

S 380396

AUG 14 1990

Mr. Wayne Stringer
Wilbur-Ellis Company
P.O. Box 9518
Fresno, CA 93792

Subject: Amendment - Revise per Diazinon Registration Standard
and the Agency's May 1, 1990 Data Call-In letter
to reflect only those uses supported by Ciba-Geigy
Black Lear 25% Diazinon
EPA Reg. No. 33955-556
Your submission dated June 11, 1990

Dear Mr. Stringer:

The amendment referred to above, submitted in connection with a registration under the Federal Insecticide, Fungicide, and Rodenticide Act, is acceptable, provided the following revision is made prior to release for shipment under the amended labeling:

- 1) In the ingredients statement, revise "ACTIVE INGREDIENTS" to "ACTIVE INGREDIENT", since there is only one.
- 2) Revise the footnote underneath the ingredients statement to more accurately reflect the type of solvent, presumably a xylene range aromatic solvent.
- 3) In the "Hazards to Humans and Domestic Animals", add "Do not contaminate ornamental fish ponds." after "Do not use on humans or household pets.". Also in this same section, add as the last sentence "Food utensils such as spoons or measuring cups must not be used for food purposes after use in measuring pesticides.".
- 4) At the end of the "Note to Physician" add "Solvent may present aspiration hazard. Gastric lavage may be indicated if product was taken internally.".
- 5) Revise the "Environmental Hazards" text to read as follows:

This pesticide is highly toxic to birds, fish, and other wildlife. Birds, especially waterfowl, feeding or drinking on treated areas may be killed. Because of the migratory habits of certain Atlantic Coast waterfowl, do not apply this product to lawns in Nassau County, New York, between November 1 and May 20. Do not exceed maximum

permitted label rates. Application rates above those recommended significantly increase potential hazards to birds and waterfowl. Avoid overlapping of sprays. Where irrigation (watering) is recommended in the directions, or if waterfowl, i.e. ducks or geese, can be expected in the treated area after treatment (except spot treatment), apply a minimum of 1/4 inch of water immediately after applying this product. Stop irrigation before puddling occurs. Keep out of lakes, streams, ponds, tidal marshes, and estuaries. Do not apply directly to water or wetlands (swamps, bogs, marshes, and potholes). Runoff may be hazardous to aquatic organisms in neighboring areas. 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. Do not contaminate water by cleaning of equipment or disposal of equipment washwaters.

This pesticide is highly toxic to bees exposed to direct treatment or to residues on blooming crops or weeds. Do not apply this pesticide or allow it to drift to blooming crops or weeds if bees are visiting the treatment area. Applications should be timed to provide the maximum possible interval between treatment and the next period of bee activity.

- 6) In the "Storage and Disposal" text, add as the last sentence of the "General" section: "USE CONTENTS WITHIN 6 MONTHS AFTER OPENING."
- 7) Also in the "Storage and Disposal" text, add as the last sentence of the "Disposal" section: "If disposal of a partially full container is necessary, make sure the can is tightly closed, securely wrap the container in several layers of newspaper, and discard in trash."
- 8) You may delete the chemigation prohibition provided this is a homeowner use product (otherwise it would be classified as a Restricted Use commercial/agricultural product). PR Notice-87-1 indicated that homeowner use products do not require chemigation labeling.
- 9) Since the label (when properly revised) will give rates in tablespoons and fluid ounces, add a conversion table (as indicated below) to appear as the first item after the "Storage and Disposal" section of the label:

1 tablespoon (Tbs.)	= 3 teaspoons
1 fl. oz.	= 2 tablespoons or 6 teaspoons
6 fl. oz.	= 3/4 cup
2 tablespoons in 3 gals. of water	= 2 teaspoons in 1 gal. of water
- 10) Revise the dilution rate for "Nuisance Pests in Outside Areas" to 6 fl. oz. in 3 gals. of water. Since this is one of the highest dilution rates appearing on this label, the Agency would prefer that

it not be the first one appearing to the label (which a user might mistakenly assume was the rate for these same pests on other sites, including lawns). Relocate the "Nuisance Pests in Outside Areas" section to appear after the overall lawn use directions. The "Fire Ants" control directions should then follow this relocated text, since these are also nuisance pests with specialized spot-control directions.

