Growing poinsettias requires complete protection through all stages of development. The BioWorks family of products offers a proven, cost-effective system for controlling insects and plant diseases at every stage. Give your plants a healthy start and keep them clean throughout production. (See chart for timing and rates.)

**Root Disease Control**

**RootShield® and RootShield® PLUS** (0-hr REI, OMRI Listed)
- Provides long-term (12 weeks) 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*. With RootShield PLUS, *Phytophthora ssp.* is also prevented.
- RootShield active ingredient: Unique beneficial fungus *Trichoderma harzianum*, strain T-22 that “eats” pathogens; RootShield PLUS has added *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
- RootShield is VeriFlora Certified
- Granular formulation for media incorporation or wettable powder for drenching

**Foliar Disease Control**

**CEASE® for covered production** (4-hr REI, 0-day PHI, 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

**MilStop®** (1-hr REI, 0-day PHI, 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
Insect & Mite Control

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® (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, 0-day PHI, OMRI Listed)
- 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
### Application – BioWorks Poinsettia Disease and Insect Management Program

<table>
<thead>
<tr>
<th>Crop Stage</th>
<th>Product and Application Timing</th>
<th>Rates</th>
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</table>
| **Root Disease Control**    | Plant clean, disease-free plants into media containing RootShield® Granules, RootShield PLUS Granules, or Drench with RootShield® WP or RootShield PLUS® WP immediately after planting. Reapply RootShield WP again in 10-12 weeks at ½ rate, or RootShield PLUS® WP at full rate. | RootShield  
1.25 lb/cu yd  
4 oz/100 gal  
2 oz/100 gal  
RootShield PLUS®  
2 lb/cu yd  
6 oz/100 gal  
6 oz/100 gal |
| **Fungus Gnat Control**     | Apply NemaShield® for fungus gnat control within the first week after potting. After three weeks, make a second application at the same rate for additional fungus gnat control, or under moderate to severe insect pressure. | One 100 million packet per 2200 sq ft |
| **Stock Plants**            | **Foliar Disease Control**  
When conditions are right for Botrytis or powdery mildew apply MilStop® as a preventative.  
Spray CEASE® as a preventative for Botrytis, powdery mildew and bacterial diseases.  
If plants become infected with powdery mildew, use MilStop at the curative rate (note precaution on label). When control is achieved, switch to the preventative rates shown above. | 1.25 lb to 2.5 lb/100 gal every 7-10 days  
4 qt/100 gal every 7 days  
3-5 lb/100 gal every 7-10 days |
| **Insect Control**          | At the first sign of insects (egg hatch or first larval instars) apply BotaniGard® ES or 22WP at 5 to 10-day intervals. If pest pressure is high, combine initial applications with a contact insecticide and reduce the interval of BotaniGard to 3 to 5 days.  
Apply SuffOil-X® when insects are present on an as needed basis. SuffOil-X may be tank-mixed or rotated with BotaniGard and Molt-X.  
Apply Molt-X early for best results or include in rotations. Two to three applications at 7 to 10-day intervals is recommended. Molt-X may be tank-mixed or rotated with BotaniGard or SuffOil-X. Good coverage is essential. | Whiteflies, Aphids,  
Mealybugs_0.5-1 qt(lb)/100 gal  
Thrips_1–2 qt(lb)/100 gal  
Other labeled  
Insects_0.5–2 qt(lb)/100 gal  
Whiteflies, Leafminers,  
Soft scales_10 oz/100 gal (can use ½ rate when tank-mixed)  
Thrips, Aphids,  
Mealybugs_8 oz/100 gal (can use ½ rate when tank-mixed) |
## Application – BioWorks Poinsettia Disease and Insect Management Program (continued)

