

451268

OCT 18 1993

Ms. Nancy Hilton
FMC Corporation
1735 Market Street
Philadelphia, PA 19103

Dear Ms. Hilton:

Subject: Amendment - Clarify directions for use
Thiodan 2 C.O. EC
EPA Reg. No. 279-2659
Your label submission dated November 19, 1990

The amendment referred to above, submitted in connection with the above registrations under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable provided the following revisions are made prior to release for shipment under the amended labeling.

- 1) The skull and crossbones symbol must appear alongside the signal words, DANGER - POISON. As on your previous labels, all these items should appear in red.
- 2) The written warnings text for Re-entry which had appeared on previous versions of this label has been omitted on this submission. Please ensure that this text appears on the finished label. Also, revise the heading **Reentry Statement** to just **Reentry**. Of course, this whole section of the label (and potentially some of the Precautionary Statements, as well) will have to be revised for compliance with the Worker Protection Standard (see below).

A stamped copy of the label is enclosed for your records. Please submit five copies of the revised amended finished label prior to release for shipment under the amended labeling.

NOTE: This acceptance of your label does not relieve you of your obligation to comply with the Worker Protection Standard. If any

of your products are covered by this Standard, you are required to submit, and receive the Agency's approval by April 21, 1994, a revised label reflecting the required label statements of 40 CFR 156, published in the FEDERAL REGISTER on August 21, 1992 (57 FR 38102). Please refer to PR Notice 93-7 for further guidance. According to 40 CFR 156, subpart K, "No product to which this subpart applies shall be distributed or sold without amended labeling by any registrant after April 21, 1994. Please call 1-800-777-2185 if you have any labeling questions regarding the Worker Protection Standard.

It is the Agency's understanding that the Supplemental Labeling for use in the State of California, and which the Agency accepted on July 15, 1993, will be appended to this "clarified" label by the same reference statement, "See supplemental label for directions for use in California.", as appears on the labeling accepted July 15, 1993.

Since the toxicity data which FMC-generated (MRID Nos. 41400501 through 41400506) to support reregistration of this 2 EC endosulfan (Thiodan) product will (presumably) also be used by FMC to cover your other 2 EC endosulfan (plus Pyrenone) products, it would be extremely beneficial to finalize the classification of the Dermal Sensitization study (MRID 41400506). As noted in the Agency's letter of April 2, 1990, that Dermal Sensitization study was classified as Supplementary because the selected dose concentration may have been too dilute to elicit a response. Dose selection was not discussed in the submission. The Agency will reconsider the classification of that study if you can submit additional information to justify the dose selection. If no additional information can be submitted, then the study must be repeated using a higher concentration, which, at a minimum, provokes minimal irritation during the induction phase and the challenge concentration should be the highest non-irritating concentration as specified in the reference cited in your February 2, 1990 submission. Although the Agency's April 2, 1990 letter had requested that you notify EPA within 75 days of the date of that letter whether you intended to submit the missing dose selection information or to repeat the study at another concentration, there is no record in this product's file of such reply. Your assistance in this matter would be greatly appreciated.

Sincerely,

George T. LaRocca
Product Manager (13)
Insecticide Rodenticide Branch
Registration Division (H7505C)

Code 31994

ACCEPTED Net Contents
with COMMENTS
in EPA Letter Dated

OCT 18 1993

Thiodan® 2 C.O. EC Insecticide

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

279-2659

For Agricultural or Commercial Use Only

EPA Reg. No. 279-2659

EPA Est. 279-

Active Ingredient:	By Wt.
Endosulfan; Hexachlorohexahydromethano- 2,4,3-benzodioxathiepin 3-oxide	23.1%
*Inert Ingredients:	76.9%
	100.0%

*Contains Xylene Range Aromatic Solvents.
Thiodan 2 C.O. EC contains 2 pounds Endosulfan (Thiodan) per gallon.

**KEEP OUT OF REACH OF CHILDREN
DANGER—POISON**

PELIGRO

PRECAUCION AL USUARIO: Si usted no lee ingles, no use este pro-
ducto hasta que la etiqueta le haya sido explicado ampliamente.

