

PM 13 10163 - 100

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

JAN 14 1994

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Anne Stout
GOWAN COMPANY
BOX 5569
YUMA, AZ 85366

Subject: Label Amendment Submission of 08/02/93 In Response to PR Notice 93-7
EPA Reg. No. 10163-100
GOWAN DIAZINON 4E

Dear Registrant:

The labeling cited above and submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is accepted subject to the comments reflected on the enclosed sheet. A copy of your proposed labeling stamped "ACCEPTED WITH COMMENTS" is enclosed.

WHAT THIS ACCEPTANCE MEANS:

Based on your certification, the Agency has accepted the labeling changes that are necessary to comply with the Worker Protection Standard (WPS) labeling requirements of 40 CFR part 156, subpart K, described in PR Notices 93-7 and 93-11. Any other labeling changes submitted in connection with this amendment application but not directly related to compliance with the WPS have not been reviewed or accepted by the Agency. If you wish to make such changes, you must submit a separate amendment application proposing them. If your product is currently suspended, the acceptance of this labeling amendment does not affect the suspension in any way.

WHAT YOU NEED TO DO NEXT:

By the next label printing make all the specified changes to your labeling. Send to EPA one (1) copy of the final printed labeling:

- BEFORE selling or distributing any product bearing the final printed labeling
- AND
- WITHIN one year from date of this acceptance.



Recycled/Recyclable
Printed with Soy/Canola Ink on paper that
contains at least 50% recycled fiber

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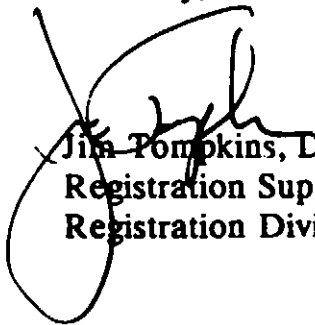
Submit the final printed labeling via the U.S. Postal Service to:

Document Processing Desk (FIN-LABEL)
Office of Pesticide Programs (7505C)
U.S. Environmental Protection Agency
401 M Street, SW
Washington, D.C. 20460-0001

Hand or courier deliveries of final printed labeling may be made to:

Document Processing Desk (FIN-LABEL)
Office of Pesticide Programs
Room 266A, Crystal Mall 2
1921 Jefferson Davis Highway
Arlington, VA 22202

Sincerely,



Jim Tompkins, Deputy Chief
Registration Support Branch
Registration Division (7505W)

Attachment

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Registration Division

Anne Stout
GOWAN COMPANY
BOX 5569
YUMA AZ 85366

Subject: Label Amendment Submission of 08/02/93
to Comply with WPS Labeling Requirements
EPA Reg Nr. 10163-100
GOWAN DIAZINON 4E

The following specific comments pertain to your
WPS labeling submission concerning the product
cited above:

Insert the following statement above the Agricultural Use Requirements box: "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." The exact location is shown in Section F on Part 2 of the Product Worksheet in Supplement Three-A to PR Notice 93-7.

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**THIS PRODUCT MUST NOT BE USED ON GOLF COURSES
AND SOD FARMS.**

GOWAN DIAZINON 4E

Active Ingredient:	% By Wt.
Diazinon: (0,0-Diethyl 0-(2-isopropyl-6-methyl-4-pyrimidinyl) phosphorothioate)	48.00%
Inert Ingredients:	<u>52.00%</u>
TOTAL	100.00%

Contains 4 lbs. diazinon per gallon
Contains xylene range aromatic solvent

RECOMMENDED FOR AGRICULTURAL OR COMMERCIAL USE

**KEEP OUT OF REACH OF CHILDREN
WARNING-AVISO**

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

Organophosphate Insecticide

IF SWALLOWED, call a physician or Poison Control Center immediately. Do not induce vomiting unless no other treatment is available. Vomiting may cause aspiration pneumonia. If it is necessary to induce vomiting, give victim one or two glasses of water and touch back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious or convulsing person.

IF INHALED, remove victim to fresh air and apply artificial respiration if indicated.

IF ON SKIN, wash promptly with soap and water. Rinse thoroughly.

IF IN EYES, flush with plenty of water and call a physician immediately.

NOTE TO PHYSICIAN: Contains diazinon, a cholinesterase inhibitor. If symptoms of cholinesterase inhibition are present, atropine by injection is antidotal. 2-PAM is also antidotal and may be administered, but only in conjunction with atropine. Solvent may present aspiration hazard. Gastric lavage may be indicated if product was taken internally.

NET CONTENTS _____ GALLON(s)

GOWAN COMPANY

EPA Reg. No. 10163-100
EPA Est. No. 10163-AZ-1

P.O. BOX 5569
YUMA, AZ 85366

ACCEPTED
with COMMENTS
In EPA Letter Dated

JAN 14 1994

Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.
10163-100

**PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
WARNING-AVISO**

May be fatal if swallowed or absorbed through skin. Do not breathe spray mist. Do not get in eyes, on skin, or on clothing. Use only with adequate ventilation. Do not contaminate food or feed products.

