

70051-28

10/11/2004

1/18

(master label)

AZATIN® 4.5 WP

INSECT GROWTH REGULATOR

FOR INDOOR AND OUTDOOR USE ON ORNAMENTALS, TURF,
AGRONOMIC AND HORTICULTURAL CROPS

ACTIVE INGREDIENT:

Azadirachtin.....	4.5%
OTHER INGREDIENTS	95.5%
TOTAL.....	100.0%

**KEEP OUT OF REACH OF CHILDREN
CAUTION**

FIRST AID

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes.

If swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. Hot Line Number: 1-800-255-3924.

Net contents: 1 lb.

Certis USA, L.L.C.
9145 Guilford Road
Suite 175
Columbia, MD 21046

E.P.A. Registration No. 70051-28
E.P.A. Est. No. 44616-MO-01
Lot No. _____

ACCEPTED

OCT 01 2004

Under the Federal Insecticides,
Fungicides, and Rodenticide Act,
as amended, for the pesticide
registered under
EPA Reg. No. 70051-28

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

CAUTION: Causes moderate eye irritation. Harmful if inhaled, swallowed, or absorbed through the skin. Avoid breathing dust or spray mist. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Remove and wash contaminated clothing before reuse.

PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers must wear:

- long-sleeved shirt and long pants
- waterproof gloves
- shoes plus socks

Follow the 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.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish and aquatic invertebrates. For terrestrial uses: Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.

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 State or Tribal agency responsible for pesticide regulation. 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

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 the label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours.

For early entry into 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, wear: Coveralls, waterproof gloves, 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. For other uses including golf courses, and other non-agricultural uses, do not enter treated areas without protective clothing until sprays have dried

Pests controlled by Azatin 4.5 WP

Ants

Argentine Ant

Aphids:

- Alfalfa Aphid
- Apple Aphid
- Bean Aphid
- Cabbage Aphid
- Cooly Spruce Aphid
- Corn Root Aphid
- Cotton Aphid
- Cow pea Aphid
- Eastern Spruce Gall Aphid
- Fern Aphid
- Grapevine Aphid
- Green Peach Aphid
- Hickory Leafstem Gall Aphid
- Hop Aphid
- Melon Aphid
- Pea Aphid
- Pine bark Aphid
- Potato Aphid
- Red Aphid
- Rose Aphid
- Russian Wheat Aphid
- Spruce Gall Aphid
- Strawberry Aphid
- Tobacco Aphid
- White Root Aphid
- Woolly Apple Aphid
- Woolly Hemlock Aphid
- Yellow Pecan Aphid

Armyworms, such as:

- Beet Armyworm
- Fall Armyworm
- Lawn Armyworm
- Southern Armyworm
- Yellowstriped Armyworm

Bagworms

Beetles, Grubs, and Weevils, such as:

- Alfalfa Weevil
- Banded Cucumber Weevil
- Bean Leaf Weevil
- Bean Weevil
- Billbugs
- Black Vine Weevil
- Blister Beetle
- Bluegrass Weevil
- Cigarette Beetle
- Cowpea Beetle
- Colorado Potato Beetle
- Cucurbit Beetle
- Douglas Fir Beetle
- Dusky Sap Beetle
- Elm Bark Beetle
- Elm Leaf Beetle
- Flea Beetle
- Grape Phylloxera
- Green June Beetle
- Ips Bark Beetle
- Japanese Beetle
- Japanese Weevil
- June Beetle
- May Beetle
- Mexican Bean Beetle
- Mexican Bean Weevil
- Mountain Pine Beetle
- Pepper Weevil
- Pales Weevil
- Pine Bark Weevil
- Pine Root Collar Weevil
- Pecan Weevil
- Plum Curculio
- Rose Chafer
- Southern Pine Beetle
- Southern Corn Rootworm
- Spotted Cucumber Beetle
- Strawberry Weevil
- Strawberry Root Weevil
- Sweet Potato Beetle
- Two Banded Japanese Weevil
- Twig Girdles
- Western Corn Rootworm
- White-Fringed Beetle

White Pine Weevil Wireworms

Borers, such as:

- Azalea Stem Borer
- Bronze Birch Borer
- Dogwood Twig Borer
- Dogwood Borer
- Iris Borer
- Lilac Borer
- Mint Root Borer
- Oak Borer
- European corn Borer
- Southwestern Corn Borer
- Peachtree Borer
- Peach twig Borer
- Rhododendron Borer

