

45639-169

1/12/2000

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Nang-Ly Chow, Ph.D.
AgrEvo USA Company
2711 Centerville Road
Wilmington, DE 19808

JAN 12 2000

Dear Dr. Chow:

Subject: Amendment - Add Chemigation Use on Potatoes,
and minor text revisions
Phaser 3EC Insecticide Not for Use in California
EPA Registration Number 45639-169
Your submission December 22, 1999

The amendment referred to above, submitted in connection with registration under FIFRA section 3(c)(7)(a), is acceptable provided that you:

1. Submit and/or cite all data or other material required for registration/reregistration of your product under FIFRA section 3(c)(5) or FIFRA section 4 when the Agency requires all registrants of similar products to submit such data.
2. Make the labeling changes listed below before you release the product for shipment bearing the amended labeling:
 - a) In the PPE section you may want to update the respirator entry by adding at the end "or a NIOSH approved respirator with an organic vapor (OV) cartridge or canister with any R, P, or HE prefilter."
 - b) In the first paragraph under the heading APPLICATION THROUGH IRRIGATION SYSTEMS- CHEMIGATION, correct "s-ytem" to "system".
 - c) For Cherries, in the Method of Application entry for Peachtree borer, after "post-harvest" add "after leaves have dropped".
 - d) For Pears, revise the Method of Application entry for Pear leaf blister mite to read "Apply to trees as a post-harvest or dormant treatment."

e) For Potatoes, add the following to the Method of Application:

POTATOES - CHEMIGATION:

For application by irrigation systems, apply the specified amount of Phaser 3EC Insecticide per acre. Follow all directions given under CHEMIGATION USE INSTRUCTIONS section of this label.

f) For Taxus, correct the rate of application for control of Black Vine Weevil to read "1 1/3 quarts" rather than "1 2/3 quarts". The teaspoons per gallon rate is correct.

3. Submit three (3) copies of your final printed labeling before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

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

Sincerely,

George T. LaRocca
Product Manager 13
Insecticide/Rodenticide Branch
Registration Division (7505C)



AGREVO[®]

Phaser[®] 3EC

INSECTICIDE

NOT FOR USE IN CALIFORNIA

ACCEPTED
with COMMENTS
in EPA Letter Dated:

JAN 12 2000

Under the Federal Insecticide,
Fungicide, and Rodenticide Act,
as amended, for the pesticide
registered under EPA Reg. No.
45639-169



For Agricultural or Commercial use Only

ACTIVE INGREDIENT:
Endosulfan (hexachlorohexahydromethano-
2,4,3-benzodioxathiepin-3-oxide) 34.4%*

INERT INGREDIENTS:** 65.6%

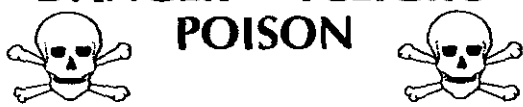
TOTAL 100.0%

*Equivalent to 3.0 pounds of active ingredient per gallon
**Contains xylene range aromatic solvent

EPA Reg. No. 45639-169

KEEP OUT OF REACH OF CHILDREN

DANGER — PELIGRO
POISON



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.)

FIRST AID

IF SWALLOWED: Call a physician or Poison Control Center immediately. Vomiting should be induced *only* under the direct supervision of a physician. If person is unconscious or convulsing, do not give anything by mouth and do not induce vomiting.

IF INHALED: Remove victim to fresh air. Apply artificial respiration if indicated. Get medical attention.

IF ON SKIN: Remove contaminated clothing and wash skin with soap and water. Get medical attention.

IF IN EYES: Flush eyes with plenty of water. Call a physician immediately.

NOTE TO PHYSICIAN: Endosulfan is a central nervous system stimulant absorbable by mouth, inhalation or through contact with skin. It may cause convulsions. There is no specific antidote. Diazepam I.V. is the drug of choice. Barbituric acid derivatives such as phenobarbital may be used additionally. A neuromuscular blocking agent may be used if convulsions persist. This type of drug may be used *only* if complete control of respiration can be maintained. Epinephrine derivatives are absolutely contraindicated.

This formulation contains petroleum hydrocarbons. Vomiting should be induced *only* under the direct supervision of a physician. Care should be taken to prevent aspiration because of the possibility of chemical pneumonia or pulmonary edema due to the organic solvent in the formulation.

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IN CASE OF MEDICAL, ENVIRONMENTAL, OR TRANSPORTATION EMERGENCIES OR INQUIRIES CALL 1-800-471-0660 (24 HOURS/DAY).

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS DANGER

Fatal if swallowed. Corrosive. Causes irreversible eye damage. Do not get in eyes, on skin, or on clothing. May be fatal if inhaled or absorbed through skin. Do not breathe vapor or spray mist. Do not contaminate food or feed. Keep out of reach of domestic animals. Food utensils such as teaspoons or measuring cups must not be used for food purposes after use in measuring pesticides.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category G on an EPA chemical resistance category selection chart.