STATEMENT OF PRACTICAL TREATMENT

If swallowed: Call a physician or Poison Control Center immediately. If possible, vomiting should be induced under medical supervision. Drink one or two glasses of water and induce vomiting by giving one (1) ounce of syrup of ipecac, if available, or by touching the back of the throat with a finger. Do not induce vomiting or give anything by mouth to a person who is unconscious or convulsing.

If inhaled: Remove victim to fresh air. Apply artificial respiration if indicated.

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. Solvent may present aspiration hazard.

For Emergency Assistance Call (800) 331-3148.

See other panels for additional precautionary information.

FMC.

FMC Corporation
Agricultural Chemical Group
Philadelphia PA 19103

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PRECAUTIONARY STATEMENTS Hazards to Humans (& Domestic Animals)

Danger

Fatal if swallowed. May be fatal if inhaled or absorbed through skin. Causes moderate eye irritation. Do not breathe vapor or spray mist. Do not get in eyes, on skin, or on clothing.

Applicators must wear a long sleeve shirt, trousers, unlined waterproof gloves made of natural rubber or neoprene, full foot covering (such as shoes or boots), head covering (such as a hat), and a pesticide mask or respirator jointly approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part 11 for protection against endosulfan. Mixers and/or loaders must wear a chemical resistant apron and goggles or face shield in addition to all of the protective equipment specified for applicators.

Do not apply or allow to drift to areas occupied by unprotected humans or beneficial animals. Wash thoroughly with soap and water after handling and before eating, drinking or using tobacco. Remove contaminated clothing and wash before reuse.

Environmental Hazards

This product is toxic to fish, birds and other wildlife. Birds feeding on treated areas may be killed. Do not apply directly to water or wetlands. Due to 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. This product must not be used in areas where impact on threatened or 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/Chemical Hazards

Do not use or store near heat or open flame.

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 through any type of irrigation system.

Reentry Statement

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

Do not enter treated areas without protective clothing for 24 hours.

Protective clothing means, at least, a hat or other suitable head covering, a long sleeved shirt and long legged trousers or a cover all type garment (all of closely woven fabric covering the body, including the arms and legs), shoes and socks.

Because certain states may require more restrictive reentry intervals for various crops treated with this product, such as the 48 hour reentry interval established by California, consult your State Department of Agriculture for further information.

Written or oral warnings must be given to workers who are expected to be in a treated area or in an area about to be treated with this product. Inform workers of areas or fields that may not be entered without specific protective clothing, period of time field must be vacated and appropriate actions to take in case of accidental exposure. An example of such information is given under written warnings. When oral warnings are given, warnings shall be given in a language customarily understood by workers. Oral warnings must be given if there is reason to believe that written warnings cannot be understood by workers. Written warnings must include the following information:

STORAGE AND DISPOSAL

Pesticide Storage

Do not store below 0°F. (-18°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 dilute 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. Call FMC (800) 331-3148.

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 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

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.

Not For Use Or Storage In Or Around The Home

Apply the listed amount per acre when insects first appear and repeat as required, unless otherwise noted, to maintain effective control. Unless otherwise noted, use in sufficient water for thorough coverage of listed crops. 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. 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 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 are recommended, mix with sufficient water to provide a minimum of finished spray equal to twice the amount of Thiodan 2 C.O. EC insecticide used.

Do not plant root crops other than carrots, potatoes, sweet potatoes, and sugar beets as follow-up crops. Observe days interval between last application and harvest indicated by number in () following the crop name.

THIODAN 2 CO EC - CODE 31994

ALMONDS

Insects Controlled	Rate of Application	Method of Application
Peach Twig Rorer	4 to 5 quarts per acre	Apply during popcorn, pink or petal fall stage for control of early season infestation. Use in a minimum of 200 gallons of water per acre dilute or in 40 gallons per acre concentrate. For areas less than one acre, use 1 quart per 100 gallons of water.

Do not graze livestock on orchard crops or grasses in treated areas.
Treated hulls may be fed to livestock and dairy animals.
Do not make more than one application per year.
Do not exceed a maximum of 2.5 lbs. active ingredient (i.e., 5 quarts) per acre per year.

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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 Leafminers White Apple Leafhopper (first generation)	1 quart per 100 gallons or a maximum of 5 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 1/2 quarts per 100 gallons to control Apple Aphids and Rosy Apple Aphids. For control of Tentiform Leafminers, make first application as soon as moth flight begins. A second application should be made 10 days later.

