

Reg # 5905 - 474

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

APR 28 1994

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

Beverley Neale  
HELENA CHEMICAL CO.  
6075 POPLAR AVE SUITE 500  
MEMPHIS, TN 38119

Subject: Label Amendment Submission of 03/17/94 in Response to PR Notice 93-7  
EPA Reg. No. 5905-474  
HELENA DIAZINON 7E

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

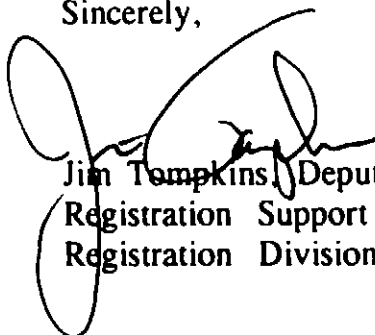
Submit the final printed labeling via the U.S. Postal Service to:

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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Beverley Neale  
Helena Chemical Company

Comments for: EPA REG. NO. 5905-474  
HELENA DIAZINON 7E

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

Modify the glove requirement for "applicators and other handlers" in the Personal Protective Equipment" section on your proposed labeling to "chemical resistant gloves, such as barrier laminate, butyl rubber, nitrile rubber, or viton"

Move the statement "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." from its current position in the Agricultural Use Box to the "Directions for Use"

**BEST AVAILABLE COPY**

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FOR AGRICULTURAL/COMMERCIAL USE ONLY

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

HELENA  
\*DIAZINON® 7E  
INSECTICIDE

For Control of Certain Insects on Fruits, Nuts, Vegetables,  
Field Crops, and Ornamentals.

ACTIVE INGREDIENT:

Diazinon: O,O-Diethyl O-(2-isopropyl-6-methyl-4-pyrimidinyl)  
phosphorothioate.....77.80%

INERT INGREDIENTS.....22.20%

TOTAL.....100.00%

Diazinon 7E contains 7 lbs. diazinon per gallon.

\*Diazinon is a registered trademark of Ciba-Geigy Corporation.

KEEP OUT OF REACH OF CHILDREN  
CAUTION  
See Additional Precautions and Statement of Practical Treatment on Side Panel

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EPA REG. NO.: 5905-474

EPA EST. NO.:

ACCEPTED  
with COMMENTS  
in EPA Letter Dated

APR 28 1994

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act  
as amended, for the pesticide  
registered under EPA Reg. No.  
5905-474

MANUFACTURED BY  
HELENA CHEMICAL COMPANY  
MEMPHIS, TN 38137

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

**CAUTION**

Harmful if swallowed, inhaled or absorbed through skin. Avoid breathing vapors or spray mist. In case of contact immediately flush with plenty of water. Get medical attention if irritation persists.

Avoid contamination of food. Do not use on humans.

Keep out of reach of domestic animals. Do not contaminate food or use on household pets or livestock.

**STATEMENT OF PRACTICAL TREATMENT**

**Organophosphate**

**If Swallowed:** Call a physician or Poison Control Center immediately. Drink one or two glasses of water and induce vomiting by touching the back of the throat with finger. Repeat until vomit fluid is clear. Do not induce vomiting or give anything by mouth to an unconscious person.

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

**If on Skin:** Wash affected areas with soap and water.

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

**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 F on an EPA chemical resistance category selection chart.

Applicators and other handlers must wear:

Long-sleeved shirt and long pants

Chemical-resistant gloves, such as barrier laminate, butyl rubber, nitrile, or viton

Shoes plus socks

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 with 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.

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## 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.

Do not apply to water that will be used for recreational purposes or human and livestock consumption. 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 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. Application should be timed to provide the maximum possible interval between treatment and the next period of bee activity.

## PHYSICAL OR 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.

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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
- Chemical-resistant gloves, such as barrier laminate, butyl rubber, nitrile rubber, or viton
- Shoes plus socks

**NON-AGRICULTURAL USE REQUIREMENTS**

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. Keep children and pets out of the treated area until sprays have dried.