Applicators and other handlers must wear:

- ◇ Coveralls over long-sleeved shirt and long pants
- ◇ Chemical-resistant gloves, such as barrier laminate, or Viton® ≥14 mils
- ◇ Chemical-resistant footwear plus socks
- ◇ Protective eyewear
- ◇ Chemical-resistant headgear for overhead exposure
- ◇ A respirator with either an organic vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C), or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G)
- ◇ Add a chemical-resistant apron when cleaning equipment, mixing or loading

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.

ENGINEERING CONTROL 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 clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- ◇ 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

This pesticide is toxic to fish, birds, and other wildlife. Birds feeding on treated areas may be killed. Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Due to the risk of runoff and drift, do not apply within a distance of 300 feet of lakes, ponds, streams and estuaries. Shrimp and crab may be killed at application rates recommended on this label. Do not apply where fish, shrimp, crab, and other aquatic life are important resources. Do not contaminate water by cleaning of equipment or disposal of equipment washwaters. This product must not be used in areas where impact on threatened endangered species is likely. Contact your State Fish and Game Agency before applying this product. Apply this product only as specified on this label. This pesticide is toxic to bees exposed to direct application. Applications should be timed to coincide with periods of minimum bee activity, usually between late evening and early morning.

PHYSICAL OR CHEMICAL HAZARDS

Do not use, pour, spill or store near heat or open flame.

STORAGE AND DISPOSAL

PESTICIDE STORAGE: Do not store in or around the home.

Do not store below 20°F (-7°C).

Do not use or store near heat, open flame or hot surfaces.

Keep out of reach of children and animals. Store in original containers only. Store in a cool, dry place and avoid excess heat. Carefully open containers. After partial use, replace lids and close tightly. Do not put concentrate or diluted material into food or drink containers. Do not contaminate other pesticides, fertilizers, water, food or feed by storage or disposal.

In case of spill: Avoid contact, isolate area, and keep out animals and unprotected persons. Confine spills.

To confine spill: If liquid, dike surrounding area or absorb with sand, cat litter or commercial clay. If dry material, cover to prevent dispersal. Place damaged package in a holding container. Identify contents.

PESTICIDE DISPOSAL: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticides, 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: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Do not cut or weld metal containers.

DO NOT REUSE EMPTY CONTAINER

[this statement is deleted when returnable packaging is used]

[or when packed in returnable containers]

This returnable container must not be opened or discarded.

Returnable Container Return Procedure

Return the container clean (outside only) to the place of business from which the PHASER® 3EC Insecticide was purchased.

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.

Do not apply this product through any type of irrigation system.

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 intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

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Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 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 over long-sleeved shirt and long pants
- ◆ Chemical-resistant gloves, such as barrier laminate, or Viton ≥14 mils
- ◆ Chemical-resistant footwear plus socks
- ◆ Protective eyewear
- ◆ Chemical-resistant headgear for overhead exposure

THIS PRODUCT IS NOT INTENDED FOR USE IN CALIFORNIA.

For California, use PHASER® 3EC Insecticide-For Use In California.

GENERAL INSTRUCTIONS

Not for use or storage in or around the home.

Do not use in undiluted form.

Apply the listed amount per acre when insects first appear and repeat as required, unless otherwise noted, to maintain effective control. Use in sufficient water for thorough coverage of listed crops, unless otherwise noted. Coverage of upper and lower leaf surfaces is essential for good control. For ground application, apply recommended amount of pesticide in a minimum of 10 gallons of water per acre on vegetable or row crops, unless otherwise noted. Observe use limitations. If insect control is required beyond the following use patterns, supplement the control program with other suitable pesticides.

When applying this material by aircraft, mix the recommended amount with sufficient water to provide a minimum of 1 gallon of finished spray per acre on vegetable and field crops, unless otherwise noted, and a minimum of 20 gallons of finished spray per acre on fruit and nut trees and on vines. Where more than 2 quarts of this material are recommended, mix with sufficient water to provide a minimum of finished spray equal to twice the amount of PHASER 3EC Insecticide used.

Do not plant root crops other than carrots, potatoes, sweet potatoes and sugar beets as follow-up crops.

CHEMIGATION STATEMENT

CHEMIGATION USE INSTRUCTIONS—POTATOES ONLY

Do not apply this product through any type of irrigation system to other crops.

Do not apply this product to potatoes through any type of irrigation system unless the Chemigation Application Instructions are followed.

APPLICATION THROUGH IRRIGATION SYSTEMS—CHEMIGATION

Apply this product only through sprinkler, including center pivot, lateral move, end tow side (wheel) roll, traveler, big gun, solid set, or hand move irrigation systems. 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 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 the operation or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Mix in clean supply tank the recommended amount of this product for acreage to be covered, and needed quantity of water.