- 11) In the relocated directions for "Nuisance Pests in Outside Areas", delete "and ceilings" from "porch and patio walls and ceilings". Such use, especially if applied to runoff, could result in pesticide "raining" down on the applicator and into the eyes (even behind the recommended safety glasses), an especially inadvisable situation for a pesticide which can cause "substantial but temporary eye damage". Also, revise "Do not treat plants or animals" to "Do not treat animals with this product. Do not treat plants other than tree trunks at this nuisance pest rate."
- 12) Based on available field studies, including wildlife studies, Ciba-Geigy is supporting only one application rate for lawns regardless of the type of lawn or type of pest. For this product, that rate is 1 1/2 tablespoons in 3 gallons of water per 125 sq. ft. or 6 fl. oz. in 24 gals. per 1,000 sq. ft. of lawn. This new rate should appear for all lawn pests listed on your label (including those such as millipedes, billbugs, etc. which have separate blocks of directions), except for the lower rate for control of chinch bugs in the North, which should appear as 1 tablespoon in 3 gals. of water to cover 125 sq. ft. of lawn.
- 13) Reduce the rate for use against fire ants to 2 tablespoons in a minimum of 1 gallon of water applied as a mound drench.
- 14) The entire set of directions for foliar and soil application to vegetables must be revised to reflect the residue testing program undertaken by Ciba-Geigy in response to the Diazinon Registration Standard (many rates are lower, garden symchylans, together with the high rate necessary to control these pests, no longer appear). The directions for this section, revised into the compressed format you apparently desire (rather than the more lengthy alphabetical crop listing found on the new Ciba-Geigy sample label for this type of product), should appear as follows:

VEGETABLES

Foliar Application Dilute Black Leaf 25¹ Diazinon as indicated in the directions below and thoroughly spray all plant parts. Observe the stated time intervals between last application and harvest (see Pre-Harvest Interval table, below), as well as intervals between applications and maximum number of applications per season.

PRE-HARVEST INTERVALS - After spraying, do not pick vegetables within-

- 0 days - Peas, Sweet Corn
- 1 day - Tomatoes
- 3 days - Cantaloupes, Muskmelons, Winter Squash, Watermelons
- 5 days - Broccoli, Cauliflower, Peppers
- 7 days - Beans, Cabbage, Cucumbers, Spinach, Summer Squash
- 10 days - Carrots, Celery, Collards, Endive, Kale, Lettuce, Onions,
Parsnips, Radishes, Turnips
- 35 days - Potatoes (Irish)

CROP	PESTS — RATES AND DIRECTIONS
Beans*, Peas* (* succulent varieties only)	Aphids, Cucumber Beetles, Grasshoppers, Leafhoppers, Mexican Bean Beetles, and Spider Mites: 2 Tbs. in 3 gals. of water to cover 1,000 sq. ft. of garden. Thoroughly spray all plant parts. Repeat application every 5 days, up to 3 applications per season. Do not apply within 7 days of harvest. Do not use on dried pea or bean varieties such as navy beans, pinto beans, dried limas, or dried black-eyed peas.
Broccoli, Cabbage, Cauliflower, Collards, Kale	Aphids, Diamondback Moths, Flea Beetles, Imported Cabbageworms, Dipterous Leafminers: 2 Tbs. in 3 gals. of water to cover 1,000 sq. ft. of garden. Thoroughly spray all plant parts. Repeat applications every 7 days, up to 5 applications per season. See Pre-Harvest Interval table, above.
Radishes, Turnips	Aphids, Flea Beetles, Leafhoppers, Imported Cabbageworms, Dipterous Leafminers: 2 Tbs. in 3 gals. of water to cover 1,000 sq. ft. of garden. Thoroughly spray all plant parts. Repeat applications every 7 days, up to 5 applications per season. Do not apply within 10 days of harvest.
Carrots, Celery, Endive, Lettuce, Parsnips, Spinach	Aphids, Flea Beetles, Leafhoppers, Dipterous Leafminers, Spider Mites: 2 Tbs. in 3 gals. of water to cover 1,000 sq. ft. of garden. Thoroughly spray all plant parts. Repeat application every 7 days, up to 5 applications per season. Do not apply within 10 days of harvest.