Personal Protective Equipment:

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 short-sleeved shirt and short pants
- Chemical-resistant gloves, such as barrier laminate or Viton ≥ 14 mils.
- Chemical-resistant footwear plus socks
- Protective eyewear
- Chemical-resistant headgear for overhead exposure
- 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.

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.

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. Shrimp and crab may be killed at application rates recommended on this label. Do not apply where shrimp, crab, or 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 for information pertaining to areas having threatened endangered species. Do not contaminate water by cleaning of equipment or disposal of wastes. Apply this product only as specified on this label.

This pesticide is highly toxic to bees exposed to direct treatment or to residues remaining on the treated area. Do not apply when bees are actively visiting the crop, cover crop, or weeds blooming in the treatment area. Applications should be timed to provide the maximum possible interval between treatment and the next period of bee activity.

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.

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 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.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 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 short-sleeved shirt and short pants
- Chemical-resistant gloves, such as barrier laminate or Viton ≥ 14 mils.
- Chemical-resistant footwear plus socks
- Protective eyewear
- Chemical-resistant headgear for overhead exposure

STORAGE AND DISPOSAL

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

DO NOT contaminate water, food or feed by storage or disposal.

PESTICIDE DISPOSAL: Pesticide wastes are toxic. 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.

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GOWAN Diazinon 4E

Directions For Use

Gowan Company

P.O. Box 5696 Yuma, Arizona 85364

E.P.A. Reg. No. 10163-100 AA

General Information

Gowan Diazinon 4E is an emulsifiable solution which, when diluted with water according to directions, is intended for the control of insect pests of agricultural crops. Do not use on livestock.

In the directions for use which follow, best control is obtained when application is made at the first sign of insects. Application should be repeated as necessary to maintain control.

Note: The California Department of Agriculture has set a 5-day reentry for Diazinon on citrus, grapes, peaches and nectarines. Five days should elapse between the time of application and the time a worker may enter the field to engage in any activity requiring substantial contact with treated foliage. When a mixture of two or more organic phosphate pesticides is applied, the interval shall be prolonged by adding to the longest applicable interval an additional 50% of that interval.

Fruit and Nut Crops

Note: Unless otherwise stated, the following rates should be applied as a dilute full cover spray

Almonds

Mites, Twig Borers: Apply 1-1½ pts. per 100 gals. of water.

Parlatoria Scales, San Jose Scales: Mix 1-1½ pts. plus 2-3 gals. dormant oil per 100 gals. of water and apply as a dormant spray.

Almond hulls may be used for feed for livestock.

Apricots

Aphids, Brown Mites (Clover Mites), Twospotted Spider Mites, Olive Scale Crawlers, San Jose Scale Crawlers: Mix 1 pt. per 100 gals. of water. Apply when aphids, mites, and scale crawlers first appear.

Olive Scale Crawlers: Mix ½ pt. of Gowan Diazinon 4E plus 1½ gals. of light medium horticultural oil per 100 gals. of water. Apply when scale crawlers are present.

Apricot Mealybugs: Mix 1 pt. per 100 gals. of water. Apply as a cover spray from petal fall to June.

Do not apply within 10 days of harvest.

Blueberries

Cranberry Fruitworms, Cherry Fruitworms, Blueberry Maggots, Aphids, Thrips, Twospotted mites: Mix 1 pt. per 100 gals. of water. Apply up to 200 gals. of spray per acre. Do not apply within 7 days of harvest.

Caneberries

Blackberries, Boysenberries, Dewberries, Loganberries, Raspberries Leafhoppers, Thrips, Aphids, Twospotted Mites, Raspberry Sawflies: Apply 2 pts. per acre in a minimum of 100 gals. of water.

Raspberry Fruitworms: Apply at the above rates when blossom buds separate and repeat application immediately before blossoms open.

Dryberry Mites: Apply 1-2 qts. per acre in a minimum of 100 gals. of water. Apply as a dormant spray in early spring, when canes are still on the ground and buds are closed. Make a second application when the buds are well developed, but still closed.

Do not apply within 7 days of harvest.

Raspberry Crown Borers (Raspberry Root Borers): Apply 2 qts. per acre in a minimum of 100 gals. of water as a drench to the crown area and to the lower canes. Apply either in the spring before berries begin to form or in the fall after harvest.

Cherries

Eyespotted Bud Moths, Fruitree Leafrollers: Mix 1 pt. per 100 gals. of water. Apply in cover sprays as necessary beginning with petal fall

Cherry Fruit Flies: Mix ½-1 pt. per 100 gals. of water. Make 3 or 4 applications, beginning when adult cherry fruit flies begin to emerge and repeat at 10-day intervals.

Leafhoppers: Apply 1 pt. per 100 gals. of water in 3-5 applications beginning at petal fall and continuing through the growing season, or apply as infestations develop.

Black Cherry Aphids: Mix 1 pt. per 100 gals. of water. Apply as a cover spray when aphids appear and repeat after 10 days.

