

# Zylam<sup>®</sup> Liquid

## SYSTEMIC INSECTICIDE

GROUP 4A INSECTICIDE

**For control of listed chewing and sucking insects infesting landscape ornamentals and turf.**

*For outdoor use only.*

**ACTIVE INGREDIENT:**

Dinotefuran\*, N-methyl-N'-nitro-N'-[(tetrahydro-3-furanyl)methyl]guanidine ..... 10%

**OTHER INGREDIENTS** ..... 90%  
 TOTAL 100%

\*0.89 pounds Dinotefuran per gallon.

### KEEP OUT OF REACH OF CHILDREN CAUTION



**READ THE ENTIRE LABEL FIRST. OBSERVE ALL PRECAUTIONS AND FOLLOW DIRECTIONS CAREFULLY.**

#### PRECAUTIONARY STATEMENTS

**Hazards to Humans and Domestic Animals**

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

**Personal Protective Equipment (PPE)**

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks

**User Safety Requirements**

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions exist 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.
- 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.

**First Aid**

<b>If swallowed:</b>	<ul style="list-style-type: none"> <li>• Call poison control center or doctor for treatment advice.</li> <li>• Do not induce vomiting unless told to do so by the poison control center or doctor.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<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 further treatment advice.</li> </ul>

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**First Aid (cont.)**

<b>If on skin or on 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 further 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 poison control center or doctor for treatment advice.</li> </ul>

**HOT LINE NUMBER:** Have the product container or label with you when calling a poison control center or doctor or going for treatment. For emergency information on (product, use, etc.), call the National Pesticides Information Center at 1-800-858-7378, 6:30 AM to 4:30 PM Pacific time (PT), seven days a week. During other times, call the poison control center 1-800-222-1222.

**Environmental Hazards**

This pesticide is toxic to aquatic invertebrates. 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 apply when weather conditions favor drift from treated areas. Drift and runoff from treated areas may be hazardous to aquatic organisms in water adjacent to treated areas. Do not dispose equipment washwaters or rinsate into a natural drain or water body.

This compound is toxic to honey bees. The persistence of residues and potential residual toxicity of Dinotefuran in nectar and pollen suggests the possibility of chronic toxic risk to honey bee larvae and the eventual instability of the hive.

- This product is toxic to bees exposed to residue for more than 38 hours following treatment.
- Do not apply this product to blooming, pollen-shedding or nectar-producing parts of plants if bees may forage on the plants during this time period, unless the application is made in response to a public health emergency declared by appropriate state or federal authorities.

Dinotefuran and its degradate, MNG, have the properties and characteristics associated with chemicals detected in groundwater. The high water solubility of Dinotefuran, and its degradate MNG, coupled with its very high mobility, and resistance to biodegradation indicates that this compound has a strong potential to leach to the subsurface under certain conditions as a result of label use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Periodic monitoring of shallow groundwater in the use area is recommended.

**Spray Drift Advisory**

Do not apply under conditions involving possible drift to food, forage or other plantings that might be damaged or the crop thereof rendered for sale, use, or consumption.

#### PROTECTION OF POLLINATORS



**APPLICATION RESTRICTIONS EXIST FOR THIS PRODUCT BECAUSE OF RISK TO BEES AND OTHER INSECT POLLINATORS. FOLLOW APPLICATION RESTRICTIONS FOUND IN THE DIRECTIONS FOR USE TO PROTECT POLLINATORS.**



Look for the bee hazard icon in the Directions for Use for each application site for specific use restrictions and instructions to protect bees and other insect pollinators.

**This product can kill bees and other insect pollinators.**

Bees and other insect pollinators will forage on plants when they flower, shed pollen, or produce nectar.

Bees and other insect pollinators can be exposed to this pesticide from:

- Direct contact during foliar applications, or contact with residues on plant surfaces after foliar applications.

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**PROTECTION OF POLLINATORS (cont.)**

- Ingestion of residues in nectar and pollen when the pesticide is applied as a seed treatment, soil, tree injection, as well as foliar applications.

When Using This Product Take Steps To:

- Minimize exposure of this product to bees and other insect pollinators when they are foraging on pollinator attractive plants around the application site.
- Minimize drift of this product on to beehives or to off-site pollinator attractive habitat. Drift of this product onto beehives or off-site to pollinator attractive habitat can result in bee kills.

Information on protecting bees and other insect pollinators may be found at the Pesticide Environmental Stewardship website at: <http://pesticidestewardship.org/PollinatorProtection/Pages/default.aspx>.

Pesticide incidents (for example, bee kills) should immediately be reported to the state/tribal lead agency. For contact information for your state, go to: [www.aapco.org/officials.html](http://www.aapco.org/officials.html). Pesticide incidents should also be reported to the National Pesticide Information Center at: [www.npic.orst.edu](http://www.npic.orst.edu) or directly to EPA at: [beekill@epa.gov](mailto:beekill@epa.gov)

**DIRECTIONS FOR USE**

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

READ ENTIRE LABEL, USE STRICTLY IN ACCORDANCE WITH PRECAUTIONARY STATEMENTS AND DIRECTIONS, AND WITH APPLICABLE STATE AND FEDERAL REGULATIONS.