Cantaloupes, Cucumbers, Muskmelons, Squash (summer, winter), Watermelon	Aphids, Thrips, Spider Mites: 2 Tbs. in 3 gals. of water to cover 1,000 sq. ft. of garden. Thoroughly spray all plant parts. Repeat application every 7 days, up to 5 applications per season. See Pre-Harvest Interval table.
Peppers, Potatoes, Tomatoes	Aphids, Colorado Potato Beetles, Fall Armyworms (tomatoes), Flea Beetles, Leafhoppers, Southern Armyworms (potatoes & tomatoes), Vinegar Flies - <u>Drosophila</u> spp. (tomatoes): 2 Tbs. in 3 gals. of water to cover 1,000 sq. ft. of garden. Thoroughly spray all plant parts. Repeat application every 7 days, up to 5 application per season. See Pre-Harvest Interval table, above. Do not use on commercially-grown potatoes which will be hand-harvested.
Onions	Onion Thrips: 2 Tbs. in 3 gals. of water to cover 1,000 sq. ft. of garden. Repeat application every 7 days, up to 3 applications per season. Do not apply within 10 days of harvest.
Sweet Corn	Aphids, Flea Beetles, Grasshoppers, Spider Mites: 2 Tbs. in 3 gals. of water to cover 1,000 sq. ft. of garden. Thoroughly spray all plant parts. Repeat application every 7 days, up to 5 applications per season. Corn may be picked immediately following last application.

VEGETABLES - SOIL APPLICATION

CROP	PESTS	RATES AND DIRECTIONS
Cabbage, Carrots, Sweet Corn, Lettuce, Peas*, Pole Beans*, Radishes, Red Beets, Snap Beans, Tomatoes, Turnips (* succulent varieties only)	Cutworms (Surface, Subter- ranean)	6 Tbs. in a minimum of 1 1/2 gals. of water to cover 500 sq. ft. of garden. Broadcast to the soil just before planting. Immediately work into the soil 2-3 inches for surface cutworms, 3-6 inches for subterranean cutworms.

Pole Beans*, Snap Beans, Red Beets Carrots, Peas* Sweet Corn (* succulent varieties only)	Mole Crickets	6 Tbs. in a minimum of 1 1/2 gals. of water to cover 500 sq. ft. of garden. Broadcast to the soil 1-2 days before planting. Immediately work into the soil 1-2 inches.
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Cabbage	Root Maggots	6 Tbs. in a minimum of 1 1/2 gals. of water to cover 500 sq. ft. of garden. Broadcast to the soil just before planting. Immediately work into the soil 3-4 inches.
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Cabbage, Carrots Sweet Corn, Lettuce, Peas* Snap Beans, Tomatoes (* succulent varieties only)	Wireworms	6 Tbs. in a minimum of 1 1/2 gals. of water to cover 500 sq. ft. of garden. Broadcast to the soil just before planting. Immediately work into the soil 4-8 inches.
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15) The entire set of directions for application to fruits and nuts must be revised to reflect the residue testing program undertaken by Ciba-Geigy in response to the Diazinon Registration Standard (including lower rates, new PHIs, geographic limitations, limits on the number and timing of applications, and deletion of apples and pears from emulsifiable concentrate products). The directions for this section, revised into the slightly compressed format you apparently desire, should appear as follows:

FRUITS & NUTS - Start spraying after blooming. Applications should be made according to infestation or when aphids, mites, and crawler stages of scale insects are first noticed.

Observe the stated time intervals between last application and harvest (see Pre-Harvest Interval table, below), as well as intervals between applications and maximum number of applications per season.

