

Ms. Eunice Cuirle
FMC Corporation
Agricultural Chemical Group
1735 Market Street
Philadelphia, PA 19103

JAN - 9 1992

Subject: Amendment - Clarify directions for use
Thiodan 3 EC
EPA Reg. No. 279-2924
Your submission dated November 19 1990

Dear Ms. Cuirle:

The amendment referred to above submitted in connection with a registration 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) In the ingredients statement, add "-3-" before "oxide".
- 2) In the Environmental Hazards, revise "Do not apply directly to water or wetlands." to read "Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark."
- 3) In the limitations appearing under the crop "Tomatoes (Field and Greenhouse), delete "In greenhouse applications, wear a mask or respirator approved by MSA [MSHA] and OSHA [NIOSH] for protection against endosulfan." since wearing a MSHA/NIOSH approved respirator is required for all applications, not just those made in greenhouses.
- 4) In the limitations appearing under the crop "Ornamentals (Field and Greenhouse), delete "In greenhouse applications, wear a mask or respirator approved by MSA [MSHA] and OSHA [NIOSH] for protection against endosulfan." since wearing a MSHA/NIOSH approved respirator is required for all applications, not just those made in greenhouses.

- 5) Why do the directions for use on "Douglas Fir" include a rate in teaspoons per gallon? No such low gallonage mixing rates appear anywhere else on the label. If you wish to retain this rate (or add similar one gallon rates for other crops) then you must add "Food utensils such as teaspoons must not be used for food purposes after use in measuring pesticides." to the Hazards to Humans and Domestic Animals text.

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 label.

Sincerely yours,

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

ACCEPTED
with COMMENTS
In EPA Letter Dated:

JAN - 9 1992

Net Contents

Code 3212

Thiodan. 3 E.C. Insecticide

For Agricultural or Commercial Use Only.

EPA Reg. No. 279-2924

EPA Est. 279-

Under the Federal Insecticide,
Fungicide, and Rodenticide Act as
amended, for the pesticide
registered under EPA Reg. No.
279-2924

Active Ingredients:	By Wt.
*Endosulfan: (Hexachlorohexahydromethano- 2,4,3-benzodioxathiepin oxide).....	33.7%
Inert Ingredients:**	66.3%
	100.0%

*Thiodan
**Contains Xylene Range Aromatic Solvents.
Thiodan 3 E.C. contains 3 pounds of endosulfan per gallon.

PRECAUTIONARY STATEMENTS Hazards to Humans (& Domestic Animals)

Danger
Fatal if swallowed. May be fatal if inhaled or absorbed through the skin. Do not breathe vapors or spray mist. Causes eye damage. 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 smoking or eating. Remove contaminated clothing and wash with soap and hot water 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 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. 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/Chemical Hazards

Do not use, pour, spill 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.

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 coverall 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 (which 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:

DANGER

Area treated with endosulfan on (insert date). Do not enter without appropriate protective clothing for 24 hours (insert State Department of Agriculture's reentry interval, if more restrictive).

In case of accidental exposure to pesticide spray, wash the skin thoroughly with soap and water. Remove contaminated clothing and wash before reuse. If in eyes, flush with plenty of water. If inhaled, go to an area where the pesticide has not been applied. Get medical attention if needed.

KEEP OUT OF REACH OF CHILDREN

 **DANGER-POISON** 
PELIGRO

See Other Panels for Additional Precautionary Information.
PRECAUCION AL USUARIO: Si usted no lee ingles, no use este producto 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.

If in eyes: Flush eyes with plenty of water. Call a physician immediately.

Note to Physicians: 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.

For Emergency Assistance Call 716-735-3765.

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Agricultural Chemical Group
Philadelphia PA 19103

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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 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 collect: (716) 735-3765.

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.

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. 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 Thiodane 3 E.C. 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.