**STORAGE AND DISPOSAL**

Do not contaminate water, food, or feed by storage or disposal.

**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.

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Helena Diazinon 7E is an emulsifiable solution which when diluted with water according to the directions below is intended for the control of insect pests of agricultural crops. 8921

Do not use in barns or dwellings. Do not use on livestock.

Helena Diazinon 7E may be applied using ground or aerial application equipment. For dilute ground sprays, mix specified rate of Helena Diazinon 7E and apply at 300 to 600 gallons of water per acre. For concentrate ground sprays, use equivalent rates\* of Helena Diazinon 7E in minimums of 20 - 50 gallons of water per acre. For aerial applications, use equivalent ground rates\* of Helena Diazinon 7E in minimums of 2 - 5 gallons of water per acre. Observe stated time intervals between last application and harvest.

\*NOTE: The rate of Helena Diazinon 7E for concentrate ground and aerial sprays is based upon a dilute ground spray with conventional ground equipment applied at 300 to 600 gallons of water per acre. If directions call for 1 pint of product per 100 gallons of water, this amounts to 3 to 6 pints of Helena Diazinon 7E per acre when applied as dilute ground spray volumes.

Helena Diazinon 7E should be mixed with sufficient water to assure thorough coverage unless otherwise noted in the Directions for Use. Best control is obtained when application is made at first sign of insects. Applications should be repeated as necessary to maintain control.

NOTE: The California Department of Agriculture has set a 5-day re-entry for Diazinon on citrus, grapes, peaches and nectarines. Five days should lapse 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 are applied in combination, the interval should be prolonged by adding to the longest applicable interval an additional 50% of that interval.

#### RATE CONVERSION CHART

18.3 oz = 1 pint + 2.3 oz	36.5 oz = 2 pints + 4.5 oz
22.8 oz = 1 pint + 6.8 oz	54.8 oz = 3 pints + 6.8 oz
27.4 oz = 1 pint + 11.4 oz	73.0 oz = 4 pints + 9 oz

#### FRUIT AND NUT CROPS

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ALMONDS: Mites, Twig Borers: Apply 9.2 - 13.7 oz per 100 gals. of water. Parlatoria Scales, San Jose Scales: Mix 9.2 - 13.7 oz Diazinon 7E with 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), Two-Spotted Spider Mites, Olive Scale Crawlers, San Jose Scale Crawlers: Mix 9.2 oz per 100 gals. of light medium horticultural oil per 100 gals. of water. Apply when scale crawlers are present. Apricot Mealybugs: Mix 9.2 oz 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, Two-Spotted Mites. Mix 9.2 oz. 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, Two-Spotted Mites, Raspberry Sawflies: Apply 18.3 oz. 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 18.3 - 36.5 oz. per acre in a minimum of 100 gals. of water. Apply as a dormant spray in early spring, when canes are still on 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 36.5 oz per acre in a minimum of 100 gals. of water as a drench to the crown area and to lower canes. Apply either in the spring before berries begin to form, or in the fall after harvest.

CHERRIES: Eye-Spotted Bud Moths, Fruit-Tree Leaf Rollers: Mix 9.2 oz per 100 gals. of water. Apply in cover sprays as necessary, beginning with petal fall. Leafhoppers: Apply 9.2 oz per 100 gals. of water in 3-5 applications beginning at petal fall and continuing through the growing season, or apply as infestations develop. Cherry Fruit Flies: Mix 4.6-9.2 oz 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. Black Cherry Aphids: Mix 9.2 oz per 100 gals. of water. Apply as cover spray when aphids appear and repeat after 10 days. San Jose Scale Crawlers: Mix 9.2 oz 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 4.6-9.2 oz. 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 Cottony Cushion Scale Crawlers, and Soft Scale Crawlers: Apply 4.6 - 9.2 oz. per 100 gals. of water (maximum 1,000 gals. per acre) as a thorough cover spray when aphids and crawlers stages of scale insects first appear. Fruit-Tree Leaf Rollers: Use 4.6-9.2 oz per 100 gals. of water (maximum 1,000 gals. per acre) when an average of 50 percent of eggs in egg masses have hatches in the spring. Citrus Thrips: Apply 9.2 oz. in 100 gals. of water (maximum 1,000 gals. per acre) when thrips first appear. Citrus Snow Scales: Apply 9.2 - 18.3 oz 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, limb, and twigs is essential. Do not apply during bloom or within 21 days of harvest.