**FOR COMMERCIALLY GROWN ORNAMENTALS NOT UNDER CONTRACT FOR POLLINATION SERVICES BUT ARE ATTRACTIVE TO POLLINATORS:**

- Do not apply this product while bees are foraging.
- This product is toxic to bees exposed to treatment for more than 38 hours following treatment.
- Do not apply this product to blooming, pollen-shedding or nectar-producing parts of plants if bees may forage on the plants during this time period, unless the application is made in response to a public health emergency declared by appropriate state or federal authorities.



Do not apply Zylam® Liquid Systemic Insecticide while bees are foraging. Do not apply Zylam Liquid Systemic Insecticide to plants that are flowering. Only apply after all flower petals have fallen off.

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.

Do NOT use this product for manufacturing or formulating into other end-use products.

**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, 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 and notification to workers. 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 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is:

- Coveralls
- Shoes plus socks
- Chemical resistant gloves (made of any waterproof material)

**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.

Do not allow others to enter treated areas until sprays have dried.

**1. Product Information**

Failure to follow directions and precautions on this label may result in plant injury, poor insect control, and/or unacceptable residues. **For outdoor use only.**

Apply Zylam Liquid Systemic Insecticide when insect pest populations begin to build, but before populations reach economically damaging levels. Economic thresholds for pests controlled by Zylam Liquid Systemic Insecticide may be available from your local pest management authorities.

Zylam Liquid Systemic Insecticide is a selective insecticide which should have minimal impact on beneficial arthropods and its use is compatible with integrated pest management (IPM) programs. However, Zylam Liquid Systemic Insecticide is toxic to bees exposed to direct treatment or to residue on blooming plants and weeds.

Zylam Liquid Systemic Insecticide is taken up into foliage after application. However, thorough spray coverage is essential for optimal performance. Apply Zylam Liquid Systemic Insecticide in sufficient water to ensure good coverage.

Zylam Liquid Systemic Insecticide may aid in the suppression of some pests. Suppression can mean either inconsistent control (good to poor), or consistent control at a level below that generally considered acceptable for commercial control.

If the maximum season limit of Zylam Liquid Systemic Insecticide has been applied and pest populations require additional treatment, use another registered pesticide that is not in the neonicotinoid class of nitroguanidine subclass of chemistry.

**Application to Ornamental plants:**

Zylam Liquid Systemic Insecticide can be applied as a soil drench, soil injection, bark banding, foliar spray, and broadcast spray treatment for insect control in landscape ornamental plants.

Zylam Liquid Systemic Insecticide is a systemic product and will be taken up by the root system and foliage and translocated upward throughout the plant. When applied as a foliar spray, the product offers translaminar and locally systemic control of foliar pests.

When applied as a soil injection or drench to plants with woody stems, systemic activity will be delayed until the product can be translocated throughout the plant. Make applications prior to buildup of the target pest.

**Application to Turfgrass:**

Zylam Liquid Systemic Insecticide can be used for the control of soil inhabiting pests of turfgrass (Masked Chafers, European Chafer, Green June Beetle, May or June Beetle, Japanese Beetle, Oriental Beetle, Billbugs, Annual Bluegrass Weevil, Black Turfgrass Attenius, Ants (not including fireants) and Mole Crickets). Zylam Liquid Systemic Insecticide can also be used for surface feeding insects (armyworms, cutworms and chinchbugs) in turfgrass areas.

Zylam Liquid Systemic Insecticide can be used as directed on outdoor residential, recreational and commercial turfgrass in home lawns, commercial lawns, multi-family residential and apartment complexes, grounds or lawns around business and office complexes, shopping centers, airports, military and other institutions, cemeteries, golf courses, playgrounds, parks, athletic fields and sod farms.

Timing of Zylam Liquid Systemic Insecticide applications must be targeted at or just prior to or during egg laying of the target pests. The need for an application can be based on historical and/or physical monitoring of the site, current season adult trapping, previous experience or other methods. Optimum control will be achieved when applications are made prior to or at egg hatch of the target pests followed by sufficient irrigation or rainfall to move the active ingredient through the turf thatch layer. Consult your local State Extension Service for more specific application timing recommendations.

**Restrictions:**

- For outdoor and landscape ornamentals, broadcast applications cannot exceed a total of 78.9 fl.oz. of this product per acre per year as foliar sprays or 78.9 fl.oz. per acre per year as soil applications or bark banding.

- Do not apply when the target site is saturated with water. Adequate distribution of the active ingredient cannot be achieved when these conditions exist.
- For residential, recreational and commercial turfgrass applications do not apply more than a total of 78.9 fl.oz. of this product per acre per year.

## 2. Resistance Management

Zylam Liquid Systemic Insecticide contains a Group 4A insecticide. Insect biotypes with acquired resistance to Group 4A may eventually dominate the insect population if Group 4A insecticides are used repeatedly in the same field or in successive years as the primary method of control for targeted species. This may result in partial or total loss of control of those species by Zylam Liquid Systemic Insecticide or other Group 4A insecticides.

