

543227

JUN - 9 1998

Ms. Anne Stout
GOWAN Company
P.O. Box 5569
Yuma, AZ 85366

Dear Ms. Stout:

Subject: Amendment- Add chemigation/Potatoes
Add Cabbage Loopers/Potatoes
Gowan Endosulfan 3EC
EPA Registration Number 10163-110
Your submission dated April 21, 1998 and
associated FAXs of May 17 and May 28, 1998

The amendment referred to above, submitted in connection with a 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 ingredients statement add a hyphen before "3-oxide". Also, revise "Aromatic Solvents" to "Aromatic Solvent" in the footnote under the ingredients statement.
 - b) At the end of the Note to Physician, add "This formula contains petroleum hydrocarbons (xylene range aromatic solvent). 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."
 - c) Add the heading **Engineering Control Statement** over the paragraph beginning "When handlers use closed systems".

- d) In the **Environmental Hazards**, after "...are important resources." add "Do not contaminate water by cleaning of equipment or disposal of equipment washwaters."
- e) After "See **California Supplemental Label**" add "(at the end of this label)".
- f) For Apples, replace the Note "Do not make more than 2 applications per year." with "Do not make more than 2 applications during the fruiting period. Do not make more than 3 applications per year."
- g) For Apricots, Nectarines, and Peaches(21), in the **COMMENTS**, revise "West Coast:" to read "Pacific Northwest:".
- h) For Apricots, Nectarines, and Peaches(30), for both the "Except California" and the "California only" entries, in the **COMMENTS**, delete "West Coast- do not use more than 4 quarts per acre". That limitation applies nationwide and already appears in the Notes for this crop.
- i) For Barley, Oats, Rye, and Wheat, for the "Except California" entry for Army Cutworm, in the **COMMENTS** add "Apply when small larvae are readily found in the field.". Also, revise "diesel fuel oil" to "crop oil" in these same directions.
- j) For Carrots, for both the "Except California" and the "California only" entries, in the **COMMENTS** revise "Make applications" to "Make application", since only one application is permitted per year.
- k) For Celery(4), for both the "Except California" and the "California only" entries, in the **COMMENTS** revise "Make applications" to "Make application", since only one application is permitted per year.
- l) For Cherries (Except California) revise the **QTS./ACRE** entry for Peachtree Borer and Lesser Peachtree Borer to read "2 2/3 - 3 1/3 or 1 qt. per 100 gals.". [For this and for many following entries the addition of "qt." or "qts." is necessary for the amount per 100 gals. rate because it does not default back to the column heading of QTS./ACRE, usually several hundred gallons will be applied per acre accounting for the variance between the per 100 gallon and per acre rate given.] In the **COMMENTS**, delete "West Coast: use 2/3 to 1 qt. per 100 gals." and replace "Thoroughly wet all bark from ground to scaffold limb." with "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.".

- m) For Cherries, for both the "Except California" and "California only" entries revise the QTS./ACRE entry for Black Cherry Aphid to read "2 2/3 - 3 1/3 or 2/3 qt. per 100 gals."
- n) For Cherry, Peach, Plum Nursery Stock Dip, the full set of personal protective clothing is also required for this use. In the COMMENTS, add "Full Personal Protective Equipment (PPE) requirements for applicators also apply to this dipping operation."
- o) For Collards, for both the "Except California" and "California only" in the COMMENTS revise "Make applications" to "Make application", since only one application is permitted per year.
- p) For Eggplant (california only) for Blister Beetle, revise the QTS./ACRE entry to read just "1 1/3 pts.". Also revise the first Note to read "Do not make more than one application per year."
- q) For Grapes, revise the QTS./ACRE entry to read 1 1/3 - 2 or 2/3 qt. per 100 gals.". Also, in the first Note revise "severe injury" to read "severe plant injury".
- r) For Kale, in the COMMENTS revise "Make applications" to "Make application", since only one application is permitted per year.
- s) For Mustard Greens, for both the "Except California" and the "California only" entries, in the COMMENTS revise "Make applications" to "Make application", since only one application is permitted per year. Also, for consistency with the rest of this label, revise "Do not make more than 1 application per year." to read "Do not make more than one application per year."
- t) For Pears (Except California), for Green Fruitworm revise "or 2/3 per 100 gals." to "or 2/3 qt. per 100 gals.", for Pear Rust Mite revise "or 2/3 per 100 gals." to "or 2/3 qt. per 100 gals.", for Consperse Stink Bug revise " 2/3 per 100 gals." to "2/3 qt. per 100 gals.", and for Pear Leaf Blister Mite revise "1/3 - 2/3 per 100 gals." to "1/3 - 2/3 qt. per 100 gals."
- u) For Pears, in both the "Except California" and the "California only" entries, for Pear Leaf Blister Mite, revise the COMMENTS to read "Apply to trees as a post harvest or dormant treatment."

- v) Also for Pears (California only), for Pear Rust Mite revise "or 2/3 per 100 gals." to "or 2/3 qt. per 100 gals.", for Consperse Stink Bug revise "2/3 per 100 gals." to "2/3 qt. per 100 gals.", and for Pear Leaf Blister Mite revise "1/3 - 2/3 per 100 gals." to "1/3 - 2/3 qt. per 100 gals."
- w) For Pecans (Except California) in the QTS./ACRE entry for Pecan Leaf Phylloxera, revise "2/3 - 1 per 100 gals." to "2/3 - 1 qt. per 100 gals."
- x) For Plums and Prunes, in the QTS./ACRE entries for Fruittree Leafroller, for Aphids, and for Peach Twig Borer revise "or 2/3 per 100 gallons" to "2/3 qt. per 100 gals."
- y) For Plums and Prunes, combine Peachtree Borers and Lesser Peachtree Borers as a single block entry with a single revised QTS./ACRE entry of "2 2/3 - 3 1/3 or 2/3 qt. per 100 gals.". Revise the COMMENTS to read "West Coast: Use 2/3 - 1 qt. per 100 gals. or 2 2/3 - 3 1/3 qts. per acre. 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."
- z) For Potatoes, in the COMMENTS, delete "GENERAL" before "CHEMIGATION USE INSTRUCTIONS".
- aa) For Spinach, for both the "Except California" and the "California only" entries, in the COMMENTS revise "Make applications" to "Make application", since only one application is permitted per year. Also, for consistency with the rest of this label, revise "Do not make more than 1 application per year." to read "Do not make more than one application per year."
- bb) For Strawberries, after the Note "Do not apply within 15 days or more than twice during a 35 day period when fruit is present." add "See additional notes below." or else repeat the two notes that follow the Cyclamen Mite control directions. A user might think that only one note applies to the Meadow Spittlebug directions.
- cc) For Strawberries (Northwest Use Only), the full set of personal protective clothing is also required for this use. At the end of the current directions add: "Full Personal Protective Equipment (PPE) requirements for applicators also apply to this dipping operation."
- dd) For Sweet Potatoes, for both the "Except California" and the "California only" entries, in the COMMENTS add ", up to 3 per year." after "Repeat applications may be made as necessary".

