



Spring Annuals: Disease & Insect

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.

Root Disease Control

RootShield® PLUS

- 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*.
- 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
- 0-hour REI when soil incorporated / OMRI Listed.
- Granular formulation for media incorporation or wettable powder for drenching

Foliar Disease Control

CEASE® (4-hour 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

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

Insect and Mite Control

BotaniGard® (4-hr REI, Organic formulations 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

Disease & Insect Management Program

Product and Application		Rates
Root Disease Prevention Use on Stock Plants, in Propagation/ Cuttings/Seeds & when Finishing Crops	RootShield® PLUS WP, RootShield® PLUS Granules Controls: <i>Phytophthora, Rhizoctonia, Pythium, Fusarium, Thielaviopsis</i>	
	Sow seed or plant clean, disease-free plants into media containing RootShield PLUS Granules, OR	1.5 to 2.0 lb / cu yd
	Drench with RootShield PLUS WP immediately after seeding/planting*	6 oz / 100 gal
	*RootShield PLUS WP can be applied at any stage of the crop to prevent disease.	
Product and Application		Rates
Foliar Disease Prevention Use on Stock Plants, in Propagation/ Cuttings/Seeds & when Finishing Crops	CEASE® Controls: <i>Botrytis, powdery mildew, Erwinia, Pseudomonas, Xanthomonas</i>	
	Spray as a preventative for <i>Botrytis</i> , powdery mildew and bacterial diseases.	4 qt / 100 gal every 5-7 days
	MilStop®** 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 lb / 100 gal every 7-10 days
Product and Application		Rates
Insect Control Use 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 / 3,400 sq ft
	Re-application 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 / 1,100 - 2,200 sq ft
	BotaniGard® ES, BotaniGard® 22WP, Mycotrol® ESO, and Mycotrol® WPO Controls: whitefly, aphid, thrips, etc.	
	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 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.	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
	SuffOil-x®** Controls: mites, whitefly, aphids, etc.	
	Follow all precautions and recommendations for applying horticultural oils.	1 to 2 gal / 100 gal
Molt-x®** 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.