To delay insecticide resistance, consider:

- NOT using a foliar application of Zylam Liquid Systemic Insecticide or any insecticide in the neonicotinoid class following an in-furrow or soil application of Zylam Liquid Systemic Insecticide.
- To optimize resistance management practices, no more than 3 applications of Zylam Liquid Systemic Insecticide per growing season are allowed.
- Avoiding the consecutive use of Zylam Liquid Systemic Insecticide or other Group 4A insecticides that have a similar target site of action, on the same insect species.
- Using tank-mixtures or premixes with insecticides from a different target site of action Group as long as the involved products are all registered for the same use and have different sites of action.
- Basing insecticide use on a comprehensive IPM program.
- Monitoring treated insect populations for loss of field efficacy.
- Contacting your local extension specialist, certified pest management advisors, and/or manufacturers for insecticide resistance management and/or IPM recommendations for the specific site and resistant pest problems.
- For further information or to report suspected resistance, you may contact PBI/Gordon Corporation 1-877-800-5556.

## 3. Mixing Instructions

**Zylam Liquid Systemic Insecticide Alone:** Add ½ of the required amount of water to the mix tank. With the agitator running, add the desired amount of Zylam Liquid Systemic Insecticide to the tank. Continue agitation while adding the remainder of the water. Begin application of the solution after Zylam Liquid Systemic Insecticide has completely dispersed into the mix water. Maintain agitation until all of the mixture has been applied.

**Zylam Liquid Systemic Insecticide + Tank Mixtures:** Add ½ of the required amount of water to the mix tank. Start the agitator running before adding any tank mix partners. In general, tank mix partners should be added in this order: products packaged in water-soluble packaging, wettable powders, wettable granules (dry flowables), liquid flowables, liquids, emulsifiable concentrates, and surfactants/adjuvants. Always allow each tank mix partner to become fully dispersed before adding the next product. Provide sufficient agitation while adding the remainder of the water. Maintain agitation until all the mixture has been applied.

**NOTE:** When using Zylam Liquid Systemic Insecticide in tank mixtures, all products in water-soluble packaging should be added to the tank before any other tank mix partner, including Zylam Liquid Systemic Insecticide. Allow the water-soluble packaging to completely dissolve and the product(s) to completely disperse before adding any other tank mix partner to the tank.

If using Zylam Liquid Systemic Insecticide in a tank mixture, observe all directions for use, sites, use rates, dilution ratios, precautions, and limitations which appear on the tank mix product label. No label dosage rate should be exceeded, and the most restrictive label precautions and limitations should be followed. This product should not be mixed with any product which prohibits such mixing. Tank mixtures or other applications of products referenced on this label are permitted only in those states in which the referenced products are labeled.

**Compatibility:** NOTE - The plant safety of all potential tank mixes on all plants has not been tested. Before applying any tank mixture not specifically recommended on this label, the safety to the target plants should be confirmed.

Zylam Liquid Systemic Insecticide is compatible with most commonly used pesticides. However, since it is not possible to test all possible mixtures, the user should pre-test to assure the physical compatibility and lack of phytotoxic effect of any proposed mixtures with Zylam Liquid Systemic Insecticide. To determine the physical compatibility of

Zylam Liquid Systemic Insecticide with other products, use a jar test, as described below:

Using a quart jar, add the proportionate amounts of the products to 1 quart of water. Add wettable powders and water-dispersible granular products first, then liquid flowables, and emulsifiable concentrates last. After thoroughly mixing, let stand for at least 5 minutes. If the combination remains mixed or can be remixed readily, it is physically compatible. Once compatibility has been proven, use the same procedure for additional required ingredients to the spray tank.

## 4. Application Procedures and Spray Equipment

For ground application only. Select spray nozzles which will provide accurate and uniform spray deposition. Use spray nozzles which provide medium to coarse-sized droplets and reduce drift. To help ensure accuracy, calibrate sprayer before each use. For information on spray equipment and calibration, consult nozzle manufacturers and/or State Extension Service specialists.

Apply Zylam Liquid Systemic Insecticide using sufficient water volume to provide thorough and uniform coverage. In situations where a dense canopy exists and/or pest pressure is high, use greater water volumes. The use of a spray adjuvant may improve spray coverage.

### Restrictions:

- Do not graze treated areas or use clippings from treated areas for feed or forage.
- Do not apply under conditions where uniform coverage cannot be obtained or where excessive spray drift may occur.
- Prevent runoff or puddling of irrigation water following application.
- Do not apply to areas that are water logged or saturated, or frozen, which will not allow penetration into the root zone of the plant.
- Keep children and pets off treated areas until spray has dried.
- Do not use on houseplants grown inside residences.

### State Restrictions:

- Do not apply this product, by any application method, to linden, basswood or other *Tilia* species.