This product should not be tank-mixed with other pesticides, surfactants or fertilize unless prior use has shown the combination noninjurious under your conditions of use. Follow precautionary statements and directions for all tank-mix products.

On all crops, use sufficient gallonage of water to obtain thorough and uniform coverage, but not cause runoff or excessive leaching. This will vary depending on equipment, pest problem and stage of crop growth. Application of more or less than optimal quantity of water may result in decreased chemical performance, crop injury or illegal pesticide residues.

Meter this product into the irrigation water uniformly during the period of operation. Do not overlap application. Follow recommended label rates, application timing, and other directions and precautions for crop being treated. Continuous mild agitation of pesticide mixture may be needed to assure a uniform application, particularly if the supply tank requires a number of hours to empty.

Do not apply when wind speed favors drift beyond the area intended for treatment.

CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

Note: AgrEvo USA Company does not encourage connecting chemigation systems to public water supplies. The following information is provided for users who have diligently considered all other application and water supply options before selecting to make such a connection.

Public water systems 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

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public water systems must contain a functional reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from a point of pesticide introduction. As an option 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 pesticide injections 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 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 shutdown.

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.

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.

SPRINKLER CHEMIGATION (FOLIAR SPRAY USES)

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 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. 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 system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

OBSERVE DAYS INTERVAL BETWEEN LAST APPLICATION AND HARVEST INDICATED BY NUMBER IN () FOLLOWING THE CROP.

APPLES (21)

Insects Controlled	Rate of Application	Method of Application
Aphids (including apple aphid, rosy apple aphid, woolly apple aphid) Apple rust mite Green fruitworm Tarnished plant bug Tentiform leafminer White apple leafhopper (first generation)	$\frac{2}{3}$ quart per 100 gallons or a maximum of $3\frac{1}{3}$ quarts per acre	Applications made at pink and/or petal fall provide best control of tarnished plant bug and green fruitworm. For best control of first generation white apple leafhopper, apply when nymphs first appear on leaves. If necessary, prior to petal fall, use 1 quart per 100 gallons to control apple aphid and rosy apple aphid. For control of tentiform leafminer, make first application as soon as moth flight begins. A second application should be made 10 days later.
<p>Do not feed pomace from treated apples to livestock. Do not feed cull fruits to animals or allow livestock to graze in treated orchards. Do not make more than 2 applications during the fruiting period. Do not make more than 3 applications per year. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.</p>		

APRICOTS (21), NECTARINES (21), PEACHES (21)

Insects Controlled	Rate of Application	Method of Application
Peachtree borer Lesser peachtree borer	1 quart per 100 gallons or $2\frac{2}{3}$ to $3\frac{1}{3}$ quarts per acre Pacific Northwest: $\frac{2}{3}$ to 1 quart per 100 gallons Southeastern States: 2 to $3\frac{1}{3}$ quarts per 100 gallons	Best control is obtained with a single application, post-harvest after leaves have dropped. Spray all bark areas from ground level to lower scaffold limbs.
<p>Do not feed cull fruits to animals or allow livestock to graze in treated orchards. Do not make more than 2 applications per year. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.</p>		

APRICOTS (30), NECTARINES (30), PEACHES (30)

Insects Controlled	Rate of Application	Method of Application
Aphids (including black cherry aphid, black peach aphid, green peach aphid, rusty plum aphid) Catfacing insects (Stink bug type) Green fruitworm Peach silver mite Peach twig borer	$\frac{2}{3}$ quart per 100 gallons or a maximum of $3\frac{1}{3}$ quarts per acre	Make applications when insects appear or feeding is noticed.
<p>Do not feed cull fruits to animals or allow livestock to graze in treated orchards. Do not make more than 2 applications per year. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.</p>		

BARLEY, OATS, RYE, WHEAT

Insects Controlled	Rate of Application	Method of Application
Army cutworm	2/3 quart per acre	Apply when small larvae are readily found in the field. For aerial application, apply in 2 gallons of crop oil per acre.
Cereal leaf beetle (Illinois, Indiana, Michigan and Ohio only)	1/3 to 2/3 quart per acre	Apply when small larvae are readily found in the field. For aerial application, use a minimum of 1 to 2 gallons of water per acre.
Aphids (including Russian Wheat Aphid)	2/3 to 1 quart per acre	Make applications when insects appear or feeding is noticed.
Do not apply after heads begin to form. Do not feed treated forage to livestock. Do not make more than 2 applications per year. Do not exceed a maximum of 1.0 lb. active ingredient (i.e., 1 1/3 quarts) per acre per year.		

