

BIOSAFE SYSTEMS RATES & USAGE



Utilize AzaGuard for a broad range of Field, Greenhouse and Turf disease control applications.

- Offers broad spectrum insecticidal control on over 300 insect species
- Repels insects on treated crops, resulting in the reduction of insect damage to plants
- Meets all of the requirements of the National Organic Program (NOP)



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AGRICULTURE



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GREENHOUSE & ORNAMENTAL



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TURF & LANDSCAPE



ACTIVE INGREDIENTS:
Azadirachtin.....3.00%
Other Ingredients.....97.00%

AzaGuard is a 3% Azadirachtin formulated Insect Growth Regulator (IGR) that offers broad spectrum insecticidal control on over 300 insect species. AzaGuard prevents molting between larval, pupal and nymphal stages and also repels insects on treated crops, reducing insect damage to plants.

AzaGuard's natural botanical formula meets all of the requirements of the National Organic Program (NOP) and is an important tool in Integrated Pest Management (IPM) plans for disease control and sustainable crop production.

Utilize AzaGuard for a broad range of Field, Greenhouse and Turf disease control applications.

INSECTICIDE/ANTI-FEEDANT/REPELLANT • INSECT GROWTH REGULATOR (IGR) • MULTIPLE MODES OF ACTION • BROAD SPECTRUM INSECT CONTROL • REDUCES INSECT DAMAGE TO PLANTS • FOR INDOOR AND OUTDOOR USE • AGRICULTURE/ORNAMENTAL/TURF

TREATMENT NOTES:

- AzaGuard can be used to control any of the listed insects and nematodes.
- Determine the appropriate use rate for your site/pest combination with the tables on the opposite page.
- Rates are provided in ounces of AzaGuard per area or row-length.
- When infestation is heavy, or when plant canopy is dense, AzaGuard may be used at a rate up to twice (2X) that shown in the above table, not to exceed 22.5 oz AzaGuard / acre.
- When combining with other insecticides, use half the recommended rate of AzaGuard.

MIXING NOTES:

Some suggested AzaGuard tank mix combinations are as follows:
Non-phytotoxic crop oil, endosulfan, chlorpyrifos, acephate, Bacillus thuringiensis (BT), bifenthrin, esfenvalerate, abamectin, diflubenzuron, pyrethrum + piperonyl butoxide (for fogging use)*

** Always follow the manufacturer's Directions for Use and Precautionary Statements.*



GREENHOUSE FOOD CROPS:

Brassica (cole) crops, cucurbits, eggplants, herbs and spices, legumes, peppers, tomatoes, and other miscellaneous crops grown in greenhouses.

MUSHROOMS:

Agaricus, enoki, maitake, oyster, shitake, and other specialty mushrooms.

FOOD CROPS, including:

Root and tuber vegetables:

Artichokes, beets, carrots, ginger, horseradish, potatoes, radishes, rutabagas, sweet potatoes, turmeric, turnips, yams.

Leafy Vegetables (including Brassica Leafy Vegetables):

Amaranth, broccoli, Brussels sprouts, cabbage, cauliflower, celery, chervil, Chinese cabbage, collards, cress, endives, fennel, kale, kohlrabi, lettuce, mizuna, mustard greens, parsley, purslane, rape greens, rhubarb, spinach, Swiss chard.

Legume Vegetables:

Beans (field, kidney etc.), chickpeas, cowpeas, guar, jackbeans, lablab beans, lentils, peas, pigeon peas, soybeans, sword beans.

Fruiting Vegetables:

Eggplants, ground cherries, pepinos, peppers, pimentos, tomatillos, tomatoes.

Cucurbit Vegetables:

Bitter melons, chayotes, Chinese wax gourds, citron melons, cucumbers, gherkins, gourds, muskmelons (such as cantaloupes, casabas, crenshaw etc.), pumpkins, squash, watermelons.

Citrus Fruits:

Calamondins, citrus citrons, citrus hybrids, grapefruits, kumquats, lemons, limes, mandarins, oranges, pummellos, Satsuma mandarins.