- ee) For Sweet Potatoes (Except California), after the Note "Do not place the seed tubers directly on the ground treated with endosulfan." add "See additional notes below." or else repeat the three notes that follow the Banded Cucumber Beetle Larvae control directions. A user might think that only one note applies to the Sweet Potato Flea Beetle directions.
- ff) For Tobacco (Except California), revise the QTS./ACRE entry for seed bed application to control Aphids to read "2/3 qt. per 100 gals.". For field application to control Aphids, revise the COMMENTS to read "Field: Make applications when insects appear or feeding is noticed."
- gg) For Tomatoes, for both the "Except California" and the "California only" entries, in the separate directions for Whitefly, revise the QTS./ACRE to read "2/3 quart per 100 to 200 gallons of water per acre". Continue the horizontal line into the COMMENTS column to separate this entry from the three pest groups above and add the following as the COMMENTS: "Make applications when insects appear or feeding is noticed. Higher spray volumes may be necessary for thorough coverage when high whitefly populations exist."
- hh) For Walnuts (Except California), revise the QTS./ACRE entry to read "2 - 2 2/3" rather than "2 - 3 1/3" and add the following to the COMMENTS: "Apply in a minimum of 100 gals. of water per acre."
- ii) Under the heading CHEMIGATION STATEMENT, delete the word "GENERAL" before CHEMIGATION USE INSTRUCTIONS - POTATOES. Also the text of this section makes little sense since it instructs the user to follow the General Chemigation Instructions [General should be deleted] and the Chemigation Application Instructions, however, there are no [General] Chemigation Instructions other than just that sentence. You may want to revise that text to read: "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."

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.

NOTE: As you are aware from your recent registration of an

endosulfan technical, certain crop uses appearing on this label have not been not supported by data must be deleted from the label. Delete directions for Alfalfa (grown for forage), Artichokes, Peas(seed crop)[both "Except California" and "California only"], Safflower, Sugar Beets, and Sunflowers. Please note that you will not be able to use your new endosulfan technical product, Gowan Endosulfan Technical, EPA. Reg. No. 10163-223, to make this product because it does not include those unsupported crops in its list of acceptable use patterns for end-use products derived from that technical product. As soon as possible, but no later than 21 days from the date of this letter, submit an amendment to delete those unsupported uses from this 3EC product. In your cover letter for that amendment, please include a listing of the uses to be deleted as well as a request for only a 30-day comment period so that you will be able to use your own technical as soon as possible. Labeling accompanying that amendment may either be a revised print incorporating the comments stipulated in this letter and with the uses deleted or, if such revised printed label cannot be submitted within 21 days of the date of this letter, may be this label with those unsupported uses crossed off and marked for deletion and the other revisions stipulated in this letter indicated by crossout and handwritten revisions as necessary [if you choose this option then the time required to prepare the Section 6(f) Federal Register Notice and its associated 30-day comment period can be used by you to prepare and submit revised printed labeling incorporating the revisions stipulated in this letter and deleting the unsupported uses, so that a finished type label would be available for Agency acceptance after the comment period and which you could then use for state registration purposes].

Sincerely,

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

GOWAN ENDOSULFAN 3EC

INSECTICIDE

For Agricultural or Commercial Use Only

ACTIVE INGREDIENT:

Endosulfan (Hexachlorohexahydromethano-2,4,3-benzodioxathiepin 3-oxide)

% BY WEIGHT

34.0%

INERT INGREDIENTS*

66.0%

TOTAL 100.0%

*Contains Xylene Range Aromatic Solvents.
Contains 3 pounds of endosulfan per gallon.

KEEP OUT OF REACH OF CHILDREN



**ANGER-POISON
PELIGRO**



Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

STATEMENT OF PRACTICAL TREATMENT

IF 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 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. 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.

FOR EMERGENCY RESPONSE AND HAZARD COMMUNICATIONS ONLY, CALL 1-800-228-5635 EXT. 283.

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 \geq 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.

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.

ACCEPTED with COMMENTS NET CONTENTS _____ GALS.
in EPA Letter Dated

JUN - 9 1998

EPA Reg. No. 10163-110
EPA Est. No. 67545-AZ-1



Gowan Company
P.O. Box 5569
Yuma, AZ 85366-5569

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

10163-110

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, 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. 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 AND 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 in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 hours.

Exception: If the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

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 \geq 14 mils
- Protective eyewear
- Chemical-resistant footwear plus socks
- Chemical-resistant headgear for overhead exposure

See California Supplemental Label for required procedures for reducing risk of contamination of aquatic ecosystems.

PHYTOTOXICITY STATEMENT

As is common with most emulsifiable concentrate formulations, adverse effects such as spotting or discoloration of the fruit or foliage can occur. Some conditions known to contribute to phytotoxicity include, but are not limited to: high temperatures, poor spray drying conditions, excessive spray deposit or runoff, certain spray mixtures, stage of crop development or tank mixes with other pesticides.

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 Gowan Endosulfan 3EC insecticide used.

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

OBSERVE STATE AND REGIONAL RESTRICTIONS AND LIMITATIONS if indicated in the crop headings. (California only) indicates instructions specific to California. (Except California) indicates uses for all states excluding California. No state restrictions indicates that the use is valid in California and all other states.

PREHARVEST INTERVAL

The required days between the last application and harvest are given in) after each crop name.

CROP	PEST	PTS./ACRE	COMMENTS
ALFALFA (Grown for Forage) (21)	Meadow Spittlebug	$\frac{1}{3}$	Apply one week after eggs begin to hatch or when first small masses of froth are produced in the crown of the plant which is usually about the time the alfalfa is 4 to 6 inches tall. Apply in a minimum of 10 gals. of water per acre by ground or 2 gals. of water per acre by air.
			<ul style="list-style-type: none"> • 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 $\frac{1}{4}$ lb. active ingredient (i.e., 1 qt.) per acre per year.
APPLES (30) (California only)	Aphids (including Apple Aphid, Rosy Apple Aphid, Woolly Apple Aphid), Apple Rust Mite, White Apple Leafhopper (first generation)	$\frac{1}{2}$ qts. per 100 gals. water	Or a maximum of 3 $\frac{1}{2}$ qts. per acre. For best control of first generation White Apple Leafhopper, apply when nymphs first appear on leaves. If necessary, prior to petal fall, use 1 qt. per 100 gals. to control Apple Aphids and Rosy Apple Aphids.
			<ul style="list-style-type: none"> • 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 per year. • Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year.