San Jose Scale Crawlers: Mix 1 pt. per 100 gals. of water. Apply during the pre-pink stage or when crawlers first appear.

Do not apply within 10 days of harvest.

Cherry Rust Mites: Mix ½-1 pt. per 100 gals. of water. Apply as a supplemental spray after harvest.

Citrus Fruits

Grapefruit, Lemons, Limes, Oranges, Tangelos, Tangerines, Citrus Citron, Kumquats, and hybrids of these.

Citrus Aphids, Fruitree Leafrollers, Cottoncushion Scale Crawlers, Soft Scale Crawlers: Apply ½-1 pt. per 100 gals. of water (maximum 1,000 gals. per acre) as a thorough cover spray when aphids and crawler stages of scale insects first appear.

Fruitree Leafrollers: Use ½-1 pt. per 100 gals. of spray (maximum 1,000 gals. per acre) when an average of 50 percent of eggs in egg masses have hatched in the spring.

Citrus Thrips: Apply 1 pt. in 100 gals. of water (maximum 1,000 gals. per acre) when thrips first appear.

Citrus Snow Scales: Apply 1-2 pts. per 100 gals. of water (maximum 1,000 gals. per acre) as a postbloom spray and again as a summer spray. For heavy snow scale infestations use the higher dosage rate. Thorough coverage of tree trunks, limbs, and twigs is essential.

Do not apply during bloom. Do not apply to citrus within 21 days of harvest. Shrimp and crab may be killed at application rates recommended on this label. Do not apply where these are important resources.

Cranberries

Blackheaded Fireworms (*Rhopoote naevans*): Apply 2 qts. in 400 gals. of water per acre.

Cranberry Fruitworms: Apply 3 qts. in 400 gals. of water per acre. Do not apply within 7 days of harvest.

Figs

Vinegar Flies (*Drosophila* spp), Dried Fruit Beetles: Apply 1 pt. per 100 gals. of water. Do not apply within 5 days of harvest.

Filberts

Filbert Leafrollers, Aphids: Apply 1-2 qts. in 250-400 gals. of water per acre as a thorough cover spray.

Grapes

Pacific Spider Mites, Leafhoppers, Grape Berry Moths, Grape Leafrollers: Apply 1-2 pts. per acre in a minimum of 100 gals. of water as a thorough cover spray. Do not apply within 18 days of harvest.

Drosophila spp. Apply 12-18 fluid oz. per acre in a minimum of 100 gals. of water as a thorough cover spray, or apply when insects first appear. Make additional applications at weekly intervals as necessary. Do not apply within 7 days of harvest.

Olives

Olive Scales: Mix ¾-1 pt. of Gowan Diazinon 4E plus 1½ gals. of light medium summer horticultural oil per 100 gals. of water. Apply as a cover spray in June or July.

Do not apply during bloom to avoid injury to pollinating insects or within 75 days of harvest.

Peaches, Nectarines

Aphids, Brown Mites (Clover Mites), Twospotted Spider Mites, Olive Scale Crawlers, San Jose Scale Crawlers: Mix 1 pt. per 100 gals. of water. Apply when aphids, mites and scale crawlers first appear.

Olive Scale Crawlers: Mix ½ pt. of Gowan Diazinon 4E plus 1½ gals. of light medium horticultural oil per 100 gals. of water. Apply when scale crawlers are present.

Oriental Fruit Moths: Mix 1 pt. per 100 gals. of water and apply at 100% petal fall. Make 2 additional applications at 10-15 days intervals. Time the last application to peak adult oriental fruit moth flight, if possible.

Peach Twig Borers: Mix 1 pt. per 100 gals. of water and apply to peaches in May and June.

Leafhoppers (Peaches only): Apply 1 pt. per 100 gals. of water in 3-5 applications beginning at petal fall and continuing through the growing season, or apply as infestations develop.

White Peach Scale (Peaches only): As a post-harvest spray apply 1½-2 pts. per 100 gals. of water, timed to coincide with peak crawler and immature scale activity. Under conditions of heavy infestations, two applications may be necessary.

Do not apply to peaches within 20 days, or to nectarines within 10 days of harvest.

Pecans

Aphids, Mites, Pecan Nut Casebearers, Walnut Caterpillars: Apply 1-3

qts per acre as a foliage spray in a minimum of 100 gals. of water. Do not apply after husks crack.

Pineapple

Scales: Apply 5 qts. Gowan Diazinon 4E plus 2 gals. of light medium horticultural oil in 500 gals. of water per acre to the vegetative slips on the plants following harvest of pineapple.

Mealybugs: Apply 2 qts. per acre in a minimum of 100 gals. of water. May be applied on day of harvest.

Pineapple forage and refuse may be fed to livestock 7 days following last application.

Plums, Prunes

Brown Mites (Clover Mites), European Red Mites: Apply 1 pt. per 100 gals. of water.

Leafcurl Plum Aphids, Mealy Plum Aphids, Thistle Aphids: Apply 1/2-1 pt. per 100 gals. of water.

