2 2/3 to 4 pints per acre in sufficient water for adequate coverage at 5 to 10 day intervals depending on disease severity.

POTATOES

Early & Late Blight. Apply at 7 to 10 day intervals starting when plants are six inches high. Apply 1 1/3 to 2 pints per acre in those locations where disease is light and up to 4 to 5 1/3 pints per acre where disease is severe. *Colorado Potato Beetle*. (SUPPRESSION ONLY) Application of CHAMP at rates and timing recommended for control of *early* and *late blight* will provide suppression of the *Colorado Potato Beetle*.

PUMPKIN & SQUASH

Powdery Mildew. Begin application when plants are three weeks old or when first disease symptoms appear. Use at weekly intervals at 2 to 4 pints per acre depending on disease severity.

SPINACH

Anthracnose, Cercospora Leaf Spot, Downy Mildew, White Rust. Apply 2 2/3 to 5 1/3 pints per acre. Begin treatment when disease first appears and repeat every 7 to 10 days as needed to suppress disease.