Budworms, such as:

- Blackhead Budworms
- Spruce Budworms
- Tobacco Budworms
- Western Spruce Budworms

Bugs, such as:

- Alfalfa Plant Bug
- Boxelder Bug
- Chinch Bug
- Green Bug
- Lygus Bug
- Southern Brown Stink Bug
- Southern Green Stink Bug
- Squash Bug
- Tarnished Plant Bug

Cankerworms, such as:

- Fall Cankerworm
- Spring Cankerworm

Caterpillar and Loopers, such as:

- Alfalfa Caterpillar
- Blackhead Budworm
- Cabbage Butterfly
- Cabbage Looper
- Corn Ear Worm

Cranberry Fruitworm
 Dagger-moth
 Diamondback Moth
 Green Clover Worm
 Horn Worm
 Hickory Shunk Worm
 Imported Cabbageworm
 Melon Rind Worm
 Naval Orange Worm
 Orange Tortrix
 Pecan Nut Casebearer
 Pickleworms
 Pink Bollworm
 Range Caterpillar
 Red Humped Caterpillar
 Soybean Looper
 Salt Marsh Caterpillar
 Tent Caterpillar
 Tobacco Budworm
 Tobacco Hornworm
 Tomato Fruitworm
 Tomato Pinworm
 Velvetbean Caterpillar
 Grape Leaf Skeletonizer

Centipedes

Chafers, such as:

European Chafer
 Northern Masked Chafer
 Rose Chafer
 Southern Masked Chafer

Crickets, such as:

Mole Cricket
 Mormon Cricket

Cutworms, such as:

Black Cutworm
 Citrus Cutworm
 Climbing Cutworm
 Western Bean Cutworm
 Variegated Cutworm

Flies, such as:

Caribbean Fruit Fly
 Crane Fly
 Fungus Gnat
 Hessian Fly
 Mushroom Fly
 Oriental Fruit Fly
 Phorid Fly
 Mediterranean Fruit Fly
 Melon Fly
 Shore Fly
 Walnut Husk Fly

Grasshoppers and Locusts
Leaf Tiers and Leafholders

Leafhoppers, such as:

Grape Leafhopper
 Potato Leafhopper
 Variegated Leafhopper

Leafminers, such as:

Boxwood Leafminer
 Citrus Leafminer
 Elm Leafminer
 Holly Leafminer
 Serpentine Leafminer
 Vegetable Leafminer

Leafrollers, such as:

Blueberry Leafroller
 Grape Leafroller
 Filbert Leafroller
 Fruitree Leafroller
 Oblique Banded Leafroller
 Omnivorous Leafroller

Leaf perforators

Marsh Crane Flies

Mealybugs

Midges, such as:

Chrysanthemum Gall Midge
 Douglas Fir Midge
 Rose Midge

Millipedes

Mites, such as:

Banks Mite
 Clover Mite
 Citrus Rust Mite
 Citrus Red Mite
 European Red Mite
 Hemlock Rust Mite
 Honeylocust Mite
 Pacific Mite
 Spruce Mite
 Two-spotted Mite

Moths, such as:

Amorbia
 Almond Moth
 Artichoke Plume Moth
 Codling Moth
 Cranberry Girdle Moth

European Pine Shoot Moth
 Grape Berry Moth
 Gypsy Moth
 Head Moth
 Oriental Fruit Moth
 Pine Tip Moth
 Sunflower Bud Moth
 Sunflower Moth
 Tiger Moth
 Tobacco Hornworm Moth
 Tufted Apple Bud Moth
 Tussock Moth

Nematodes, such as:

Banana Nematode
 Citrus Nematode
 Cyst Nematode
 Dagger Nematode
 Lesion Nematode
 Ring Nematode
 Root Knot Nematode
 Stem Nematode

Phylloxera, such as:

Grape Phylloxera

Psyllids

Sawflies

Scales, such as:

Azalea Bark Scale
 Black Scale
 Brown Soft Scale
 California Red Scale
 Camellia Scale
 Coffee Scale
 Cottony-cushion Scale
 Fern Scale
 Florida Red Scale
 Green Scale
 Juniper Scale
 Pine Needle Scale
 Purple Scale
 Rose Scale
 San Jose Scale
 Sugar Pine Scale
 Tea Scale
 Wax Scale

Sowbugs(Pillbugs)

Thrips, such as:

