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New Chemical Tools for Control of Plant Diseases[®]

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We perform over 100 trials annually on control of diseases on a wide range of ornamental crops. Below is a summary for three of the newest products.

In 2008, the first total-release fungicide product was registered by Whitmire MicroGen — Fungaflor TR. The active ingredient is imazilil, which belongs to the sterol inhibitor class of fungicides (for example Eagle, Banner MAXX, Strike and Terra-guard). The labeled sites are greenhouses on a wide range of plants from bedding plants, to cut flowers, to flowering hanging baskets and foliage plants (Table 1). The target diseases include *Alternaria* leaf spot, *Botrytis* blight and leaf spot, downy and powdery mildews, and rust diseases (Table 1). The use rates are given in cans per 3000, 1500, and 1000 square feet and the re-entry interval (REI) is 24 h.

The second product is a new one called Xeroton-3 from Phyton Corporation. Our first trials were run about 4 years ago. Xeroton-3 is in the same chemical class as ZeroTol. The trials summarized in Table 2 were conducted comparing Xeroton-3 to ZeroTol in each case. We always noted safety to the crop as well as efficacy. While not effective on all diseases, Xeroton-3 was safer and more effective than ZeroTol in our trials. Xeroton-3 is not a traditional bactericide-fungicide since it has little residual and acts immediately on surface pathogens. Be sure to read the label and follow the directions to make the most of this new product.

This year, one of the broadest spectrum new fungicide combinations was registered by BASF Corporation — Pageant (Table 3). This product is a combination of the active ingredient in Insignia (pyraclostrobin — a strobilurin fungicide) and boscalid (an active ingredient not available to ornamental producers as a stand-alone fungicide). It presents a new combination of active ingredients for very broad-spectrum disease control. We have primarily looked at Pageant as a foliar spray or sprench (20% drench volume), but sometimes it has been evaluated as a drench for diseases like *Fusarium* that can occur as root rot and crown rot. The most exciting development is the very good to excellent control of anthracnose diseases caused by either *Phyllosticta* or *Colletotrichum*. Pageant has surpassed all of the other fungicides we have tested. Another outstanding result has been seen with Pageant on *Sclerotinia*.

CONCLUSION

This manuscript lists results of three of the newest fungicides for use in the ornamental industry. Each has unique characteristics and positive points from delivery method to spectrum of activity. Be sure to always read the fungicide labels noting any special restrictions that might apply to your state or growing structures.

Table 1. Summary of Fungaflo® TR trials performed at Chase Horticultural Research.

Disease	Plant	Application interval	Degree of control	Fungicide standard (rate per 100 gal) resulting control
Alternaria leaf spot	<i>Impatiens</i>	Weekly	Very good to excellent	Daconil Ultrex – 1.4 lb equal control
Botrytis blight	pansy, <i>Salvia</i> , <i>Hydrangea</i>	Once on pansy flowers, weekly on salvia and Hydrangea	Some to very good	Decree – 16 oz equal control Endorse – 2.2 lbs equal control Chipco 26019 – 16 oz equal control
Downy mildew	snapdragon, stock	Weekly	Some to very good	FenStop – 5.5 oz equal control
Powdery mildew	gerber daisy	Weekly	Very good eradication	Eagle 40WP – 2 oz equal control

Table 2. Summary of Xeroton-3 trials performed at Chase Horticultural Research.

Disease	Plant	Xeroton 3 efficacy	Xeroton 3 safety	ZeroToI efficacy	ZeroToI safety
Alternaria leaf spot	<i>Impatiens</i>	Excellent	safe	excellent	safe
Botrytis blight	<i>Cyclamen</i>	Some	safe	none	safe
Botrytis blight	New Guinea impatiens	Slight increase	slight damage	100% worse	moderate damage
Cylindrocladium leaf spot	myrtle	Good	safe	none	safe
Phytophthora root rot	<i>Gerbera</i>	Very good	safe	slight	safe
Powdery mildew	<i>Gerbera</i>	Good	safe	slight	safe
Powdery mildew	<i>Rosa</i>	Some	safe	some	safe
Pythium root rot	snapdragon	None	safe	none	safe
Rhizoctonia damping-off	<i>Celosia</i>	None	safe	none	safe
Rhizoctonia cutting rot	poinsettia	None	safe	none	safe
Rust	<i>Hypericum</i>	None	safe	none	safe
Xanthomonas leaf spot	<i>Ranunculus</i>	Some	safe	good	safe

Table 3. Summary of Pageant trials performed at Chase Horticultural Research.

Disease	Plants tested	Results
Alternaria leaf spot	<i>Impatiens, Pittosporum, Zinnia</i>	Very good to excellent at 4 or 8 oz (7-14 day)
Botrytis blight	cut flowers	Excellent at 18 oz as a dip
Cercospora leaf spot	myrtle	Very good at 12.5 oz (14 day)
Colletotrichum leaf spot	<i>Camellia, Hydrangea, Mandevilla</i>	Excellent at 12.5 and 18.5 (14 day)
Coniothyrium cane rot	<i>Rosa</i>	Good to excellent at 12.5 oz (once)
Cylindrocladium cutting rot	myrtle	Good to excellent at 12.5 oz (once)
Cylindrocladium root rot	<i>Spathiphyllum</i>	Excellent at 12.5 or 18.5 oz (14 day)
Fusarium chalk rot	<i>Caladium</i>	Some at 23 oz used (once)
Fusarium wilt	<i>Cyclamen</i>	Excellent at 12.5 and 18.5 (14 day)
Myrothecium petiole rot	pansy	Some to excellent at 12 oz (14-21 day)
Phyllosticta leaf spot	<i>Euonymus</i>	Excellent at 12.5 and 18.5 (14 day)
Powdery mildews	<i>Gerbera, Hydrangea, Rosa, Scabiosa</i>	Very good to excellent at 12.5 and 18.5 (7-14 day)
Rhizoctonia cutting rot and stem rot	<i>Hydrangea, Impatiens, poinsettia</i>	Very good to excellent at 12.5 and 18.5 (once or twice)
Rusts	<i>Hypericum, Solidago</i>	Very good at 12.5 oz (14 day)
Sclerotinia	stock, <i>Lobelia</i>	Excellent at 18 oz (7-14 day)