



Spring Annuals: Disease & Insect Management

When planning your next season of spring annuals, give your plants a healthy start and keep them clean throughout production with the BioWorks family of products (see chart on last page for timing and rates).

Root Disease Control

RootShield® PLUS⁺ (4-hr REI, OMRI Listed)

- Provides long-term (up to 12 weeks) 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*
- Active Ingredients: 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

Foliar Disease Control

BotryStop® (4-hr REI, 0-day PHI, OMRI Listed)

- Biofungicide used to prevent *Botrytis* and *Sclerotinia* diseases
- Active component *Ulocladium oudemansii* U3 strain is a non-pathogenic fungus that aggressively competes for the same physical space as the plant pathogens
- Non-invasive and causes no harm to live plant tissue
- Highly unlikely that resistance will develop

CEASE® (4-hr REI, 0-day PHI, OMRI Listed)

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

MilStop® SP (1-hr REI, 0-day PHI, OMRI Listed)

- Kills powdery mildew on contact and prevents other disease
- Leaves no residues; dries quickly, cleanly
- Active ingredient: potassium bicarbonate
- Cost effective, pre-formulated with surfactants
- Can be used in rotation with most chemical pesticides or as a standalone fungicide
- Compatible with many beneficial insects



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® / Mycotrol® (4-hr REI, 0-day PHI)

- Mycotrol is WSDA certified for organic use
- 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, 0-day PHI, 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
- No phytotoxicity on most plants
- Excellent for tank mixing or rotating with BotaniGard and SuffOil-X
- Multiple modes of action
- Generally safe on beneficial insects and bees



Product and Application		Rates	
Root Disease Prevention Use on Stock Plants, in Propagation/Cuttings/Seeds & when Finishing Crops	RootShield® PLUS+ WP, RootShield® PLUS+ Granules – OMRI-Listed Controls: <i>Phytophthora, Rhizoctonia, Pythium, Fusarium, Thielaviopsis</i> Sow seed or plant clean, disease-free plants into media containing RootShield PLUS+ Granules, OR Drench with RootShield PLUS+ WP immediately after seeding/planting* *RootShield PLUS+ WP and RootShield 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	
	Product and Application		Rates
	Foliar Disease Prevention Use on Stock Plants, in Propagation/Cuttings/Seeds & when Finishing Crops	CEASE® – OMRI-Listed Controls: <i>Botrytis, powdery mildew, Erwinia, Pseudomonas, Xanthomonas</i> Spray as a preventative for <i>Botrytis</i> , powdery mildew and bacterial diseases.	4 qts./100 gal every 5-7 days
		MilStop®** – OMRI-Listed 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
If plants become infected with powdery mildew, use MilStop at the curative rate (note precautions on label). When control is achieved, switch to the preventative rates shown above.		3 lbs/100 gal every 7-10 days	
Product and Application		Rates	
Insect Control Use on Stock Plants, in Propagation/Cuttings/Seeds & when Finishing Crops	NemaShield® 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 per 3,400 sq ft	
	Reapplication rates and intervals: 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 per 1,100-2,200 sq ft	
	BotaniGard® 22WP, BotaniGard® ES, Mycotrol® WPO, Mycotrol® ESO Controls: whitefly, aphid, thrips, etc.	Whiteflies, Aphids, Mealybugs: ½ to 1 qt(lb) per 100 gal Thrips: 1 to 2 qt(lb) per 100 gal Other labeled insects: ½ to 2 qt(lb) per 100 gal	
	At first sign of insects (egg hatch or small larval instars) apply 3 to 10 day intervals. If pest pressure is high, combine initial applications with a contact insecticide or IGR, such as Molt-X, and follow with another BotaniGard spray in 3 to 5 days, making at least 2 applications before returning to the longer spray interval. Can be tank mixed or alternated with Molt-X.		
	SuffOil-X® – OMRI-Listed Controls: mites, whitefly, aphids, etc. Follow all precautions and recommendations for applying horticultural oils.		1 to 2 gal/100 gal
	Molt-X® – OMRI-Listed Controls many 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. Refer to product labels for complete application details.

Additional technical information is available on our website (bioworksinc.com) or from your BioWorks biological Solutions Advisor. Always read and follow label directions.