

# AZATIN<sup>®</sup> O

**BIOLOGICAL INSECTICIDE**

**SPECIMEN LABEL**

## INSECT GROWTH REGULATOR

**FOR INDOOR AND OUTDOOR USE ON ORNAMENTALS, TURF (INCLUDING COMMERCIAL LAWNS), VEGETABLES, AND OTHER HORTICULTURAL CROPS**

### ACTIVE INGREDIENT:

Azadirachtin ..... 4.5%

**OTHER INGREDIENTS:** ..... 95.5%

**TOTAL:** ..... 100.0%

This product contains 0.39 lbs. (175 g) of azadirachtin per US gallon.



**CAN BE USED IN ORGANIC PRODUCTION**

**EPA Reg. No.: 70051-9-59807**

**EPA Est. No.: 39578-TX-01**

If you have questions or comments regarding the use of this product, please call 1-800-356-4647.

### KEEP OUT OF REACH OF CHILDREN CAUTION

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

#### FIRST AID

<b>If in eyes:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If on skin or clothing:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If inhaled:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If swallowed:</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything to an unconscious person.</li> <li>• Have the product container or label with you when calling a poison control center or doctor, or going for treatment.</li> </ul>

**Hot Line Number: 1-800-356-4647**

### PRECAUTIONARY STATEMENTS

#### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION:** Avoid contact with skin, eyes or clothing. Harmful if swallowed or inhaled. Avoid breathing vapors or spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

#### 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 C 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 rubber, neoprene rubber, polyvinyl chloride (PVC), or Viton.
- Shoes plus socks
- Protective eyewear

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not re-use them.

#### User Safety Recommendations

Users Should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### ENVIRONMENTAL HAZARDS

This product may be hazardous to fish and aquatic invertebrates. For terrestrial uses: Do not apply directly to water, or

**Net Contents: 1 Quart (32 fl. oz.) (946 mL)**



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 wash waters or rinsate.

## PHYSICAL AND CHEMICAL HAZARDS

Combustible: Do not use or store near heat or open flame.

## DIRECTIONS FOR USE

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

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

### AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard. Do not enter or allow workers 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.
- Chemical-resistant gloves, such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, polyvinylchloride (PVC), or Viton.
- Shoes plus socks.
- Protective Eyewear

### 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 Standards for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, 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.

## INSECTS AND OTHER PESTS CONTROLLED BY AZATIN O

### Aphids and Adelgids, such as:

Apple Aphid	Melon Aphid	Cooley Spruce Adelgid
Blackmargined Aphid	Pea Aphid	Eastern Spruce Gall Adelgid
Cabbage Aphid	Potato Aphid	Pine Bark Adelgid
Cotton Aphid	Red Aphid	Woolly Hemlock Adelgid
Filbert Aphid	Rose Aphid	
Green Peach Aphid	Woolly Apple Aphid	

INSECTS AND OTHER PESTS CONTROLLED BY **AZATIN O** (continued next column)

## INSECTS AND OTHER PESTS CONTROLLED BY AZATIN O (continued)

### Beetle Larvae, Weevil Larvae, and Grubs, such as:

Bark Beetles	Douglas Fir Beetle	Pine Root Collar Weevil
Bean Leaf Beetle	Elm Leaf Beetle	Potato Flea Beetle
Billbugs	Flea Beetles	Southern Pine Beetle
Black Vine Weevil	Japanese Beetle	Strawberry Beetles
Blister Beetles	Japanese Weevil	Strawberry Root Weevil
Bluegrass Weevil	June Beetles	Strawberry Weevil
Boll Weevil	May Beetle	Twig Girdlers
Chafers ( <i>see list below</i> )	Mountain Pine Beetle	White-fringed Beetle
Chestnut Weevil	Mexican Bean Beetle	White Pine Weevil
Colorado Potato Beetle	Pecan Weevil	Wireworms
Cucumber Beetles		

### Borers, such as:

Azalea Stem Borer	Lilac Borer	Peach Twig Borer
Bronze Birch Borer	Mint Root Borer	Southwestern Corn Borer
Dogwood Borer	Oak Borer	
Dogwood Twig Borer	European Corn Borer	Squash vine Borer
Iris Borer	Peachtree Borer	Rhododendron Borer