PRE-HARVEST INTERVALS - After spraying, do not pick fruit within:

- 5 days - Strawberries
- 7 days - Caneberries (Blackberries, Boysenberries, Dewberries,
Loganberries, and Raspberries)
- 10 days - Apricots, Cherries, Nectarines, Plums, Prunes
- 18 days - Grapes
- 20 days - Peaches
- 45 days - Almonds, Walnuts

CROP	PESTS -- RATES AND DIRECTIONS
Almonds, Walnuts (CA only)	Aphids, Spider Mites, Scale Crawlers (almonds - Parlatoria, San Jose; walnuts - Walnut, Italian Pear, Frosted): 2 Tbs. 3 gals. of water. Apply as a full cover spray. Do not apply more than 6 gallons of spray per 500 sq. ft. of orchard. Do not make more than 3 applications per season, a minimum of 14 days apart. Do not apply after husks open or split. Do not apply within 45 days of harvest. This product may be used on almonds and walnuts only in California. Do not use this product on almonds or walnuts grown in other states.
Apricots, Peaches, Nectarines	Aphids, Apricot Mealybugs (apricots), Mites (Clover [brown], Two-spotted Spider), Scale Crawlers (Olive, San Jose): 2 Tbs. in 3 gals. of water. Apply as a full cover spray. Do not apply more than 6 gallons of spray per 500 sq. ft. of orchard. Do not make more than 5 applications per season, a minimum of 14 days apart. See Pre-Harvest Interval table.
Cherries	Black Cherry Aphids, Cherry Fruitflies, Cherry Fruitworms (maggots) Fruittree Leafrollers, Cherry Rust Mites, San Jose Scale Crawlers: 2 Tbs. in 3 gals. of water. Apply as a full cover spray. Do not apply more than 6 gallons of spray per 500 sq. ft. of orchard. Do not make more than 5 applications per season, a minimum of 14 days apart. See Pre-Harvest Interval table, above.
Plums, Prunes	Aphids (Leafcurl Plum, Meal Plum, Thistle), Mites (Clover [brown], European red): 2 Tbs. in 3 gals. of water. Apply as a full cover spray. Do not apply more than 6 gallons of spray per 500 sq. ft. of orchard. Do not make more than 5 applications per season, a minimum of 7 days apart. Do not apply with 10 days of harvest.

Caneberries (CA, OR, & WA only), Blackberries, Boysenberries, Dewberries, Loganberries, Raspberries	Aphids, Leafhoppers, Raspberry Fruitworms, Two-spotted Spider Mites, Thrips: 2 Tbs. in 3 gals. of water. Apply as a full cover spray. Do not apply more than 5 gallons of spray per 500 sq. ft. of field. Do not make more than 5 applications per season, minimum of 14 apart. Do not apply with 7 days of harvest. This product may be used on caneberries only in California, Oregon, and Washington. Do not use on caneberries grown in other states.
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Strawberries	Aphids, Two-spotted Spider Mites, Strawberry Leafrollers: 2 Tbs. in 3 gals. of water. Apply as a full cover spray. Do not apply more than 3 gallons of spray per 500 sq. ft. of field. Do not make more than 3 applications per season, a minimum of 7 days apart. Do not apply within 5 days of harvest.
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Grapes	Aphids, Grape Berry Moths, Grape Leafrollers, Leafhoppers: 2 Tbs. in 3 gals. of water. Apply as a full cover spray. Do not apply more than 3 gallons of spray per 500 sq. ft. of vineyard. Do not make more than 5 applications per season, a minimum of 7 days apart. Do not apply within 18 days of harvest.
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16) In the list of trees and shrubs, revise "Plum" to "Ornamental Plum".

17) Lower the dilution rate for all three sets of the directions for tree and shrub pest control down to 2 tablespoons in 3 gallons of water.

A stamped copy of the label is enclosed for your records. Please submit five copies of the revised amended label prior to release for shipment under the amended label. NOTE: When preparing your label, do not print the quotation marks that appear around revised text items specified in this letter. Please refer to the Diazinon Registration Standard, as amended, for release for shipment and channels of trade dates for diazinon products bearing appropriately amended labels.

Sincerely yours,

George T. LaRocca
Product Manager (15)
Insecticide-Rodenticide Branch
Registration Division (H7505C)

7 3 16

ACCEPTED
with COMMENTS
in EPA Letter Dated:

AUG 14 1990

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

BLACK LEAF (R)
Since 1879

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

5887-132

25% Diazinon

For use on lawns and vegetables.

Also kills certain outdoor insects which destroy flowers, fruits,
roses, shrubs, trees, or annoy pets and people.