Do not apply within 10 days of harvest.

Strawberries

Aphids, Two-spotted Spider Mites: Apply 1 pt. per 100 gals. of water per acre.

Cyclamen Mites: Apply 1 qt. per 100 gals. of water per acre, directing spray to plant crowns. Plants should be sufficiently agitated to assure thorough coverage of the foliage. Make additional applications, if necessary, after harvest.

Mole Crickets: Broadcast 1 qt. per acre when insects are present. Apply 1-2 days before transplanting and immediately mix into the top 1-2 inches of soil.

Strawberry Leafrollers: Mix 1/4-1 pt. per 100 gals. of water. Apply 200 gals. of spray per acre when blossoms show color.

Do not apply within 5 days of harvest.

Walnuts

Aphids, Mites: Apply 1 qt. per acre as a foliage spray in a minimum of 100 gals. of water.

Codling Moths, Scale Crawlers, Walnut Caterpillars: Apply 3 qts. per acre as a foliage spray in a minimum of 100 gals. of water.

Do not apply after the husks open.

Vegetable Foliar Insects

Unless otherwise stated, foliar applications of Gowan Diazinon 4E should always be applied to vegetable crops as a spray in a minimum of 2 gals. of water per acre for aerial applications and a minimum of 10 gals. of water per acre for ground applications.

Beans

Pole Beans, Snap Beans, Lima Beans

Black Bean Aphids, Mexican Bean Beetles, Leafminers: Apply 1-1 1/2 pts. per acre.

Cucumber Beetles: Apply 1/4 pt. in 100 gals. of water per acre.

Do not apply within 7 days of bean harvest. Bean forage or bean hay may be fed to dairy and beef cattle and sheep. Wait 4 days following treatment if forage is to be cut for hay.

Lima Beans

Dipterous Leafminers, Leafhoppers, Mites: Apply 1 pt. per acre. Do not apply within 7 days of harvest. Bean forage or bean hay may be fed to dairy and beef cattle and sheep. Wait 4 days following treatment if forage is to be cut for hay.

Broccoli, Cabbage, Cauliflower

Aphids, Diamondback Moths, Imported Cabbageworms: Apply 1/2-1 pt. per acre. Applications at 7-10 day intervals will usually be required. Do not apply to broccoli or cauliflower within 5 days, or to cabbage within 7 days of harvest.

Brussels Sprouts

Aphids, Diamondback Moths, Imported Cabbageworms: Apply 1 pt. per acre. Generally, applications at 7-10 day intervals will be required. Do not apply to brussels sprouts within 7 days of harvest.

Carrots

Aphids: Apply 1 pt. per acre. Do not apply within 10 days of harvest.

Celery

Aphids, Flea Beetles: Apply 1 pt. in 100 gals. of water per acre. Do not apply within 10 days of harvest. Plants should be market trimmed (tops removed) before being shipped or used. Tops should not be used for feed or food.

Collards, Kale, Swiss Chard, Turnip Tops

Aphids, Imported Cabbageworms, Diamondback Moths, Harlequin Cabbage Bug: Apply 1/2-1 pt. per acre. Do not apply to collards, kale, or turnip tops within 10 days, or to Swiss chard within 12 days of harvest.

Cucumbers

Aphids, Serpentine Leafminers, Thrips: Apply 1 pt. per acre. Do not apply within 7 days of harvest.

Lettuce, Endive

Aphids, Dipterous Leafminers: Apply 1/2-1 pt. per acre. Do not apply within 10 days of harvest.

Melons, Squash

Cantaloupes, Casabas, Crenshaws, Honeydew Melons, Muskmelons, Persian Melons, and hybrids of these; Watermelons and their hybrids, Summer and Winter Squash

Aphids, Leafhoppers, Mites: Apply 1-1 1/2 pts. per acre.

Serpentine Leafminers, Thrips: Apply 1/2-1 pt. per acre. Do not apply to melons and winter squash within 3 days, or to summer squash within 7 days of harvest.

Mushroom Houses

Mushroom Flies (Phorids and Sciards): Mix 1/2-1 gal. in 50 gals. of water (0.5% to 1.0% actual diazinon) and spray on outside and inside walls and ventilators of mushroom houses after compost in beds has been pasteurized by heating. Do not spray compost in beds or after spawning.

To treat wooden sides of beds, posts, doors, and door frames after pasteurizing, mix 1/2 pt. in 5 gals. of water and apply with a brush. Do not treat compost.

Onions

Onion Thrips: Apply 1 pt. per acre. Do not apply within 10 days of harvest.

Peas

Aphids, Leafminers: Apply 1/4-1 pt. per acre. Peas may be picked immediately. Pea vines and pea vine hay may be fed to dairy and beef cattle and sheep. Wait 4 days following treatment if forage is to be cut for hay.

Peppers

Aphids, Serpentine Leafminers: Apply 1/2 pt. per acre. Do not apply within 5 days of harvest.