### Bugs, such as:

Boxelder Bug	Lygus Bugs	Squash Bugs
Chinch Bug	Stink Bugs (all types)	

### Cankerworms, such as:

Elm Spanworm	Linden Looper	Spring Cankerworm
Fall Cankerworm		

### Armyworms, Bollworms, Budworms, Caterpillars, Fruitworms, Loopers, Webworms, and Other Worms (*Lepidoptera larvae*), such as:

Armyworms	Hornworms	Soybean Looper
Bagworms	Imported Cabbageworm	Spruce Budworm
Beet Armyworm	Lawn Armyworm	Tent Caterpillar
Bollworm	Leafrollers	Tobacco Budworm
Borers ( <i>see list above</i> )	( <i>see list below</i> )	Tobacco Hornworm
Cabbage Looper	Linden Looper	Tomato Fruitworm
Cabbage Butterfly	Melon Worm	Tomato Hornworm
Cherry Fruitworm	Melon Rindworm	Tomato Pinworm
Corn Earworm	Moth Larvae	Walnut Caterpillar
Cutworms	( <i>see list below</i> )	Western Grapeleaf Skeletonizer
( <i>see list below</i> )	Navel Orangeworm	Western Spruce Budworm
Dagger Moth	Pecan Nut Casebearer	Western Yellowstriped Armyworm
Diamondback Moth	Pickleworms	Yellowstriped Armyworm
Fall Armyworm	Pink bollworm	
Grapefruit Worm	Rindworm	
Grape Leafroller	Red-humped Caterpillar	
Grapeleaf Skeletonizer	Saltmarsh Caterpillar	
Hickory Shuckworm	Southern Armyworm	

### Chafers, such as:

European Chafer	Rose Chafer	Southern Masked Chafe
Northern Masked Chafer		

### Crickets, such as:

Mole Cricket	Mormon Cricket
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### Cutworms, such as:

Black Cutworm	Climbing Cutworm	Variigated Cutworm
Citrus Cutworm	Western Bean Cutworm	

### Grasshoppers and Locusts

### Leafrollers and Leaf tiers

### Leafhoppers, such as:

Aster Leafhopper	Potato Leafhopper	Variigated Leafhopper
Grape Leafhopper		

INSECTS AND OTHER PESTS CONTROLLED BY **AZATIN O** (continued next page)

**INSECTS AND OTHER PESTS CONTROLLED BY AZATIN O** (continued)

**Leafminers, such as:**

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

**Leafrollers, such as:**

Blueberry Leafroller	Grape Leafroller	Omnivorous Leafroller
Filbert Leafroller	Obliquebanded Leafroller	<i>Pandemis</i> Leafroller
Fruittree Leafroller		

**Leaf perforators**

**Maggots (Fly larvae), such as:**

Cabbage Maggot	Leatherjackets	Phorid Flies
Caribbean Fruit Fly	Mediterranean Fruit Fly	Seed Corn Maggot
Crane Fly	Mushroom Fly	Sciarid Flies
Fruit flies	Melon Fly	Shore Fly
Fungus Gnat	Onion Maggot	Walnut Husk Fly
Hessian Fly	Oriental Fruit Fly	

**Marsh Flies, Crane Flies, and Leatherjackets**

**Mealybugs**

**Midges, such as:**

Chrysanthemum Gall Midge	Douglas Fir Midge	Rose Midge
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**Millipedes**

**Moth larvae, such as:**

Artichoke Plume Moth	Gypsy Moth	Sunflower Moth
Codling Moth	Light Brown Apple Moth	Tiger Moth
Diamondback Moth		Tufted Apple Bud Moth
European Pine Shoot Moth	Oriental Fruit Moth	Tussock Moth
European Grapevine Moth	Pine Tip Moth	
	Sunflower Bud Moth	

**Nematodes (suppression)**

**Phylloxera, such as:**

Grape Phylloxera	Pecan Leaf Phylloxera	Pecan Stem Phylloxera
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**Psyllids, such as:**