ACTIVE INGREDIENTS:

Diazinon (O,O-diethyl O-(2-isopropyl-6-methyl-
4-pyrimidinyl) phosphorothioate)..... 25%

INERT INGREDIENTS..... 75%

TOTAL 100.%

Contains aromatic petroleum derivative solvent.

KEEP OUT OF REACH OF CHILDREN

WARNING

See additional precautionary and practical treatment statements on
right panel.

EPA Reg. No. 5887-132

EPA Est. No. 70-KY-1

NET 16 FL OZ (1 PT) 473 mL

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

WARNING: May be fatal if swallowed or absorbed through skin. Do not
breathe spray mist. Avoid contact with eyes, skin, or clothing. Wash
thoroughly after handling, and before eating or smoking. May cause
contact sensitization following repeated contact with skin in
susceptible individuals. Avoid repeated contact with skin. If
sensitization reactions result consult a physician. Causes substantial
but temporary eye damage. Do not get into eyes or on clothing. Wear
goggles or safety glasses. Wear a long-sleeved shirt and long-legged
pants when spraying. Spray with the wind to your back. Do not spray
on windy days. If clothing becomes wet from spray during use, remove
clothing after spraying, wash affected body areas thoroughly with soap
and water, and launder clothing before wearing again. Do not allow
children or pets onto a treated area until the treated area such as
grass or soil has dried. Keep out of reach of children. Keep out of
reach of domestic animals. Do not use in home. Do not use on humans
or household pets. Avoid contamination of feed and foodstuffs.

STATEMENTS OF PRACTICAL TREATMENT

IF SWALLOWED: Call a physician or Poison Control Center immediately.
Gastric lavage is indicated if material was taken internally. DO NOT

INDUCE VOMITING. Vomiting may cause aspiration pneumonia. **IF IN EYES:** Flush eyes with plenty of water. Get medical attention if irritation persists. **IF ON SKIN:** Remove contaminated clothing and wash affected areas with soap and water. **IF INHALED:** Remove victim to fresh air. Apply artificial respiration if indicated. **NOTE TO PHYSICIAN:** Diazinon is a cholinesterase inhibitor. If symptoms of cholinesterase inhibition are present, atropine sulfate only by intravenous injection is antidotal. 2-PAM is also antidotal, but should be administered in conjunction with atropine.

ENVIRONMENTAL HAZARDS

This pesticide is highly toxic to birds, fish, and wildlife including waterfowl. Birds and waterfowl feeding or drinking on treated areas may be killed. Because of the migratory habits of certain Atlantic Coast waterfowl, do not apply this product in Nassau County, New York between November 1 and May 20. Do not exceed maximum permitted label rates. Rates above those recommended significantly increase potential hazards to birds and waterfowl. Avoid overlapping of sprays. Where irrigation (watering) is recommended apply a minimum of 0.25 inch of water immediately after application. Stop irrigation before puddling occurs. Keep out of lakes, streams, ponds, tidal marshes, and estuaries. Do not apply to water that will be used for recreational purpose and 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 pesticide is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this pesticide or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

PHYSICAL\CHEMICAL HAZARDS

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

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

READ ENTIRE LABEL. USE STRICTLY IN ACCORDANCE WITH LABEL PRECAUTIONARY STATEMENTS AND DIRECTIONS.

STORAGE AND DISPOSAL

General: Do not contaminate water, food, feed, or other pesticides by use, storage, or disposal. If damaged, leaking, or spilled, soak up and wrap waste, then dispose of as below.

Storage: Keep in upright, tightly closed original container in a cool, dry, locked area away from flames, sparks, sunlight, other chemicals, and sources of ignition, heat, degradation, or contamination.

Disposal: Do not reuse empty container. Rinse original container thoroughly, then securely wrap in several layers of newspaper and discard intrash.

Note: Do not apply this product through any type of irrigation

11 9 16

Black Leaf 25% Diazinon
Page 3

equipment.

NUISANCE PESTS IN OUTSIDE AREAS

Ants**, Boxelder Bugs, Brown Dog Ticks**, Chiggers +, Clover Mites**, Cockroaches, Crickets**, Earwigs**, Fleas**, Flies* +, Millipedes**, Sowbugs (Pillbugs)**, Spiders, Springtails (Collembola)**
8 fl. oz. in 3 gals. of water.