Potatoes

Aphids, Flea Beetles, Colorado Potato Beetles, Dipterous Leafminers: Apply at the rate of 1/2-1 pt. per acre.

Banded Cucumber Beetles, Leafhoppers, Southern Armyworms: Apply 1/4-1 pt. per acre.

Do not apply within 35 days of harvest.

Radishes, Parsnips, Turnips

Aphids, Flea Beetles, Dipterous Leafminers: Apply 1/2-1 pt. per acre. Do not apply within 10 days of harvest.

Spinach, Beets

Aphids, Dipterous Leafminers: Apply 1/2-1 pt. per acre. Do not apply to spinach within 10 days, or to beets within 14 days of harvest.

Squash (Summer and Winter)

See Melons and Squash section.

Sweet Corn

Corn Earworms: Apply 1-1 1/4 qts per acre when silks first appear. Two or three repeat applications at 2-3 day intervals will usually be necessary. Corn may be picked immediately following last application. Corn forage may be fed to dairy and beef cattle and sheep.

Refer also to Corn under Field and Forage Foliar Insects and Field and Forage Soil Insects.

Tomatoes

Aphids, Dipterous Leafminers: Apply 1/2 pt. per acre. To control leafminers, weekly applications are usually required.

Banded Cucumber Beetles, Fall Armyworms, Southern Armyworms: Apply 1/4-1 pt. per acre.

Vinegar Flies (*Drosophila* spp.): Apply 1/2-1 1/2 pts. per acre. Weekly applications are usually required.

Do not apply within 1 day of harvest.

Watercress (Hawaii only)

Cyclamen Mites: Mix 1 pt. per 100 gals. of water and apply to one acre as a thorough cover spray. Spray should be directed into the crowns and growing tips of plants. If infestation is heavy, make a second application, no later than 10 days after the first application. Repeat applications as necessary. Do not apply within 5 days of harvest.

Vegetable Soil Insects

Unless otherwise stated, soil applications of Gowan Diazinon 4E should always be applied to vegetable crops as a spray in a minimum of 5 gals. of water per acre for ground applications.

Cutworms (Surface and Subterranean)

Broccoli	Kale	Snap Beans
Brussels Sprouts	Lettuce	Spinach
Cabbage	Lima Beans	Summer Squash
Cantaloupes	Muskmelons	Sweet Corn
Cauliflower	Parsley	Swiss Chard
Celery	Peas	Tomatoes
Collards	Peppers	Watermelons
Cucumbers	Potatoes	Winter Squash

Endive (Escarole)

Broadcast 2-4 qts. per acre just prior to planting. Work into the soil immediately, 2-3 inches for surface cutworms, 3-6 inches for subterranean cutworms.

Garden Symphians (Centipedes)

Cabbage	Peas	Snap Beans
Carrots	Pole Beans	Tomatoes
Corn	Radishes	Turnips
Lettuce	Red Beets	

Broadcast 10 qts per acre just prior to planting. Immediately work into soil 4-8 inches. This preplant treatment will control other soil insects: cutworms (surface and subterranean), mole crickets, root maggots, and wireworms.

Mole Crickets

Broccoli	Endive (Escarole)	Radishes
Brussels Sprouts	Kale	Tomatoes
Cabbage	Lettuce	Turnips
Cauliflower	Mustard	
Collards	Peppers	

Broadcast 1 qt. per acre when insects are present. Make application to plant beds or field 1-2 days prior to sowing of seed or transplanting and immediately work into soil 1-2 inches.

Onion Maggots

Onions

Furrow Application: Apply 1 qt. per acre in sufficient water to drench the seed furrow at planting time.

Broadcast Application: Broadcast 2-4 qts. per acre just prior to planting. Immediately work into soil 3-4 inches.

Root Maggots

Broccoli, Brussels Sprouts, Cabbage, Cauliflower: Broadcast Application: Broadcast 2-3 qts. per acre and immediately work into the soil 3-4 inches before seeding, either in the seedbed or in the field, or before transplanting.

Transplant Water (Drench) Application: Mix ¼-½ pt. in 50 gals. of transplant water when 200-300 gals. of water are used per acre. May be applied at the rate of ½-1 cupful per plant, either by hand or by tractor mounted sprayer equipped with drop nozzles to direct spray to the base of the plant. Transplant water treatments may result in stand reduction due to plant stress at time of transplanting.

Radishes: Mix 1 qt. in 50 gals. of water. Apply 60-100 gals. per acre (1-1½ gals. per 1,000 linear feet of row) in the seed furrow at planting time.

Wireworms

Broccoli	Endive (Escarole)	Potatoes
Brussels Sprouts	Kale	Snap Beans
Cabbage	Lettuce	Spinach
Cantaloupes	Lima Beans	Summer Squash
Carrots	Muskmelons	Sweet Corn
Cauliflower	Onions	Sweet Potatoes
Celery	Parsley	Swiss Chard
Collards	Peas	Tomatoes
Cucumbers	Peppers	Watermelons
		Winter Squash

Broadcast 3-4 qts. per acre prior to planting and immediately work into soil 4-8 inches.