Asian Citrus Psyllid	Potato Psyllid	Tomato Psyllid
Pear Psylla		

**Sawflies**

**Scale insects, such as:**

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

**Sowbugs (Pillbugs)**

**Spittlebugs**

**Thrips, such as**

Citrus Thrips	Melon Thrips	<i>Thrips palmi</i>
Flower Thrips	Onion Thrips	(Melon Thrips)
Gladiolus Thrips	Pear Thrips	Western Flower Thrips

**Webworms, such as:**

Fall Webworm	Lesser Webworm	Sod Webworm
Garden Webworm		

INSECTS AND OTHER PESTS CONTROLLED BY **AZATIN O** (continued next column)

**INSECTS AND OTHER PESTS CONTROLLED BY AZATIN O** (continued)

**Whiteflies, such as:**

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

**CROPS ON WHICH AZATIN O CAN BE USED**

**AZATIN O** can be used on the following crops and in the following situations:

- Greenhouses and other covered structures (including lath and shade), interiorscapes, turf, nurseries, and landscapes: For use on ornamental plants (foliage and flowering plants, cut flowers, greens, shrubs), herbs, spices, vegetables, melons, strawberries, and other food crops raised to harvest or food crop plants raised for commercial resale, and nursery stock (including bearing and non-bearing fruit trees and grapevines).
- For all outdoor grown non-food crops including non-bearing fruit trees and other field grown foliage, flowering and ornamental plants.
- Can be used indoors and outdoors. Plants may be potted, grown in soil or soilless mixtures, or grown hydroponically.

**Bedding Plants, Foliage plants, Flowers, Potted Plants, and other Ornamental Plants, such as:**

Actinopteris	Chrysanthemum	Geranium	Phlox
African Violet	Cineraria	Gerbera	Photinia
Ageratum	Coleus	Gladioli	Pinks
Aglaonema	Columbine	Gloxinia	Pittosporum
Allamanda	Cyclamen	Gypsophilla	Poinsettia
Algerian Ivy	Daffodil	Hedera	Portulaca
Alocasia	Dahlia	Hibiscus	Primrose
Anthurium	Daisy	Hyacinth	Pothos
Aphelandra	Daylily	Hydrangea	Rosemary
Artemisia	Delphinium	Impatiens	Rose
Aster	Dianthus	Iris	Rubberplant
Aucuba Illex	Dieffenbachia	Ivy (all types)	Salvia
Azalea	Dracaena	Lily (all types)	Schefflera
Baby's Breath	Dusty Miller	Maidenhair Fern	Sedum
Begonia	Easter Lily	Mandavilla	Sempervivum
Bougainvillea	English Ivy	Marigold	Snapdragon
Boston Fern	Euphorbia	Narcissus	Spathiphyllum
Boxwood	Fern	Nasturtium	Stock
Brachycome	Ficus	Orchid (all types)	Syngonium
Cacti	Foliage Plants	Pansy	Tulip
Calabrese	Foxglove	Pelargonium	Verbena
Caladium	Freesia	Peony	Vinca
Calla	Fuchsia	Peperomia	Wandering Jew
Calathea	Gaillardia	Petunia	Yucca
Calendula	Gardenia	Philodendron	Zinnia
Carnation			

**Brassica (Cole) Crops, such as:**

Bok Choy	Cauliflower	Cavalo Broccolo	Mustard Greens
Broccoli	Chinese Cabbage	Collards	Mizuna
Broccoli Raab	(Bok Choy,	Kale	Rapini
Brussels Sprouts	Gai Lon, Napa)	Kohlrabi	Turnip Tops
Cabbage			

**Bulb Vegetables, such as:**

Garlic	Leek	Onion (all types)	Shallot
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**Citrus Fruits, such as:**

Calamondin	Kumquat	Mandarin	Pummelo
Citrus citron	Lemon	(Tangerine)	Satsuma
Grapefruit	Lime	Orange	Mandarin
		(all types)	

INSECTS AND OTHER PESTS CONTROLLED BY **AZATIN O** (continued next page)

**CROPS ON WHICH AZATIN O CAN BE USED** (continued)

**Cucurbit Vegetables, such as:**

Balsam pear (Bitter Melon)	Citron Melon Crenshaw	Honeyballs Honeydew	Pumpkin Squash (all types)
Cantaloupe	Cucumber	Mango Melon	Watermelon
Casaba	Gherkin	Muskmelon	Other Melons
Chinese Waxgourd	Gourds		