Pome Fruits:

Apples, crabapples, loquats, mayhaws, oriental pears, pears, quinces.

Stone Fruits:

Apricots, cherries, nectarines, peaches, plums, prunes.

Berries:

Blackberries and caneberries, blueberries, currants, elderberries, gooseberries, huckleberries, loganberries, raspberries, strawberries, youngberries.

Cereal Grains:

Barley, buckwheat, corn, millet, oats, popcorn, rice, rye, sorghum, teosintes, triticale hybrids, wheat, wild rice.

Herbs and Spices:

Allspice, angelica, anise, annatto, balm, basil, black and white peppers, borage, burnet, camomile, caper buds, cardamom, caraway, cassia, catnip, celery seeds, chervil, chives, cinnamon, clary, cloves, coriander (cilantro), costmary, cumin, curry leaf, dills, fennels, fenugreek, grains of paradise, horehound, hyssop, juniper berry, lavender, lemongrass, lovage, mace, marigolds, marjoram, mustard seeds, nasturium, nutmeg, parsley, pennyroyal, poppy seeds, rosemary, rue, saffron, sage, savory, sweet bay (bay leaf), tansy, tarragon, thyme, vanilla, wintergreen, woodruff, wormwood.

Bulb Vegetables:

Garlic, leeks, onions, shallots.

Nuts:

Almonds, beechnuts, Brazil nuts, butternuts, cashews, chestnuts, chinquapin, filberts, hickory nuts, lychee nuts, macadamias, pecans, pistachios, walnuts.

Oilseed Crops:

Canola, castor, crambe, guar, jojoba, peanuts, rape, safflower, sesame, soybean, sunflower.

Tropical Fruits:

Atemoyas, bananas, breadfruits, cherimoyas, durians, guavas, malangas, mangos, papayas, passionfruits, starfruits.

Miscellaneous Food and Non-Food Crops:

Asparagus, avocados, birdseed, cacao, coffee, edible flowers, feijoa, figs, ginseng, grapes, guayule, hops, kiwis, okras, olives, palms, papayas, pawpaws, persimmons, pineapples, rambutans, sugarcane, tamarillos, tea, tobacco, waterchestnuts, watercress.

USE RATES FOR OUTDOOR PLANTS FOOD CROPS, TREES, TURFGRASS, NURSERY AND ALL OUTDOOR ORNAMENTALS

PEST	OZ. OF AZAGUARD / ACRE	REMARKS
WHITEFLIES , such as: Greenhouse Whiteflies, Silverleaf Whiteflies, Woolly Whiteflies	8 - 21	Use in combination with 0.25-1.0% non-phytotoxic crop oil in sufficient water to cover undersides of leaves.
LEAFMINERS , such as: Azalea Leafminers, Birch Leafminers, Citrus Leafminers, Serpentine Leafminers, Vegetable Leafminers	10 - 16	Use in combination with 0.25-1.0% non-phytotoxic crop oil in sufficient water to cover undersides of leaves.
SCALES , such as Brown Soft Scales, California Red Scales, Coffee Scales, Olive Scales, San Jose Scales	10 - 16	Use in combination with 0.25-1.0% non-phytotoxic crop oil in sufficient water to cover twigs and leaves.