BEANS, Succulent and Dry (except Lima Beans) (3), and SOUTHERN FIELD PEAS (Succulent type, including Black-eyed Peas, Crowder Peas and Southern Peas) (3)

Insects Controlled	Rate of Application	Method of Application
Black bean aphid Bean leaf skeletonizer Cowpea curculio Cucumber beetle Flea beetle Green stink bug Leafhopper Mexican bean beetle	2/3 to 1 1/3 quarts per acre	Make applications when insects appear or feeding is noticed. For control of Cowpea Curculio, make 3 applications at 5-day intervals starting when the pods are 1/2 inch long.
Aphids Armyworm Western bean cutworm Whitefly	1 1/3 quarts per acre	
Do not feed treated threshings or allow livestock to graze in treated fields. Do not use on lima beans that are to be removed from the field for processing. Do not make more than 3 applications per year. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.		

BLUEBERRIES

Insects Controlled	Rate of Application	Method of Application
Blueberry bud mite	2 quarts per acre in 300 gallons of water	Apply immediately after harvest and repeat 6 to 8 weeks later.
Do not apply after buds are well formed. Do not make more than 2 applications per year. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.		

BROCCOLI (7), BRUSSELS SPROUTS (14), CABBAGE (7), CAULIFLOWER (14)

Insects Controlled	Rate of Application	Method of Application
Cabbage aphid Cabbage looper Cross-striped cabbageworm Diamondback moth (larvae) Flea beetle Harlequin bug Imported cabbageworm Leafhopper Stink bug	1 to 1 1/2 quarts per acre	Make applications when insects appear or feeding is noticed.
Armyworm Cutworm Whitefly	1 1/2 quarts per acre	
Do not make more than 4 applications per year. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.		

CARROTS (7)

Insects Controlled	Rate of Application	Method of Application
Green peach aphid Leafhopper	2/3 to 1 1/2 quarts per acre	Make application when insects appear or feeding is noticed.
Armyworm Flea beetle Whitefly	1 1/2 quarts per acre	
Do not use tops for food or feed. Do not make more than 1 application per year. Do not exceed a maximum of 1.0 lb. active ingredient (i.e., 1 1/2 quarts) per acre per year.		

CELERY (4)

Insects Controlled	Rate of Application	Method of Application
Green peach aphid Cabbage looper Leafhopper	2/3 to 1 1/2 quarts per acre	Make application when insects appear or feeding is noticed.
Armyworm Flea beetle Whitefly	1 1/2 quarts per acre	
Do not make more than 1 application per year. Do not exceed a maximum of 1.0 lb. active ingredient (i.e., 1 1/2 quarts) per acre per year.		

CELERY (7)

Insects Controlled	Rate of Application	Method of Application
Green peach aphid	2/3 quart per acre	Make applications when insects appear or feeding is noticed.
Do not make more than 2 applications per year. Do not exceed a maximum of 1.0 lb. active ingredient (i.e., 1 1/2 quarts) per acre per year.		

CHERRIES (21)

Insects Controlled	Rate of Application	Method of Application
Peachtree borer Lesser peachtree borer	1 quart per 100 gallons or 2 ² / ₃ to 3 ¹ / ₃ quarts per acre Pacific Northwest: 2 ² / ₃ to 1 quart per 100 gallons	Best control is obtained with a single application, post-harvest. Spray all bark areas from ground level to lower scaffold limbs.
Black cherry aphid Green fruitworm Plum rust (nursery) mite	2 ² / ₃ quart per 100 gallons or 2 ² / ₃ to 3 ¹ / ₃ quarts per acre	Make applications when insects appear or feeding is noticed.
Pacific Northwest only: Eyespotted bud moth Fruittree leafroller	2 ² / ₃ quart per 100 gallons or 2 ² / ₃ to 3 ¹ / ₃ quarts per acre	For bud moth control, apply at "popcorn" stage. For leafroller control, apply during pre-pink stage of growth.
Michigan only: Mineola moth	1 ¹ / ₃ quarts per 100 gallons	Apply in the delayed dormant period.
Do not feed cull fruits to animals or allow livestock to graze in treated orchards. Do not make more than 2 applications per year. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.		

CHERRY, PEACH, PLUM NURSERY STOCK DIP

Insects Controlled	Rate of Application	Method of Application
Peachtree borer	2 ² / ₃ quarts per 40 gallons	Mix thoroughly. Immerse trees so that the roots and crowns are covered well above the grafting bud scar.
Plant immediately or dry before returning stock to storage. Full Personal Protective Equipment (PPE) requirements for applicators also apply to this dipping operation.		

CITRUS (Non-Bearing Trees and Nursery Stock)

Insects Controlled	Rate of Application	Method of Application
Citrus aphid	2 ² / ₃ quart per 100 gallons or a maximum of 3 ¹ / ₃ quarts per acre	Make applications when insects appear or feeding is noticed.
Do not apply to bearing trees or trees that will bear fruit within 12 months. Do not make more than 2 applications per year. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.		