CRANBERRIES: Blackheaded Fireworms (*Rhopobota naevana*): Apply 36.5 oz in 400 gals. of water per acre. Cranberry Fruitworms: Apply 54.8 oz in 400 gals. of water per acre. Do not apply within 7 days of harvest.

FIGS: Vinegar Flies (*Drosophila* Spp), Dried Fruit Beetles: Apply 9.2 oz. per 100 gals. of water. Do not apply within 5 days of harvest.

FILBERTS: Filbert Leaf Rollers, Aphids: Apply 18.3 - 36.5 oz. in 250 - 400 gals. of water per acre, as thorough cover spray.

GRAPES: Pacific Spider Mites, Leafhoppers, Grape Berry Moths, Grape Leaf Folders: Apply 9.2 - 18.3 oz 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 6.9 - 10.3 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 6.9-9.2 oz of Diazinon 7E plus 1 1/2 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 AND NECTARINES: Aphids, Brown Mites (Clover Mites), Two-Spotted Spider Mites, Olive Scale Crawlers, San Jose Scale Crawlers: Mix 9.2 oz per 100 gals. of water. Apply when aphids, mites, and scale crawlers first appear. Olive Scale Crawlers: Mix 4.6 oz of Diazinon 7E plus 1 1/2 gallons light medium horticultural oil per 100 gals. of water. Apply when scale crawlers are present. Oriental Fruit Moths: Mix 9.2 oz per 100 gals. of water and apply at 100% petal fall. Make 2 additional applications at 10 - 15 day intervals. Time the last application to peak adult oriental fruit moth flight if possible. Peach Twig Borers: Mix 9.2 oz per 100 gals of water and apply to peaches in May and June. Leafhoppers (Peaches only): Apply 9.2 oz 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 postharvest spray apply 13.7-18.3 oz per 100 gals of water timed to coincide with peak crawlers and immature scale activity. Under conditions of heavy infestations 2 applications may be necessary. Do not apply to peaches within 20 days, or to nectarines within 10 days of harvest.

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PECANS: Aphids, Mites, Pecan Nut Casebearers, Walnut Caterpillars: Apply 18.3-54.8 oz per acre as a foliage spray in a minimum of 100 gals. of water. Do not apply after husks crack.

PINEAPPLES: Scales: Apply 91.2 oz of Diazinon 7E plus 2 gals of light or medium horticultural oil in 500 gals. of water per acre to the vegetative slips on the plants following harvest of pineapple. Mealybugs: Apply 36.5 oz. 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 AND PRUNES: Brown Mites (Clover Mites), European Red Mites: Apply 9.2 oz. per 100 gals. of water. Leaf Curl Plum Aphids, Mealy Plum Aphids, Thistle Aphids: Apply 4.6 - 9.2 oz per 100 gals. of water. Do not apply within 10 days of harvest.

STRAWBERRIES: Aphids, Two-Spotted Spider Mites: Apply 9.2 oz per 100 gals. of water per acre. Cyclamen Mites: Apply 18.3 oz. 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 application, if necessary, after harvest. Mole Crickets: Broadcast 18.3 oz per acre when insects are present. Apply 1 to 2 days before transplanting and mix into the to 1 - 2 inches of soil immediately. Strawberry Leaf Rollers: Mix 6.9-9.2 oz. 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 9.2 oz. per acre as a foliage spray in a minimum of 100 gals. of water. Codling Moths, Scale Crawlers, Walnut Caterpillars: Apply 54.8 oz 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 Diazinon 7E should always be applied to vegetable crops as a spray in a minimum of 1 gal. of water per acre for aerial applications and a minimum of 10 gals. of water per acre for ground application.