**Fruiting Vegetables, such as:**

Eggplant	Okra	Peppers (all types)	Tomatillo
Ground Cherry	Pepino		Tomato

**Herbs and Spices, such as:**

Allspice	Chives	Lemongrass	Rue
Angelica	Cilantro	Lovage	Saffron
Anise	Cinnamon	Mace	Sage
Annatto	Cloves	Marigold	Savory
Balm	Coriander	Marjoram	Spearmint
Basil	Costmary	Mint	Sweet Basil
Borage	Curmin	Mustard Seed	Sweet Bay
Burnet	Curry Leaf	Nasturtium	Tansy
Camomile	Dill	Nutmeg	Tarragon
Caper Buds	Fennel	Pennyroyal	Thyme
Caraway	Fenugreek	Pepper (Black or White)	Vanilla
Cardamom	Horehound	Poppy Seed	Wintergreen
Cassia	Hyssop	Rosemary	Woodruff
Catnip	Juniper Berry		Wormwood
Celery Seed	Lavender		

**Leafy Vegetables, such as:**

Arugula	Chinese Spinach	Dock (Sorrel)	Purslane
Cardoon	Corn Salad	Endive (Escarole)	Radicchio
Celery	(Mâche)	Fennel	Rhubarb
Celtnce	Chrysanthemum (Edible)	Lettuce (all types)	Spinach
Chervil	Cress (all types)	Orach	Swiss Chard
Chinese Celery	Dandelion	Parsley	

**Ornamental Trees and Shrubs, such as:**

Andromeda	Cotoneaster	Horse Chestnut	Photinia
Arborvitae	Crabapple	Hydrangea	Pine (all types)
Ash	Cyprus	Juniper	Pittosporum
Aucuba Ilex	Dogwood	Larch	Planetree
Austrian Pine	Douglas Fir	Laurel	Poplar
Azalea	Elm	Lilac	Privet
Beech	Euonymus	Linden	Pyracantha
Birch	Ficus	London Plane	Quince
Birdsnest Spruce	Firethorn	Magnolia	Rhododendron
Blue Spruce	Forsythia	Mandevilla	Rose
Boxwood	Hackberry	Maple (all types)	Rubber Plant
Butternut	Hawthorn	Mimosa	Spruce
Cacti	Hemlock	Mountain Ash	Sycamore
Camellia	Hibiscus	Myrtle	White Cedar
Ceanothus	Hickory	Oak	White Pine
Cedar	Holly	Pachysandra	Yew
Chamaecyparis	Honey Locust	Peach	Yucca
Cherry			

**Pome Fruits, such as:**

Apple	Jujube	Mayhaw	Quince
Crabapple	Loquat	Pear	

**Root and Tuber Crops, such as:**

Beet (all types)	Dasheen (taro)	Parsnip	Sweet Potato
Carrot	Ginger	Potato	Turmeric
Cassava	Ginseng	Radish	Turnip
Celeriac	Horseradish	Rutabaga	Yam
Chervil	Japanese radish	Salisfy	Yam bean
Daikon	Jicama	Sugarbeet	

**CROPS ON WHICH AZATIN O CAN BE USED** (continued)

**Small Fruits and Berries, such as:**

Blackberry (all types)	Currant Dew Berry	Grapes (all types)	Olallieberry
Blueberry	Elderberry	Huckleberry	Raspberry
Boysenberry	Gooseberry	Loganberry	Strawberry
		Olives	Youngberry

**Stone Fruits, such as:**

Apricot	Nectarine	Plumcot
Aprium	Peach	Pluot
Cherry (all types)	Plum	Prune

**Tree Nuts, such as:**

Almond	Cashew	Filberts (Hazelnuts)	Macadamia
Beech Nut	Chestnut	Hickory Nuts	Pecan
Brazil Nut	Chinquapin		Pistachio
Butternut			Walnuts

**Tropical and Subtropical Fruits, such as:**

Banana	Plantain
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**Turfgrass, such as:**

Annual Blue-grass	Bermuda grass	St. Augustine Grass	Wheatgrass
Annual Ryegrass	Centipede Grass	Seashore Paspalum	Zoysia Grass
Bentgrass	Fescue		
	Perennial Ryegrass		