**Applications to ornamental plants:** Zylam Liquid Systemic Insecticide can be applied using many different types of application equipment. Apply in sufficient water to ensure good coverage of ornamental plants. When making applications to plants with hard to wet foliage such as holly or pine, the addition of a spreader/sticker is recommended. If concentrate or mist type spray equipment is used, an equivalent amount of product should be used on the spray area as would be used in a dilute solution. To assure optimum effectiveness, the product must be placed where the growing portion of the target plant can absorb the active ingredient. Applications can be made to foliage or as a soil drench.

**Applications to turfgrass:** Apply Zylam Liquid Systemic Insecticide through conventional ground spray equipment in a minimum of 1 gallon of finished spray per 1000 sq.ft. Ensure adequate distribution in the treated area using accurately calibrated equipment normally used for application of turfgrass insecticides. Use the spray pressure suggested by the equipment manufacturer to produce a uniform, medium to coarse droplet spray. Check calibration periodically to ensure that equipment is working properly and eliminate off target drift. Prevent skips by using marker dyes or foam aids.

## 5. Recommendations To Avoid Spray Drift

AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator is responsible for considering all of these factors when making decisions. Where states have more stringent regulations, they should be observed. Follow these recommendations to avoid spray drift:

1. Make applications when wind velocity favors on-target product deposition (approximately 3 to 10 mph). Do not apply when wind velocity exceeds 10 mph. Avoid applications when wind gusts approach 10 mph.
2. Risk of exposure to sensitive aquatic areas can be reduced by avoiding applications when wind direction is toward the aquatic area.
3. Do not cultivate or plant crops within 25 feet of the aquatic area as to allow growth of a vegetative filter strip.
4. Do not make applications during temperature inversions. Inversions are characterized by stable air and increasing temperatures with increased height above the ground. Mist or fog may indicate the presence of an inversion in humid areas. The applicator may detect the presence of an inversion by producing smoke and observing a smoke layer near the ground surface.

5. Use the largest droplet size consistent with good pest control. Small droplets are more prone to spray drift and can be minimized by appropriate nozzle selection, by orienting nozzles away from the air stream as much as possible, and by avoiding excessive spray boom pressure.
6. Apply as close to target plants as practical to obtain a good spray pattern for adequate coverage.

## 6. Soil Applications to Landscape Ornamental Plants (soil drench or soil injection)

For systemic insect control on landscape ornamental plants in commercial, industrial and residential areas, parks, golf courses, athletic fields, and schools, as a soil drench or soil injection.

### Ornamental plants including:

Bedding Plants, Shrubs, Ornamentals, Flowering Plants, Foliage Plants, Groundcovers, Evergreens, Ornamental Trees, Non-Bearing Fruit Trees, Non-Bearing Nut Trees, Non-Bearing Vines

### Pests:

Adelgids including Hemlock Woolly, Balsam Woolly  
 Aphids including Balsam, Crepe Myrtle, Green Peach, Melon  
 Bagworms  
 Flatheaded Borers including Alder, Bronze Birch, Emerald Ash,  
 Flatheaded Appletree, Two-Lined Chestnut  
 Froghoppers  
 Fungus Gnats (larvae)  
 Horned Oak Gall  
 Lacebugs including Azalea, Cotoneaster, Hawthorne, Rhododendron  
 Leaf beetles including Elm, Viburnum  
 Leafhoppers including Glassy Winged Sharpshooter, Potato  
 Leafminers including Birch, Boxwood, Holly, Serpentine  
 Mealybugs including Citrus, Long-Tailed, Madeira, Obscure,  
 Phormium, Pink Hibiscus, Root  
 Pine tip moth (larvae)  
 Plantbugs  
 Psyllids including Asian Citrus, Boxwood  
 Root Weevils (larvae and adults) including Black Vine, Diaprepes  
 Roundheaded Borers including, Eucalyptus Longhorned, Linden,  
 Locust (excluding Asian Longhorned)  
 Royal Palm Bug  
 Sawfly larvae  
 Scale (Armored and Soft) including Azalea Bark, Brown Soft, Calico,  
 Cottony Cushion, Crepe Myrtle Bark\*, Cycad Aulacaspis, Cyptomeria,  
 Duplacionapis, Elongate Hemlock, Euonymus, False Oleander, Fig  
 Wax, Fletcher, Florida Red, Florida Wax, Lecanium, Oystershell,  
 Poplar (Aspen), Pine needle, Tea, Tulip Tree  
 Spittlebugs  
 Spotted Lanternfly\*  
 Thrips including Chilli (suppression), Cuban Laurel, Gladiolus,  
 Gynaikothrips uzeli (suppression), Western Flower (suppression)

Treehoppers  
 Whiteflies including Ficus, Giant, Greenhouse, Silverleaf /  
 Sweet potato (B and Q biotypes)  
 White Grubs including Oriental Beetle  
 White Pine Weevil  
 \*Not for use in California

### Trees and Shrubs:

**Shrubs:** 0.18 to 0.4 fl.oz. per foot of height (2 to 4 fl.oz. per 10 feet of height)

**Trees:** Small Trees (Less than 24 inches diameter at breast height) 0.18 to 0.8 fl.oz. per inch diameter at breast height (DBH). Large Trees (24 inches diameter or greater at breast height) 0.4 to 0.8 fl.oz. per inch diameter at breast height (DBH).