CROP	PEST	QTS./100 GALS. WATER	COMMENTS
APPLES (21) (Except California)	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)	$\frac{2}{3}$	Or a maximum of 3 $\frac{1}{2}$ qts. 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 qt. per 100 gals. to control Apple Aphids and Rosy Apple Aphids. For control of Tentiform Leafminer make first application as soon as moth flights begin. A second application should be made 10 days later. <ul style="list-style-type: none"> 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 lbs. active ingredient (i.e., 4 qts.) per acre per year.
APRICOTS, NECTARINES, PEACHES (21) (Except California)	Peachtree Borer, Lesser Peachtree Borer	1	West Coast: Use $\frac{2}{3}$ -1 qt. per 100 gals.; Southeastern States: Use 2 to 3 $\frac{1}{2}$ qts. 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. <ul style="list-style-type: none"> 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 lbs. active ingredient (i.e., 4 qts.) per acre per year.
APRICOTS, NECTARINES, PEACHES (30) (Except California)	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	$\frac{2}{3}$	Or a maximum of 3 $\frac{1}{2}$ qts. per acre; West Coast: Do not use more than 4 qts. per acre. Make applications when insects appear or feeding is noticed. <ul style="list-style-type: none"> Do not feed cull fruits to animals nor allow livestock to graze in treated orchards. Do not make more than 2 applications per year. Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year.
APRICOTS, NECTARINES, PEACHES (30) (California only)	Aphids (including Black Cherry Aphid, Black Peach Aphid, Green Peach Aphid, Rusty Plum Aphid), Catfacing Insects (Stink Bug type), Peach Silver Mite, Peach Twig Borer	$\frac{2}{3}$	Or a maximum of 3 $\frac{1}{2}$ qts. per acre; West Coast: Do not use more than 4 qts. per acre. Make applications when insects appear or feeding is noticed. <ul style="list-style-type: none"> Do not feed cull fruits to animals nor allow livestock to graze in treated orchards. Do not make more than 2 applications per year. Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year.

CROP	PEST	QTS./ACRE	COMMENTS
ARTICHOKE (7)	Aphids (including Artichoke Aphid, Green Peach Aphid)	1-1 $\frac{1}{2}$	Make applications when insects appear or feeding is noticed. Apply in a minimum of 20 gals. of water per acre by ground and in a minimum of 10 gals. of water per acre by air.
	Artichoke Plume Moth, Whitefly	1 $\frac{1}{2}$	
BARLEY, OATS, RYE, WHEAT (Except California)	Army Cutworm	$\frac{2}{3}$	For aerial application apply in 2 gals. of diesel fuel oil per acre.
	Cereal Leaf Beetle (Illinois, Indiana, Michigan, and Ohio only)	$\frac{1}{3}$ - $\frac{2}{3}$	Apply when small larvae are readily found in the field. For aerial application, use a minimum of 1 to 2 gals. of water per acre.
	Aphid	$\frac{2}{3}$ - 1	Make application when insects appear or feeding is noticed. <ul style="list-style-type: none"> 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 lb. active ingredient (i.e., 1 $\frac{1}{2}$ qts.) per acre per year.
BARLEY, OATS, RYE, WHEAT (California only)	Army Cutworm	$\frac{2}{3}$	Make application when insects appear or feeding is noticed. <ul style="list-style-type: none"> 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 lb. active ingredient (i.e., 1 $\frac{1}{2}$ qts.) per acre per year.
	Aphid	$\frac{2}{3}$ - 1	

CROP	PEST	QTS./ACRE	COMMENTS
BEANS, SUCCULENT and DRY (Except Lima Beans) (3) SOUTHERN FIELD PEAS (Succulent type, Including Black-Eyed Peas, Crowder Peas and Southern Peas (3) (Except California)	Black Bean Aphid, Bean Leaf Skeletonizer, Cowpea Curculio, Cucumber Beetle, Flea Beetle, Green Stink Bug, Leafhopper, Mexican Bean Beetle	2/3 - 1 1/3	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.
	Aphid, Armyworm, Western Bean Cutworm, Whitefly	1 1/3	
	<ul style="list-style-type: none"> 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 lbs. active ingredient (i.e., 4 qts.) per acre per year. 		
BEANS, SUCCULENT and DRY (Except Lima Beans) (3) SOUTHERN FIELD PEAS (Succulent type, including Black-Eyed Peas, Crowder Peas and Southern Peas) (3) (California only)	Black Bean Aphid, Bean Leaf Skeletonizer, Cucumber Beetle, Flea Beetle, Green Stink Bug, Leafhopper, Mexican Bean Beetle	2/3 - 1 1/3	Make applications when insects appear or feeding is noticed
	Aphid, Western Bean Cutworm, Whitefly	1 1/3	
	<ul style="list-style-type: none"> 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 lbs. active ingredient (i.e., 4 qts.) per acre per year. 		
BLUEBERRIES (Except California)	Blueberry Bud Mite	2 per 300 gals.	Apply immediately after harvest and repeat 6 to 8 weeks later.
	<ul style="list-style-type: none"> Do not apply after buds are well formed. Do not make more than 2 applications per year. Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year. 		
BROCCOLI (7), BRUSSELS SPROUTS (14), CABBAGE (7), CAULIFLOWER (14) (Except California)	Cabbage Aphid, Cabbage Looper, Cross-striped Cabbageworm, Diamondback Moth Larvae, Flea Beetle, Harlequin Bug, Imported Cabbageworm, Leafhopper, Stink Bug	1 - 1 1/3	Make applications when insects appear or feeding is noticed
	Amyworm, Cutworm, Whitefly	1 1/3	
	<ul style="list-style-type: none"> Do not make more than 4 applications per year. Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year. 		
BROCCOLI (7), BRUSSELS SPROUTS (14), CABBAGE (7), CAULIFLOWER (14) (California only)	Cabbage Aphid, Cabbage Looper, Cross-striped Cabbageworm, Diamondback Moth Larvae, Flea Beetle, Harlequin Bug, Imported Cabbageworm, Stink Bug	1 - 1 1/3	Make applications when insects appear or feeding is noticed
	Amyworm, Cutworm, Whitefly	1 1/3	
	<ul style="list-style-type: none"> Do not make more than 2 applications per year. Do not exceed a maximum of 2 lbs. active ingredient (i.e., 2 2/3 qts.) per acre per year. 		
CARROTS (7) (Except California)	Green Peach Aphid, Leafhopper	2/3 - 1 1/3	Make applications when insects appear or feeding is noticed.
	Amyworm, Flea Beetle, Whitefly	1 1/3	
	<ul style="list-style-type: none"> Do not use tops for food or feed. Do not make more than one application per year. Do not exceed a maximum of 1 lb. active ingredient (i.e., 1 1/3 qts) per acre per year. 		
CARROTS (7) (California only)	Green Peach Aphid	2/3 - 1 1/3	Make applications when insects appear or feeding is noticed.
	Flea Beetle, Whitefly	1 1/3	
	<ul style="list-style-type: none"> Do not use tops for food or feed. Do not make more than one application per year. Do not exceed a maximum of 1 lb. active ingredient (i.e., 1 1/3 qts) per acre per year. 		