Citrus Thrips
 Flower Thrips
 Gladiolus Thrips
 Onion Thrips

Pear Thrips
Thrips palmi
Tobacco Thrips
Western Flower Thrips

Webworms, such as:

Fall Webworms
Sod Webworm

Whiteflies, such as:

Ash Whitefly

Banded-wing Whitefly
Bayberry Whitefly
Citrus Whitefly
Cloudy-winged Whitefly
Greenhouse Whitefly
Silverleaf Whitefly
Sweetpotato Whitefly
Variegated Whitefly
Wooly Whitefly

CROPS ON WHICH AZATIN 4.5 WP CAN BE USED

AZATIN 4.5 WP can be used indoors and outdoors. Plants may be potted, grown in the soil or soil-less mixtures or grown hydroponically.

BEDDING PLANTS, FLOWERS, POTTED PLANTS AND FOLLIAGE:

Actinopterin
African Violet
Aglaonema
Allamanda
Algerian Ivy
Alocasia
Anthurium
Aphelandra
Artemisia
Aster
Aucuba Ilex
Azalea
Baby's Breath
Begonia
Boouganvillea
Boston Fern
Boxwood
Brachycome
Cacti
Calabrese'
Caladium
Calla
Calathea
Calendula
Carnation
Chrysanthemum
Coleus
Columbine
Dahlia
Daisy
Daylily
Delphinium
Dianthus
Dieffenbachia
Dusty Miller
Easter Lily
English Ivy
Euphorbia

Fern
Ficus
Foxglove
Freezia
Fuchsia
Gaillardia
Gardenia
Geranium
Gerbera
Gladioli
Gloxinia
Gypsophilla
Hedera
Hibiscus
Impatiens
Iris
Lily
Manvilla
Marigold
Nasturtium
Pansy
Pelargonium
Peony
Peperomia
Petunia
Philodendron
Phlox
Photinia
Pittloporum
Pinks
Poinsetta
Pothos
Portulaca
Primrose
Rosemary
Rose
Rubberplant
Salvia

Schefflern
Sedum
Sempervivum
Snapdragon
Spathiphyllum
Stock
Syngonium
Verbena
Vinca
Wandering Jew
Zinnia

ORNAMENTALS:

African Violet
Ageratum
Arvborvitae
Aster
Aucuba Illex
Azalea
Begonia
Boxwood
Cacti
Calendula
Calla
Camella
Camellia
Carnation
Ceanothus
Chrysanthemum
Cineraria
Coleus
Cotoneaster
Cyclamen
Daffodil
Dahlia
Delphinium
Dogwood
Ficus

Foliage Plants
 Fuchsia
 Gardenia
 Geranium
 Gloxinia
 Hyacinth
 Hydrangea
 Iris
 Ivy
 Lily
 Maidenhair Fern
 Marigold
 Narcissus
 Orchid
 Pansy
 Pelargonium
 Peony
 Phlox
 Photinia
 Pittosporum
 Poinsettia
 Pyracantha
 Rhododendron
 Rose
 Rubber Plant
 Snapdragon
 Stock
 Tulip
 Wandering Jew
 White Cedar
 White Pine
 Yew
 Yucca
 Zinnia

TREES AND SHRUBS:

Andromeda
 Arborvitae
 Ash
 Austrian Pine
 Azalea
 Beech
 Birch
 Birdnest Spruce
 Blue spruce
 Boxwood
 Butternut
 Cedar
 Chamaecyparis
 Cherry
 Crabapple
 Cotoneaster
 Cyprus
 Dogwood
 Douglas fir
 Elm

Euonymus
 Fireorn
 Forsythia
 Hackberry
 Hawthorn
 Hemlock
 Hickory
 Holly
 Honey Locust
 Horse Chestnut
 Juniper
 Larch
 Laurel
 Lilac
 Linden
 Londo Plane
 Magnolia
 Manvillia
 Maple
 Mimosa
 Moutain Ash
 Myrtle
 Oak
 Pachysandra
 Peach
 Pine
 Planetree
 Poplar
 Privet
 Quince
 Spruce
 Sycamore

TURFGRASS:

Bentgrass
 Bermuda grass
 Bluegrass
 Annual Bluegrass
 Centipede Grass
 Fascue
 Ryegrass
 Annual Ryegrass
 Perennial Ryegrass
 St. Augustine
 Wheatgrass
 Zoysia Grass

BRASSICA (Cole) CROPS:

Broccoli
 Brussels Sprouts
 Bok Choy
 Cabbage
 Chinese cabbage
 Cauliflower

BULB VEGETABLES:

Garlic
 Leek
 Onion
 Shallot

CEREAL GRAINS:

Barley
 Buckwheat
 Corn, field
 Corn, sweet
 Corn, pop
 Millet
 Oats
 Rice
 Rye
 Sorghum
 Triticale
 Wheat

CITRUS FRUITS:

Calamandin
 Citrus citron
 Grapefruit
 Kumquat
 Lemon
 Limes
 Mandarin (tangerine)
 Orange, sour
 Orange, sweet
 Pummelo
 Satsuma Mandarin

CUCURBIT VEGETABLES:

Balsam pear(bitter melon)
 Chinese waxground
 Citron Melon
 Cucumber
 Gherkin
 Gourds
 Cantaloupe
 Casaba
 Crenshaw
 Honeydew
 Honeyballs
 Mango Melon
 Pumpkin
 Squash
 Watermelon

FIBER CROPS:

Cotton
 Flax
 Kenaf

FORAGE AND FODDER

CROPS:

Alfalfa
Annual Ryegrass
Bermuda Grass
Bluegrass
Clover
Fescue
Hay (Mixed)
Kudzu
Lespedeaz
Lupine
Orchard grass
Pasture (Mixed)
Perennial Ryegrass
Redtop
Sainfoin
Timothy
Trefoil
Vetches
Wheatgrasses

FRUITING VEGETABLES:

Eggplant
Ground Cherry
Pepinos
Peppers
Tomatillo
Tomato

HERBS AND SPICES:

Anise
Balm
Basil
Borage
Burnnet
Camomile
Caraway
Catnip
Chives
Celery
Coriander
Costmary
Cumin
Curry Leaf
Dadelion
Dill
Fennel
Fenugreek
Horehound
Hyssop
Mint
Marigold
Marjoram
Nasturtium
Pennyroyal

Rosemary
Rue
Sage
Savory
Sweet Bay
Tansy
Tarragon
Thyme
Wintergreen
Woodruff
Wormwood

LEAFY VEGETABLES:

Chinese Spinach
Celery
Chervil
Collards
Corn salad
Chrysanthemem (edible)
Cress
Endive
Fennel
Kale
Kohlrabi
Lettuce
Mustard Greens
Orach
Parsley
Rhubarb
Spinach
Swiss Chard
Turnip tops

LEGUMINOUS CROPS:

Beans (Phaseolus, Lupinus,
Vicia, Vigna spp)
Chick Peas(garbanzos)
Lentil
Peas (Pisum spp)
Soybeans

NUTS:

Almond
Beach nut
Brazil nut
Butternut
Cashew
Chestnut
Chinquapin
Filberts (hazelnuts)
Hickory Nuts
Lychee
Macadamia
Pecan
Pistachio
Walnuts

OIL SEED CROPS:

Canola
Castors
Crambe
Guar
Jojoba
Peanuts
Rape
Safflower
Sesame
Soybean
Sunflower

POME FRUITS:

Apple
Crabapple
Loquat
Mayhaws
Pear
Quince
Jujube

ROOT AND TUBER CROPS:

Beet, red
Beet, sugar
Carrot
Cassava
Celeriac
Chervil
Dasheen (taro)
Ginger
Horseradish
Jicama
Parsnips
Potato
Radish
Radish, Japanese (Daikon)
Rutabaga
Salisfy
Sweet potato
Tumeric
Turnip
Yam
Yam Bean

STONE FRUITS:

Apricot
Cherry, sour
Cherry, sweet
Nectarine
Peach
Plum
Prune

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SMALL FRUITS AND

BERRIES:

- Blackberry
- Blueberry
- Boysenberry
- Cranberry
- Current Dew Berry
- Elderberry
- Gooseberry
- Grape
- Huckleberry
- Loganberry
- Olives
- Olallie, berry
- Raspberry
- Strawberry
- Youngberry

TROPICAL FRUITS:

- Abiu
- Atemoya
- Breadfruit
- Banana
- Cherimoya

- Durian
- Guava
- Longan
- Malanga
- Mango
- Mangosteen
- Papaya
- Passion Fruit
- Plantain
- Rambutan
- Starfruit

MISCELLANEOUS CROPS:

- Artichoke
- Asparagus
- Avocados
- Birdseed
- Cardone
- Coffee
- Cacao
- Edible flowers
- Feijoa
- Figs
- Hops

- Guayule
- Kiwi
- Mushrooms
 - Agaricus
 - Oyster
 - Chitake
- Okra
- Palm
- Papaya
- Pawpaw
- Persimmon
- Pineapple
- Sugar Cane
- Tamarillo
- Tea
- Tobacco
- Waterchesnut
- Watercress

- NON-CROP AREAS
- RANGELAND
- BARRIER STRIPS
- RIGHTS OF WAY
- WASTELANDS.