Thoroughly spray window and door screens, sills, foundations, porch and patio walls and ceilings, entrance-ways, walks, garbage cans, tree trunks, and into cracks and other places where insects can hide.

Do not treat plants or animals.

*Spray a 5 ft. band of soil around the house next to the foundation and spray the foundation of the house to a height of 2-3 feet.

+See lawn recommendations for other control measures for these pests.

Fire Ants: See lawn recommendations for rates and directions.

DIRECTIONS FOR APPLYING BLACK LEAF 25% DIAZINON

PROBLEM AREAS

PESTS--RATES AND DIRECTIONS

LAWNS

Bent, Bermuda,
Bluegrass, Dichondra,
Fescue, Merion, St.
Augustine

Ants, Armyworms, Bermudagrass Thrips, Brown Dog Ticks*, Chiggers, Crickets, Cutworms, Earwigs, Fleas, Frit Flies, Lawn Billbugs**, Chinch Bugs+, Lawn Moths (Sod Webworms), Leafhoppers, Mites (Bermuda, Clover), Sowbugs (Pillbugs), Springtails (Collembola)
1 fl. oz. in 3 gals. of water covers 125 sq. ft. 8 fl. oz. in 24 gals. of water covers 1,000 sq. ft.

Thoroughly wet down grass a few hours before applying. *Brown Dog Ticks: Do not apply to animals. In particular, spray under shrubbery and the grass next to house.

**Lawn Billbugs: Water the lawn thoroughly immediately after treatment.

+In the North, if Chinch Bugs are the only lawn insect problem, a lower rate of application can be used: 1/2 fl. oz. in 3 gals. of water covers 125 sq. ft.

Millipedes

2 fl. oz. in 3 gals. of water covers 125 sq. ft.

Thoroughly wet grass a few hours before applying.

Rhodesgrass Scales

1 fl. oz. in 3 gals. of water covers 100 sq. ft.

Apply when Scale Crawlers first emerge.

12 7 16

Ants, Digger Wasps*

1 fl. oz. in 3 gals. of water covers 125 sq. ft.

Spot spray ant hills and wasp ground nest openings.

*Make the application at dusk when wasps are not active.

Billbugs*, White Grubs of Japanese Beetle, European Chafer, Southern Chafer**

1 fl. oz. in 3 gals. of water covers 125 sq. ft.

Water grass thoroughly after application.

*Billbug control: Apply when activity is first observed or when chewed or brown grass is present, indicating damage from the insect.

**Grub control: Make application any time between late July and early October.

NOTE: Depending on lawn application, 4 oz. of 25% Diazinon in 12 gallons of water will cover upto 500 sq.ft.

Fire Ants

To aid in the control of fire ants in lawns and other recreational areas, apply 1 fl. oz. (2 tbsp.) in a minimum of 1 gal. of water as a drench. Apply over and 6 inches around each mound. Apply gently to avoid disturbing ants. Reapply as necessary. Larger quantities of solution can be prepared for multiple mound treatments. Use equipment capable of delivering the diluted product as a gentle rain at the rate of 1 gal. per mound. High pressure sprays may disturb the ants and cause migration, reducing product effectiveness.

NOTE: For best results, apply in cool weather, 65-80°F, or in early morning or late evening hours. Treat new mounds as they appear.

VEGETABLES*

Foliar Application

Thoroughly spray all plant parts. Generally, applications at 7 to 10-day intervals may be required. Do not feed treated vines to livestock.

**Beans, Peas
(succulent only)**

Aphids, Cucumber Beetles, Grasshoppers, Leafhoppers, Mexican Bean Beetles, Mites.
1 fl. oz. in 3 gals. of water covers approximately 1,000 sq. ft. of garden.

Note: Do not apply if the crop or weeds in the treatment area are in bloom.