**Miscellaneous Crops, such as:**

Artichoke	Edible flowers	Mushrooms (all types)	Pomegranate
Asparagus	Feijoa	Palm	Tamarillo
Birdseed	Figs	Pawpaw	Tea
Cacao	Hops	Persimmon	Tobacco
Coffee	Guayule	Pineapple	Waterchestnut
Corn (all types)	Kiwi		Watercress

**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**

**AZATIN O** can be applied up to and including the day of harvest (zero PHI). Individual state regulations may vary and should be consulted for allowable preharvest 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 or nymphal stages. It also reduces crop damage by repelling and deterring feeding of all stages of insects.

**SPRAY EQUIPMENT**

Use any suitable application equipment that allows for uniform coverage of the targeted treatment area, such as hand- or power-operated spray equipment.

**GENERAL APPLICATION DIRECTIONS**

**General Information**

- Broad Spectrum Insect Growth Regulator Insecticide
- Not for use in food-handling establishments.
- Shake well before using.
- Kills only immature stages (larvae or nymphs) of insects. Treated larvae may die as pupae.
- Make applications when pests first appear and are in their early larval stages. Repeat applications every 7 days or as needed.

- Botanical Insecticide Concentrate.
- Formulated for interiorscape use.
- For indoor and outdoor use.
- Spraying directly onto the pest and a longer duration of leaf wetting increases effectiveness. Apply in early to mid-morning or late afternoon.
- The pH of spray solution containing **AZATIN O** must be kept between 3 and 8. Use spray solutions within several hours of preparation for maximum effectiveness. Do not store diluted solution for later use.
- Do not apply to wilted or otherwise stressed plants, or to newly transplanted material prior to root establishment. Do not apply to known spray sensitive plants without testing.
- **AZATIN O** has been found to be compatible when used in conjunction with most beneficial insects. Conduct a small trial to assure compatibility before using on a large scale.
- Use with care when applying near streams, ponds, lakes or bodies of water.
- Do not apply **AZATIN O** when weather conditions favor drift or the likelihood of runoff is high.
- For best results, add a spreader-sticker or oil-based adjuvant (such as methylated seed oil) at the label rate.

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.

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

#### **SPRAY APPLICATION:**

High volume: If plant foliage is dense, use higher label rates and increase spray volume to obtain uniform and complete coverage. Low and ultra-low volume: Apply **AZATIN O** at rates of 4 to 16 fluid ounces per acre in a minimum of 3 gallons of water per acre. For best results, ensure uniform and complete plant coverage.

#### **DRENCH APPLICATION:**

**AZATIN O** is effective as a soil drench for control of soil dwelling insect larvae such as fungus gnats. It is also effective as a soil drench for control of both foliar and soil dwelling pests, particularly when alternated with foliar sprays of **AZATIN O**.

Apply **AZATIN O** in sufficient water and for sufficient duration so as to distribute the application rate evenly to the entire treated area.

Apply to moderately moist soils. Use volumes that thoroughly wet the soil, but do not cause significant surface runoff or excessive drip from pots.

#### **CHEMIGATION:**

Refer to the attached "Chemigation Bulletin" for use directions for chemigation. Do not apply this product through any irrigation system not specifically included in the Chemigation Bulletin.

#### **MIXING DIRECTIONS:**

**AZATIN O** must be mixed with water for application. Do not apply undiluted product to plants. For best results:

1. Use clean equipment and clean water.
2. Add 1/2 to 3/4 of total water volume to the tank and begin agitation.
3. Add pesticide to the tank.
4. Add water up to full intended spray volume and mix thoroughly before applying.

5. Adjust pH of the spray solution to between 3 and 7, if necessary.
6. Apply pesticide mix immediately after mixing.
7. If the mixture is not applied immediately, agitate before application.
8. 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 minutes. Look for evidence of physical incompatibility such as clumping, precipitation, 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.