COLLARDS (21)

Insects Controlled	Rate of Application	Method of Application
Aphids Cabbage looper Diamondback moth (larvae) Fall armyworm Flea beetle Harlequin bug Imported cabbageworm Leafhopper	1 to 1 ¹ / ₃ quarts per acre	Make application when insects appear or feeding is noticed.
Whitefly	1 ¹ / ₃ quarts per acre	
Do not make more than 1 application per year. Do not exceed a maximum of 1.0 lb. active ingredient (i.e., 1 ¹ / ₃ quarts) per acre per year.		

COTTON

Insects Controlled	Rate of Application	Method of Application
Aphids	1/2 to 1 quart per acre	Make applications when insects appear or feeding is noticed. For control of aphids, thorough coverage is important.
Boll weevil	2/3 to 2 quarts per acre	
Bollworm Cabbage looper Cotton leafperforator Cotton leafworm Fleahopper Lygus bug Stink bug Tobacco budworm	1 1/3 to 2 quarts per acre	
Whitefly	1 1/3 quarts per acre	
Thrips	2 quarts per acre	
Applications may be made using ground or aerial application equipment. The higher rate should be used under heavy pest pressure. Do not apply after bolls open. Do not graze dairy or meat animals in treated fields. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.		

CUCUMBERS (2), MELONS (2), PUMPKINS (2), SUMMER AND WINTER SQUASH (2)

Insects Controlled	Rate of Application	Method of Application
Aphids Cucumber beetle Melonworm Pickleworm Rindworm (on watermelons) Squash beetle Squash bug Squash vine borer Striped flea beetle	2/3 to 1 1/3 quarts per acre	Make applications when insects appear or feeding is noticed. For squash vine borer control, apply weekly to flower buds, stems, and vines beginning when moths first appear.
Cabbage looper Omnivorous leafroller Whitefly	1 1/3 quarts per acre	
Do not make more than 6 applications per year. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.		

EGGPLANT (1)

Insects Controlled	Rate of Application	Method of Application
Blister beetle Colorado potato beetle Flea beetle Green peach aphid Green stink bug	2/3 to 1 1/3 quarts per acre	Make applications when insects appear or feeding is noticed.
Whitefly	1 1/3 quarts per acre	
Do not make more than 2 applications per year. Do not exceed a maximum of 1.0 lb. active ingredient (i.e., 1 1/3 quarts) per acre per year.		

GRAPES (7)

Insects Controlled	Rate of Application	Method of Application
Grape leafhopper Grape phylloxera (leaf form) Rose chafer	2/3 quart per 100 gallons or 1 1/2 to 2 quarts per acre	Make applications when insects appear or feeding is noticed.
<p>Do not apply to Concord variety as severe plant injury is likely to occur. Ground application is preferred. Do not make more than 3 applications per year. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.</p>		

KALE (21)

Insects Controlled	Rate of Application	Method of Application
Cabbage flea beetle Harlequin bug Imported cabbageworm	1 quart per acre	Make application when insects appear or feeding is noticed.
<p>Do not make more than 1 application per year. Do not exceed a maximum of 0.75 lb. active ingredient (i.e., 1 quart) per acre per year.</p>		

LETTUCE (14)

Insects Controlled	Rate of Application	Method of Application
Cabbage looper Diamondback moth (larvae) Green peach aphid Imported cabbageworm Leafhopper	1 to 1 1/3 quarts per acre	Make applications when insects appear or feeding is noticed.
Armyworm Whitefly	1 1/3 quarts per acre	
<p>On Head Lettuce: Do not make more than 3 applications after thinning. Remove wrapper leaves at harvest. On Leaf Lettuce: Do not make more than 2 applications per year. Do not feed crop refuse to livestock. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.</p>		

MUSTARD GREENS (21)

Insects Controlled	Rate of Application	Method of Application
Aphids Cabbage looper Diamondback moth (larvae) Fall armyworm Flea beetle Harlequin bug Imported cabbageworm Leafhopper	1 to 1 1/3 quarts per acre	Make application when insects appear or feeding is noticed.
Whitefly	1 1/3 quarts per acre	
<p>Do not make more than 1 application per year. Do not exceed a maximum of 1.0 lb. active ingredient (i.e., 1 1/3 quarts) per acre per year.</p>		

PEARS (7)

Insects Controlled	Rate of Application	Method of Application
Green fruitworm Tarnished plant bug	$\frac{2}{3}$ quart per 100 gallons or $2\frac{2}{3}$ to $3\frac{1}{3}$ quarts per acre	Make applications at white bud or petal fall when insects appear or feeding is noticed.
Pear psylla	$3\frac{1}{3}$ quarts per acre	Apply in a minimum of 10 gallons of water for aerial application or in 300 gallons of water for dilute application. Apply when adults are first observed or nymphs are small and repeat to maintain control.
Pear rust mite Conspere stink bug (foliar treatment)	$\frac{2}{3}$ quart per 100 gallons or $2\frac{2}{3}$ to $3\frac{1}{3}$ quarts per acre	Make applications when insects appear or feeding is noticed. Stink bugs must be wet by spray to obtain control.
Conspere stink bug (soil treatment)	$\frac{2}{3}$ quart per 100 gallons; 200 to 400 gallons per acre	Apply to orchard floor and around trees prior to bloom.
Pear leaf blister mite	$\frac{1}{3}$ to $\frac{2}{3}$ quart per 100 gallons	Apply as a post harvest or dormant treatment.