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THIODAN 3 EC - CODE 3212**ALFALFA (Grown for Forage) (21)**

Insects Controlled	Rate of Application	Method of Application
Meadow Spittlebug	2/3 pint per acre	Apply one week after eggs begin to hatch or when first small masses of froth are produced in the crowns of the plant which is usually about the time the alfalfa is 4 to 6 inches tall. Apply in a minimum of 10 gallons of water per acre by ground or 2 gallons of water per acre by air.

Do not graze or cut forage within 21 days of treatment.

Do not apply more than once per cutting.

Do not make more than 3 applications per year.

Do not exceed a maximum of 0.75 lb. active ingredient (i.e., 1 quart) 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)	2/3 quart per 100 gallons or a maximum of 3 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 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.
<p>Do not feed pomace from treated apples to livestock.</p> <p>Do not feed cull fruits to animals or allow livestock to graze in treated orchards.</p> <p>Do not make more than 2 applications during the fruiting period.</p> <p>Do not make more than 3 applications per year.</p> <p>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; <u>West Coast</u> - 2/3 to 1 quart per 100 gals.; <u>Southeastern States</u> - 2 to 3 1/3 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., 4 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	2/3 quart per 100 gallons or a maximum of 3 1/3 quarts per acre; <u>West Coast</u> - do not use more than 4 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., 4 quarts) per acre per year.

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ARTICHOKES (7)

Insects Controlled	Rate of Application	Method of Application
Aphids (including Artichoke Aphid, Green Peach Aphid)	1 to 1 1/3 qts. 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	1 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 2/3 quarts) per acre per year.		

BARLEY, OATS, RYE, WHEAT

Insects Controlled	Rate of Application	Method of Application
Army Cutworm	2/3 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)	1/3 to 2/3 qts. 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	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.		

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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	2/3 to 1 1/3 qts. 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	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 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., 4 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 Moth larvae Flea Beetles Harlequin Bug Imported Cabbageworm Leafhoppers Stink Bugs	1 to 1 1/3 qts. per acre	Make applications when insects appear or feeding is noticed.
Armyworms Cutworms Whitefly	1 1/3 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 Leafhoppers	2/3 to 1 1/3 qts. per acre	Make application when insects appear or feeding is noticed.
Armyworms Flea Beetles Whitefly	1 1/3 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., 1 1/3 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	2/3 to 1 1/3 qts. per acre	Make application when insects appear or feeding is noticed.
Armyworms Flea Beetles Whitefly	1 1/3 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., 1 1/3 quarts) per acre per year.</p>		

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.
<p>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.</p>		

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CHERRIES (21)

Insects Controlled	Rate of Application	Method of Application
Peachtree Boere Lesser Peachtree Borer	1 quart per 100 gallons; <u>West Coast:</u> 2/3 to 1 quart per 100 gals.	Thoroughly wet all bark from ground to scaffold limbs.
Black Cherry Aphid Green Fruitworm Plum Rust (Nursery) Mite	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.
<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	1 1/3 quarts per 100 gals.	Apply in the delayed dormant period.
<p>Do not feed cull fruits to animals or allow livestock to graze in treated orchards.</p> <p>Do not make more than 2 applications per year.</p> <p>Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.</p>		

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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.

Wear rubber gloves during the dipping operation.
Plant immediately or dry before returning stock to storage.

CITRUS (Non-Bearing Trees and Nursery Stock)

Insects Controlled	Rate of Application	Method of Application
Citrus Aphid	2/3 quart per 100 gallons or a maximum of 3 1/3 qts. per acre	Make applications when insects appear or feeding is noticed.

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., 4 quarts) per acre per year.

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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 to 1 1/3 qts. per acre	Make application when insects appear or feeding is noticed.
Whitefly	1 1/3 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., 1 1/3 quarts) per
 acre per year.

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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 qts. per acre	
Bollworm Cabbage Looper Cotton Leafperforator Cotton Leafworm Fleahoppers Lygus Bugs Stink Bugs Tobacco Budworm	1 1/3 to 2 qts. 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.