Important Note: This product has been evaluated for phytotoxicity on a wide range of crops. However, since all combinations or sequences of pesticide sprays including fertilizers, surfactants and adjuvants have not been tested, spray a small area first to make certain that no phytotoxicity occurs.

PREHARVEST INTERVAL

There are no restrictions on applying this product up to the time of harvest. Individual state regulations may vary and should be consulted for allowable pre-harvest interval.

MODE OF ACTION:

This product controls targeted insect larvae when they ingest or come in contact with it, by interfering with the insect's ability to molt. It is effective on all larval stages and pupae. It also reduces crop damage by repelling and deterring feeding of all stages of insects.

GENERAL APPLICATION DIRECTIONS

READ ALL DIRECTIONS BEFORE USING.

Dilute AZATIN 4.5 WP in water at a rate up to 21 ounces (20 grams active ingredient) per acre. Apply using any suitable ground or aerial equipment, in a manner to obtain uniform and complete plant coverage. For agronomic crops apply using conventional application equipment in a minimum of 30 gallons of water per acre and aerial application equipment in a minimum of 3 gallons of water per acre. Avoid over-spraying to the point of excessive runoff. Refer to tables for detailed dilution rates. Do not make more than seven applications per season if using the maximum application rate of 20 grams a.i. per acre.

WETTABLE POWDER USE DIRECTIONS**Application Rates for Whitefly and Other Greenhouse (Including Lath and Shade), Nursery and Interiorscape Pests**

Apply AZATIN 4.5 WP at the use dilution rate in 100 gallons of water to assure adequate plant coverage.

Pests Controlled by Azatin 4.5 WP	Rate of Azatin 4.5 WP per 100 gallons water*	Remarks
Sweetpotato Whitefly	6 to 10 oz.	Foliar application to larvae and nymphs.
Silverleaf Whitefly	6 to 10 oz.	Foliar application to larvae and nymphs.
Greenhouse Whitefly	6 to 10 oz.	Foliar application to larvae and nymphs.
Fungus Gnats	5 oz.	Apply as soil drench for maggot control.
Western Flower Thrips	8 to 10 oz.	Suppression of larvae and adult feeding Deterrence.
Aphids	8 to 10 oz.	Suppression and adult feeding deterrence.
Leafminers	8 to 10 oz.	Foliar application to larvae.
Armyworms	6 to 10 oz.	Foliar application to larvae.
Black Vine Weevil	12 to 15.5 oz.	Soil and foliar application to larvae.
Mushroom Fly	15.5 oz.	Apply as soil drench for maggot control.

*use 1-2 gallons of spray solution/1,000 sq. feet

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Application Rates for Whitefly and Other Greenhouse(Including Lath and Shade), Nursery and Interiorscape Pests
(Cont.)

Apply AZATIN 4.5 WP at the use dilution rate in 100 gallons of water to assure adequate plant coverage.

Pests Controlled by Azatin 4.5 WP	Rate of Azatin 4.5 WP per 100 gallons water*	Remarks
Others		
Bagworms	6 to 10 oz.	Foliar application to nymphs/larvae
Borers		
Budworms		
Cankerworms		
Cutworms		
Gypsy moths		
Leafhoppers		
Leafrollers		
Sawflies		
Tent Caterpillars		
Webworms		

*use 1-2 gallons of spray solution/1,000 sq. feet

Application Rates for Key Insect Pests in Vegetables, Fruits, Nuts and Agronomic Crops

Apply AZATIN 4.5 WP at the use rates in sufficient water to assure adequate coverage.
(Conventional application equipment: apply in a minimum of 30 gallons water per acre)
(Aerial application equipment: apply in a minimum of 3 gallons water per acre)