BEANS: Pole Beans, Snap Beans, Lima Beans: Black Bean Aphids, Mexican Bean Beetles, Leaf Miners: Apply 9.2 - 13.7 oz. per acre. Cucumber Beetles: Apply 6.9 oz. in 100 gals. of water per acre. Do not apply within 7 days of been 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 Leaf Miners, Leafhoppers, Mites: Apply 9.2 oz 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 AND CAULIFLOWER: Aphids, Diamondback Moths, Imported Cabbageworms: Apply 9.2 oz 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 9.2 oz. per acre. Do not apply within 10 days of harvest.

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CELERY: Aphids, Flea Beetles: Apply 9.2 oz 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, AND TURNIP TOPS: Aphids Imported Cabbage-worms, Diamondback Moths, Harlequin Cabbage Bugs, Corn Earworms: Apply 4.6 - 9.2 oz per acre. Do not apply to collards, kale or turnip tops within 10 days, Swiss chard within 12 days or harvest.

CUCUMBERS: Aphids, Serpentine Leaf Miners, Thrips: Apply 9.2 oz per acre. Do not apply within 10 days of harvest.

LETTUCE AND ENDIVE: Aphids, Dipterous Leaf Miners: Apply 4.6-9.2 oz per acre. Do not apply within 10 days of harvest.

MELONS AND SQUASH: Cantaloupes, Casabas, Crenshaws, Honeydew Melons, and Hybrids of these; Watermelons and Their Hybirds; Summer and Winter Squash: Aphids, Leafhoppers, Mites: Apply 9.2 - 13.7 oz per acre. Serpentine Leaf Miners, Thrips: Apply 4.6 - 9.2 oz 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 Sciariids): Mix 36.5 - 73.0 oz in 50 gals of water (0.5% to 1% Actual Diazinon) and spray on outside and inside walls and ventilators of mushroom houses, after compost in beds has been pastervized 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 4.6 oz in 6 gals. of water and apply with a brush. Do not treat compost.

ONIONS: Onion Thrips: Apply 9.2 oz per acre. Do not apply within 10 days of harvest.

PEAS: Aphids, Leaf Miners: Apply 6.9 - 9.2 oz 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 Leaf Miners: Apply 4.6 oz. per acre. Do not apply within 5 days of harvest.

POTATOES: Aphids, Flea Beetles, Colorado Potato Beetles, Dipterous Leaf Miners; Apply 4.6 - 6.9 oz per acre. Banded Cucumber Beetles, Leafhoppers, Southern Armyworms: Apply 6.9 - 9.2 oz per acre. Do not apply within 35 days of harvest.

RADISHES, PARSNIPS, AND TURNIPS: Aphids, Flea Beetles, Dipterous Leaf Miners: Apply 4.6 - 9.2 oz per acre. Do not apply within 10 days of harvest.

SPINACH AND BEETS: Aphids, Dipterous Leaf Miners: Apply 4.6 - 9.2 oz 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 18.3 - 22.8 oz 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 Leaf Miners: Apply 4.6 oz per acre. To control leaf miners weekly applications are usually required. Banded Cucumber Beetles, Fall Armyworms, Southern Armyworms: Apply 6.9 - 9.2 oz per acre. Vinegar Flies (Drosophila spp.) Apply 4.6 - 13.7 oz per acre. Weekly applications are usually required. Do not apply within 1 day of harvest.

WATERCRESS: (Hawaii only): Cyclamen Mites: Mix 9.2 oz 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 Diazinon 7E should always be applied to vegetable crops as a spray in a minimum of 5 gals. of water per acre for ground application.

CUTWORMS (Surface and Subterranean):

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

Broadcast 36.5 - 73 oz per acre just prior to planting. Work into the soil immediately, 2 -3 inches for surface cutworms, 3 - 6 inches for subterranean cutworms.