PEST	OZ. OF AZAGUARD / ACRE	REMARKS
MEALY BUGS , such as: Citrus Mealybugs	10 - 16	Use in combination with 0.25-1.0% non-phytotoxic crop oil in sufficient water to cover twigs and leaves.
GRASSHOPPERS and LOCUSTS	10 - 16	Spray when pests first appear. For food crops: Repeat application after 7-10 days. Use in combination with 0.25-1.0% non-phytotoxic crop oil in sufficient water to cover undersides of leaves. For non-food crops: Repeat application every 5 to 7 days.
MITES , such as: Banks Mite, Clover Mite, Citrus Rust Mite, Citrus Red Mite, European Red Mite, Hemlock Rust Mite, Honey Locust Mite, Pacific Mite, Spruce Mite, Two-spotted Spider Mite	10 - 16	Use in combination with 0.25 - 1.0% non-phytotoxic crop oil in sufficient water to cover twigs and leaves.
THRIPS , such as: Citrus Thrips, Onion Thrips, Thrips Palmi	10 - 16	Spray when pests first appear. Repeat every 5 to 7 days.
APHIDS , such as: Cotton Aphids, Green Peach Aphids, Pea Aphids, Potato Aphids, Melon Aphids, Apple Aphids	10 - 16	Spray when pests first appear. For food crops: Repeat application after 7-10 days. Use in combination with 0.25-1.0% non-phytotoxic crop oil in sufficient water to cover undersides of leaves. For non-food crops: Repeat application every 5 to 7 days.
PSYLLIDS , such as: Pear Psylla	8 - 16	Spray when pests first appear. For food crops: Repeat application after 7-10 days. Use in combination with 0.25-1.0% non-phytotoxic crop oil in sufficient water to cover undersides of leaves. For non-food crops: Repeat application every 5 to 7 days.
LEAFHOPPERS , such as: Grape Leafhoppers, Potato Leafhoppers, Variegated Leafhoppers	10 - 16	Spray when pests first appear. For food crops: Repeat application after 7-10 days. Use in combination with 0.25-1.0% non-phytotoxic crop oil in sufficient water to cover undersides of leaves. For non-food crops: Repeat application every 5 to 7 days.
BUGS , such as: Boxelder Bugs, Chinch Bugs, Lygus Bugs, Spittle Bugs, Stink Bugs	10 - 16	Spray nymphs early.
CHAFERS , such as: European Chafer, Northern Masked Chafer, Rose Chafer	10 - 16	Spray when pests first appear. Repeat every 5 to 7 days.
FLIES , such as: Blueberry Maggots, Cherry Maggots, Crane Flies, Fruit Flies, Midges, Onion Maggots, Walnut Husk Flies, Fungus Gnat, Hessian Fly, Marsh Crane Fly, Melon Fly, Midges, Shore Fly	10 - 16	For food crops: Spray when pests first appear. For non-food crops: Drench soil to kill larve.
SAWFLIES , such as: European Pine Sawflies, Yellow Headed Pine Sawflies	10 - 16	Treat larvae early.
BETLES and GRUBS such as: Bark Beetles, Blueberry Flea Beetles, Boll Weevils, Colorado Potato Beetles, Flea Beetles, Japanese Beetles, Leaf Beetles, Mexican Bean Beetles, Pepper Weevils, Phylloxera Rose Chafers, Twig Girdlers, Elm Leaf Beetle, Cucumber Beetle, June Beetle	8 - 16	Spray when pests first appear. For food crops: Repeat application after 7-10 days. Use in combination with 0.25-1.0% non-phytotoxic crop oil in sufficient water to cover undersides of leaves. For non-food crops: Repeat application every 5 to 7 days.
WEEVILS , such as: Black Vine Weevils, Strawberry Vine Weevils	10 - 16	Make foliar applications to deter adult feeding. Make at least 3 to 4 applications 10 days apart.
BORERS , such as: Peach Twig Borers, Peachtree Borers, Dogwood Borers, Cranberry Borers	10 - 16	Spray soon after egg hatch. For food crops: Use in combination with 0.25% - 1.0% non- phytotoxic crop oil in sufficient water to cover undersides of leaves.

* When infestation is heavy, or when plant canopy is dense, AzaGuard may be used at a rate up to twice (2X) that shown in the above table, not to exceed 22.5 oz/acre.
When combining with other insecticides, half the rate of AzaGuard is recommended