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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	2/3 to 1 1/3 qts. 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	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 Beetles Green Peach Aphid Green Stink Bug	2/3 to 1 1/3 qts. 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.		

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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 qts. per acre	Make applications when insects appear or feeding is noticed.
<p>Do not use on Concord variety 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., 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 one application per year. Do not exceed a maximum of 0.75 lb. active ingredient (i.e., 1 quart) per acre per year.</p>		

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PEARS (7)

Insects Controlled	Rate of Application	Method of Application
Green Fruitworm Tarnished Plant Bug	2/3 quart per 100 gallons or 2 2/3 to 3 1/3 qts. per acre	Make applications at white bud or petal fall when insects appear or feeding is noticed.
Pear Psylla	3 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)	2/3 quart per 100 gallons or 2 2/3 to 3 1/3 qts. 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)	2/3 quart per 100 gallons; 200 to 400 gals. per acre	Apply to orchard floor and around trees prior to bloom.
Pear Leaf Blister Mite	1/3 to 2/3 qt. 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., 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.

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PRAS (Seed Crop Only) (1)

Insects Controlled	Rate of Application	Method of Application
Pea Aphid Pea Weevil	2/3 to 1 1/3 qts. per acre	Make applications when insects appear or feeding is noticed.
<p>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., 2 quarts) per acre per year.</p>		

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	2/3 to 1 quart per 100 gals.	Apply when nymphs appear and before they are enclosed in plant tissue. For high populations, use the higher rate.
<p>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.</p>		

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PEPPERS (1)

Insects Controlled	Rate of Application	Method of Application
Flea Beetles Green Peach Aphid Hornworms Pepper Maggot	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 1/3 quarts) per acre per year.		

PEPPERS (4)

Insects Controlled	Rate of Application	Method of Application
Armyworms Flea Beetles Green Peach Aphid Hornworms Leafhoppers Pepper Maggot	2/3 to 1 1/3 qts. 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 2.0 lbs. active ingredient (i.e., 2 2/3 quarts) per acre per year.		

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PINEAPPLE (For Fresh Market Only) (7)

Insects Controlled	Rate of Application	Method of Application
Pineapple Fruit Mite	2 to 2 2/3 qts. 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 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., 4 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>)	2/3 quart per 100 gallons or 2 2/3 to 3 1/3 qts. 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	2/3 quart per 100 gallons or 2 2/3 to 3 1/3 qts. per acre	Make applications when insects appear or feeding is noticed.
Lesser Peachtree Borer	1 quart per 100 gallons or 2 2/3 to 3 1/3 qts. per acre	Apply spray to thoroughly wet the trunk and main branches.
Peachtree Borer	1 quart per 100 gallons or 2 2/3 to 3 1/3 qts. per acre <u>West Coast</u> - 2/3 to 1 quart per 100 gals. or 2 2/3 to 3 1/3 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., 4 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 Tuberworm Threelined Potato Beetle	2/3 to 1 1/3 qts. per acre	Make applications when insects appear or feeding is noticed.
European Corn Borer Potato Psyllid	1 to 1 1/3 qts. per acre	
False Chinch Bug 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.		

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SAFFLOWER

Insects Controlled	Rate of Application	Method of Application
Green Peach Aphid Whitefly	1 1/3 quarts per acre	Make applications when insects appear or feeding is noticed.
<p>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., 2 2/3 quarts) per acre per year.</p>		

SPINACH (21)

Insects Controlled	Rate of Application	Method of Application
Armyworms Crown Mite Flea Beetles Green Peach Aphid Leafhoppers	1 to 1 1/3 qts. per acre	Make application when insects appear or feeding is noticed.
Whitefly	1 1/3 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., 1 1/3 quarts) per acre per year.</p>		

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STRAWBERRIES (4)

Insects Controlled	Rate of Application	Method of Application
Meadow Spittlebug Strawberry Aphid Tarnished Plant Bug Whitefly	1 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 2/3 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., 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 gals.	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.