Potatoes: Broadcast 3-6 qts. per acre prior to planting. Immediately disk or harrow into soil 4-8 inches.

Southern Potato Wireworms (Southeastern U.S.)

Potatoes

For use to control southern potato wireworms in potatoes grown on mineral soils in the Southeast, apply 2-4 qts. per acre as a soil treatment prior to planting, and immediately mix thoroughly by disking, or other suitable means into the top 3-6 inches of soil, depending on location of wireworms.

Field and Forage Foliar Insects

Unless otherwise stated, foliar applications of Gowan Diazinon 4E should always be applied to field and forage crops as a spray in a minimum of 2 gals. of water per acre for aerial applications and a minimum of 10 gals. of water per acre for ground applications.

Alfalfa, Clover

Spotted Alfalfa Aphids, Yellow Clover Aphids, Pea Aphids, Leafhoppers, Plant Bug Nymphs, Mites: Apply ¾-1 pt. per acre.

Grasshoppers: Apply 1 pt. per acre.

Following the above applications, dairy and beef cattle and sheep (1) may be grazed immediately following application, (2) may be fed green alfalfa or clover immediately following cutting, and (3) may be fed hay provided alfalfa or clover is not cut for hay for 7 days following treatment.

Alfalfa Weevil Larvae: For control in the spring, apply 2-3 pts. per acre when feeding damage to growing tips become evident. Repeat application, if necessary. If damage is already extensive, cut the hay and make application to the stubble. Do not graze dairy and beef animals or sheep for 2 days. Do not cut for hay for 10 days following treatment.

Do not spray livestock directly with either air or ground equipment. Do not treat during bloom to avoid injury to pollinating insects.

Clover

Striped Ground Crickets: Broadcast 1-2 pts. per acre following seeding in the fall but prior to clover emergence.

Corn

Use a minimum of 1 gal. of water for aerial applications and 5 gals. of water for ground applications

Corn Rootworm Adults: Apply ½-1 pt. per acre.

Corn Leaf Aphids: Apply 1-2 pts. per acre. Complete coverage of the upper portions of the plants is essential. Repeat applications as necessary.

Mites: Apply 1 pt. per acre when infestations first appear. Repeat applications as necessary.

Flea Beetles: Apply 1 pt. per acre when insects first appear. Repeat applications as necessary.

Grasshoppers: Apply 1 pt. per acre

Sap Beetles: Apply 2-2½ pts. per acre. Add 1-2 gals. of soluble mineral oil per acre to the spray mixture. Consult State Agricultural Experiment Stations or State Extension Service Specialists for proper timing of sprays.

Corn may be picked immediately following last application. Corn forage may be fed to dairy and beef cattle and sheep.

Cotton

Spider Mites, Aphids, Leafhoppers, Lygus Bugs, Cotton Leafworms Cotton Leafperforators: Apply 1-2 pts. in 5-25 gals. of water per acre Repeat as infestation warrants.

Do not apply within 14 days of harvest. Do not graze treated cotton plants, or feed gin waste to livestock.

Guar (Texas and Oklahoma only)

Midge: Apply ½-1 pt. per acre in a minimum of 10 gals. of water for ground application or 2 gals. of water for aerial application when 15% of the blooms are infested. Should the infestation warrant, repeat applications should be made in 5-6 days.

Do not make more than 3 applications to the same crop. Do not apply within 12 weeks of harvest.

Do not graze or feed treated forage to livestock within 12 weeks of harvest.

Hops

Aphids, Mites: Apply 1 qt. per acre. Do not apply within 14 days of harvest.

Sorghum

Use a minimum of 1 gal. of water for aerial applications and 5 gals. of water for ground applications.

Sorghum Midge: Apply ½-1 pt. per acre when 90% of heads have emerged from the boot. Repeat application within 4 days.

Mites: Apply 1 pt. per acre when infestation first appears and repeat applications as necessary.

Greenbug: Apply at the rates indicated below when infestation first appears and repeat as necessary.

Texas and Oklahoma—Apply ½-1 pt. per acre.

All Other Areas—Apply 1 pt. per acre.

Crop may be fed to livestock immediately following treatment. Do not apply within 7 days of harvesting for grain.

Sugar Beets

Beet Leafhoppers, Dipterous Leafminers, Aphids: Apply ¾-1 pt. per acre.

Grasshoppers: Apply 1 pt. per acre.

Tops may be fed to beef and dairy animals.

Sugarcane

Aphids: Apply ½-1 pt. per acre. Allow 1 day between last application and harvest. Bagasse and forage may be fed to livestock.

Tobacco

Aphids, Flea Beetles: Apply ½-¾ pt. per acre. Do not apply within 3 days of harvest.

Grasshoppers: Apply 1 pt. per acre. Do not apply within 14 days of harvest.