### **TANK MIX COMPATIBILITY**

**AZATIN O** Biological Insecticide has been found to be compatible with most commonly used fungicides, insecticides, and fertilizers. Check physical compatibility first by using the correct proportion of products in a small jar test. Then, test tank-mix combinations for phytotoxicity on a sample of plants prior to use. This must be done with combinations used before as environmental conditions can alter the interaction between compounds. *Due to the wide variation in climatic conditions, cultural practices, and other factors, the user assumes full responsibility for any crop damage or other liability resulting from the use of **AZATIN O** in a tank mix combination.* Do not mix **AZATIN O** with oxidizing agents such as bleach, or strong acids and bases as they will destabilize the product.

#### **GENERAL DIRECTIONS FOR INTERIORSCAPES, ORNAMENTAL PLANTS, LANDSCAPES, TREES, SHRUBS, LAWNS, TURF, AND GREENHOUSES**

For use to control whiteflies, thrips, mealybugs, leafminers, loopers, caterpillars, beet armyworms, aphids, and other pests on bedding plants, potted plants, foliage plants, ornamentals, trees, and shrubs in and around greenhouses, commercial nurseries, and interiorscapes.

For use to control insect pests of field-grown cut flowers and greens.

For use to control gypsy moths, weevils, psyllids, webworms, hornworms, spruce budworms, tent caterpillars, sawflies, and other pests on trees and shrubs in commercial landscapes.

**AZATIN O** may be used on fruits, vegetables, vegetable transplants, and herbs both inside and outside of the greenhouse.

Apply on a preventative 7 – day schedule or at the first sign of insect presence. This schedule is effective under low insect pressure. Under high insect pressure, apply every 3 – 4 days.

**For Field-Grown Cut Flowers and other Field-Grown**

**Ornamental Plants:** Apply **AZATIN O** at 4 – 16 fluid ounces per acre in sufficient volume of water to achieve uniform and thorough spray coverage. For conventional ground application equipment, apply 30 – 100 gallons of spray mix per acre. For low volume application, apply 0.5 pint (8 fluid ounces) of **AZATIN O** per acre in sufficient water to provide adequate coverage.

**For Use in Greenhouses, Landscapes, Interiorscapes, and Nurseries:** Dilute **AZATIN O** at 4 – 16 fluid ounces per 100 gallons of water. Mix thoroughly. Apply at 25 – 40 psi with hand sprayer or 100 – 200 psi with power sprayer as a fine spray to all foliage and fruit surfaces to runoff (typically 1 – 2 gallons of spray solution per 1,000 sq. ft.). Avoid excessive application.

For drench applications, use 8 – 16 fluid ounces of **AZATIN O** per 100 gallons of water and apply at the rate of 1 quart of diluted solution per square foot of growing media surface. Repeat at 14-day intervals during the growing season.

**SPECIFIC PLANT/PEST DIRECTIONS:**

<b>Application Rates for Whiteflies and Other Key Insect Pests in Greenhouses (Including Lathe and Shade), Nurseries, Mushroom Houses, and Interiorscapes.</b>		
Apply <b>AZATIN O</b> at the indicated dilution rate per 100 gallons of water. Use 1 – 2 gallons of spray solution per 1,000 square feet to ensure adequate plant coverage.		
Pests controlled by <b>AZATIN O</b>	Rate of <b>AZATIN O</b> per 100 gallons of water	Remarks
<b>Aphids</b>	10 – 16 fl. oz.	Suppression of nymphs and adult feeding deterrence.
<b>Black Vine Weevil</b>	16 fl. oz.	Apply as soil drench against larvae.
<b>Caterpillars &amp; Worms, including:</b> Armyworms, Bagworms, Cankerworms, Cutworms, Gypsy Moth, Leafrollers, Tent Caterpillars, and other Lepidoptera larvae	4 – 16 fl. oz.	For foliar application against larvae.
<b>Fungus Gnats</b>	8 fl. oz.	Apply as a soil drench for maggot control.
<b>Leafminers</b>	6 – 16 fl. oz.	For foliar application against larvae.
<b>Mushroom Fly</b>	16 fl. oz.	Apply as soil drench against larvae.
<b>Western Flower Thrips</b>	12 – 16 fl. oz.	Suppression of larvae and adult feeding deterrence.