CROP	PEST	QTS./ACRE	COMMENTS
CELERY (4) (Except California)	Green Peach Aphid, Cabbage Looper, Leafhopper	2/3 - 1 1/3	Make applications when insects appear or feeding is noticed. <ul style="list-style-type: none"> Do not make more than one application per year. Do not exceed a maximum of 1 lb. active ingredient (i.e., 1 1/3 qts.) per acre per year.
	Armyworm, Flea Beetle, Whitefly	1 1/3	
CELERY (4) (California only)	Green Peach Aphid, Cabbage Looper	2/3 - 1 1/3	Make applications when insects appear or feeding is noticed. <ul style="list-style-type: none"> Do not make more than one application per year. Do not exceed a maximum of 1 lb. active ingredient (i.e., 1 1/3 qts.) per acre per year.
	Flea Beetle, Whitefly	1 1/3	
CELERY (7)	Green Peach Aphid	2/3	Make applications when insects appear or feeding is noticed. <ul style="list-style-type: none"> Do not make more than 2 applications per year. Do not exceed a maximum of 1 lb. active ingredient (i.e., 1 1/3 qts.) per acre per year.
CHERRIES (21) (Except California)	Peachtree Borer, Lesser Peachtree Borer	1 per 100 gals.	West Coast: Use 2/3 to 1 qt. per 100 gals. Thoroughly wet all bark from ground to scaffold limb. Make applications when insects appear or feeding is noticed. Pacific Northwest Only: Eyespotted Bud Moth, Fruitree Leafroller: Use 2/3 qt. per 100 gals or 2 2/3 - 3 1/3 qts. per acre. For bud moth control apply at "popcorn" stage. For leafroller control, apply during pre-pink stage of growth. Michigan Only: Mineola Moth: Use 1 1/3 qts. per 100 gals. Apply in the delayed dormant period. <ul style="list-style-type: none"> 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 lbs. active ingredient (i.e., 4 qts.) per acre per year.
	Black Cherry Aphid, Green Fruitworm, Plum Rust (Nursery) Mite	2 2/3 - 3 1/3 or 2/3 per 100 gals.	
CHERRIES (21) (California only)	Black Cherry Aphid, Plum Rust (Nursery) Mite	2 2/3 - 3 1/3 or 2/3 per 100 gals.	Make applications when insects appear or feeding is noticed. <ul style="list-style-type: none"> 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 lbs. active ingredient (i.e., 4 qts.) per acre per year.
CHERRY, PEACH, PLUM (Nursery Stock Dip)	Peachtree Borer	2 2/3 per 40 gals.	Mix thoroughly, immerse trees so that the roots and crowns are covered well above the grafting bud scar. NOTE: Plant immediately or dry before returning stock to storage.
CITRUS (Non-bearing Trees and Nursery Stock)	Citrus Aphid	3 1/3 or 2/3 per 100 gals.	Make applications when insects appear or feeding is noticed. <ul style="list-style-type: none"> 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 lbs. active ingredient (i.e., 4 qts.) per acre per year.
COLLARDS (21) (Except California)	Aphid, Cabbage Looper, Diamondback Moth Larvae, Fall Armyworm, Flea Beetle, Harlequin Bug, Imported Cabbageworm, Leafhopper	1 - 1 1/3	Make applications when insects appear or feeding is noticed. <ul style="list-style-type: none"> Do not make more than one application per year. Do not exceed a maximum of 1 lb. active ingredient (i.e., 1 1/3 qts.) per acre per year.
	Whitefly	1 1/3	
COLLARDS (21) (California only)	Aphid, Cabbage Looper, Diamondback Moth Larvae, Flea Beetle, Harlequin Bug, Imported Cabbageworm, Whitefly	1	Make applications when insects appear or feeding is noticed. <ul style="list-style-type: none"> Do not make more than one application per year. Do not exceed a maximum of 3/4 lb. active ingredient (i.e., 1 qt.) per acre per year.
COTTON (Except California)	Aphid	1/2 - 1	Make applications when insects appear or feeding is noticed. For control of aphids, thorough coverage is important. NOTE: Applications may be made using ground or aerial application equipment. The higher rate should be used under heavy pest pressure. <ul style="list-style-type: none"> Do not apply after bolls open. Do not graze meat or dairy animals in treated fields. Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year.
	Boll Weevil	2/3 - 2	
	Bollworm, Cabbage Looper, Cotton Leafperforator, Cotton Leafworm, Fleahopper, Lygus Bug, Stink Bug, Tobacco Budworm	1 1/3 - 2	
	Thrips	2	