Pests controlled by Azatin 4.5 WP	Rate of Azatin 4.5 WP per Acre*	Remarks
Aphids, such as:		
Cotton Aphid	8 to 10 oz.	Foliar application, for suppression only
Green peach Aphid		
Hop Aphid		
Potato Aphid		
Melon Aphid		
Armyworms, such as:		
Beet Armyworm	4 to 8 oz.	Foliar application to larvae
Fall Armyworm		
Southern Armyworm		
Yellow Stripe Armyworm		
Beetles, such as:		
Colorado Potato Beetle	4 to 8 oz.	Foliar application to larvae
Curcubit Beetle		
Borers, such as:		
Peach twig Borer	8 to 10 oz.	Foliar application to larvae
Corn Earworm		
Peachtree Borer		
Mint Root Borer		

Application Rates for Key Insect Pests in Vegetables, Fruits, Nuts and Agronomic Crops (cont.)

Apply AZATIN 4.5 WP at the use rates in sufficient water to assure adequate coverage
(Conventional application equipment: apply in a minimum of 30 gallons water per acre)
(Aerial application equipment: apply in a minimum of 3 gallons water per acre)

Pests controlled by Azatin 4.5 WP	Rate of Azatin 4.5 WP per Acre*	Remarks
Caterpillars, such as:		
Artichoke Plume Moth	8 to 10 oz.	Foliar application to larvae
Cabbage Butterfly	4 to 8 oz.	
Corn Earworm	4 to 8 oz.	
Diamondback Moth	6 to 10 oz.	
Fruitree Leafroller	8 to 10 oz.	
Grape Leafroller	4 to 8 oz.	
Hickory Shuckworm	8 to 10 oz.	
Imported Cabbageworm	4 to 8 oz.	
Navel Orangeworm	8 to 10 oz.	
Omnivorous Leafroller	4 to 8 oz.	
Tobacco Budworm	4 to 8 oz.	
Tobacco Hornworm	4 to 8 oz.	
Tomato Fruitworm	4 to 8 oz.	
Western Grapeleaf Skeletonizer	4 to 8 oz.	
Cutworms, such as:		
Citrus Cutworm	8 to 10 oz.	Foliar application to larvae
Black Cutworm	4 to 8 oz.	
Variegated Cutworm	4 to 8 oz.	
Loopers, such as:		
Cabbage Looper	4 to 8 oz.	Foliar application to larvae
Soybean Looper	4 to 8 oz.	
Leafminers, such as:		
Citrus Leafminer	8 to 10 oz.	Foliar application to larvae. Use with Oil.
Serpentine Leafminer	6 to 12 oz.	
Vegetable Leafminer	6 to 12 oz.	
Leafhoppers, such as:		
Grape Leafhopper	10 to 15 oz.	Foliar application to nymphs. Use
Variegated Leafhopper	10 to 15 oz.	Equipment to target the underside of
		Leaves.
Scales, such as:		
Coffee Scale	8 to 10 oz.	Foliar Application. Use with Oil.
Whiteflies, such as:		
Greenhouse Whitefly	8 to 12 oz.	Foliar application to nymphs. Use
Sweet Potato Whitefly	8 to 12 oz.	Equipment to target undersides of
		leaves.

*When using lower rates (under 10 oz.), combine Azatin 4.5 WP with an approved adjuvant such as a non-phytotoxic crop oil, up to 1%.

WATER-SOLUBLE POUCH DIRECTIONS

Application Rates for Whitefly and Other Greenhouse (Including Lath and Shade), Nursery and Interiorscape Pests

Apply AZATIN 4.5 WP at the use dilution rate in 100 gallons of water to assure adequate plant coverage.

Pests Controlled by Azatin 4.5 WP	Rate of Azatin 4.5 WP per 100 gallons water*	Remarks
Sweetpotato Whitefly	1 to 2 pk.	Foliar application to larvae and nymphs.
Silverleaf Whitefly	1 to 2 pk.	Foliar application to larvae and nymphs.
Greenhouse Whitefly	1 to 2 pk.	Foliar application to larvae and nymphs.
Fungus Gnats	1 pk.	Apply as soil drench for maggot control.
Western Flower Thrips	2 to 3 pk.	Suppression of larvae and adult feeding Deterrence.
Aphids	2 to 3 pk.	Suppression and adult feeding deterrence.
Leafminers	2 to 3 pk.	Foliar application to larvae.
Armyworms	1 to 2 pk.	Foliar application to larvae.
Black Vine Weevil	3 to 4 pk.	Soil and foliar application to larvae.
Mushroom Fly	4 pk.	Apply as soil drench for maggot control.
Others		
Bagworms	1 to 2 pk.	Foliar application to nymphs/larvae
Borers		
Budworms		
Cankerworms		
Cutworms		
Gypsy moths		
Leafhoppers		
Leafrollers		
Sawflies		
Tent Caterpillars		
Webworms		

*use 1-2 gallons of spray solution/1,000 sq. feet

(1 wsp = 4 oz.)