<b>Application Rates for Whiteflies and Other Key Insect Pests in Greenhouses (Including Lathe and Shade), Nurseries, Mushroom Houses, and Interiorscapes. (continued)</b>		
Apply <b>AZATIN O</b> at the indicated dilution rate per 100 gallons of water. Use 1 – 2 gallons of spray solution per 1,000 square feet to ensure adequate plant coverage.		
Pests controlled by <b>AZATIN O</b>	Rate of <b>AZATIN O</b> per 100 gallons of water	Remarks
<b>Whiteflies, including:</b> Greenhouse Whitefly, Silverleaf Whitefly, and Sweetpotato Whitefly	6 – 16 fl. oz.	Foliar application against nymphs. Spray should be directed to undersides of leaves.
<b>Others, such as:</b> Leafhoppers, Sawflies	10 – 16 fl. oz.	For foliar application against larvae or nymphs. For leafhoppers, spray should be directed to undersides of leaves.

**DIRECTIONS FOR REPELLING JAPANESE BEETLES FROM ROSE PLANTS**

For best results, apply to roses at the first sign of Japanese beetle emergence in early summer at the rate of 0.5 pint of **AZATIN O** per 100 gallons of water.

**AZATIN O** is more effective when used as a preventative.

Spray to run-off, making sure to completely cover all parts of the plant, including buds and flowers.

Repeat application weekly, after rainfall or during periods of rapid plant growth as new growth that occurs after application is not fully protected. Continue applications as long as adult beetles are present.

Do not spray water directly onto foliage or otherwise wash off the leaves after treatment. This will reduce the effectiveness of the application.

After initial application, some beetles may be present on foliage but they will not feed on it.

**DIRECTIONS FOR LAWNS AND TURF Surface-Feeding Insects:**

For use to control cutworms, armyworms, sod webworms, crickets, chinch bugs, leafhoppers, and grasshoppers.

Apply at first sign of pest presence or damage to turf. Do not apply if rain is forecast within the next 24 hours.

Apply 1 quart – 3 gallons of **AZATIN O** per acre (or 0.75 – 9 fluid ounces per 1,000 square feet) using enough spray volume to obtain thorough coverage and penetration of the turf canopy. Use 2 – 5 gallons of diluted material per 1,000 square feet, or 50 – 100 gallons of diluted material per acre.

The treated area may be lightly irrigated for 3 – 5 minutes after application if desired to increase penetration of the turf surface. However, do not water turf again for 2 days after application.

Reapply as needed to maintain control of turf damage. Be sure to treat under shrubs and plants bordering houses or other structures.

**Subsurface-Feeding Insects:**

Mow and irrigate turf prior to application. The treated area may be lightly irrigated for 3 – 5 minutes after application if desired

to increase penetration of the turf surface. Do not water turf again within 24 hours after application. Do not mow again within 3 days after application.

For use to control white grubs (Japanese beetles, European chafers, dung beetles, June beetles, green June beetles, May beetles, annual white grubs, grub beetles, southern masked chafers, etc.) and crane fly larvae (leatherjackets):

- For white grubs, make application soon after adults emerge in summer (1 – 3 weeks after first sign of adults). Leatherjackets should be targeted as young larvae while feeding near the soil surface.
- Apply 1 quart – 3 gallons of **AZATIN O** per acre (0.75 – 9 fluid ounces per 1,000 square feet) using enough spray volume to obtain thorough coverage and penetration of the turf. Use 50 – 100 gallons of diluted material per acre, or 2 – 5 gallons of diluted material per 1,000 square feet.

For use to control mole crickets:

- Apply 1 quart – 3 gallons of **AZATIN O** per acre (0.75 – 9 fluid ounces per 1,000 square feet) using enough spray volume to obtain thorough coverage. Use 2 – 5 gallons of diluted material per 1,000 square feet, or 50 – 100 gallons of diluted material per acre.
- For best results, apply when nymphs are small, in the early spring. If necessary, reapply at 1 – 2 week intervals.

For use to control billbugs:

- Apply in mid to late spring or at first sign of pest emergence or damage.
- Apply 1 quart – 3 gallons of **AZATIN O** per acre (0.75 – 9 fluid ounces per 1,000 square feet) using enough spray volume to obtain thorough coverage. Use 50 – 100 gallons of diluted material per acre, or 2 – 5 gallons of diluted material per 1,000 square feet.
- Reapply as necessary. Repeat treatment in early to mid fall to control possible second generation.