PEST	OZ. OF AZAGUARD / ACRE	REMARKS
MOLE CRICKETS	10 - 16	Spray nymphs soon after egg hatch.
NEMATODES , such as: Burrowing Nematodes, Dagger Nematodes, Golden Nematodes, Root Knot Nematodes	15	Apply in sufficient amount of water to penetrate in the soil to a depth of 12 inches. Repeat applications every 3 or 4 weeks or as needed.
CATERPILLARS and MOTHS , such as: Armyworms, Beet Armyworm, Fall Armyworm, Lawn Armyworm, Southern Armyworm, Yellowstriped Armyworm, Artichoke Plume Moths, Bagworms, Black Cutworm, Bollworms, Budworms, Cabbage Butterflies, Cabbage Loopers, Cankerworms, Caseworms, Citrus Cutworm, Corn Earworms, Cutworms, Diamond-backed Moths, European Pine Shoot Moth, Fall Cankerworm, Fruitworms, Grapeleaf Skeletonizers, Gypsy Moths, Hickory Shuckworms, Hornworms, Imported Cabbage Worms Leaf Perforators, Leafrollers, Melonworms, Navel Orange Worms, Oblique Banded Leafrollers, Omnivorous Leafrollers, Oriental Fruit Moths, Pickle Worms, Pine Tip Moths, Pinworms, Red-banded Leafrollers, Sod Webworms, Soybean Loopers, Spring Cankerworm, Tent Caterpillars, Tobacco Budworms, Tobacco Hornworm, Tomato Fruitworm, Tomato Pinworm, Tussock Moths	8 - 16	Spray when pests first appear. For food crops: Repeat application after 7-10 days. Use in combination with 0.25-1.0% non-phytotoxic crop oil in sufficient water to cover undersides of leaves. For non-food crops: Repeat application every 5 to 7 days.

USE RATES FOR MUSHROOMS

PEST	OZ. OF AZAGUARD / 1000 SQ. FT.	REMARKS
MUSHROOM FLIES, NEMATODES, PHORID FLIES	0.5	Apply as drench to the casing layer, media or compost. Make at least 4 to 5 applications 7 to 10 days apart. To repel adults, apply with fogging equipment at first sign of activity. For mushroom house use: mix into the casing layer, or into media during the spawn run. Can be applied between breaks until the final flush.

USE RATES FOR MANURE PILES

PEST	OZ. OF AZAGUARD / 1000 SQ. FT.	REMARKS
MUSHROOM FLIES, NEMATODES, PHORID FLIES	0.5	For Manure Piles and Compost: Surface treat and incorporate using appropriate equipment when the manure piles are moist. Avoid treating when manure is too wet. Directly spray onto areas where flies are actively breeding.



ORNAMENTAL PLANTS:

African violets, ageratum, aster, aucuba, begonia, cacti, calendula, calla, carnation, ceanothus, chrysanthemum, cineraria, coleus, cotoneaster, cyclamen, daffodil, dahlia, delphinium, ficus, foliage plants, fuchsia, gardenia, geranium, gloxinia, hyacinth, hydrangea, iris, ivy, lily, maidenhair fern, marigold, narcissus, orchid, pansy, pelargonium, peony, phlox, pittosporum, poinsettia, pyracantha, rubber plant, snapdragon, stock, tulip, Wandering Jew, yew, yucca, zinnia.

GREENHOUSE FOOD CROPS:

Brassica (cole) crops, cucurbits, eggplants, herbs and spices, legumes, peppers, tomatoes, and other miscellaneous crops grown in greenhouses.

ORNAMENTAL TREES AND SHRUBS:

Andromeda, arbovitae, ash, Austrian pine, azalea, beech, birch, birdsnest spruce, blue spruce, bougainvillea, boxwood, butternut, camellia, cedar, chamaecyparis,

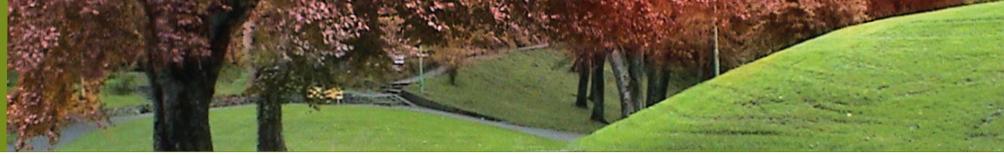
cherry, crabapple, cypress, dogwood, Douglas fir, elm, euonymus, firethorn, forsythia, hackberry, hawthorn, hemlock, hickory, holly, honeylocust, horse chestnut, ilex, juniper, larch laurel, lilac, linden, London plane, magnolia, mondervilla, maple, mimosa, mountain ash, myrtle, oak, pachysandra, peach pine, photinia, planetree, pines, poplar, privet, quince, rhododendron, roses, spruce, sycamore, white cedar, and white pine.