Field and Forage Soil Insects

Unless otherwise stated, soil applications of Gowan Diazinon 4E should always be applied to field and forage crops as a spray in a minimum of 5 gals. of water per acre for ground applications.

Alfalfa, Clover

Cutworms (Surface and Subterranean): Broadcast 2-4 qts. per acre just prior to planting. Work into the soil immediately, 2-3 inches for surface cutworms, 3-6 inches for subterranean cutworms.

Corn

Corn Rootworm Larvae: Postemergence Basal Treatment: Apply 1¼-2½ oz. per 1,000 linear feet of corn row in sufficient water to thoroughly wet base of corn plant and a narrow band of soil next to the plant. Refer to the row spacing chart for amounts recommended per acre. Cover treated band with 2-3 inches of soil using a disk hiller or cultivator immediately after spraying. Application should be made at the first sign of corn rootworm larvae, but not later than June 24 in the Middle Corn Belt, or July 1 in the Northern Corn Belt.

Suggested Rates According to Row Spacing for Corn Rootworm Larvae Control:

Row Spacing	Linear Feet of Corn Row/Acre	Postemergence Basal Treatment (Fl. oz.)
48"	10,890	14-28
42"	12,455	15.5-31
40"	13,068	16-32
		(½-1 qt.)
38"	13,939	17.5-35
36"	14,250	18-36
30"	17,424	22-44
24"	21,780	27.5-55
20"	26,136	32-64
		(1-2 qts.)
15"	34,848	44-88

Note. For row spacings not listed, calculate the appropriate dosage based on the 40-inch row figure.

Seedcorn Maggots: Broadcast 2-4 qts. per acre just prior to planting. Work immediately into soil 2 inches.

Cutworms (Surface and Subterranean): Broadcast 2-4 qts. per acre. For surface cutworms apply just prior to planting or when larvae first appear, and immediately work into soil 1-2 inches. Do not apply later than lay-by

For subterranean cutworms apply just prior to planting and immediately work into soil 3-6 inches.

Wireworms: Apply 3-4 qts. per acre prior to planting and immediately work into the soil 4-8 inches

Corn may be picked immediately following last application. Corn forage may be fed to dairy and beef cattle and sheep.

Cowpeas

Cutworms (Surface and Subterranean): Broadcast 2-4 qts. per acre, just prior to planting. Work into the soil immediately, 2-3 inches for surface cutworms, 3-6 inches for subterranean cutworms.

Lespedeza

Cutworms (Surface and Subterranean): Broadcast 2-4 qts. per acre just prior to planting. Work into the soil immediately, 2-3 inches for surface cutworms, 3-6 inches for subterranean cutworms.

Peanuts

Wireworms: Apply 2 qts. per acre in a 12-inch band over the row. Thorough coverage of the foliage is essential. Begin application when small larvae appear. Two or three additional applications at three-week intervals may be necessary. Do not apply within 21 days of peanut harvest.

Livestock (1) may be fed peanut hulls, (2) may be fed peanut forage 7 days following treatment, and (3) may be fed peanut hay 21 days following treatment.

Sorghum

Cutworms (Surface and Subterranean): Broadcast 2-4 qts. per acre just prior to planting. Work into the soil immediately, 2-3 inches for surface cutworms, 3-6 inches for subterranean cutworms.

Soybeans

Cutworms (Surface and Subterranean): Broadcast 2-4 qts. per acre just prior to planting. Work into the soil immediately, 2-3 inches for surface cutworms, 3-6 inches for subterranean cutworms.

Sugar Beets

Wireworms: Broadcast 3-4 qts. per acre just prior to planting, and immediately work into soil 4-8 inches.

Tops may be fed to beef and dairy animals.

Sugarcane

Wireworms: Apply 1 gal. per acre in a 12-inch band centered over the furrow. Make application directly to seed pieces in open furrow at covering time.

Tobacco

Cutworms: Broadcast 2-3 qts. per acre before transplanting and immediately work into the soil 2-4 inches.

Green June Beetle Larvae: Mix ¼ pt. in 50 gals. of water and apply as a drench (100 gals. per 100 sq. yds.) to uprooted areas of plant beds with sprinkling can.

Mole Crickets: Broadcast 1 qt. per acre, when insects are present. Make application to beds or fields 1-2 days prior to sowing of seed or transplanting, and immediately work into soil 1-2 inches.

Seedcorn Maggots: Broadcast 3 pts. per acre, 3-4 weeks before transplanting. Immediately work into soil 2 inches.

Wireworms: Broadcast 2-3 qts. per acre, 3-4 weeks before transplanting. Immediately work into soil 6-9 inches.

Range, Pasture, and Grassland Insects

Unless otherwise stated, Gowan Diazinon 4E should always be applied as a spray in a minimum of 1 gal. of water per acre for aerial applications and a minimum of 5 gals. of water per acre for ground applications.

Bermudagrass and Forage Grasses (other than Range and Pasture Grasses)

Thrips, Whiteflies, Grasshoppers: Apply 1 pt. per acre.