**Nematodes:**

Apply 1 quart – 3 gallons of **AZATIN O** per acre (0.75 – 9 fluid ounces per 1,000 square feet) using enough spray volume to obtain thorough coverage. Use 50 – 100 gallons of diluted material per acre. Use 2 – 5 gallons of diluted material per 1,000 square feet. Repeat as necessary.

**DIRECTIONS FOR GREENHOUSE AND NURSERY-GROWN FOOD CROPS**

Application Rates for Key Insect Pests of Vegetables Raised to Harvest (including Transplants for Commercial Resale), Fruits, and Nut Crops Grown in Greenhouses, Lath and Shade Houses, and Nurseries.		
Apply <b>AZATIN O</b> at the indicated rates in sufficient water to ensure adequate plant coverage. Use 1 – 2 gallons of spray solution per 1,000 square feet, or equivalent to a minimum of 30 gallons of water per acre for conventional application equipment (3 gallons of water per acre for low/ultra low volume equipment).		
Pests controlled by <b>AZATIN O</b>	Rate of <b>AZATIN O</b> per 100 gallons of water*	Remarks
<b>Aphids</b>	10 – 16 fl. oz.	Foliar application for suppression and adult feeding deterrence

Application Rates for Key Insect Pests of Vegetables Raised to Harvest (including Transplants for Commercial Resale), Fruits, and Nut Crops Grown in Greenhouses, Lath and Shade Houses, and Nurseries. (continued)		
Pests controlled by <b>AZATIN O</b>	Rate of <b>AZATIN O</b> per 100 gallons of water*	Remarks
<b>Armyworms</b>	4 – 16 fl. oz.	Foliar application against larvae.
<b>Borers, including:</b> Peach Twig Borer, Peachtree Borer, and Squash Vine Borer	4 – 16 fl. oz.	Foliar application against young larvae before boring or tunneling in the plant.
<b>Caterpillars, Loopers,</b> and other Lepidoptera Larvae (worms)	4 – 16 fl. oz. (Except as noted at right)	Foliar application against larvae feeding externally on leaves, fruits, other external plant parts. <b>Corn Earworm, Diamondback Moth, Hickory Shuckworm, Imported Cabbage-worm (larvae of Cabbage Butterfly), and Navel Orangeworm:</b> Use 10 – 16 fl. oz./100 gal. <b>Artichoke Plume Moth:</b> Apply at 16 fl. oz./100 gal.
<b>Colorado Potato Beetle</b> & other leaf-feeding beetles	4 – 16 fl. oz.	Foliar application against leaf-feeding larvae.
<b>Cutworms</b>	5 – 16 fl. oz.	Foliar application against larvae feeding on leaves or stems.
<b>Leafhoppers</b>	10 – 16 fl. oz.	Foliar application against nymphs.
<b>Leafminers:</b> <i>Liriomyza</i> spp. and citrus leafminer ( <i>Phyllocnistis citrella</i> )	6 – 16 fl. oz.	Foliar application against larvae. Mix with approved oil-based adjuvant for best results.
<b>Leafrollers</b>	4 – 16 fl. oz.	Foliar application against larvae
<b>Scales</b>	6 – 16 fl. oz.	Foliar or stem application targeting crawler stages.
<b>Whiteflies</b>	6 – 16 fl. oz.	Foliar application against nymphs. Spray should be directed to undersides of leaves.
**When using lower rates (less than 10 fl. oz.), combine <b>AZATIN O</b> with an approved adjuvant such as a non-phytotoxic crop oil, up to 1% for improved spray coverage and translaminar uptake. Always use sufficient spray volume to ensure good coverage of all plant parts. Treat early and target youngest larvae or nymphs for best control. Repeat applications every 7-10 days or as needed to maintain control.		

## 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 HANDLING:** Non-refillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling, if available or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

## WARRANTY

OHP, Inc. 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. To the extent consistent with applicable law, 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, side-roll, 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, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of 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 recommended 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 recommended rate evenly to the entire treated area.
  8. Do not apply when wind speed favors drift beyond the area intended for treatment.
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 recommended rate evenly to the entire treated area.

## **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.

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Produced for:

OHP, Inc.

PO Box 51230

Mainland, PA 19451-0230

(800) 356-4647

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