Black Leaf 25% Diazinon
Page 5

Broccoli, Cabbage, Cauliflower, Collards, Kale, Radishes, Turnips	Aphids, Diamondback Moths, Flea Beetles, Imported Cabbageworms, Dipterous Leafminers. 1 fl. oz. in 3 gals. of water covers approximately 1,000 sq. ft. of garden.
Carrots, Celery, Endive, Lettuce, Parsnip, Spinach	Aphids, Flea Beetles, Leafhoppers, Dipterous Leafminers, Mites. 1 fl. oz. in 3 gals. of water covers approximately 1,000 sq. ft. of garden.
Cantaloupes, Cucumbers Muskmelon, Squash (summer, winter), Watermelon	Aphids, Thrips, Mites. 1 fl. oz. in 3 gals. of water covers approximately 1,000 sq. ft. of garden.
Peppers, Potatoes, Tomatoes	Aphids, Colorado Potato Beetles, Fall Armyworms (tomato), Flea Beetles, Leafhoppers, Southern Armyworms (potato and tomato). Vinegar Flies (Drosophila spp. (tomato)). 1 fl. oz. in 3 gals. of water covers approximately 1,000 sq. ft. of garden.
Onions	Onion Thrips. 1 fl. oz. in 3 gals. of water covers approximately 1,000 sq. ft. of garden.
Sweet Corn	Aphids, Flea Beetles, Grasshoppers, Mites. 1 fl. oz. in 3 gals. of water covers approximately 1,000 sq. ft. of garden.

Note: Do not apply to corn during the pollen
shed period.

VEGETABLES*

CROP	INSECT	DIRECTIONS
Cabbage, Carrots, Corn, Lettuce, Peas*, Pole Beans*, Radishes, Red Beets, Snap Beans*, Tomatoes, Turnips *(succulent only)	Cutworms (Surface, Subter- ranean)	6 fl. oz. per 1,000 sq. ft. in sufficient water to achieve thorough coverage. Apply broadcast just before planting. Immediately work into soil 2-3 inches for Surface Cutworms, 3-6 inches for Subterranean Cutworms.
	Garden Symphylans (Garden Centipedes)	15 fl. oz. per 1,000 sq. ft. in sufficient water to achieve thorough coverage. Apply broadcast just before planting. Immediately work into soil 4-8 inches.

Black Leaf 25% Diazinon
Page 6

Carrots, Corn, Peas*, Pole Beans*, Red Beets, Snap Beans* *(succulent only)	Mole Crickets	1 1/2 fl. oz. per 1,000 sq. ft. in sufficient water to achieve thorough coverage. Apply broadcast just before planting. Apply 1-2 days before sowing or transplanting. Immediately work into soil 1-2 inches.
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Cabbage	Root Maggots	4 1/2 fl. oz. per 1,000 sq. ft. in sufficient water to achieve thorough coverage. Apply broadcast just before planting. Immediately work into soil 3-4 inches before seeding, either in seed bed or in field or before transplanting.
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Cabbage, Carrots, Corn, Lettuce, Peas*, Snap Beans*, Tomatoes *(succulent only)	Wireworms	6 fl. oz. per 1,000 sq. ft. in sufficient water to achieve thorough coverage. Apply broadcast just before planting. Immediately work into soil 4-8 inches.
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*After spraying, do not pick vegetable within:

- 1 day---Peas, Tomatoes, Sweet Corn
- 3 days--Cantaloupes, Muskmelons, Winter Squash, Watermelons
- 5 days--Broccoli, Cauliflower, Peppers
- 7 days--Beans, Cabbage, Cucumbers, Summer Squash
- 10 days--Carrots, Celery, Collards, Endive, Kale, Lettuce, Onions,
Parsnips, Radishes, Spinach, Turnips
- 35 days--Potatoes

FRUITS ² & NUTS	Start spraying after blooming. Applications should be made according to infestation or when aphids, mites, and crawler stages of scale insects are first noted. If infestations warrant, repeat applications at 7 to 10-day intervals.
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Almonds, Walnuts	Aphids, Scale Crawlers, Spider Mites. 1/3 fl. oz. in 3 gals. of water. Apply as a full cover spray. Do not apply after husks open or split.
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Apples, Pears	Aphids, Codling Moths, Eyespotted Bud Moths, Fruittree Leafrollers, Leafhoppers, Tentiform Leafminers (pears). Maggots (apples), Mealybugs, Mites (European Red, Clover (brown). Pacific, Twospotted Spider), Psylla (pears). Scale Crawlers (Cottonycushion, San Jose, Forbes, Soft)
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Black Leaf 25% Diazinon

Page 7

1 fl. oz. in 3 gals. of water. Apply as a full cover spray. On apples, slight russetting may occur on some varieties such as Golden Delicious.