For Use Indoors or in Greenhouses

Use the table below to determine the appropriate use rate for each pest. Foliar sprays for individual plants should thoroughly wet both sides of the leaves without causing runoff. Groups of potted plants should be sprayed at a rate of one gallon of finished spray for 500 square feet. When used as a drench apply 1 pint of finished spray for each gallon of soil in the pot.

USE RATES FOR ANY PLANT GROWN INDOORS OR IN GREENHOUSES, SHADECLOTH, INTERIORSCAPE AND NURSERIES

PEST	RATE OZ. OF AZAGUARD BOTANICAL INSECTICIDE/ NEMATICIDE/100 GAL. WATER	REMARKS
WHITEFLIES , such as: Greenhouse Whiteflies, Silverleaf Whiteflies, Sweet Potato Whiteflies, Woolly Whiteflies	10 - 16 for 50,000 sq. ft.	Ensure good coverage to top and bottom of leaves against larvae and pupae. Can be applied after bract formation on poinsettias (test for phytotoxicity prior to large scale use).
LEAFMINERS , such as: Serpentine Leafminers	10 - 16 for 50,000 sq. ft.	Spray early. Make 2 to 3 applications in rotation with adulticides such as pyrethroids.
SOFT SCALES	10 - 16 for 50,000 sq. ft.	Use in combination with 0.5 – 1.0% non-phytotoxic crop oil in sufficient water to cover twigs and leaves.
MEALY BUGS	8 - 16 for 40,000 sq. ft.	Always use in combination with 0.5 – 1.0% non – phytotoxic crop oil.
THRIPS , such as: Western Flower Thrips	8 - 16 for 40,000 sq. ft.	Spray when pests first appear. Repeat every 5 to 7 days.
MITES , such as: Banks Mite, Clover Mite, Citrus Rust Mite, Citrus Red Mite, European Red Mite, Hemlock Rust Mite, Honey Locust Mite, Pacific Mite, Spruce Mite, Two-spotted Spider Mite	10 - 16 for 40,000 sq. ft.	Use in combination with 0.25 – 1.0% non-phytotoxic crop oil in sufficient water to cover twigs and leaves.
APHIDS , such as: Green Peach Aphids, Pea Aphids, Cotton Aphids, Rose Aphids, Apple Aphids, Melon Aphids, Potato Aphids	8 - 16 for 40,000 sq. ft.	Spray when pests first appear. Addition of 0.5 – 1.0% non-phytotoxic crop oil will enhance efficacy.
LACEWINGS , such as: Azalea Lacewings	8 - 16 for 40,000 sq. ft.	Spray when pests first appear.
FLIES , such as: Crane Flies, Fungus Gnats, Shore Flies, Blueberry Maggots, Caribbean Fruit Fly, Cherry Maggots, Fruit flies, Hessian Fly, Marsh Crane Fly, Melon Fly, Midges, Onion Maggots, Walnut Husk Fly	8 - 16 for 40,000 sq. ft.	Add at least 1 pint of mixture per gallon pot as soil drench. Repeat application every 7 days for 3 weeks. For poinsettias, lilies and bedding plants, also make 1 application 10 to 15 days prior to shipping plants to prevent adult emergence.
CATERPILLARS , such as: Armyworms, Bagworms, Cutworms, Leafhoppers, Leafrollers, Loopers, Spruce Budworms, Webworms	8 - 16 for 40,000 sq. ft.	Spray when pests first appear.
BORERS , such as: Peachtree Borers	10 - 16 for 50,000 sq. ft.	Spray when pests first appear. Repeat as needed.
BETTERLES , such as: Bark Beetles, Flea Beetles, Japanese Beetles, Cucumber Beetle	10 - 16 for 50,000 sq. ft.	Spray when pests first appear. Repeat as needed.
WEEVILS , such as: Black Vine Weevils, Strawberry Vine Weevils	8 - 16 for 40,000 sq. ft.	Make foliar applications to deter adult feeding. Drench soil at a rate of 1 pint per gallon pot during spring and fall periods to control larvae. Make at least 3 to 4 applications 10 days apart.
NEMATODES , such as: Burrowing Nematodes, Dagger Nematodes, Golden Nematodes, Root Knot Nematodes	8 - 16 for 40,000 sq. ft.	Drench at least 1 pint of mixture per gallon pot once a week for 4 weeks. Avoid leaching – drench until moist to the touch. For heavy infestations, use twice the rate and drench more frequently.