Do not feed cull fruits to animals or allow livestock to graze in treated orchards.
Do not make more than 2 applications per year.
Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.
NOTE: Aerial application may not result in satisfactory control and should only be employed if impossible to apply by ground.

PECANS

Insects Controlled	Rate of Application	Method of Application
Black pecan aphid Pecan nut casebearer Spittlebug	1 quart per 100 gallons	Make applications when insects appear or feeding is noticed. For casebearer, apply when eggs of first generation appear on the tips of the young nuts. Another application may be required after the second generation of eggs is deposited. For spittlebug, apply when first leaves are half grown and repeat as required.
Pecan leaf phylloxera	$\frac{2}{3}$ to 1 quart per 100 gallons	Apply when nymphs appear and before they are enclosed in plant tissue. For high populations, use the higher rate.

Do not apply after shuck split.
Do not graze livestock on orchard crops or grasses in treated areas.
Do not make more than 2 applications per year.
Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.

PEPPERS (1)

Insects Controlled	Rate of Application	Method of Application
Flea beetle Green peach aphid Hornworm Pepper maggot	$\frac{2}{3}$ quart per acre	Make applications when insects appear or feeding is noticed.

Do not make more than 2 applications per year.
Do not exceed a maximum of 1.0 lb. active ingredient (i.e., $1\frac{1}{3}$ quarts) per acre per year.

PEPPERS (4)

Insects Controlled	Rate of Application	Method of Application
Armyworm Flea beetle Green peach aphid Hornworm Leafhopper Pepper maggot	$\frac{2}{3}$ to $1\frac{1}{3}$ quarts per acre	Make applications when insects appear or feeding is noticed.
Whitefly	$1\frac{1}{3}$ quarts per acre	
Do not make more than 2 applications per year. Do not exceed a maximum of 2.0 lbs. active ingredient (i.e., $2\frac{2}{3}$ quarts) per acre per year.		

PLUMS (7), PRUNES (7)

Insects Controlled	Rate of Application	Method of Application
Fruittree leafroller (Pacific Northwest Only)	$\frac{2}{3}$ quart per 100 gallons or $2\frac{2}{3}$ to $3\frac{1}{3}$ quarts per acre	Apply during pre-pink stage of growth when insects appear or feeding is noticed.
Aphids (including hop aphid, leafcurl aphid, thistle aphid Plum rust (nursery) mite	$\frac{2}{3}$ quart per 100 gallons or $2\frac{2}{3}$ to $3\frac{1}{3}$ quarts per acre	For control of aphids, apply when eggs hatch during pre-bloom or petal fall. Summer applications should be made before leaves curl.
Peach twig borer	$\frac{2}{3}$ quart per 100 gallons or $2\frac{2}{3}$ to $3\frac{1}{3}$ quarts per acre	Make applications when insects appear or feeding is noticed.
Lesser peachtree borer Peachtree borer	1 quart per 100 gallons or $2\frac{2}{3}$ to $3\frac{1}{3}$ quarts per acre Pacific Northwest: $\frac{2}{3}$ to 1 quart per 100 gallons or $2\frac{2}{3}$ to $3\frac{1}{3}$ quarts per acre	Best control is obtained with a single application, post-harvest after the leaves have dropped. Spray all bark areas from ground to lower scaffold limbs.
Do not allow livestock to graze on orchard crops or grasses in treated areas. Do not make more than 2 applications per year. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.		

POTATOES (1)

Insects Controlled	Rate of Application	Method of Application
Aphids Armyworm Colorado potato beetle Green stink bug Leaffooted bug Plant bug Potato flea beetle Potato leafhopper Potato tuberworm Threelined potato beetle	$\frac{2}{3}$ to $1\frac{1}{3}$ quarts per acre	Make applications when insects appear or feeding is noticed.
European corn borer Potato psyllid	1 to $1\frac{1}{3}$ quarts per acre	
False chinch bug Whitefly	$1\frac{1}{3}$ quarts per acre	
Do not make more than 6 applications per year. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.		