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., 6 quarts) per acre per year.

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

Insects Controlled	Rate of Application	Method of Application
Peachtree Borer Lesser Peachtree Borer	1 1/2 quarts per 100 gals.; <u>West Coast</u> - 1 to 1 1/2 quarts per 100 gallons; <u>Southeastern States</u> - 3 to 5 quarts per 100 gals.	Best control is obtained with a single application post-harvest during the first week of September. Spray all bark areas from ground level to lower scaffold limbs.

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., 6 quarts) per acre per year.

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	1 quart per 100 gallons or a maximum of 4 to 5 quarts per acre; <u>West Coast</u> - do not use more than 6 quarts per acre	Make applications when insects appear or feeding is noticed.

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., 6 quarts) per acre per year.

ARTICHOKES (7)

Insects Controlled	Rate of Application	Method of Application
Aphids (including Artichoke Aphid, Green Peach Aphid)	1 1/2 to 2 quarts per acre	Make applications when insects appear or feeding is noticed. Apply in a minimum of 20 gallons of water per acre by ground and in a minimum of 10 gallons of water per acre by air.
Artichoke Plume Moth Whitefly	2 quarts per acre	
<p>Do not make more than 2 applications per year. Do not exceed a maximum of 2.0 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	1 quart per acre	For aerial application, apply in 2 gallons of diesel fuel oil per acre.
Cereal Leaf Beetle (Illinois, Indiana, Michigan and Ohio only)	1/2 to 1 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	1 to 1 1/2 quarts per acre	Make applications when insects appear or feeding is noticed.
<p>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., 2 quarts) per acre per year.</p>		

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**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 Beetles Flea Beetles Green Stink Bug Leafhoppers Mexican Bean Beetle	1 to 2 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 Armyworms Western Bean Cutworm Whitefly	2 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., 6 quarts) per acre per year.

BLUEBERRIES

Insects Controlled	Rate of Application	Method of Application
Blueberry Bud Mite	3 quarts per 300 gallons	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., 6 quarts) per acre per year.

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

Insects Controlled	Rate of Application	Method of Application
Cabbage Aphid Cabbage Looper Cross-striped Cabbageworm Diamondback Motn larvae Flea Beetles Harlequin Bug Imported Cabbageworm Leafhoppers Stink Bugs	1 1/2 to 2 quarts per acre	Make applications when insects appear or feeding is noticed.
Armyworms Cutworms Whitefly	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., 6 quarts) per acre per year.		

CARROTS (7)

Insects Controlled	Rate of Application	Method of Application
Green Peach Aphid Leafhoppers	1 to 2 quarts per acre	Make application when insects appear or feeding is noticed.
Armyworms Flea Beetles Whitefly	2 quarts per acre	
Do not use tops for food or feed. Do not make more than one application per year. Do not exceed a maximum of 1.0 lb. active ingredient (i.e., 2 quarts) per acre per year.		

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CELERY (4)

Insects Controlled	Rate of Application	Method of Application
Green Peach Aphid Cabbage Looper Leafhoppers	1 to 2 quarts per acre	Make application when insects appear or feeding is noticed.
Armyworms Flea Beetles Whitefly	2 quarts per acre	
<p>Do not make more than one application per year. Do not exceed a maximum of 1.0 lb. active ingredient (i.e., 2 quarts) per acre per year.</p>		

CELERY (7)

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

CHERRIES (21)

Insects Controlled	Rate of Application	Method of Application
Peachtree Borer Lesser Peachtree Borer	1 1/2 quarts per 100 gals. <u>West Coast:</u> 1 to 1 1/2 qts. per 100 gallons	Thoroughly wet all bark from ground to scaffold limbs.
Black Cherry Aphid Green Fruitworm Plum Rust (Nursery) Mite	1 quart per 100 gallons or .4 to 5 quarts per acre	Make applications when insects appear or feeding is noticed.
<u>Pacific Northwest only:</u> Eyespotted Bud Moth Fruittree Leafroller		For Bud Moth control, apply at "popcorn" stage. For Leafroller control, apply during pre-pink stage of growth.
<u>Michigan only:</u> Mineola Moth	2 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., 6 quarts) per acre per year.		