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| **Cuttings, Propagation** | Stick unrooted cuttings into media containing RootShield Granules, RootShield PLUS+ Granules, or Drench with RootShield WP or RootShield PLUS+ WP approximately 7-10 days after sticking. Reapply RootShield WP again in 10-12 weeks at ½ rate, or RootShield PLUS+ WP at full rate. | RootShield  
1.25 lb/cu yd  
4 oz/100 gal  
RootShield PLUS+  
2 lb/cu yd  
6 oz/100 gal  
6 oz/100 gal |
| **Fungus Gnat Control** | Apply NemaShield for fungus gnat control within the first week after sticking. After two weeks, make a second application at the same rate. | One 100 million packet per 2200 sq ft |
| **Foliar Disease Control** | Spray CEASE as a preventative for Botrytis, powdery mildew and bacterial diseases. | 8 oz/100 gal |
| **Insect Control** | At the first sign of insects (egg hatch or first larval instars) apply BotaniGard ES or 22WP at 5 to 10-day intervals. If pest pressure is high, combine initial applications with a contact insecticide and reduce the interval of BotaniGard to 3 to 5 days. Apply SuffOil-X when insects are present on an as needed basis. SuffOil-X may be tank-mixed or rotated with BotaniGard and Molt-X. Apply Molt-X early for best results or include in rotations. Two to three applications at 7 to 10-day intervals is recommended. Molt-X may be tank-mixed or rotated with BotaniGard or SuffOil-X. Good coverage is essential. | Whiteflies, Aphids, Mealybugs_0.5-1 qt(lb)/100 gal  
Thrips____1–2 qt(lb)/100 gal  
Other labeled Insects___0.5–2 qt(lb)/100 gal  
1% (1 gallon/100 gallons)  
Whiteflies, Leafminers, Soft scales___10 oz/100 gal (can use ½ rate when tank-mixed)  
Thrips, Aphids, Mealybugs___8 oz/100 gal (can use ½ rate when tank-mixed) |
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<tr>
<td>Root Disease Control</td>
<td>Plant clean, disease-free plants into media containing RootShield Granules, RootShield PLUS Granules, or Drench with RootShield WP or RootShield PLUS WP immediately after planting. Reapply RootShield WP again in 10-12 weeks at ½ rate, or RootShield PLUS WP at full rate.</td>
<td>RootShield 1.25 lb/cu yd 4 oz/100 gal RootShield PLUS+ 2 lb/cu yd 6 oz/100 gal 6 oz/100 gal</td>
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<tr>
<td>Fungus Gnat Control</td>
<td>Apply NemaShield for fungus gnat control within the first week after potting. After three weeks, make a second application at the same rate for additional fungus gnat control, or under moderate to severe insect pressure.</td>
<td>One 100 million packet per 2200 sq ft</td>
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<tr>
<td>Foliar Disease Control</td>
<td>Start Molt-X applications as early as possible where history or experience has shown fungus gnat infestation is expected. Apply to control fungus gnats using ½ pint of mixed solution per 6-inch pot every 7 days for three weeks. Also make 1 application to poinsettias 10 to 15 days prior to shipping to prevent adult emergence.</td>
<td>8 oz/100 gal</td>
</tr>
<tr>
<td>Insect Control</td>
<td>When conditions are right for Botrytis or powdery mildew apply MilStop as a preventative. Spray CEASE as a preventative for Botrytis, powdery mildew and bacterial diseases. If plants become infected with powdery mildew, use MilStop at the curative rate (note precaution on label). When control is achieved, switch to the preventative rates shown above</td>
<td>1.25 lb to 2.5 lb/100 gal every 7-10 days 4 qt/100 gal every 7 days 3-5 lb/100 gal every 7-10 days</td>
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Refer to product labels for complete application details. Additional technical information is available on our website (bioworksinc.com) or from your BioWorks technical sales representative. RootShield®, RootShield® PLUS+, CEASE®, NemaShield®, SuffOil-X®, and Molt-X® are registered trademarks of BioWorks, Inc. BotaniGard® and Mycotrol® are registered trademarks of LAM International. Always read and follow label directions.