Application Rates for Key Insect Pests in Vegetables, Fruits, Nuts and Agronomic Crops

Apply AZATIN 4.5 WP at the use rates in sufficient water to assure adequate coverage.
(Conventional application equipment: apply in a minimum of 30 gallons water per acre)
(Aerial application equipment: apply in a minimum of 3 gallons water per acre)

Pests controlled by Azatin 4.5 WP	Rate of Azatin 4.5 WP per Acre*	Remarks
Aphids, such as:		
Cotton Aphid	2 to 3 pk.	Foliar application, for suppression only
Greenpeach Aphid		
Hop Aphid		
Potato Aphid		
Melon Aphid		
Armyworms, such as:		
Beet Armyworm	1 to 2 pk.	Foliar application to larvae
Fall Armyworm		
Southern Armyworm		
Yellow Stripe Armyworm		
Beetles, such as:		
Colorado Potato Beetle	1 to 2 pk.	Foliar application to larvae
Curcubit Beetle		
Borers, such as:		
Peachtwig Borer	2 to 3 pk.	Foliar application to larvae
Corn Earworm		
Peachtree Borer		
Mint Root Borer		
Caterpillars, such as:		
Artichoke Plume Moth	2 to 3 pk.	Foliar application to larvae
Cabbage Butterfly	1 to 2 pk.	
Corn Earworm	1 to 2 pk.	
Diamondback Moth	1 to 2 pk.	
Fruitree Leafroller	2 to 3 pk.	
Grape Leafroller	1 to 2 pk.	
Hickory Shuck Worm	2 to 3 pk.	
Imported Cabbage Worm	1 to 2 pk.	
Navel Orangeworm	2 to 3 pk.	
Omnivorous Leafroller	1 to 2 pk.	
Tobacco Budworm	1 to 2 pk.	
Tobacco Hornworm	1 to 2 pk.	
Tomato Fruitworm	1 to 2 pk.	
Western Grapeleaf Skeletonizer	1 to 2 pk.	
Cutworms, such as:		
Citrus Cutworm	2 to 3 pk.	Foliar application to larvae
Black Cutworm	1 to 2 pk.	
Variegated Cutworm	1 to 2 pk.	

Loopers, such as:		
Cabbage Looper	1 to 2 pk.	Foliar application to larvae
Soybean Looper	1 to 2 pk.	
Leafminers, such as:		
Citrus Leafminer	2 to 3 pk.	Foliar application to larvae. Use with Oil.
Serpentine Leafminer	2 to 3 pk.	
Vegetable Leafminer	2 to 3 pk.	
Leafhoppers, such as:		
Grape Leafhopper	2 to 4 pk.	Foliar application to nymphs. Use
Variegated Leafhopper	2 to 4 pk.	Equipment to target the underside of
		Leaves.
Scales, such as:		
Coffee Scale	2 to 3 pk.	Foliar Application. Use with Oil.
Whiteflies, such as:		
Greenhouse Whitefly	2 to 3 pk.	Foliar application to nymphs. Use
Sweet Potato Whitefly	2 to 3 pk.	Equipment to target undersides of
		leaves.
*When using lower rates (under 10 oz.), combine Azatin 4.5 WP with an approved adjuvant such as a non-phytotoxic crop oil, up to 1%.		

Make applications when pests first appear and are in their early larval stages. Repeat applications every 7 days or as needed.

For best results, add a spreader-sticker at the label rate.

Maintain dilute solutions containing Azatin 4.5 WP at a pH between 3 and 7, and apply soon after preparation. Do not store for later use.

When pest populations are high, use the higher label rates.

This product may be pre-mixed in a supply tank with water, fertilizer or other appropriate agricultural chemicals. Agitation is necessary (See Mixing Directions). Crop injury or lack of effectiveness can result if uniform distribution is not achieved.