CHERRY, PEACH, PLUM NURSERY STOCK DIP

Insects Controlled	Rate of Application	Method of Application
Peachtree Borer	4 quarts per 40 gallons	Mix Thoroughly. Immerse trees so that the roots and crowns covered well above the grafting bud scar.
<p>Wear rubber gloves during the dipping operation. Plant immediately or dry before returning stock to storage.</p>		

CITRUS (Non-Bearing Trees and Nursery Stock)

Insects Controlled	Rate of Application	Method of Application
Citrus Aphid	1/2 quart per 100 gallons or a maximum of 5 quarts per acre	Make applications when insects appear or feeding is noticed.
<p>Do not apply to bearing trees or trees that will bear fruit within twelve months. Do not make more than 2 applications per year. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 6 quarts) per acre per year.</p>		

COLLARDS (21)

Insects Controlled	Rate of Application	Method of Application
Aphids Cabbage Looper Diamondback Moth larvae Fall Armyworm Flea Beetles Harlequin Bug Imported Cabbageworm Leafhoppers	1 1/2 to 2 quarts per acre	Make application when insects appear or feeding is noticed.
Whitefly	2 quarts per acre	

Do not make more than one application per year.
Do not exceed a maximum of 1.0 lb. active ingredient (i.e., 2 quarts) per acre per year.

CORN (Seed Crop Only)

Insects Controlled	Rate of Application	Method of Application
Corn Leaf Aphid	2 quarts per acre	Make applications when insects appear or feeding is noticed.
Corn Earworm	2 to 3 quarts per acre	Direct spray to area of corn-silks.

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., 6 quarts) per acre per year.

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COTTON

Insects Controlled	Rate of Application	Method of Application
Aphids	3/4 to 1 1/2 quarts per acre	Make applications when insects appear or feeding is noticed. For control of aphids, thorough coverage is important.
Boll Weevil	1 to 3 quarts per acre	
Bollworm Cabbage Looper Cotton Leafperforator Cotton Leafworm Fleahoppers Lygus Bugs Stink Bugs Tobacco Budworm	2 to 3 quarts per acre	
Thrips	3 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., 6 quarts) per acre per year.

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

Insects Controlled	Rate of Application	Method of Application
Aphids Cucumber Beetles Melonworm Pickleworm Rindworm (on watermelons) Squash Beetle Squash Bug Squash Vine Borer Striped Flea Beetle	1 to 2 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 Omniverous Leafroller Whitefly	2 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., 6 quarts) per acre per year.		

EGGPLANT (1)

Insects Controlled	Rate of Application	Method of Application
Blister Beetle Colorado Potato Beetle Flea Beetles Green Peach Aphid Green Stink Bug	1 to 2 quarts per acre	Make applications when insects appear or feeding is noticed.
Whitefly	2 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., 2 quarts) per acre per year.		

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GRAPES (7)

Insects Controlled	Rate of Application	Method of Application
Grape Leafhopper Grape Phylloxera (leaf form) Rose Chafer	1 quart per 100 gallons or 2 to 3 quarts per acre	Make applications when insects appear or feeding is noticed.
<p>Do not use on Concord varieties as severe 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., 6 quarts) per acre per year.</p>		

KALE (21)

Insects Controlled	Rate of Application	Method of Application
Cabbage Flea Beetle Harlequin Bug Imported Cabbageworm	1 1/2 quarts per acre	Make application when insects appear or feeding is noticed.
<p>Do not make more than one application per year. Do not exceed a maximum of 0.75 lb. active ingredient (i.e., 1 1/2 quarts) 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 Leafhoppers	1 1/2 to 2 quarts per acre	Make applications when insects appear or feeding is noticed.
Armyworms Whitefly	2 quarts per acre	
<p><u>On Head Lettuce:</u> Do not make more than 3 applications after thinning. Remove wrapper leaves at harvest.</p> <p><u>On Leaf Lettuce:</u> Do not make more than 2 applications per year.</p> <p>Do not feed crop refuse to livestock.</p> <p>Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 6 quarts) per acre per year.</p>		

MACADAMIA NUTS (1)

Insects Controlled	Rate of Application	Method of Application
Southern Green Stink Bug	2 quarts per 100 gallons	Make applications when insects appear or feeding is noticed.
<p>Do not graze livestock on orchard crops or grasses in treated areas.</p> <p>Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 6 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 Beetles Harlequin Bug Imported Cabbageworm Leafhoppers	1 1/2 to 2 quarts per acre	Make application when insects appear or feeding is noticed.
Whitefly	2 quarts per acre	
Do not make more than one application per year. Do not exceed a maximum of 1.0 lb. active ingredient (i.e., 2 quarts) per acre per year.		

