



**BioWorks®**

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# Calla Lilies: Cut Flowers and Pot Production Disease & Insect Management Program

When planning your next crop of Calla lilies, give your plants a healthy start and keep them clean throughout production with the BioWorks family of products. BioWorks products can help you control a wide variety of diseases and insects. (See chart below for timing and rates.)

## RootShield® and RootShield® PLUS for Root Disease Control

**RootShield®** (0-hour REI / OMRI Listed and VeriFlora Certified)

- Provides long-term root protection for all stages of growth
- Grows on the roots “shielding” them against root damaging fungi such as *Fusarium*, *Pythium*, *Rhizoctonia*, *Cylindrocladium* and *Thielaviopsis*
- Active Ingredient: unique beneficial fungus *Trichoderma harzianum*, strain T-22 that “eats” pathogens
- Cost effective: reduces or eliminates chemical root fungicide applications
- Grows on the roots within a pH range of 4 – 8 at soil temperatures of 48 to 97° F
- Granular formulation for media incorporation or wettable powder for drenching

**RootShield® PLUS** (0-hour REI\* / OMRI Listed)

- Provides long-term root protection for all stages of growth
- Grows on the roots “shielding” them against root damaging fungi such as *Phytophthora*, *Fusarium*, *Pythium*, *Rhizoctonia*, *Cylindrocladium*, and *Thielaviopsis*. RootShield PLUS also actively consumes pathogenic fungi.
- Active Ingredients: The beneficial fungi *Trichoderma harzianum*, strain T-22 and *Trichoderma virens*, strain G-41.
- Cost effective: reduces or eliminates chemical root fungicide applications
- Grows on the roots within a pH range of 4 – 8 at soil temperatures of 48 to 97° F
- Granular formulation for media incorporation or wettable powder for drenching

\* When soil injected or soil incorporated

## CEASE® and MiiStop® for Follar Disease Control

**CEASE®** (4-hr REI, OMRI Listed)

- Prevents both fungal and bacterial disease
- Controls *Botrytis*, powdery mildew, *Erwinia* and *Xanthomonas*
- Leaves no unsightly residues
- Active ingredients: *Bacillus subtilis* (strain QST 713)
- Safe for beneficial insects and bees
- 0-day pre-harvest interval

To find out more about the BioWorks family of products, please contact us at **800-877-9443** or visit [www.bioworksinc.com](http://www.bioworksinc.com). ©2012 BioWorks, Inc.

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## **CEASE® and MilStop® for Follar Disease Control**

### **MilStop®** (1-hr REI, OMRI Listed)

- Kills powdery mildew on contact and prevents other disease
- Leaves no residues; dries quick, clean
- Active ingredient: Potassium Bicarbonate
- Cost effective, pre-formulated with surfactants
- Can be used in rotation with most chemical pesticides or as a stand alone fungicide
- Compatible with many beneficial insects
- 0-day pre-harvest interval

## **NemaShield® for Fungus Gnat Larval Control**

- Especially useful in greenhouse propagation and transplant production
- Easy to use dispersible formulation; apply with a sprayer or through an injector
- Active ingredient: *Steinernema feltiae* insect parasitic nematode
- No REI; No human toxicity; exempt from EPA labeling requirements
- Compatible with many pesticides, including insecticides

## **BotaniGard®, Molt-X® and SuffOil-X® for Insect and Mite Control**

### **BotaniGard®** (4-hr REI, Organic formulation available)

- Controls whiteflies, thrips, aphids, etc.
- Mycoinsecticide with unique mode of action from *Beauveria bassiana* strain GHA
- Spores work by direct contact with insect
- Compatible with IPM programs and beneficial insects
- Ideal resistance management tool

### **SuffOil-X®** (4-hr REI, OMRI Listed)

- Suffocates and kills eggs, larvae, nymphs and soft bodied insects, mites
- Unique pre-emulsified formulation stays in suspension better than other oils
- Smaller oil particles provide uniform coverage with less chance of phytotoxicity

### **Molt-X®** (4-hr REI)

- Protects against both foliar and soil-borne pests
- Multiple modes of action
- No phytotoxicity on most plants
- Generally safe on beneficial insects and bees
- Excellent for tank mixing or rotating with BotaniGard and SuffOil-X

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# Disease & Insect Management – Calla Lilies