For multi-stem trees, calculate rate on the total cumulative inches of diameter of all stems at breast height.

For optimal control, apply early in the plant's annual growing cycle and keep soil moist for at least 7 days after application

### Restrictions:

- Only apply to moist soil. Do not apply to dry, saturated or frozen soil. Heavy rainfall or inadequate irrigation immediately following application may decrease performance.

Use higher labeled rates for severe pest infestations and broadleaf evergreens with dense foliage (i.e. hollies)

**Soil Drench:** Mix the required amount of Zylam Liquid Systemic Insecticide in water and uniformly apply to soil around base of shrub or tree. Pull back mulch, rock or gravel before drenching to allow for pooling at the base. For optimal performance apply at least 1 quart of mixed solution per foot of height or inch of trunk diameter. **(example: For a tree with a 12 inch DBH apply at least 12 quarts (or 3 gallons) of mixed solution.)**

If drench volumes must fall below 1 quart of mixed solution per foot of height or inch of trunk diameter, apply 1/2 inch of irrigation immediately after application to move the product into the root zone. Allow soil to remain moist for at least 7 days after application.

**Soil Injection:** Mix the required amount of this product in water and make at least 4 injections per shrub or tree with a low-pressure applicator. Use same amount of mixed solution per treatment hole. Injections can be made using the following methods:

- **Grid system** – Space injections on a 2.5 ft. center extending to drip line
- **Circle System** – Make injections in concentric circles extending inward from the drip line.
- **Basal System** – Space injection evenly around trunk no more than 12 inches out from the base.

For optimal performance inject at least 1 quart of mixed solutions per foot of height or inch of trunk diameter **(example: For a tree with a 12 inch DBH inject at least 12 quarts (or 3 gallons) of mixed solution.)**

<b>Shrubs: Soil Application Rates (soil drench or soil injection)</b> 0.18 to 0.4 fl.oz. per foot of shrub height [1.8 to 4.0 fl.oz. per 10 feet of shrub height]			
Shrub Height	Low Rate	Medium Rate	High Rate
1 ft	0.18 fl.oz. Zylam Liquid Systemic Insecticide + 1 qt water	0.3 fl.oz. Zylam Liquid Systemic Insecticide + 1 qt water	0.4 fl.oz. Zylam Liquid Systemic Insecticide + 1 qt water
2 ft	0.36 fl.oz. Zylam Liquid Systemic Insecticide + 2 qt water	0.6 fl.oz. Zylam Liquid Systemic Insecticide + 2 qt water	0.8 fl.oz. Zylam Liquid Systemic Insecticide + 2 qt water
4 ft	0.72 fl.oz. Zylam Liquid Systemic Insecticide + 1 gal water	1.2 fl.oz. Zylam Liquid Systemic Insecticide + 1 gal water	1.6 fl.oz. Zylam Liquid Systemic Insecticide + 1 gal water
6 ft	1.08 fl.oz. Zylam Liquid Systemic Insecticide + 1.5 gal water	1.8 fl.oz. Zylam Liquid Systemic Insecticide + 1.5 gal water	2.4 fl.oz. Zylam Liquid Systemic Insecticide + 1.5 gal water
8 ft	1.44 fl.oz. Zylam Liquid Systemic Insecticide + 2 gal water	2.4 fl.oz. Zylam Liquid Systemic Insecticide + 2 gal water	3.2 fl.oz. Zylam Liquid Systemic Insecticide + 2 gal water
10 ft	1.8 fl.oz. Zylam Liquid Systemic Insecticide + 2.5 gal water	3.0 fl.oz. Zylam Liquid Systemic Insecticide + 2.5 gal water	4.0 fl.oz. Zylam Liquid Systemic Insecticide + 2.5 gal water

<b>Small Trees: Soil Application Rates (soil drench or soil injection)</b> 0.18 to 0.8 fl.oz. per inch diameter at breast height (DBH) [1.8 to 8.0 fl.oz. per 10 inches diameter at breast height (DBH)]			
Tree Size	Low Rate	Medium Rate	High Rate
1 inch DBH	0.18 fl.oz. Zylam Liquid Systemic Insecticide + 1 qt water	0.5 fl.oz. Zylam Liquid Systemic Insecticide + 1 qt water	0.8 fl.oz. Zylam Liquid Systemic Insecticide + 1 qt water
2 inch DBH	0.36 fl.oz. Zylam Liquid Systemic Insecticide + 2 qt water	1.0 fl.oz. Zylam Liquid Systemic Insecticide + 2 qt water	1.6 fl.oz. Zylam Liquid Systemic Insecticide + 2 qt water