CROP	PEST	QTS/ACRE	COMMENTS
COTTON (California only)	Aphid	$\frac{1}{2}$ - 1	Make applications when insects appear or feeding is noticed. For control of aphids, thorough coverage is important. NOTE: Applications may be made using ground or aerial application equipment. The higher rate should be used under heavy pest pressure.
	Boll Weevil	$\frac{2}{3}$ - 2	
	Bollworm, Cabbage Looper, Cotton Leafperforator, Fleahopper, Lygus Bug, Stink Bug	$1\frac{1}{3}$ - 2	
	Thrips	2	
	Whitefly	$1\frac{1}{3}$	
	<ul style="list-style-type: none"> Do not apply after bolls open. Do not graze meat or dairy animals in treated fields. Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year. 		
CUCUMBERS, MELONS, PUMPKINS, SUMMER and WINTER SQUASH, (2) (Except California)	Aphid, Cucumber Beetle, Melonworm, Pickleworm, Rindworm (on watermelons), Squash Beetle, Squash Bug, Squash Vine Borer, Striped Flea Beetle	$\frac{2}{3}$ - $1\frac{1}{3}$	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	$1\frac{1}{3}$	
	<ul style="list-style-type: none"> Do not make more than 6 applications per year. Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year. 		
CUCUMBERS, MELONS, PUMPKINS, SUMMER and WINTER SQUASH (2) (California only)	Aphid, Cucumber Beetle, Melonworm, Pickleworm, Rindworm (on watermelons), Squash Beetle, Squash Bug, Squash Vine Borer, Striped Flea Beetle	$\frac{2}{3}$ - $1\frac{1}{3}$	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	$1\frac{1}{3}$	
	<ul style="list-style-type: none"> Do not make more than 3 applications per year. Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year. 		
EGGPLANT (1) (Except California)	Blister Beetle, Colorado Potato Beetle, Flea Beetle, Green Peach Aphid, Green Stink Bug	$\frac{2}{3}$ - $1\frac{1}{3}$	Make applications when insects appear or feeding is noticed.
	Whitefly	$1\frac{1}{3}$	
	<ul style="list-style-type: none"> Do not make more than 2 applications per year. Do not exceed a maximum of 1 lb. active ingredient (i.e., $1\frac{1}{3}$ qts.) per acre per year. 		
EGGPLANT (1) (California only)	Blister Beetle, Colorado Potato Beetle, Flea Beetle, Green Peach Aphid, Green Stink Bug	$\frac{2}{3}$ - $1\frac{1}{3}$ pts.	Make applications when insects appear or feeding is noticed.
	Whitefly	$1\frac{1}{3}$ pts.	
	<ul style="list-style-type: none"> Do not make more than 2 applications per year. Do not exceed a maximum of $\frac{1}{2}$ lb. active ingredient (i.e., $1\frac{1}{3}$ pts.) per acre per year. 		
GRAPES (7)	Grape Leafhopper, Grape Phylloxera (leaf form), Rose Chafer	$1\frac{1}{2}$ - 2 or $\frac{2}{3}$ per 100 gals.	Make applications when insects appear or feeding is noticed.
	<ul style="list-style-type: none"> 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 lbs. active ingredient (i.e., 4 qts.) per acre per year. 		
KALE (21)	Cabbage Flea Beetle, Harlequin Bug, Imported Cabbageworm	1	Make applications when insects appear or feeding is noticed.
	<ul style="list-style-type: none"> Do not make more than 1 application per year. Do not exceed a maximum of $\frac{3}{4}$ lb. active ingredient (i.e., 1 qt.) per acre per year. 		
LETTUCE (14) (Except California)	Cabbage Looper, Diamondback Moth Larvae, Green Peach Aphid, Imported Cabbageworm, Leafhopper	1 - $1\frac{1}{3}$	Make applications when insects appear or feeding is noticed.
	Amyworm, Whitefly	$1\frac{1}{3}$	
	<ul style="list-style-type: none"> NOTE: On Head Lettuce: For all uses, do not exceed 3 applications after thinning. Remove wrapper leaves at harvest. On Leaf Lettuce: For all uses, do not make more than 2 applications per year. Do not feed crop refuse to livestock. Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year. 		

CROP	PEST	QTS. JACRE	COMMENTS
LETTUCE (14) (California only)	Cabbage Looper, Diamondback Moth Larvae, Green Peach Aphid, Imported Cabbageworm	1 - 1 1/3	Make applications when insects appear or feeding is noticed.
	Whitefly	1 1/3	
<ul style="list-style-type: none"> NOTE: On Head Lettuce: For all uses, do not exceed 3 applications after thinning. Remove wrapper leaves at harvest. On Leaf Lettuce: For all uses, do not make more than 2 applications per year. Do not feed crop refuse to livestock. Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year. 			
MUSTARD GREENS (21) (Except California)	Aphid, Cabbage Looper, Diamondback Moth Larvae, Fall Armyworm, Flea Beetle, Harlequin Bug, Imported Cabbageworm, Leafhopper	1 - 1 1/3	Make applications when insects appear or feeding is noticed.
	Whitefly	1 1/3	
<ul style="list-style-type: none"> Do not make more than 1 application per year. Do not exceed a maximum of 1 lb. active ingredient (i.e., 1 1/3 qts.) per acre per year. 			
MUSTARD GREENS (21) (California only)	Aphid, Cabbage Looper, Diamondback Moth Larvae, Flea Beetle, Harlequin Bug, Imported Cabbageworm, Whitefly	1	Make applications when insects appear or feeding is noticed.
<ul style="list-style-type: none"> Do not make more than 1 application per year. Do not exceed a maximum of 1/2 lb. active ingredient (i.e., 1 qt.) per acre per year. 			
PEARS (7) (Except California)	Green Fruitworm, Tarnished Plantbug	2 2/3 - 3 1/3 or 2/3 per 100 gals.	Make applications at white bud or petal fall when insects appear or feeding is noticed.
	Pear Psylla	3 1/3	Apply in a minimum of 10 gals. of water for aerial application or in 300 gals. of water for dilute application. Apply when adults are first observed or nymphs are small and repeat to maintain control.
	Pear Rust Mite, Consperse Stink Bug (foliar treatment)	2 2/3 - 3 1/3 or 2/3 per 100 gals.	Make applications when insects appear or feeding is noticed. Stink bugs must be wet by spray to obtain control.
	Consperse Stink Bug (soil treatment)	2/3 per 100 gals.	Use 200 to 400 gals. per acre. Apply to orchard floor and around trees prior to bloom.
	Pear Leaf Blister Mite	1/3 - 2/3 per 100 gals.	Apply as a post harvest or dormant treatment.
<ul style="list-style-type: none"> 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 lbs. active ingredient (i.e., 4 qts.) per acre per year. Aerial application may not result in satisfactory control and should only be employed if impossible to apply by ground. 			
PEARS (7) (California only)	Pear Psylla	3 1/3	Apply in a minimum of 10 gals. of water for aerial application or in 300 gals. of water for dilute application. Apply when adults are first observed or nymphs are small and repeat to maintain control.
	Pear Rust Mite, Consperse Stink Bug (foliar treatment)	2 2/3 - 3 1/3 or 2/3 per 100 gals.	Make applications when insects appear or feeding is noticed. Stink bugs must be wet by spray to obtain control.
	Consperse Stink Bug (soil treatment)	2/3 per 100 gals.	Use 200 to 400 gals. per acre. Apply to orchard floor and around trees prior to bloom.
	Pear Leaf Blister Mite	1/3 - 2/3 per 100 gals.	Apply as a post harvest or dormant treatment.
<ul style="list-style-type: none"> 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 lbs. active ingredient (i.e., 4 qts.) per acre per year. Aerial application may not result in satisfactory control and should only be employed if impossible to apply by ground. 			
PEAS (Seed Crop Only) (1) (Except California)	Pea Aphid, Pea Weevil	2/3 - 1 1/3	Make applications when insects appear or feeding is noticed. NOTE: Use only on peas to be harvested by combine.
<ul style="list-style-type: none"> 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 1/2 lbs. active ingredient (i.e., 2 qts.) per acre per year. 			
PEAS (Seed Crop Only) (1) (California only)	Pea Aphid, Pea Weevil	2/3 - 1	Make applications when insects appear or feeding is noticed. NOTE: Use only on peas to be harvested by combine.
<ul style="list-style-type: none"> 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 1/2 lbs. active ingredient (i.e., 2 qts.) per acre per year. 			