	Product and Application	Rates						
<b>Root Disease Prevention</b>  <b>Use on Stock Plants, in Propagation/Cuttings/Seeds &amp; when Finishing Crops</b>	<b>RootShield®PLUS WP, RootShield® PLUS Granules</b> Controls: <i>Phytophthora, Rhizoctonia, Pythium, Fusarium, Thielaviopsis</i> and more							
	Sow seed or plant clean, disease-free plants into media containing RootShield PLUS Granules, OR Drench immediately after seeding/planting with RootShield PLUS WP* *RootShield PLUS WP can be applied at any stage of the crop to prevent disease.	1.5 to 2.0 lb / cu yd 6 oz / 100 gal						
	<b>RootShield® WP, RootShield® Granules</b> Controls: <i>Rhizoctonia, Pythium, Fusarium, Thielaviopsis</i> and more							
	Sow seed or plant clean, disease-free plants into media containing RootShield Granules, OR Drench immediately after seeding/planting with RootShield WP* Re-apply RootShield WP again in 10-12 weeks at 1/2 the rate. *RootShield WP can be applied at any stage of the crop to prevent disease.	1.25 lb / cu yd 4 oz / 100 gal. 2 oz / 100 gal.						
<b>Foliar Disease Prevention</b>  <b>Use on Stock Plants, in Propagation/Cuttings/Seeds &amp; when Finishing Crops</b>	<b>CEASE®</b> Controls: <i>Botrytis, powdery mildew, Erwinia, Pseudomonas, Xanthomonas</i> and more							
	Spray as a preventative for <i>Botrytis</i> , powdery mildew and bacterial diseases.	4 qts. / 100 gal. every 5-7 days						
	<b>MilStop®**</b> Controls: Powdery mildew, <i>Botrytis</i> and other diseases							
	When conditions are right for powdery mildew or <i>Botrytis</i> , apply MilStop as a preventative.	1.25 lb to 2.5 lb / 100 gal. every 7-10 days						
<b>Insect Control</b>  <b>Use in Propagation/Cuttings/Seeds &amp; when Finishing Crops</b>	<b>NemaShield®</b> Controls: Fungus gnat larvae and Thrips (WFT) pupae and pre-pupae							
	Apply NemaShield for insect control within the first week after seeding or transplant, or immediately after seeing adults flying.	One 100 million packet / 3,400 sq ft						
	<b>Re-application rates and intervals:</b>  For light or heavy infestations. Re-apply in 14 to 21 day intervals at the light infestation rate. For heavy infestations on highly susceptible crops or newly propagated cuttings, follow the rate recommended above and re-apply at the light infestation rate when necessary after 5 to 6 weeks.	One 100 million packet / 1,100 - 2,200 sq ft						
	<b>BotaniGard® ES and 22WP (Mycotrol® O – organic formulation)**</b> Controls: whitefly, aphid, thrips, etc.							
	At first sign of insects (egg hatch or small larval instars) apply BotaniGard ES or 22WP at 3 to 10 day intervals. If pest pressure is high, combine initial applications with a contact insecticide or IGR and follow with another BotaniGard spray in 3 to 5 days and make at least 2 applications at this interval. Continue with applications, including recommended tank mixes, at the longer interval indicated above. Can be tank mixed or alternated with Molt-X.	<table border="0"> <tr> <td>Whiteflies, Aphids, Mealybugs:</td> <td>½ to 1 qt(lb) / 100 gal</td> </tr> <tr> <td>Thrips:</td> <td>1 to 2 qt(lb) / 100 gal</td> </tr> <tr> <td>Other labeled insects:</td> <td>½ to 2 qt(lb) / 100 gal</td> </tr> </table>	Whiteflies, Aphids, Mealybugs:	½ to 1 qt(lb) / 100 gal	Thrips:	1 to 2 qt(lb) / 100 gal	Other labeled insects:	½ to 2 qt(lb) / 100 gal
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	Other labeled insects:	½ to 2 qt(lb) / 100 gal						
<b>SuffOil-X®**</b> Controls: mites, whitefly, aphids, etc.								
Follow all precautions and recommendations for applying horticultural oils.	1 to 2 gal. / 100 gal							
<b>Molt-X™**</b> Controls both foliar and soil borne pests								
Combine or rotate with BotaniGard for an effective control strategy. Maintain pH of diluted mixture at between pH 5.5 - 6.5.	8 to 10 oz / 100 gal							

\*\*Use caution when making applications to open blooms, especially on varieties known to be sensitive. It is recommended that a small group of plants be tested for effects on open blooms before making applications to the whole crop. Always read and follow label directions.

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