Dairy and beef cattle and sheep (1) may be grazed immediately following application, (2) may be fed green forage immediately following cutting. Forage grasses may be cut for hay 7 days following treatment. Do not repeat application for 30 days.

Rangeland, Pasture, Ditch Banks, Roadsides, Wasteland, Noncrop Areas, Barrier Strips

Grasshoppers: Apply ¾-1 pt. per acre in water or oil (minimum of 1 gal. of oil per acre) when insects first appear, preferably in the nymphal stage. Thorough coverage of the foliage is essential.

Dairy and beef cattle and sheep (1) may be grazed immediately following application, (2) may be fed green forage immediately following cutting, and (3) may be fed hay provided grass is not cut for hay for 21 days if the spray is a water solution, or for 30 days if the spray is an oil solution. Do not spray livestock directly with either air or ground equipment. Do not repeat application for 30 days.

Ornamental Insect Control

To control certain insects on Arborvitae, Azalea, Birch, Boxwood,

Camellia, Carnation, Chrysanthemum, Douglas Fir, Elm, Gladiolus, Hawthorn, Holly, Juniper, Lilac, Locust, Maple, Oak, Pine, Plum, Poplar, Rhododendron, Rose, Spruce, and Willow, apply the recommended rates indicated below:

Insects	Rate per 3 gals. water	Rate per 100 gals. water
Aphids, Bagworms, Carnation Bud Mites, Carnation Shoot Mites, Clover Mites, Cyclamen Mites, Dipterous Leafminers, European Pine Shoot Moths, European Red Mite, Flea Beetles, Holly Bud Moths, Leafhoppers, Obscure Root Weevils, Omnivorous Leafhoppers, Privet Mites, Scale Crawlers (Cottony-cushion, Lecanium Pine Needle, San Jose, Soft Scale), Thrips, Two-spotted Mites, Webworms, Whiteflies	½ fl. oz. *	1 pt. **
Apple-and-Thorn Skeletonizers, Citronella Webworms, Fall Webworms, Hemlock Chermes, Oak Looper, Obliquebanded Leafrollers, Pear Slugs, Tent Caterpillars	1½ fl. oz. *	3 pts. **

* 1 fl. oz. = 2 tablespoons ** 16 fl. oz. = 1 pt.

Do not use in Ferns, Poinsettia, Hibiscus, Papaya, Pilea and Gardenia, since injury to the plants may occur.

Mimosa Webworms: Mix ½ fl. oz. in 3 gals. of water (or 1 pt. in 100 gals. of water) and apply as a thorough foliar spray when adults first appear. Make a second and third application at 4-5 week intervals

Lawn Insect Control

To control insects listed below, apply recommended rates. For control of Ants, Brown Dog Ticks, Clover Mites, Crickets, Earwigs, Fleas, Millipedes, Sowbugs, and Springtails (Collembola), which are commonly found near the house and may enter the house, spray a 5-ft. band of soil around the house, as well as the house foundation wall to a height of 2-3 ft. Repeat application if necessary.

Insects	Rate 1,000 sq. ft.		Remarks
	Gowan Diazinon 4E	Water	
Lawn Chinch Bug	2-3 fl. oz. or 3-4 fl. oz.	25* gals.	Use higher rate for longer residual control and in lawns of dense growth, such as St. Augustine lawns
Ants, Armyworms, Clover Mites, Springtails (Collembola), Crickets, Cutworms, Digger Wasps, Earwigs, Frit Flies, Lawn Billbugs, Sod Webworms (Lawn Moths), Sowbugs	4 fl. oz.	3 gals.	Spot spray ant hills and wasp ground nest openings. For lawn billbugs irrigate the lawn thoroughly immediately after treatment. For frit flies mow grass and water well before treatment but delay application until grass is dry. Do not water again until necessary.
Brown Dog Ticks, Bermudagrass Mites, Chiggers, Fleas, Leafhoppers	1½ fl. oz.	3 gals.	Do not apply to animals. For brown dog ticks, spray grass and under shrubbery, particularly near house
Millipedes	8 fl. oz.	3 gals.	
Rhodesgrass Scales	5 fl. oz.	25* gals.	Apply when crawlers first emerge

* Or make application in 3 gals. of water per 1,000 sq. ft. and thoroughly water immediately following application.

Boxelder bugs: Spray bugs outside the home with 1¼-2½ fl. oz. (2½-5 tablespoons) in 1 gal. water. At the same time, thoroughly spray around foundation, windows, doors, tree trunks, and into cracks and other places where the insects hide.

Billbugs, White Grubs (such as Japanese Beetle Larvae, European Chafar, Southern Chafar): Apply 4 fl. oz. per 1,000 sq. ft. of lawn. Water grass thoroughly after application. For grub control make application anytime between late July and early October. For billbug application when activity is first observed or when chewed or brown grass is present, indicating damage from this insect

Hyperodes Weevil (New York only): Apply 3 fl. oz. per 1,000 sq. ft. of grass. Water grass thoroughly after application. Treat problem areas in mid-April and again in mid-May