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<b>Small Trees: Soil Application Rates (soil drench or soil injection)</b> 0.18 to 0.8 fl.oz. per inch diameter at breast height (DBH) [1.8 to 8.0 fl.oz. per 10 inches diameter at breast height (DBH)] (cont.)			
Tree Size	Low Rate	Medium Rate	High Rate
4 inch DBH	0.72 fl.oz. Zylam Liquid Systemic Insecticide + 1 gal water	2.0 fl.oz. Zylam Liquid Systemic Insecticide + 1 gal water	3.2 fl.oz. Zylam Liquid Systemic Insecticide + 1 gal water
6 inch DBH	1.08 fl.oz. Zylam Liquid Systemic Insecticide + 1.5 gal water	3.0 fl.oz. Zylam Liquid Systemic Insecticide + 1.5 gal water	4.8 fl.oz. Zylam Liquid Systemic Insecticide + 1.5 gal water
8 inch DBH	1.44 fl.oz. Zylam Liquid Systemic Insecticide + 2 gal water	4.0 fl.oz. Zylam Liquid Systemic Insecticide + 2 gal water	6.4 fl.oz. Zylam Liquid Systemic Insecticide + 2 gal water
10 inch DBH	1.8 fl.oz. Zylam Liquid Systemic Insecticide + 2.5 gal water	5.0 fl.oz. Zylam Liquid Systemic Insecticide + 2.5 gal water	8.0 fl.oz. Zylam Liquid Systemic Insecticide + 2.5 gal water
20 inch DBH	3.6 fl.oz. Zylam Liquid Systemic Insecticide + 5 gal water	10.0 fl.oz. Zylam Liquid Systemic Insecticide + 5 gal water	16.0 fl.oz. Zylam Liquid Systemic Insecticide + 5 gal water

<b>Large Trees: Soil Application Rates (soil drench or soil injection)</b> 0.4 to 0.8 fl.oz. per inch diameter at breast height [4.0 to 8.0 fl.oz. per 10 inches diameter at breast height (DBH)]			
Tree Size	Low Rate	Medium Rate	High Rate
24 inch DBH	9.6 fl.oz. Zylam Liquid Systemic Insecticide + 6 gal water	14.4 fl.oz. Zylam Liquid Systemic Insecticide + 6 gal water	19.2 fl.oz. Zylam Liquid Systemic Insecticide + 6 gal water
25 inch DBH	10 fl.oz. Zylam Liquid Systemic Insecticide + 6.25 gal water	15 fl.oz. Zylam Liquid Systemic Insecticide + 6.25 gal water	20 fl.oz. Zylam Liquid Systemic Insecticide + 6.25 gal water
30 inch DBH	12 fl.oz. Zylam Liquid Systemic Insecticide + 7.5 gal water	18 fl.oz. Zylam Liquid Systemic Insecticide + 7.5 gal water	24 fl.oz. Zylam Liquid Systemic Insecticide + 7.5 gal water
35 inch DBH	14 fl.oz. Zylam Liquid Systemic Insecticide + 8.75 gal water	21 fl.oz. Zylam Liquid Systemic Insecticide + 8.75 gal water	28 fl.oz. Zylam Liquid Systemic Insecticide + 8.75 gal water
40 inch DBH	16 fl.oz. Zylam Liquid Systemic Insecticide + 10 gal water	24 fl.oz. Zylam Liquid Systemic Insecticide + 10 gal water	32 fl.oz. Zylam Liquid Systemic Insecticide + 10 gal water
45 inch DBH	18 fl.oz. Zylam Liquid Systemic Insecticide + 11.25 gal water	27 fl.oz. Zylam Liquid Systemic Insecticide + 11.25 gal water	36 fl.oz. Zylam Liquid Systemic Insecticide + 11.25 gal water
50 inch DBH	20 fl.oz. Zylam Liquid Systemic Insecticide + 12.5 gal water	30 fl.oz. Zylam Liquid Systemic Insecticide + 12.5 gal water	40 fl.oz. Zylam Liquid Systemic Insecticide + 12.5 gal water

## 7. Bark Banding Applications to Landscape Ornamental Plants

For systemic insect control on landscape trees and shrubs in commercial, industrial and residential areas, parks, golf courses, athletic fields, and schools, when applied as a trunk spray.

**Product Rate:** Add 21.6 to 43.2 fl.oz. of this product plus 1.0 fl.oz. of 100% organosilicone surfactant to enough water to make 1 gallon of mixed solution. 1 gallon of mixed solution treats 65 to 85 inches of tree diameter when measuring diameter at breast height (DBH).

When sprayed on the trunk, Zylam Liquid Systemic Insecticide will be absorbed through the bark and into the vascular system, and then transported throughout the tree. Speed of control will be dependent on tree size, tree health, environmental conditions and how actively pests are feeding.

Spray bark on root flare (buttress roots) and on trunk between soil surface and 4 to 5 feet above the soil surface. Adjust nozzle to uniformly distribute spray over the entire circumference of the tree trunk and buttress roots. Wet bark just to the point of saturation and run off onto soil.

Apply with a low volume sprayer operated at 10 to 20 PSI to prevent tree damage, bounce back and drift.

For optimal control, apply to actively growing trees, and time application that Zylam Liquid Systemic Insecticide has had time to move to insect feeding sites at when target life stage is present.

Control may be less effective in trees with thick bark, and at times when trees are not actively growing or transpiring.