PEARS (7)

Insects Controlled	Rate of Application	Method of Application
Green Fruitworm Tarnished Plant Bug	1 quart per 100 gallons or 4 to 5 quarts per acre	Make applications at white bud or petal fall when insects appear or feeding is noticed.
Pear Psylla	5 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)	1 quart per 100 gallons or 4 to 5 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)	1 quart per 100 gallons; 200 to 400 gals. per acre	Apply to orchard floor and around trees prior to bloom.
Pear Leaf Blister Mite	1/2 to 1 quart per 100 gals.	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., 6 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.

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PEAS (Seed Crop Only) (1)

Insects Controlled	Rate of Application	Method of Application
Pea Aphid Pea Weevil	1 to 2 quarts per acre	Make applications when insects appear or feeding is noticed.

Use only on peas to be harvested by combine.
Do not feed treated vines or threshings to livestock or allow livestock to graze in treated fields.
Do not make more than 2 applications per year.
Do not exceed a maximum of 1.5 lbs. active ingredient (i.e., 3 quarts) per acre per year.

PEAS, SUCCULENT (Northwest Only) (1)

Insects Controlled	Rate of Application	Method of Application
Pea Aphid Pea Weevil	1 to 2 quarts per acre	Make applications when insects appear or feeding is noticed.

Use only on peas to be harvested by combine.
Do not feed treated vines or threshings 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 2.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.

PECANS

Insects Controlled	Rate of Application	Method of Application
Black Pecan Aphid Pecan Nut Casebearer Spittlebug	1 1/2 quarts per 100 gals.	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	1 to 1 1/2 quarts 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., 6 quarts) per acre per year.

PEPPERS (1)

Insects Controlled	Rate of Application	Method of Application
Flea Beetles Green Peach Aphid Hornworms Pepper Maggot	1 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., 2 quarts) per acre per year.

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PEPPERS (4)

Insects Controlled	Rate of Application	Method of Application
Armyworms Flea Beetles Green Peach Aphid Hornworms Leafhoppers Pepper Maggot	1 to 2 quarts per acre	Make applications when insects appear or feeding is noticed.
Whitefly	2 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., 4 quarts) per acre per year.		

PINEAPPLE (For Fresh Market Only) (7)

Insects Controlled	Rate of Application	Method of Application
Pineapple Fruit Mite	3 to 4 quarts per acre	Make applications when insects appear or feeding is noticed. Apply at intervals of 7 to 10 days, if necessary, particularly during the 40 day period of blooming.
Do not feed treated forage or pineapple by-products to livestock. Do not make more than 2 applications per year. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 6 quarts) per acre per year.		

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PLUMS (7), PRUNES (7)

Insects Controlled	Rate of Application	Method of Application
Fruittree Leafroller (<u>Pacific Northwest Only</u>)	1 quart per 100 gallons or 4 to 5 quarts per acre.	Apply during pre-pink stage of growth when insects appear or feeding is noticed.
Aphids (including Hop Aphid, Leafcurl Plum Aphid, Thistle Aphid) Plum Rust (Nursery) Mite		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	1 quart per 100 gallons or 4 to 5 quarts per acre	Make applications when insects appear or feeding is noticed.
Lesser Peachtree Borer	1 1/2 quarts per 100 gals. or 4 to 5 qts. per acre	Apply spray to thoroughly wet the trunk and main branches.
Peachtree Borer	1 1/2 quarts per 100 gals. or 4 to 5 qts. per acre <u>West Coast -</u> 1 to 1 1/2 quarts per 100 gallons or 4 to 5 qts. per acre	Spray thoroughly to cover all bark areas from ground to 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., 6 quarts) per acre per year.