TURF AND TURFGRASS:

Bentgrass, Bermuda grass, bluegrass, centipede grass, fescue, ryegrass, St. Augustine grass, wheatgrass, zoysia grass

USE RATES FOR TURFGRASS

PEST	OZ. OF AZAGUARD / ACRE	REMARKS
SOD WEBWORMS, ARMYWORMS	8-21	Irrigate well before applying. Use a suitable pressure sprayer and mix ½- ¾ tablespoon in 3 gal. of water and apply to 2,500 sq. ft of turf. Apply when insect larvae first appear. Repeat application in 10 to 14 days if necessary. The use of an approved “spreader sticker” may help the spray to penetrate turf down to the larvae/worm feeding area.
GRUBS, CUTWORMS, APHIDS	8-21	Irrigate well before applying. Use a suitable pressure sprayer and mix ½- ¾ tablespoon in 3 gal. of water and apply to 2,500 sq. ft of turf. Apply when insect larvae first appear. Repeat application in 10 to 14 days if necessary. The use of an approved “spreader sticker” may help the spray to penetrate turf down to the larvae/worm feeding area.
CINCHBUGS, BILLBUGS, LEAFHOPPERS, ANTS, AND CHIGGERS	8-21	Irrigate well before applying. Use a suitable pressure sprayer and mix ½- ¾ tablespoon in 3 gal. of water and apply to 2,500 sq. ft of turf. Apply when insect larvae first appear. Repeat application in 10 to 14 days if necessary. The use of an approved “spreader sticker” may help the spray to penetrate turf down to the larvae/worm feeding area.
NEMATODES	15	Apply in sufficient amount of water to penetrate in the soil to a depth of 12 inches. Repeat applications every 3 or 4 weeks or as needed.

For more information, contact BioSafe Systems at 1.888.273.3088 (toll-free) or visit www.biosafesystems.com.

See back page for a full list of BioSafe Systems’ products.



BioSafe Systems offers EPA Registered, environmentally sound disease control solutions for use throughout your entire operation. Our activated peroxygen chemistry destroys pathogens on contact, helping conventional and organic operations kill disease and produce healthy plants, fruits and vegetables.

- **Algaecides, Bactericides and Fungicides for Crop and Post Harvest Disease Control**
- **Hard Surface Sanitizers and Disinfectants for Equipment**
- **Algaecides and Microbiocides for Water Treatment**



AGRICULTURAL SOLUTIONS

- OxiDate Broad Spectrum Bactericide/Fungicide - OMRI
- TerraClean Broad Spectrum Bactericide/Fungicide
- StorOx Broad Spectrum Bactericide/Fungicide - OMRI
- SaniDate 5.0 Sanitizer/Disinfectant - OMRI
- SaniDate 12.0 MicroBiocide - OMRI



GREENHOUSE & ORNAMENTAL SOLUTIONS

- ZeroTol Broad Spectrum Algaecide/Fungicide
- SaniDate 12.0 MicroBiocide - OMRI
- TerraClean Broad Spectrum Bactericide/Fungicide



TURF SOLUTIONS

- ZeroTol Broad Spectrum Algaecide/Fungicide
- TerraCytePRO Broad Spectrum Algaecide/Fungicide
- SaniDate 12.0 MicroBiocide - OMRI



WATER TREATMENT SOLUTIONS

- GreenCleanPRO Granular Algaecide/Fungicide - OMRI
- SaniDate 12.0 MicroBiocide - OMRI
- GreenClean Broad Spectrum Algaecide Liquid - OMRI