CROP	PEST	QTS/ACRE	COMMENTS
PECANS (Except California)	Black Pecan Aphid, Pecan Nut Casebearer, Spittlebug	1 qt. 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 are deposited. For spittlebug, apply when first leaves are half grown and repeat as required.
	Pecan Leaf Phylloxera	$\frac{3}{4}$ - 1 per 100 gals.	Apply when nymphs appear and before they are enclosed in plant tissue. For high populations, use the higher rate.
	<ul style="list-style-type: none"> 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 lbs. active ingredient (i.e., 4 qts.) per acre per year. 		
PEPPERS (1)	Flea Beetle, Green Peach Aphid, Hornworm, Pepper Maggot	$\frac{3}{4}$	Make applications when insects appear or feeding is noticed.
<ul style="list-style-type: none"> Do not make more than 2 applications per year. Do not exceed a maximum of 1 lb. active ingredient (i.e., $1\frac{1}{2}$ qts.) per acre per year. 			
PEPPERS (4) (Except California)	Armyworm, Flea Beetle, Green Peach Aphid, Hornworm, Leafhopper, Pepper Maggot	$\frac{3}{4}$ - $1\frac{1}{2}$	Make applications when insects appear or feeding is noticed.
	Whitefly	$1\frac{1}{2}$	
<ul style="list-style-type: none"> Do not make more than 2 applications per year. Do not exceed a maximum of 2 lbs. active ingredient (i.e., $2\frac{3}{4}$ qts.) per acre per year. 			
PEPPERS (4) (California only)	Flea Beetle, Green Peach Aphid, Hornworm, Pepper Maggot	$\frac{3}{4}$ - $1\frac{1}{2}$	Make applications when insects appear or feeding is noticed.
	Whitefly	$1\frac{1}{2}$	
<ul style="list-style-type: none"> Do not make more than 2 applications per year. Do not exceed a maximum of 2 lbs. active ingredient (i.e., $2\frac{3}{4}$ qts.) per acre per year. 			
PINEAPPLE (For Fresh Market Only) (7)	Pineapple Fruit Mite	2 - $2\frac{3}{4}$	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.
<ul style="list-style-type: none"> 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 lbs. active ingredient (i.e., 4 qts.) per acre per year. 			
PLUMS (7), PRUNES (7)	Fruitree Leafroller (Pacific Northwest Only)	$2\frac{3}{4}$ - $3\frac{1}{2}$ or $\frac{3}{4}$ per 100 gals.	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	$2\frac{3}{4}$ - $3\frac{1}{2}$ or $\frac{3}{4}$ per 100 gals.	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	$2\frac{3}{4}$ - $3\frac{1}{2}$ or $\frac{3}{4}$ per 100 gals.	Make applications when insects appear or feeding is noticed.
	Lesser Peachtree Borer	$2\frac{3}{4}$ - $3\frac{1}{2}$ or $\frac{3}{4}$ per 100 gals.	Apply spray to thoroughly wet the trunk and main branches.
	Peachtree Borer	$2\frac{3}{4}$ - $3\frac{1}{2}$ or $\frac{3}{4}$ per 100 gals.	West Coast: Use $\frac{3}{4}$ - 1 qt. per 100 gals. or $2\frac{3}{4}$ - $3\frac{1}{2}$ qts. per acre. Spray thoroughly to cover all bark areas from ground to scaffold limbs.
<ul style="list-style-type: none"> 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 lbs. active ingredient (i.e., 4 qts.) per acre per year. 			
POTATOES (1)	Aphid, Armyworm, Cabbage Looper, Colorado Potato Beetle, Green Stink Bug, Leaf-footed Bug, Plant Bug, Potato Flea Beetle, Potato Leafhopper, Potato Tubeworm, Threelined Potato Beetle	$\frac{3}{4}$ - $1\frac{1}{2}$	Make applications when insects appear or feeding is noticed. POTATOES—CHEMIGATION: For application by irrigation system, apply specified dosage of Gowan Endosulfan 3EC per acre. Follow all directions given under GENERAL CHEMIGATION USE INSTRUCTIONS section of this label.
	European Corn Borer, Potato Psyllid	1 - $1\frac{1}{2}$	
	False Chinch Bug, Whitefly	$1\frac{1}{2}$	
<ul style="list-style-type: none"> Do not make more than 6 applications per year. Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year. 			
SAFFLOWER	Green Peach Aphid, Whitefly	$1\frac{1}{2}$	Make applications when insects appear or feeding is noticed.
<ul style="list-style-type: none"> Do not apply after flower heads open. Do not make more than 2 applications per year. Do not exceed a maximum of 2 lbs. active ingredient (i.e., $2\frac{3}{4}$ qts.) per acre per year. 			

CROP	PEST	QTS./ACRE	COMMENTS
SPINACH (21) (Except California)	Armyworm, Crown Mite, Flea Beetle, Green Peach Aphid, Leafhopper	1 - 1 1/3	Make applications when insects appear or feeding is noticed.
	Whitefly	1 1/3	
<ul style="list-style-type: none"> Do not make more than 1 application per year. Do not exceed a maximum of 1 lb. active ingredient (i.e., 1 1/3 qts.) per acre per year. 			
SPINACH (21) (California only)	Crown Mite, Flea Beetle, Green Peach Aphid, Whitefly	1	Make applications when insects appear or feeding is noticed.
<ul style="list-style-type: none"> Do not make more than 1 application per year. Do not exceed a maximum of 1/4 lb. active ingredient (i.e., 1 qt.) per acre per year. 			
STRAWBERRIES (4)	Meadow Spittlebug, Strawberry Aphid, Tarnished Plant Bug, Whitefly	1 1/3	Make applications when insects appear or feeding is noticed.
	Cyclamen Mite	2 2/3 in 400 gals.	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.
<ul style="list-style-type: none"> Do not reapply within 15 days or more than twice during a 35 day period when fruit is present. Do not make more than 3 applications per year. Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year. 			
STRAWBERRIES (Northwest Use Only)	Garden Symphylan (aids in reducing damage)	1 1/3 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. NOTE: Drain and allow plants to dry before setting them out in the field.
SUGAR BEETS (30)	Green Peach Aphid, Meadow Spittlebug	2/3 - 1 1/3	Make application(s) when insects appear or feeding is noticed. Make 1 or 2 applications per year as needed for control.
	Sugar Beet Webworm	1 - 1 1/3	
	Whitefly	1 1/3	
<ul style="list-style-type: none"> Do not feed treated tops to livestock. Do not make more than 2 applications per year. Do not exceed a maximum of 2 lbs. active ingredient (i.e., 2 2/3 qts.) per acre per year. 			
SUNFLOWERS (1)	Sunflower Moth	1 1/3	Make applications when insects appear or feeding is noticed. Make the first application at the onset of bloom. Allow 7 days between repeat applications.
<ul style="list-style-type: none"> Do not feed treated forage to livestock. Do not make more than 3 applications per year. Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year. 			
SWEET CORN (Fresh Vegetable Use Only) (1)	Corn Leaf Aphid, Whitefly	1 1/3	Make applications when insects appear or feeding is noticed.
	Corn Earworm	2	Apply when silks first appear and continue until they begin to dry. Allow 5 days between applications.
<ul style="list-style-type: none"> 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 lbs. active ingredient (i.e., 4 qts.) per acre per year. 			
SWEET POTATOES (1) (Except California)	Sweet Potato Flea Beetle, Sweet Potato Weevil	2/3	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 qts. per acre to the soil under the sweet potato nursery beds and to the area immediately surrounding the nursery beds.
	Whitefly	1 1/3	Make applications when insects appear or feeding is noticed.
Banded Cucumber Beetle Larvae (aids in control) (South Central States and Puerto Rico Only)	1 1/3 - 2 2/3	Broadcast 1/2 to 1 qt. 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.	
<ul style="list-style-type: none"> 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 lbs. active ingredient (i.e., 4 qts.) per acre per year. 			
SWEET POTATOES (1) (California only)	Sweet Potato Flea Beetle, Sweet Potato Weevil	2/3	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.
<ul style="list-style-type: none"> 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 1 1/2 lbs. active ingredient (i.e., 2 qts.) per acre per year. 			