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POTATOES (1)

Insects Controlled	Rate of Application	Method of Application
Aphids Armyworms Colorado Potato Beetle Green Stink Bug Leaffooted Bug Plant Bugs Potato Flea Beetles Potato Leafhopper Potato Tubervorm Threelined Potato Beetle	1 to 2 quarts per acre	Make applications when insects appear or feeding is noticed.
European Corn Borer Potato Psyllid	1 1/2 to 2 qts. per acre	
False Chinch Bug Whitefly	2 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., 6 quarts) per acre per year.		

SAFFLOWER

Insects Controlled	Rate of Application	Method of Application
Green Peach Aphid Whitefly	2 quarts per acre	Make applications when insects appear or feeding is noticed.
Do not apply after flower heads open. Do not make more than 2 applications per year. Do not exceed a maximum of 2.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.		

SPINACH (21)

Insects Controlled	Rate of Application	Method of Application
Armyworms Crown Mite Flea Beetles Green Peach Aphid Leafhoppers	1 1/2 to 2 quarts per acre	Make application when insects appear or feeding is noticed.
Whitefly	2 quarts per acre	
Do not make more than one application per year. Do not exceed a maximum of 1.0 lb. active ingredient (i.e., 2 quarts) per acre per year.		

STRAWBERRIES (4)

Insects Controlled	Rate of Application	Method of Application
Meadow Spittlebug Strawberry Aphid Tarnished Plant Bug Whitefly	2 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	4 quarts per acre in 400 gallons	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., 6 quarts) per acre per year.		

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STRAWBERRIES - Northwest Use Only

Insects Controlled	Rate of Application	Method of Application
Garden Symphylan (aids in reducing damage)	2 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 entire plant.
<p>Wear rubber gloves during the dipping operation. Drain and allow plants to dry before setting them out in the field.</p>		

SUGAR BEETS (30)

Insects Controlled	Rate of Application	Method of Application
Green Peach Aphid Meadow Spittlebug	1 to 2 quarts per acre	Make application(s) when insects appear or feeding is noticed. Make one or two applications per year as needed for control.
Sugar Beet Webworm	1 1/2 to 2 qts. per acre	
Whitefly	2 quarts per acre	
<p>Do not feed treated tops to livestock. Do not make more than 2 applications per year. Do not exceed a maximum of 2.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.</p>		

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SUNFLOWERS (1)

Insects Controlled	Rate of Application	Method of Application
Sunflower Moth	2 quarts per acre	Make applications when insects appear or feeding is noticed. Make the first application at the onset of bloom. Allow 7 days between repeat applications.
<p>Do not feed treated forage to livestock. Do not make more than 3 applications per year. Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 6 quarts) per acre per year.</p>		

SWEET CORN (Fresh Vegetable Use Only) (1)

Insects Controlled	Rate of Application	Method of Application
Corn Leaf Aphid Whitefly	2 quarts per acre	Make applications when insects appear or feeding is noticed.
Corn Earworm	3 quarts per acre	Apply when silks first appear and continue until they begin to dry. Allow 5 days between applications.
<p>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., 6 quarts) per acre per year.</p>		

SWEET POTATOES (1)

Insects Controlled	Rate of Application	Method of Application
Sweet Potato Flea Beetle Sweet Potato Weevil	1 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 apply in sufficient water for complete coverage. Applications may be made to transplants in 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 4 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 Thiodan ^R .
Whitefly	2 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)	2 to 4 quarts per acre broadcast or 2/3 to 1 1/3 qts. per acre on a 16 inch band over the row (48 inch row spacing)	Work into the soil to a depth of approximately 3 inches. 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., 6 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 Beetles Hornworms	<u>Seed Bed:</u> 1 quart per 100 gallons	Make applications when insects appear or feeding is noticed. Apply about 6 gallons of finished spray per 100 square yards.
Green June Bug larvae	<u>Plant Bed:</u> 1/2 quart per 100 gallons	Make application when insects appear or feeding is noticed. Drench at a rate of 1 gallon per square yard.
Aphids (including Green Peach Aphid, Tobacco Aphid) Budworm Cabbage Looper Flea Beetles Green June Bug larvae Hornworms	<u>Field:</u> 1 to 2 quarts per acre	Make applications when insect activity or feeding is noticed.
Stink Bugs	<u>Field:</u> 2 to 3 quarts 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., 6 quarts) per acre per year.