### Ornamental plants including:

Shrubs, Ornamental Trees, Non-Bearing Fruit Trees, Non-Bearing Nut Trees

### Pests

Adelgids including Hemlock Woolly

Aphids

Flatheaded Borers including Alder, Bronze Birch, Emerald Ash,

Flatheaded Appletree, Two-Lined Chestnut

Lacebugs

Leafbeetles

Leafhoppers

Leafminers

Mealybugs

Pine Tip Moth (Larvae)

Psyllids

Roundheaded Borers (excluding Asian Longhorned)

Scales including Calico, Crape Myrtle Bark\*

Spotted Lanternfly\*

Thrips (suppression)

Whiteflies including Ficus

\*Not for use in California

### Restrictions:

- Do not apply to wet bark, during rainfall or if rain is expected within 12 hours.
- Do not apply more than 79 fl.oz. of this product per acre per year.
- Do not make more than one application per year.

Trees and Shrubs: Bark Banding Rates for Landscape Ornamentals – To prepare less than 1 gal of mixed solution (based on 1 gallon of mixed solution covering 85 inches DBH).			
Trunk DBH	Low Rate	Medium Rate	High Rate
1 inch DBH	0.25 fl.oz. Zylam Liquid Systemic Insecticide + 0.01 fl.oz. organosilicone surfactant + 1.24 fl.oz water	0.4 fl.oz. Zylam Liquid Systemic Insecticide + 0.01 fl.oz. organosilicone surfactant + 1.1 fl.oz water	0.51 fl.oz. Zylam Liquid Systemic Insecticide + 0.01 fl.oz. organosilicone surfactant + 0.99 fl.oz water
2 inch DBH	0.51 fl.oz. Zylam Liquid Systemic Insecticide + 0.02 fl.oz. organosilicone surfactant + 2.48 fl.oz. water	0.8 fl.oz. Zylam Liquid Systemic Insecticide + 0.02 fl.oz. organosilicone surfactant + 2.2 fl.oz. water	1.02 fl.oz. Zylam Liquid Systemic Insecticide + 0.02 fl.oz. organosilicone surfactant + 1.97 fl.oz. water
4 inch DBH	1.02 fl.oz. Zylam Liquid Systemic Insecticide + 0.05 fl.oz. organosilicone surfactant + 4.96 fl.oz. water	1.5 fl.oz. Zylam Liquid Systemic Insecticide + 0.05 fl.oz. organosilicone surfactant + 4.5 fl.oz. water	2.03 fl.oz. Zylam Liquid Systemic Insecticide + 0.05 fl.oz. organosilicone surfactant + 3.94 fl.oz. water
6 inch DBH	1.52 fl.oz. Zylam Liquid Systemic Insecticide + 0.07 fl.oz. organosilicone surfactant + 7.4 fl.oz. water	2.3 fl.oz. Zylam Liquid Systemic Insecticide + 0.07 fl.oz. organosilicone surfactant + 6.7 fl.oz. water	3.05 fl.oz. Zylam Liquid Systemic Insecticide + 0.07 fl.oz. organosilicone surfactant + 5.92 fl.oz. water
8 inch DBH	2.03 fl.oz. Zylam Liquid Systemic Insecticide + 0.09 fl.oz. organosilicone surfactant + 9.9 fl.oz. water	3.0 fl.oz. Zylam Liquid Systemic Insecticide + 0.09 fl.oz. organosilicone surfactant + 8.9 fl.oz. water	4.07 fl.oz. Zylam Liquid Systemic Insecticide + 0.09 fl.oz. organosilicone surfactant + 7.89 fl.oz. water
10 inch DBH	2.54 fl.oz. Zylam Liquid Systemic Insecticide + 0.12 fl.oz. organosilicone surfactant + 12.4 fl.oz. water	3.8 fl.oz. Zylam Liquid Systemic Insecticide + 0.12 fl.oz. organosilicone surfactant + 11.1 fl.oz. water	5.08 fl.oz. Zylam Liquid Systemic Insecticide + 0.12 fl.oz. organosilicone surfactant + 9.86 fl.oz. water

### 8. Foliar Applications to Landscape Ornamental Plants

For insect control on landscape ornamental plants in commercial, industrial and residential areas, parks, golf courses, athletic fields, and schools.



**Product Rate:** 7.25 fl.oz. to 16 fl.oz. per 100 gallons of water. Apply in sufficient water to ensure thorough coverage of target area. Use a minimum of 50 gallons finished spray per acre. Use a minimum of 1 gallon of finished spray per 1000 sq.ft. Start treatment prior to buildup of high pest populations. Foliar Spray: 100 gal of mixed spray solution will treat 20,000 sq.ft. of area.