CROP	PEST	QTS./ACRE	COMMENTS
TOBACCO (5) (Except California)	Aphids (including Green Peach Aphid, Tobacco Aphid), Budworm, Cabbage Looper, Flea Beetle, Hornworm	2/3 per 100 gals.	Seed Bed: Make applications when insects appear or feeding is noticed. Apply about 6 gals. of finished spray per 100 square yards.
	Green June Bug Larvae	2/3 pt. per 100 gals.	Plant Bed: Make applications when insects appear or feeding is noticed. Drench at a rate of 1 gal. per square yard.
	Aphids (including Green Peach Aphid, Tobacco Aphid), Budworm, Cabbage Looper, Flea Beetle, Green June Bug Larvae, Hornworm	2/3 - 1 1/3	Field: Use qts. per acre.
	Stink Bug	2/3 qt. per 100 gals.	Field: Make applications when insect activity or feeding is noticed.
	<ul style="list-style-type: none"> Do not make more than 6 applications per year. Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year. 		
TOMATOES (Field and Greenhouse) (2) (Except California)	Aphid, Blister Beetle, Colorado Potato Beetle, Flea Beetle, Tomato Hornworm	2/3 - 1 1/3	Make applications when insects appear or feeding is noticed.
	Cabbage Looper, Stink Bug	1 to 1 1/3	
	Tomato Fruitworm, Tomato Russet Mite, Whitefly, Yellowstriped Armyworm	1 1/3	
	Whitefly	2/3 per 100 - 200 gals.	
	<ul style="list-style-type: none"> Do not make more than 6 applications per year. Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year. 		
TOMATOES (Field and Greenhouse) (2) (California only)	Aphid, Blister Beetle, Colorado Potato Beetle, Flea Beetle, Tomato Hornworm, Webworm	2/3 - 1 1/3	Make applications when insects appear or feeding is noticed.
	Cabbage Looper, Stink Bug	1 - 1 1/3	
	Tomato Fruitworm, Tomato Russet Mite, Whitefly, Yellowstriped Armyworm	1 1/3	
	Whitefly	2/3 per 100 - 200 gals.	
	<ul style="list-style-type: none"> Do not make more than 6 applications per year. Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year. 		
WALNUTS (Except California)	Walnut Aphid	2 - 3 1/3	Make applications when insects appear or feeding is noticed.
<ul style="list-style-type: none"> 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 lbs. active ingredient (i.e., 4 qts.) per acre per year. 			

ORNAMENTAL STATEMENT

Before treating a large number of ornamental plants with Gowan Endosulfan 3EC alone or as a tank mixture with any other material, make a test application on a few plants and observe for 7 - 10 days prior to treating large areas to reduce the possibility of plant injury.
NOTE: Food utensils such as teaspoons must not be used for food purposes after use in measuring pesticides.

COMMERCIALLY GROWN ORNAMENTALS
Ornamental Plants

CROP	PEST	QTS./100 GALS.	COMMENTS
LEATHERLEAF FERN (LEATHER HOLLY FERN) (Except California)	Leatherleaf Fern Borer	2/3	(1 1/3 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.
<ul style="list-style-type: none"> Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year. 			
ORNAMENTALS (Greenhouse and Out-of-Doors)	Aphid, Cyclamen Mite, Rose Chafer, Whitefly	2/3	(1 1/3 teaspoons per gallon). Make applications when insects appear or feeding is noticed. On chrysanthemums, best results will be obtained if applied before plants flower.
<ul style="list-style-type: none"> 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 lbs. active ingredient (i.e., 4 qts.) per acre per year. 			

COMMERCIALLY GROWN ORNAMENTALS

Ornamental Trees And Shrubs

CROP	PEST	QTS./100 GALS.	COMMENTS
DOGWOOD, LILAC (Except California)	Dogwood Borer, Lilac Borer	1/2 - 1 1/2	(1 1/2 - 2 1/2 teaspoons per gallon). 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 lbs. active ingredient (i.e., 4 qts.) per acre per year.
DOUGLAS FIR (Grown for Ornamentals, Nursery Stock or Christmas Trees) (Pacific Northwest Only)	Aphid, Cooley Spruce Gail Adelgid, Douglas Fir Needle Midge	1/2	(1 1/2 teaspoons per gallon). Make applications when insects appear or feeding is noticed. For control of gail 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 lbs. active ingredient (i.e., 4 qts.) per acre per year.
PINES (Austrian, Jack, Red, Scotch, White) (Except California)	Zimmerman Pine Moth	1	(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. • Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year.
SHADE TREES (Except Birch), SHRUBS	Aphid	1/2	(1 1/2 teaspoons per gallon). Make applications when insects appear or feeding is noticed. • Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year.
SPRUCE (New England Area Only)	Spruce Gail Aphid	1/2	(1 1/2 teaspoons per gallon). Apply in late April or early May when aphids are present but before galls are formed. • Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year.
TAXUS	Taxus Bud Mite	1/2	(1 1/2 teaspoons per gallon). Make 3 to 5 applications beginning in mid-May. Thoroughly spray foliage, twigs, and bark.
	Black Vine Weevil	1 1/2	(2 1/2 teaspoons per gallon). Spray thoroughly and drench soil under the plants. Apply when the weevils first appear and repeat in 14 days. • Do not exceed a maximum of 3 lbs. active ingredient (i.e., 4 qts.) per acre per year.