MIXING DIRECTIONS

For best results,

1. Use clean equipment.
2. Fill tank $\frac{1}{2}$ full to $\frac{3}{4}$ full with water and begin agitation.
3. Add pesticide to a container with adequate water to make a slurry. Add slurry to tank.
4. Fill the tank completely with water and mix thoroughly before applying.
5. Adjust spray solution to between 3 to 7 pH, if necessary.
6. Add spreader-sticker at label rates.
7. Apply pesticide mix immediately after mixing.
8. If the mixture is not applied immediately, agitate before application.
9. Thoroughly clean equipment following application.

TANK MIXTURES OR FLUID FERTILIZERS:

1. Before using this product in a tank mix with fertilizer or registered pesticide, determine compatibility by conducting a compatibility test with a small amount of each product.
2. Observe all cautions and limitations on labels of all products used in combination.
3. Follow all tank mix directions and observe limitations listed in the combination product(s) label.

COMPATIBILITY TEST

Perform a compatibility test before tank mixing this product with other product(s) or liquid fertilizer(s). Fill three separate 1 quart jars with 1 pint of water and fertilizer. To a first jar add this product and mix well. To a second jar, add the desired other tank mix product(s) and mix well. To a third jar, combine this product with the other tank mix product(s) and mix well. If more than one product is used, add them separately with dry formulations first, flowables next, and emulsifiable concentrates last. After each addition, shake or stir gently to thoroughly mix. For the appropriate amount of product for this test use the following:

DRY PRODUCTS-For each pound to be applied per acre, add 1.5 level teaspoons to each jar.

LIQUID PRODUCTS-For each pint to be applied per acre, add 0.5 teaspoons or 2.5 ml to each jar.

Note any differences between the mixtures in the jars (compounds alone vs. mixtures) after 15 min. Look for evidence of physical incompatibility such as clumping, precipitation, and oily residues on the sides of the glass or other signs of incompatibility. If either mixture separates, but can be readily re-mixed, the mixture can be sprayed as long as good agitation is used. If the mixtures are incompatible, do not use the mixture. For additional mixing information or assistance call Certis's Customer Service at (800) 250-5024.

CHEMIGATION:

Refer to supplemental labeling entitled "Chemigation Bulletin" for use directions for chemigation. Do not apply this product through any irrigation system unless the supplemental labeling on chemigation is followed.

SPRAY:

High Volume-When plant foliage is dense, use the higher label rates and increase spray gallonage to obtain uniform and complete coverage.

Aerial/Low/ultra low volume-Apply Azatin® 4.5 WP at rates of 4 to 21 oz./acre in a minimum of 3 gallons of water per acre. For best results, ensure uniform and complete plant coverage.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Do not store above 100 degrees F or below -20 degrees F for extended periods of time. Keep containers tightly closed when not in use.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL: Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke. For Water Soluble Pouches: Dispose of the empty outer foil pouch in the trash, as long as water soluble pouch is unbroken.

WARRANTY

Certis USA, L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purposes referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the insect problem, condition of the crop, incompatibility with other chemicals not specifically recommended, and other influencing factors in the use of this product are beyond the control of the seller. Buyer assumes all risks of use, storage or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.

Chemigation Bulletin

GENERAL INFORMATION:

Apply this product only through drip (trickle); sprinkler (solid set, lateral move, end tow, sideroll, center pivot, or hand move); flood (basin); furrow; or border irrigation systems. Do not apply this product through any other type of irrigation system.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Chemigation systems connected to public water systems must contain a functional, reduced pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, discharge the water from the public water system into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.

The pesticide injection pipeline must contain a functional, normally closed, solenoid operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

DRIP TRICKLE CHEMIGATION:

1. The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer, or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the application rate evenly to the entire treated area.

SPRINKLER CHEMIGATION:

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must also contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer, or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply when soils are moderately moist. Use volumes that thoroughly wet the foliage and/or soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the application rate evenly to the

entire treated area.

8. Do not apply when wind speed favors drift beyond the area intended for treatment.

FLOOD (BASIN), FURROW AND BORDER CHEMIGATION:

1. Systems using a gravity flow pesticide dispensing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential of water source contamination from the backflow if water flow stops.
2. Systems utilizing a pressurized water and pesticide injection system must meet the following requirements:
 - a. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
 - b. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
 - c. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
 - d. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
 - e. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
 - f. Systems must use a metering pump, such as a positive displacement injection pump (i.e., diaphragm pump), effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
3. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer, or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff. Application should be continuous in sufficient water to apply the application rate evenly to the entire treated area.

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