GARDEN SYMPHYLANS (Centipedes):

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

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Broadcast 182.4 oz (5.7 qt) per acre just prior to planting. Work into soil 4 - 8 inches immediately. This preplant treatment will also control other soil insects such as cutworms (surface and subterranean), mole crickets, root maggots, and wire worms.

**MOLE CRICKETS:**

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

Broadcast 18.3 oz per acre when insects are present. Make application to plant beds or field 1 - 2 days prior to sowing of seed or transplanting and work into soil 1 - 2 inches immediately.

**ONION MAGGOTS:**

Onions: Furrow Application: Apply 18.3 oz per acre in sufficient water to drench the seed furrow at planting time. Broadcast Application: Broadcast 36.5 - 73 oz per acre just prior to planting. Work into soil 3 - 4 inches immediately.

**ROOT MAGGOTS:**

Broccoli, Brussels Sprouts, Cabbage, and Cauliflower.  
 Broadcast Application: Broadcast 36.5 - 54.8 oz per acre and immediately work into the soil 3 - 4 inches, before seedling, either in the seedbed or in the field, or before transplanting. Transplant Water (Drench) Application: Mix 2.3 - 4.6 oz in 50 gals. of transplant water, when 200 - 300 gals. of water are used per acre. May be applied at the rate of 1/2 - 1 cup 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 18.3 oz in 50 gals. of water. Apply 80 - 100 gals per acre (1 - 1 1/3 gals. per 1,000 linear feet of row) in the seed furrow at planting time.

**WIREWORMS:**

Broccoli	Endive (escarole)	Potatoes
Brussels Sprouts	Kale	Spinach
Cabbage	Lettuce	Snap Beans
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 54.8 - 73 oz per acre prior to planting, and work into soil 4 - 8 inches immediately.

POTATOES: Wireworms: Broadcast 54.8 - 109.5 oz per acre prior to planting. Immediately disk or harrow into soil 4 - 8 inches. Southern Potatoes Wireworms (Southeastern U.S.): For use to control southern potato wireworms in potatoes grown on mineral soils in the southeast, apply 36.5 - 73.0 oz 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 application of Diazinon 7E 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 AND CLOVER: Spotted Alfalfa Aphids, Yellow Clover Aphids, Pea Aphids, Leafhoppers, Plant Bug Nymphs, Mites: Apply 6.9-9.2 oz per acre. Grasshoppers: Apply 9.2 oz. per acre. Following the above applications, dairy and beef cattle and sheep (1) may be grazed immediately following applications, (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 18.3 - 27.4 oz. 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 9.2 - 18.3 oz. 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 application. Corn Rootworm Adults: Apply 4.6 - 9.2 oz. per acre. Corn Leaf Aphids: Apply 9.2 - 18.3 oz per acre. Complete coverage of the upper portions of the plants is essential. Repeat applications as necessary. Mites: Apply 9.2 oz. per acre when infestations first appear. Repeat applications as necessary. Grasshoppers: Apply 9.2 oz per acre. Sap Beetles: Apply 18.3 - 22.8 oz 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 Leaf Perforators: Apply 9.2 - 18.3 oz in 5 - 25 gals. of water per acre. Repeat as infestation warrants.

HOPS: Aphids, Mites: Apply 18.3 oz 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 4.6 - 9.2 oz. per acre when 90% of heads have emerged from the boot. Repeat application within 4 days. Mites: Apply 9.2 oz per acre when infestation first appears and repeat applications as necessary. Greenbur: Apply at the rates indicated below when infestation first appears and repeat as necessary. Texas and Oklahoma - Apply 4.6 - 9.2 oz. per acre. All Other Areas - Apply 9.2 oz per acre. Crop may be fed to livestock immediately following treatment. Do not apply within 7 days of harvesting for grain.

SUGARBEETS: Leafhoppers, Dipterous Leaf Miners, Aphids: Apply 6.9 - 9.2 oz per acre. Grasshoppers: Apply 9.2 oz per acre. NOTE: Tops may be fed to beef and dairy animals.

SUGARCANE: Aphids: Apply 4.6 - 9.2 oz per acre. Allow 1 day between last applicatin and harvest. Bagasse and forage may be fed to livestock.