Apricots, Peaches, Nectarines	Aphids, Apricot Mealybugs (apricot), Mites (Clover [brown], Twospotted Spider), Scale Crawlers (Olive, San Jose).
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1 fl. oz. in 3 gals. of water. Apply as a full cover spray.

Cherries	Black Cherry Aphids, Cherry Fruitflies, Cherry Fruitworms (Maggots), Fruittree Leafrollers, Mites (Cherry Rust), Scale Crawlers (San Jose).
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1 fl. oz. in 3 gals. of water. Apply as a full cover spray.

Plums, Prunes	Aphids (Leafcurl Plum, Mealy Plum, Thistle), Mites (Clover [brown], European Red).
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1 fl. oz. in 3 gals. of water. Apply as a full cover spray.

Caneberries (blackberries, boysenberries, dewberries, loganberries, raspberries)	Aphids, Leafhoppers, Raspberry Sawflies, Raspberry Fruitworms, Twospotted Mites, Thrips.
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1 fl. oz. in 3 gals. of water. Apply as a full cover spray.

Strawberries	Aphids, Twospotted Mites, Strawberry Leafrollers.
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1 fl. oz. in 3 gals. of water. Apply as a full cover spray.

Grapes	Aphids, Grape Berry Moths, Grape Leafrollers, Leafhoppers, Scale Crawlers.
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1 fl. oz. in 3 gals. of water. Apply as a full cover spray.

After spraying, do not pick fruit within:

5 days--Strawberries

7 days--Caneberries

10 days--Apricots, Cherries, Grapes, Nectarines, Plums, Prunes

14 days--Apples, Pears

21 days--Peaches

TREES & SHRUBS

Wet leaves and branches to the dripping point. Try to penetrate dense foliage.

Arborvitae, Azalea, Birch, Boxwood, Camellia, Douglas Fir, Elm, Hawthorn,	Aphids, Bagworms, European Pine Shoot Moths, Holly Bud Moths, Dipterous Leafminers (Arborvitae, Azalea, Birch, Boxwood, Holly, Oak), Leafhoppers, Mealybugs, Mites (Clover, Cyclamen, European Red,
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Black Leaf 25% Diazinon
Page 8

Holly, Juniper, Lilac, Locust, Maple, Mimosa, Oak, Pine, Plum, Poplar, Rhododendron, Spruce, Willow	Privet, Twospotted Spider), Obscure Root Weevils, Omnivorous Leaf-tiers, Scale Crawlers (Cottoncushion, Euonymus, Lecanium, Pine Needle, Flat Scale, San Jose, Soft)
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1 fl. oz. in 3 gals. of water. Apply as a thorough foliar spray.

Webworms (Juniper, Mimosa*), Whiteflies
1 fl. oz. in 3 gals. of water. Apply as a thorough foliar spray.
*Mimosa Webworms: Apply as a thorough foliar spray when adults first appear. Make two additional applications at 4-5 week intervals.

Apple-and-Thorn Skeletonizers, Hemlock Chermes, Oak Loopers, Obliquebanded Leafrollers, Pear Slugs, Tent Caterpillars, Webworms (Cotoneaster, Fall)
3 fl. oz. in 3 gals. of water. Apply as a thorough foliar spray.

ROSES & FLOWERS

Wet the plants to the dripping point. Try to hit underside of leaves and penetrate dense foliage.

Azaleas, Camellias, Chrysanthemums, Carnations, Gladioli, Lilac, Rhododendron, Roses	Aphids, Euonymus Scale Crawlers, Flea Beetles, Dipterous Leafminers, Leafhoppers, Mealybugs, Mites (Carnation Bud, Carnation Shoot, Cyclamen, European Red, Twospotted Spider), Thrips, Whiteflies.
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1 fl. oz. in 3 gals. of water. Apply as a thorough foliar spray.

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