SPINACH (21)

Insects Controlled	Rate of Application	Method of Application
Armyworm Crown mite Flea beetle Green peach aphid Leafhopper	1 to $1\frac{1}{3}$ quarts per acre	Make application when insects appear or feeding is noticed.
Whitefly	$1\frac{1}{3}$ quarts per acre	
Do not make more than 1 application per year. Do not exceed a maximum of 1.0 lb. active ingredient (i.e., $1\frac{1}{3}$ quarts) per acre per year.		

STRAWBERRIES (4)

Insects Controlled	Rate of Application	Method of Application
Meadow spittlebug Strawberry aphid Tarnished plant bug Whitefly	$1\frac{1}{3}$ quarts per acre	Make applications when insects appear or feeding is noticed. Do not reapply within 15 days or more than twice during a 35-day period when fruit is present.
Cyclamen mite	$2\frac{2}{3}$ quarts per acre in 400 gallons of water	Make applications when insects appear or feeding is noticed. Thoroughly wet the foliage, stem and crown of the plant. For multiple applications, do not apply at intervals less than 35 days when fruit is present.
Do not make more than 3 applications per year. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.		

STRAWBERRIES - Northwest Use Only

Insects Controlled	Rate of Application	Method of Application
Garden symphylan (aids in reducing damage)	1 1/3 quarts per 100 gallons	Mix thoroughly. Dip entire plant. When immersing bundles of plants, make certain any trapped air is forced out to assure thorough wetting of the entire plant.
Drain and allow plants to dry before setting them out in the field. Full Personal protective Equipment (PPE) requirements for applicators also apply to this dipping operation.		

SWEET CORN (Fresh Vegetable Use Only) (1)

Insects Controlled	Rate of Application	Method of Application
Corn leaf aphid Whitefly	1 1/3 quarts per acre	Make applications when insects appear or feeding is noticed.
Corn earworm	2 quarts per acre	Apply when silks first appear and continue until they begin to dry. Allow 5 days between applications.
Do not apply to Sweet Corn to be processed. Do not feed treated forage or ensilage to livestock or allow livestock to graze in treated fields. Do not make more than 3 applications per year. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.		

SWEET POTATOES (1)

Insects Controlled	Rate of Application	Method of Application
Sweet potato flea beetle Sweet potato weevil	2 2/3 quart per acre	Make applications when insects appear or feeding is noticed. For flea beetle control, begin applications shortly after transplanting or as soon as flea beetles appear. For sweet potato weevil control, apply in sufficient water for complete coverage. Applications may be made to transplants in the nursery and/or in the field. Repeat applications may be made as necessary. For sweet potato weevil control in a clean-up program, apply at a rate of 2 2/3 quarts per acre to the soil under the sweet potato nursery beds and to the area immediately surrounding the nursery beds. Do not place the seed tubers directly on the ground treated with PHASER Insecticide.
Whitefly	1 1/3 quarts per acre	Make applications when insect activity or feeding is noticed.
Banded cucumber beetle (larvae) (aids in control) (South Central states and Puerto Rico only)	1 1/3 to 2 2/3 quarts per acre broadcast or 1/2 to 1 quart per acre on a 16" band over the row (48" row spacing)	Work into the soil to a depth of approximately 3". Treatment should be made just prior to plant set.
Do not feed cull potatoes to livestock or allow livestock to graze in treated fields. Do not make more than 3 applications per year. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.		

TOBACCO (5)

Insects Controlled	Rate of Application	Method of Application
Aphids (including green peach aphid, tobacco aphid) Budworm Cabbage looper Flea beetle Hornworm	Seed Bed: 2/3 quart per 100 gallons	Make applications when insects appear or feeding is noticed. Apply approximately 6 gallons of finished spray per 100 sq yd.
Green june bug (larvae)	Plant Bed: 2/3 pint per 100 gallons	Make applications when insects appear or feeding is noticed. Drench at a rate of 1 gallon per sq yd.
Aphids (including green peach aphid, tobacco aphid) Budworm Cabbage looper Flea beetle Green june bug (larvae) Hornworm	Field: 2/3 to 1 1/3 quarts per acre	Make applications when insect activity or feeding is noticed.
Stink bug	Field: 2/3 quart per 100 gallons	
Do not make more than 6 applications per year. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.		

TOMATOES (Field and Greenhouse) (2)

Insects Controlled	Rate of Application	Method of Application
Aphids Blister beetle Colorado potato beetle Flea beetle Tomato hornworm	2/3 to 1 1/3 quarts per acre	Make applications when insects appear or feeding is noticed.
Cabbage looper Stink bug	1 to 1 1/3 quarts per acre	
Tomato fruitworm Tomato russet mite Whitefly Yellowstriped armyworm	1 1/3 quarts per acre	
Whitefly	2/3 quart per 100 gallons of water. Use 100 to 200 gallons of spray per acre.	Make applications when insects appear or feeding is noticed. Higher spray volumes may be necessary for thorough coverage when Whitefly populations exist.
Do not make more than 6 applications per year. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.		

