



Managing Diseases in Propagation:

Four Practical Steps to Minimize Risk

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Warm and humid conditions in the propagation area are not only good for seed germination and rooting cuttings, they can also provide a suitable environment for disease development. Below is a checklist of practical steps that can be taken to minimize disease risks.

1. Sanitation remains the front line of defense. The propagation area should be weed free at all times. Properly timed applications of **Marengo**[®] pre-emergent herbicide can provide months of effective control. Before the start of propagation, all surfaces should be cleaned and then disinfected. **Strip-It**[™] is an example of a high-powered cleaner designed to remove organic and mineral deposits from floors, benches, sidewalls, tools, etc. Follow up the thorough cleaning with a true sanitizer, such as **KleenGrow**[™], **SaniDate**[®] 5.0, **X3**[®] or **ZeroTol**[®] 2.0. Start clean!

All other factors being equal, proper sanitation and optimized mist conditions make fungicide applications more effective.

2. Optimize mist systems to ensure that the minimum amount of mist is provided to satisfy the needs of seeds and cuttings. Work with your Griffin sales representative to ensure your mist nozzles are the best choice for your application and that your system is operating at peak effectiveness. A high-quality surfactant such as **CapSil**[®] can be used to break surface tension on leaf surfaces, contributing to a more even distribution of mist droplets; less water use and faster rooting often result. Lightweight row-cover fabrics, such as **AgroFabric**[®] Pro 17, have been used in certain situations to reduce or eliminate the need for mist all together.

3. Start with clean cuttings and seeds. If stock plants are produced on-site, you can maintain strict protocols to reduce disease risk. Most of us bring in unrooted cuttings, making the selection of suppliers very important. While even the best stock farms can have a problem, risks can be reduced by sticking with reputable sources that have a good track record of supplying clean cuttings. Seeds can also harbor fungal and bacterial diseases, so the same advice applies to seed suppliers.

4. Fungicides and bactericides can still be required even when all other disease reduction steps have been successfully implemented. Proper sanitation and optimized mist conditions make fungicide applications more effective, all other factors being equal. Crops vary in their disease susceptibility, making it worthwhile to learn as much as possible about the crops you produce. *Botrytis* and *Rhizoctonia* are two of the most common diseases that occur in propagation. *Botrytis* has particularly well-deserved

reputation for developing resistance to fungicides. A strong rotation is essential to reduce resistance pressure. GGSPRO is available to help formulate rotations that consider both plant safety and efficacy.

Below is a partial list of effective fungicides that control *Botrytis* and *Rhizoctonia*. Always read and follow all label directions. Pesticides other than those mentioned here may also be safe and effective.

Botrytis and Rhizoctonia Control Options

Product	MOA	Size	Item No.
Affirm WDG	19	0.5 lb	71-1129
Cease	44	1 gal	71-13301
Chipco 26019 N/G	2	2 lbs	71-13501
Daconil Ultrex	M5	5 lbs	71-1420
Daconil Weather-Stik	M5	2.5 gal	3117025
Emblem	12	1 pt	71-1570
Iprodione SPC	2	2.5 gal	71-20251
Medallion WDG	12	8 oz	71-16502
Mural	11 & 7	1 lb	Coming soon
Pageant Intrinsic WG	11 & 7	1 lb	71-26801
Palladium WDG	9 & 12	2 lbs	71-2685
Spectro 90 WDG	1 & M5	5 lbs	71-2755
Triathlon BA	NC	1 gal	71-3040
ZeroTol 2.0	NC	2.5 gal	71-35501

Other Featured Products

Product	Description	Item No.
AgroFabric Pro 17	0.5 oz sq yd	78-2017
CapSil	1 gal	74-1541
KleenGrow	1 gal	74-21101
Marengo SC	0.5 gal	72-2813
SaniDate 5.0	2.5 gal	71-35001
Strip-It	2.5 gal	74-2124
X3	96 oz x 3	71-3701
ZeroTol 2.0	2.5 gal	71-35501