**Ornamental plants including:**

Shrubs, Ornamentals, Flowering Plants, Foliage Plants, Groundcovers, Evergreens, Ornamental Trees, Non-Bearing Fruit Trees, Non-Bearing Nut Trees, Non-Bearing Vines

**Pests**

- Adelgids including Hemlock Woolly, Balsam Woolly
- Aphids (suppression)
- Japanese beetles (adults)
- Lacebugs including Azalea, Cotoneaster, Hawthorne, Rhododendron
- Leaf beetles including Viburnum
- Leafhoppers including Glassy Winged Sharpshooter, Potato
- Leafminers including Serpentine
- Mealybugs including Citrus, Long-Tailed, Madeira, Obscure, Phormium, Pink Hibiscus
- Psyllids including Asian Citrus
- Root Weevils (adults) including Black Vine, Diaprepes
- Sawfly larvae
- Scale (Armored and Soft) including Crape Myrtle Bark\*, Cypoteria, Cycad Aulacaspis, Elongate, Hemlock, Euonymus, Florida Red, Florida Wax, Tea
- Thrips including Chilli, Gynaikothrips uzeli, Western Flower (suppression)
- Whiteflies including Giant, Greenhouse, Silverleaf / Sweet potato (B and Q biotypes)

\*Not for use in California

**Restrictions:**

- Do not apply more than a total of 78.9 fl.oz. of Zylam Liquid Systemic Insecticide [0.54 lb ai] per acre per season as foliar sprays.

### 9. Application to Turfgrasses

For insect control on outdoor residential, recreational and commercial turfgrass in home lawns, commercial lawns, multi-family residential and apartment complexes, grounds or lawns around business and office complexes, shopping centers, airports, military and other institutions, cemeteries, golf courses, playgrounds, parks, athletic fields and sod farms.

Target timing of Zylam Liquid Systemic Insecticide applications at or just prior to or during egg laying of the target pests. The need for an application can be based on historical and/or physical monitoring of the site, current season adult trapping, previous experience or other methods. Optimum control will be achieved when applications are made at first appearance or just prior to or at egg hatch of the target pests followed by sufficient irrigation or rainfall to move the active ingredient through the turf thatch layer. Consult your State Extension Service for information regarding specific application timing.

Zylam Liquid Systemic Insecticide Foliar Application Guide for Trees and Shrubs	
Rate	Dilute Solution Required
7.25 to 16.0 fl.oz. per 100 gallons of water	Apply in sufficient water to ensure coverage of target area. 100 gallons of spray mix will treat 20,000 sq.ft. of area.

Application Rate	Restriction	Pest	Remarks
4.9 pt (79 fl.oz.) per acre 1.8 fl.oz. per 1000 sq.ft. [0.54 lb a.i. per acre]	Do not apply more than a total of 4.9 pt (79 fl.oz.) per acre (1.8 fl.oz. per 1000 sq.ft.) [0.54 lb a.i. per acre] of Zylam Liquid Systemic Insecticide per acre of turf per year.	Annual bluegrass weevil Billbug	For optimum control of annual bluegrass weevil and billbugs, make application prior to or during egg hatch of the target pest or apply at first appearance of young larvae.
		Ants (not including fireants)	Apply at first appearance of ants that are actively foraging.
		Chinchbug	For control of chinchbugs, make application prior to hatching of the first sign of instar nymphs or when turf damage first appears.
		Cranefly, European	Spring applications as a curative control when larvae are mature but prior to pupation generally March and April. Fall applications apply soon after egg hatch.
		Mole cricket Southern mole cricket Tawny mole cricket	Make application prior to or during the peak egg hatch period. When adults or large nymphs are present and actively tunneling, tank mix with a curative insecticide
		White grub larvae (suppression) Asiatic garden beetle Black Turfgrass ataeenius European chafer Green June beetle Japanese beetle May/June beetle Northern masked chafer Oriental beetle Southern masked chafer	For optimum control of grubs, make application prior to or during egg hatch of the target pest.
		Armyworm Cutworms Sod webworm	Apply at first appearance while pests are small.

**Important Notes:**

- Apply in sufficient water to ensure thorough coverage of target area. Use a minimum of 50 gallons finished spray per acre.
- Consult your local State Extension Service or State Extension Turfgrass Specialists for more specific information on timing of insecticide applications.
- For optimal absorption, translaminar movement, and control, avoid applications immediately before rainfall or irrigation. For best results, do not irrigate or water for 24 hours after application. If rainfall does not occur in 48 hours after application, irrigate with sufficient water to ensure movement of the active ingredient through the thatch and into the root zone.

**Restrictions:**

- Do not apply when the target site is saturated with water. Adequate distribution of the active ingredient cannot be achieved when these conditions exist.
- Make only one application per year.

**STORAGE AND DISPOSAL**

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

**PESTICIDE STORAGE:** Protect from direct sunlight. Store in cool, dark, and well-ventilated area. Keep container tightly closed.

**PESTICIDE DISPOSAL:** Pesticide wastes may be hazardous. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

**CONTAINER HANDLING:** Nonrefillable container. Do not reuse or refill this container.

Triple rinse or pressure 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 ¼ 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.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

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.

**LIMITED WARRANTY AND DISCLAIMER**

The manufacturer warrants only that the chemical composition of this product conforms to the ingredient statement given on the label, and that the product is reasonably suited for the labeled use when applied according to the Directions for Use.

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