WALNUTS

Insects Controlled	Rate of Application	Method of Application
Walnut aphid	2 to 2½ quarts per acre (Applied in a minimum of 100 gallons of water per acre)	Make applications when insects appear or feeding is noticed.

Do not apply after husk split.
 Do not graze livestock on orchard crops or grasses in treated areas.
 Do not make more than 2 applications per year.
 Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.

COMMERCIALLY GROWN ORNAMENTALS
ORNAMENTAL PLANTS

LEATHERLEAF FERN (Leather Holly Fern)

Insects Controlled	Rate of Application	Method of Application
Leatherleaf Fern Borer	⅔ quart per 100 gals. (1½ teaspoons per gallon)	Begin treatment when first larval feeding is observed in the mid-vein area at the base of the leaflets. Repeat at intervals of 2 to 3 weeks as necessary.

Food utensils such as teaspoons must not be used for food purposes after use in measuring pesticides.
 Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.

ORNAMENTALS (Greenhouse and Out-of-Doors)

Insects Controlled	Rate of Application	Method of Application
Aphids Cyclamen Mite Rose Chafer Whitefly	⅔ quart per 100 gallons (1½ teaspoons per gallon)	Make applications when insects appear or feeding is noticed.

Food utensils such as teaspoons must not be used for food purposes after use in measuring pesticides.
 On chrysanthemums, best results will be obtained if applied before plants flower.
 Do not apply to "Bonafon Deluxe", "Fred Shoemith", and "White Knight" chrysanthemums as injury may result.
 Do not use on Birch trees.
 Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.

COMMERCIALLY GROWN ORNAMENTALS (Continued)
ORNAMENTAL TREES AND SHRUBS

DOGWOOD, LILAC

Insects Controlled	Rate of Application	Method of Application
Dogwood Borer Lilac Borer	$\frac{2}{3}$ to $1\frac{1}{3}$ quarts per 100 gallons ($1\frac{1}{3}$ – $2\frac{2}{3}$ teaspoons per gallon)	Apply in early June and repeat in 10–14 days. Drench all bark areas down to the ground level.
Food utensils such as teaspoons must not be used for food purposes after use in measuring pesticides. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.		

DOUGLAS FIR (Grown for Ornamentals, Nursery Stock or Christmas Trees) *Pacific Northwest Only*

Insects Controlled	Rate of Application	Method of Application
Aphids Cooley Spruce Gall Adelgid Douglas Fir Needle Midge	$\frac{2}{3}$ quart per 100 gallons ($1\frac{1}{3}$ teaspoons per gallon)	Make applications when insects appear or feeding is noticed. For control of Gall Adelgid, apply when white cottony tufts appear. For control of Needle Midge, apply in late April or early May just before buds open.
Food utensils such as teaspoons must not be used for food purposes after use in measuring pesticides. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.		

PINES (Austrian, Jack, Red, Scotch, White)

Insects Controlled	Rate of Application	Method of Application
Zimmerman Pine Moth	1 quart per 100 gallons (2 teaspoons per gallon)	Apply in mid-April and again, if necessary, in late fall. Thoroughly wet bark and main stem, especially where branches join main stem.
Food utensils such as teaspoons must not be used for food purposes after use in measuring pesticides. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.		

SHADE TREES (except Birch), SHRUBS

Insects Controlled	Rate of Application	Method of Application
Aphids	$\frac{2}{3}$ quart per 100 gallons ($1\frac{1}{3}$ teaspoons per gallon)	Make applications when insects appear or feeding is noticed.
Food utensils such as teaspoons must not be used for food purposes after use in measuring pesticides. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.		

SPRUCE (New England Area Only)

Insects Controlled	Rate of Application	Method of Application
Spruce Gall Aphid	$\frac{2}{3}$ quart per 100 gallons ($1\frac{1}{3}$ teaspoons per gallon)	Apply in late April or early May when aphids are present but before galls are formed.

Food utensils such as teaspoons must not be used for food purposes after use in measuring pesticides.
Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.

TAXUS

Insects Controlled	Application	Method of Application
Taxus Bud Mite	$\frac{2}{3}$ quart per 100 gallons ($1\frac{1}{3}$ teaspoons per gallon)	Make 3 to 5 applications beginning in mid-May. Thoroughly spray foliage, twigs and bark.
Black Vine Weevil	$1\frac{1}{3}$ quarts per 100 gallons ($2\frac{2}{3}$ teaspoons per gallon)	Spray thoroughly and drench the soil under the plants. Apply when the weevils first appear and repeat in 14 days.

Food utensils such as teaspoons must not be used for food purposes after use in measuring pesticides.
Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.

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AgrEvo USA Company
Little Falls Centre One
2711 Centerville Road
Wilmington, DE 19808
Phone: (302) 892-3000
www.us.agrevo.com