CHEMIGATION STATEMENT

GENERAL CHEMIGATION USE INSTRUCTIONS -- POTATOES ONLY
Do not apply this product through any type of irrigation system unless the General Chemigation Use Instructions and Chemigation Application Instructions are followed.

APPLICATION THROUGH IRRIGATION SYSTEMS - CHEMIGATION
Apply this product only through sprinkler, including center pivot, lateral move, and low 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 its 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 fertilizers 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: Gowan 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 electing 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 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 to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of a least twice the inside diameter of the fill pipe.

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 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 material 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.

CALIFORNIA SUPPLEMENTAL LABEL

Procedures for reducing risk of contamination of
Aquatic ecosystems

FOR CROP USES LISTED ON THE PRODUCT LABEL

Endosulfan may be a source of contamination in aquatic ecosystems as a result of run-off from agricultural land due to discharge of irrigation water or during periods of heavy rainfall.

To minimize the chance of aquatic impact, the following conditions must be met to allow endosulfan applications:

DIRECTIONS FOR USE IN CALIFORNIA

(General)

IN ADDITION TO SPECIFIC INSTRUCTIONS UNDER DIRECTIONS FOR USE ON THE PRINCIPAL LABELS, THE FOLLOWING CONDITIONS MUST ALSO BE FOLLOWED FOR USE IN CALIFORNIA:

1. Do not apply this product to fields during irrigation or irrigate for 72 hours following an application.
2. Do not apply this product through any type of irrigation system.
3. Do not apply more than 1 1/4 lbs. a.i. per acre per application or more than 3 lbs. a.i. per acre per season. (Orchard crops and strawberries exempted on rate per acre per application restriction.)
4. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark.
5. Do not apply by ground or air within a distance of 300 feet to natural bodies of water including lakes, ponds, streams and estuaries.

FOR DRIFT CONTROL

1. All application equipment should be properly maintained and calibrated using appropriate carriers.
2. Do not make aerial or ground applications during temperature inversions.
3. Make aerial or ground applications when the wind velocity favors on-target product deposition (approximately 3 to 10 mph). Do not apply when wind velocity exceeds 10 mph. Do not discharge at a height of more than 10 feet above the crop or target.
4. For aerial application a positive shutoff system shall be in place to control flow of liquid to spray nozzles as follows: Each individual nozzle shall be equipped with a check valve and the flow controlled by a suckback device or a boom pressure release device; or each nozzle shall be equipped with a positive action valve.
5. For aerial applications, the spray boom must be mounted on the aircraft so as to minimize drift caused by wing tip or rotor vortices. The working boom length must not exceed 75% of wing span or rotor diameter.
6. Aircraft boom pressure shall not exceed 40 pounds per square inch.
7. Aircraft nozzles shall be equipped with orifices directed backward parallel to the horizontal axis of the aircraft in flight.
8. Aircraft nozzles shall not be equipped with any device or mechanism which would cause a sheet, cone, fan, or similar type dispersion of the discharged material except as otherwise provided.
9. Fixed wing aircraft and helicopters operating in excess of 60 mph shall be equipped with jet nozzles having an orifice not less than 1/16 inch in diameter (D-4 or larger).
10. Helicopters operating at 60 mph or less shall be equipped with nozzles having an orifice not less than 1/16 inch in diameter. A number 46 or equivalent whirlplate may be used.
11. For ground applications, equipment other than handguns shall be equipped with nozzles having an orifice not less than 1/16 inch in diameter or larger. Boom nozzles shall be operated at a boom pressure not to exceed 30 pounds per square inch.

ACCEPTABLE SITES FOR ENDOSULFAN APPLICATION

1. FIELDS, WITH NO DRAINS, HAVING CONTAINMENT THROUGH BERMS (able to hold irrigation water and normal rainwater), LEVEES AND NON-DRAINING CIRCULATION SYSTEMS.
2. FIELDS WITH DRAINS, BUT DRAINAGE FLOWS TO SUMP, FARM POND, EVAPORATION POND, OR RECIRCULATION SYSTEM WITHOUT DRAINAGE (uncontrollable overflow acceptable, e.g., 10 or 100 year flood). Only grower maintained recirculation systems without drainage are acceptable.

3. FIELDS WITH SURFACE DRAINS THAT NATURALLY FLOW ONTO PASTURELAND OR FALLOW FIELDS THAT HAVE NO CHANNELLED DRAINAGE AND ARE AT LEAST 300 FEET LONG.

UNACCEPTABLE SITES FOR ENDOSULFAN APPLICATION

1. FIELDS DRAINING DIRECTLY INTO SURFACE WATERS SUCH AS STREAMS, RIVERS, LAKES, PONDS, MARSHES, BAYS, ESTUARIES, OR THE OCEAN.
2. FIELDS DRAINING INTO SURFACE DRAINAGE DITCHES OR CANALS THAT FLOW DIRECTLY INTO SURFACE WATERS SUCH AS STREAMS, RIVERS, LAKES, PONDS, MARSHES, BAYS, ESTUARIES, OR THE OCEAN.
3. ANY AND ALL FIELDS WITH SURFACE DRAINAGE PATTERNS IN THE MOSS LANDING DRAINAGE SYSTEM HAVING MAIN ARTERIES THAT DRAIN INTO THE ELKHORN SLOUGH (northern portion of Monterey County).
4. ANY AND ALL FIELDS WITH DRAINAGE PATTERNS IN THE SAN DIEGO CREEK DRAINAGE SYSTEM HAVING MAIN ARTERIES THAT DRAIN INTO NEWPORT BAY.

All applicable directions, restrictions and precautions on the EPA registered label are to be followed.

THIS LABELING MUST BE IN THE POSSESSION OF THE USER AT THE TIME OF PESTICIDE APPLICATION.

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 lid 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.

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.

Returnable/Refillable Sealed Containers: Do not rinse container. Do not empty remaining formulated product. Do not break seals. Return intact to point of purchase.

FOR 24-HOUR EMERGENCY ASSISTANCE (SPILL, LEAK, OR FIRE),
CALL CHEMTREC® (800) 424-9300.

For other product information, contact Gowan Company or see
Material Safety Data Sheet.

NOTICE ON CONDITIONS OF SALE

Our recommendations for use of this product are based upon tests believed to be reliable. The use of this product being beyond the control of the manufacturer, no guarantee, expressed or implied, is made as to the effects of such or the results to be obtained if not used in accordance with directions or established safe practices. The buyer must assume all responsibility including injury or damage, resulting from its misuse as such, or in combination with other materials.

EPA Text: Pending: Endosulfan SEC amendment with chemigation (4-98)