TOBACCO: Aphids, Flea Beetles: Apply 4.6 - 6.9 oz per acre. Do not apply within 3 days of harvest. Grasshoppers: Apply 9.2 oz per acre. Co not apply within 14 days of harvest.

FIELD AND FORAGE SOIL INSECTS

Unless otherwise stated, soil applications of Diazinon 7E 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 AND CLOVER: Cutworms (Surface and Subterranean): Broadcast 36.5 - 73 oz. 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:

Band application at planting time: Apply 18.3 - 36.5 oz per acre. Make application in the seed furrow or apply 1.5 - 3.0 oz per 1,000 linear feet of corn row in a 4 - 7 inch band directly behind the planter shoe. For band treatment refer to the row spacing chart for amounts recommended per acre.

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SUGGESTED RATES ACCORDING TO ROW SPACING FOR CORN ROOTWORM LARVAE CONTROL

Row Spacing	Linear Feet of Corn Row Per Acre	Rate Per Acre, Planting Time Application	Rate Per Acre, Post Emergence Basal Treatment
48"	10,890	16 - 32	8 - 16
42"	12,455	17.7 - 35.4	8.8 - 17.7
40"	13,068	18.3 - 36.5	9.2 - 18.3
38"	13,939	20.0 - 40.0	10.0 - 20.0
36"	14,250	20.5 - 41.0	10.2 - 20.5
30"	17,424	25.1 - 50.2	12.6 - 25.1
24"	21,780	31.4 - 62.7	15.7 - 31.4
20"	26,136	36.5 - 73.0	18.3 - 36.5
15"	34,848	50.2 - 100.4	25.1 - 50.2

NOTE: For row spacing not listed, calculate the appropriate dosage based on the 40-inch row figure.

POSTEMERGENCE BASAL TREATMENT: Apply .74 - 1.5 oz per 1,000 linear feet of corn row in sufficient water to thoroughly wet base of cornplant 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.

SEED CORN MAGGOTS: Broadcast 36.5-73.0 oz per acre just prior to planting. Work into soil 2 inches immediately.

CUTWORMS (Surface and Subterranean): Broadcast 36.5 - 73 oz per acre. For surface cutworms apply just prior to planting or when larvae first appear and work into soil 1 - 2 inches immediately. Do not apply later than layby. For subterranean cutworms apply just prior to planting and work into soil 3 - 6 inches immediately.

WIREWORMS: Apply 54.8 - 73.0 oz per acre prior to planting and work into the soil 4 - 8 inches immediately. 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 36.5 - 73.0 oz 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 36.5 - 73.0 oz per acre, just prior to planting. Work into the soil immediately 2 - 3 inches for surface cutworms, 3 - 6 inches for subterranean cutworms.

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PEANUTS: Cutworms: Apply 36.5 oz 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 treatments.

SORGHUM: Cutworms (Surface and Subterranean): Broadcast 36.5 - 73.0 oz 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 36.5 - 73.0 oz 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 54.8 - 73.0 oz per acre just prior to planting and work into soil 4 - 8 inches immediately. Tops may be fed to beef and dairy animals.

SUGARCANE: Wireworms: Apply 73.0 oz 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 36.5 - 54.8 oz per acre before transplanting and work into the soil 2 - 4 inches immediately. Green June Beetle Larvae: Mix 2.3 oz. in 50 gals. of water and apply as a drench (100 gals. per 100 sq. yds) to unrooted areas of plant beds with sprinkling can. Male Crickets: Broadcast 18.3 oz. per acre, when insects are present. Make application to beds or fields 1 - 2 days prior to sowing of seed or transplanting, and work into soil 1 - 2 inches immediately. Seed-Corn Maggots: Broadcast 27.4 oz. per acre, 3 - 4 weeks before transplanting. Work into soil 6-9 inches immediately. Wireworm: Broadcast 36.5 - 54.8 oz. per acre, 3 - 4 weeks before transplanting. Work into soil 6 - 9 inches immediately.