Wear rubber gloves during the dipping operation.
Drain and allow plants to dry before setting them out in the field.

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SUGAR BEETS (30)

Insects Controlled	Rate of Application	Method of Application
Green Peach Aphid Meadow Spittlebug	2/3 to 1 1/3 qts. 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 to 1 1/3 qts. per acre	
Whitefly	1 1/3 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., 2 2/3 quarts) per acre per year.</p>		

SUNFLOWERS (1)

Insects Controlled	Rate of Application	Method of Application
Sunflower Moth	1 1/3 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., 4 quarts) per acre per year.</p>		

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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.
<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., 4 quarts) per acre per year.</p>		

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SWEET POTATOES (1)

Insects Controlled	Rate of Application	Method of Application
Sweet Potato Flea Beetle Sweet Potato Weevil	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 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 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 Thiodan ^R .
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 qts. per acre broadcast or 1/2 to 1 quart 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., 4 quarts) per acre per year.

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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> 2/3 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> 2/3 pint 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> 2/3 to 1 1/3 quarts per acre	Make applications when insect activity or feeding is noticed.
Stink Bugs	<u>Field:</u> 2/3 qt. per 100 gals.	
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.		

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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>)	2/3 to 1 1/3 qts. per acre	Make applications when insects appear or feeding is noticed.
Cabbage Looper Stink Bugs	1 to 1 1/3 qts. per acre	
Tomato Fruitworm Tomato Russet Mite Whitefly Yellowstriped Armyworm	1 1/3 quarts per acre	
Whitefly	2/3 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., 4 quarts) per acre per year.

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WALNUTS

Insects Controlled	Rate of Application	Method of Application
Walnut Aphid	2 to 3 1/3 qts. 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	2/3 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., 4 quarts) per acre per year.

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ORNAMENTALS (Greenhouse and Out-of-Doors)

Insects Controlled	Rate of Application	Method of Application
Aphids Cyclamen Mite Rose Chafer Whitefly	2/3 quart per 100 gallons	Make applications when insects appear or feeding is noticed.

On chrysanthemums, best results will be obtained if applied before plants flower.
 Do not apply to "Bonnafon Deluxe", "Fred Shoesmith", and "White Knight" chrysanthemums as injury may result.
 Do not use on Birch trees.
 In greenhouse applications, wear a mask or respirator approved by MSA and OSHA for protection against endosulfan.
 Do not exceed a maximum of 3.0 lbs. active ingredient (i.e., 4 quarts) per acre per year.

ORNAMENTAL TREES AND SHRUBS

DOGWOOD, LILAC

Insects Controlled	Rate of Application	Method of Application
Dogwood Borer. Lilac Borer	2/3 to 1 1/3 quarts per 100 gallons	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., 4 quarts) per acre per year.

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**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	2/3 quart per 100 gallons (1 1/3 tea- spoon 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., 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	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., 4 quarts) per acre per year.		

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SHADE TREES (except Birch), SHRUBS

Insects Controlled	Rate of Application	Method of Application
Aphids	2/3 quart per 100 gallons	Make applications when insects appear or feeding is noticed.
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	2/3 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., 4 quarts) per acre per year.		

TAXUS

Insects Controlled	Rate of Application	Method of Application
Taxus Bud Mite	2/3 quart per 100 gallons	Make 3 to 5 applications beginning in mid-May. Thoroughly spray foliage, twigs and bark.
Black Vine Weevil	1 1/3 quarts per 100 gals.	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., 4 quarts) per acre per year.		

Dealers Should Sell in Original Packages Only.

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Warranty: FMC makes no warranty, expressed or implied, concerning the use of this product other than indicated on the label. Except as so warranted, the product is sold as is. Buyer and user assume all risk of use and/or handling and/or storage of this material when such use and/or handling and/or storage is contrary to label instructions.

Directions and Recommendations: Follow directions carefully. Timing and method of application, weather and crop conditions, mixture with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the seller and are assumed by the buyer at his own risk.

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