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ORNAMENTAL TREES AND SHRUBS

DOGWOOD, LILAC

Insects Controlled	Rate of Application	Method of Application
Dogwood Borer Lilac Borer	1 to 2 quarts per 100 gals.	Apply in early June and repeat in 10 to 14 days. Drench all bark areas down to the ground level.

Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 6 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	1 quart per 100 gallons (2 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.

Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 6 quarts) per acre per year.

ELMS

Insects Controlled	Rate of Application	Method of Application
Aphids	1 quart per 100 gallons	Make applications when insects appear or feeding is noticed.
Elm Leaf Beetle (New England Area Only)	2 quarts per 100 gallons	Apply when about 50% of the eggs have hatched. Repeat as needed.

Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 6 quarts) per acre per year.

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

Insects Controlled	Rate of Application	Method of Application
Zimmerman Pine Moth	1 1/2 quarts per 100 gals.	Apply in mid-April and again, if necessary, in late fall. Thoroughly wet bark and main stem, especially where branches join main stem.

Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 6 quarts) per acre per year.

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SPRUCE (New England Area Only)

Insects Controlled	Rate of Application	Method of Application
Spruce Gall Aphid	1 quart per 100 gallons	Apply in late April or early May when aphids are present but before galls are formed.
Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 6 quarts) per acre per year.		

TAXUS

Insects Controlled	Rate of Application	Method of Application
Taxus Bud Mite	1 quart per 100 gallons	Make 3 to 5 applications beginning in mid-May. Thoroughly spray foliage, twigs and bark.
Black Vine Weevil	2 quarts per 100 gallons	Spray thoroughly and drench the soil under the plants. Apply when the weevils first appear and repeat in 14 days.
Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 6 quarts) per acre per year.		

TOMATOES (Field & Greenhouse) (2)

Insects Controlled	Rate of Application	Method of Application
Aphids Blister Beetles Colorado Potato Beetle Flea Beetles Tomato Hornworm Webworm (<u>California only</u>)	1 to 2 quarts per acre	Make applications when insects appear or feeding is noticed.
Cabbage Looper Stink Bugs	1 1/2 to 2 qts. per acre	
Tomato Fruitworm Tomato Russet Mite Whitefly Yellowstriped Armyworm	2 quarts per acre	
Whitefly	1 quart per 100 to 200 gals. of water	

In greenhouse applications, wear a mask or respirator approved by MSA and OSHA for protection against endosulfan.

Do not make more than 6 applications per year.

Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 6 quarts) per acre per year.

TURNIP GREENS (21)

Insects Controlled	Rate of Application	Method of Application
Aphids Cabbage Looper Diamondback Moth larvae Fall Armyworm Flea Beetles Harlequin Bug Imported Cabbageworm Leafhoppers	1 1/2 quarts per acre	Make application when insects appear or feeding is noticed.
<p>Do not apply to turnips grown for roots. Do not make more than one application per year. Do not exceed a maximum of 0.75 lb. active ingredient (i.e., 1 1/2 quarts) per acre per year.</p>		

WALNUTS

Insects Controlled	Rate of Application	Method of Application
Walnut Aphid	3 to 4 quarts per acre	Make applications when insects appear or feeding is noticed.
<p>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., 6 quarts) per acre per year.</p>		

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**COMMERCIALLY GROWN ORNAMENTALS
ORNAMENTAL PLANTS**

LEATHERLEAF FERN (Leather Holly Fern)

Insects Controlled	Rate of Application	Method of Application
Leatherleaf Fern Borer	1 quart per 100 gallons	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.
Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 6 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	1 quart per 100 gallons	Make applications when insects appear or feeding is noticed.
<p>On chrysanthemums, best results will be obtained if applied before plants flower.</p> <p>Do not apply to "Bonnafon Deluxe", "Fred Shoesmith", and "White Knight" chrysanthemums as injury may result.</p> <p>Do not use on Birch trees.</p> <p>In greenhouse applications, wear a mask or respirator approved by MSA and OSHA for protection against endosulfan.</p> <p>Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 6 quarts) per acre per year.</p>		

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