RANGE, PASTURE, AND GRASSLAND INSECTS

Unless otherwise stated, Diazinon 7E 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 9.2 oz. per acre. Dairy and beef cattle, and sheep (1) may be grazed immediately following application, (2) may be fed green forage immediately following cutting, and (3) forage grasses may be cut for hay 7 days following treatment. Do not repeat application more often than once every 30 days.

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RANGELAND, PASTURE, DITCH BANKS, ROADSIDES, WASTELAND, NONCROP AREAS, AND BARRIER STRIPS: Grasshoppers: Apply 6.9 - 9.2 oz per acre in water or oil (minimum of 1 gal. of oil per acre) when insects first appear, preferably in the nymphal state. 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 application, 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, Gladioli, Hawthorn, Holly, Juniper, Lilac, Locust, Maple, Oak, Pine, Plum, Poplar, Rhododendron, Rose Spruce, and Willow, and apply the recommended rates indicated below. For plums, do not apply within 10 days of harvest.

INSECTS	Rate per 3 Gal. Water	Rate per Gal. Water:
Apples, Bagworms, Carnation Bud Mites, Carnation Shoot Mites, Clover Mites, Cyclamen Mites, Dipterous Leaf Miners, European Pine Shoot Moths, European Pine Shoot Moths, European Red Mites, Flea Beetles, Holly Bud Moths, Leafhoppers, Obscure Root Weevils, Omnivorous leaf Tiers, Privet Mites, Scale Crawlers (Cottony Cushion, Lecanium, Pine Needle, San Jose, Soft Scale), Thrips, Two-Spotted Mites, Webworms, Whiteflies	0.3 fl oz*	9.2 fl oz
Apple-and-Thorn Skeletonizers, Cotoneaster Webworms, Fall Webworms, Hemlock Chermes, Oak Loopers, Oblique-banded Leaf Rollers, Pear Slugs, Tent Caterpillars	.9 fl oz*	54.8 fl oz

\* 1 fl oz = 2 tablespoons  
16 fl oz = 1 pint

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

MIMOSA WEBWORMS: Mix 0.3 fl oz in 3 gals. of water (or 9.2 oz 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.

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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 Collembola (Springtails), 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.

BOXELDER BUGS: Spray bugs outside the home with 0.8 - 1.5 fl oz (1.5 - 3.0 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 AND WHITE GRUBS, SUCH AS JAPANESE BEETLE LARVA, EUROPEAN CHAFER AND SOUTHERN CHAFER: Apply 2.3 fl oz per 1,000 sq ft of lawn. Water grass thoroughly after application. For grub control make application any time between late July and early October. For billbug control apply when activity is first observed or when chewed or brown grass is present, indicating damage from this insect.

HYPERODES WEEVIL (NEW YORK ONLY): Apply 1.8 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.

INSECTS	RATE/1,000 sq ft		REMARKS
	DIAZINON 7E	Water	
Lawn Chinch Bugs	1.2 - 1.8 fl oz or 1.8 - 3.5 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, Collembola (Springtails), Crickets, Cutworms, Digger Wasps, Earwigs, Frit Flies, Lawn Billbugs, Sod Webworms (Lawn Moths), Sowbugs	2.3 fl oz	3 gals	Spot spray ant hills and wasp ground nest opening. For lawn billbugs, irrigate the lawn 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,	0.8 fl oz	3 gals	Do not apply to animals. For brown dog ticks spray grass and under shrubbery, particularly near house.

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Millipedes	4.6 fl oz	3 gals	
Rhodes-grass Scales	2.9 fl oz	25 gals*	Apply when crawlers first emerge.

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

FOREST INSECTS

Pine (Seed Orchards, Plantations, Forests): Arkansas Sawfly (Loblolly Sawfly): Apply 4.6 oz per acre over the tree canopy. Application should be made at or near the completion of egg hatch. Aerial applications should be made within a minimum of 2 gals of spray per acre in swaths not more than 90 ft wide. Repeat application as needed.

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