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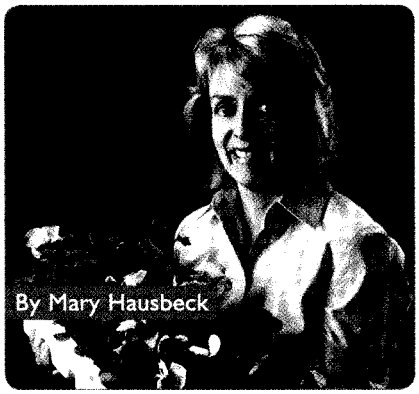
149. New products to control *Pythium* and *Botrytis*. Hausbeck, M. Greenhouse Management and Production 28(12):38-39. 2008.



New products to control *Pythium* and *Botrytis*

It is an exciting time as new products are coming through our testing program at Michigan State University. We targeted a couple of old-time pathogens to see how some of these new products compare to the controls growers have relied on over the years.

Conditions that favor *Pythium*

Pythium is a water mold and "nibbles" the feeding roots of plants, resulting in stunted growth and death. Seeds may rot either before germination or before seedlings emerge from the soil.

The most commonly recognized damping-off develops after seedlings emerge from the soil. Seedlings are attacked at the soil line and the fungus grows rapidly in the tender plants resulting in collapse and death. Infected seedlings and young plants that survive an initial *Pythium* infection often show significant root rot symptoms, including girdling of the lower stem, root browning, stunting and death.

Root rot disease is favored by growing conditions that are "too wet," such as when the medium does not drain quickly or when weather doesn't allow rapid drying. *Pythium* can be introduced into a greenhouse via plant plugs or other pre-finished plant material. This pathogen can also be a greenhouse "resident" that hibernates on dirty plant containers, benches and greenhouse walkways, ready to become activated by the right plant and weather conditions. Although *Pythium* can be a problem on many annuals and perennials, it seems to favor geraniums and poinsettias.

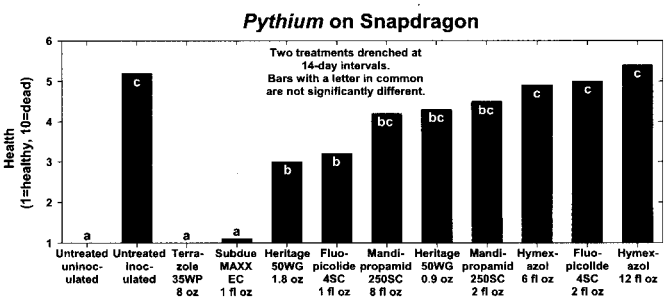
Effective *Pythium* controls

Sanitation is especially important in limiting root rot. Conditions that favor good plant growth and minimize stress make the plant less vulnerable to attack by root rot. But if you've done everything right and still encounter a *Pythium* problem, choosing effective fungicides can minimize your losses.

In a recent study we compared fungicides for *Pythium* root rot on snapdragon. We were especially interested in seeing how the fungicide standards such as Terrazole and Subdue compared with new active ingredients that are not yet registered. We were also interested in determining if Heritage offered any protection against this water mold.

In our study, disease pressure was moderate and the diseased plants that were not treated showed poor growth and vigor (health rating = 5; 1 = healthy, 10 = dead). Subdue MAXX EC and Terrazole 35WP showed outstanding control of *Pythium* compared to all other products. A Heritage drench provided some control of root rot but the plants appeared poor compared with the Subdue MAXX EC and Terrazole 35WP treatments.

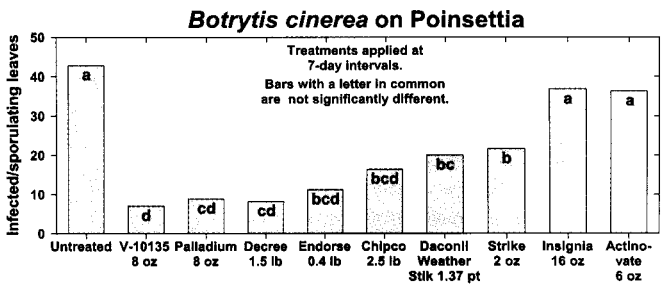
The other new active ingredients that were tested did not keep *Pythium* under control. Keep in mind that our application interval of 14 days is shorter than the label allowance. However, in a serious *Pythium* outbreak you could rotate Subdue MAXX EC with Terrazole at 14-day intervals.



If you've relied heavily on Subdue MAXX EC over the years, it is recommended that you have the *Pythium* strain evaluated to make sure Subdue will still control the pathogen. Some *Pythium* strains have become resistant to this fungicide. Although Truban and Banrot were not included in our study, they each have an active ingredient that is comparable to Terrazole.

Conditions that favor *Botrytis*

Stem, leaf and flower blights caused by *Botrytis* gray mold are common problems, especially when the growing environment is humid and wet. On bedding and stock plants, *Botrytis* produces spores on older, lower leaves near the moist soil surface and under the



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plant canopy. *Botrytis* readily infects any broken or damaged plant tissue and covers the surface with a powdery gray mold.

Effective *Botrytis* controls

Remember, even the best fungicides will fail if the relative humidity often exceeds 85 percent and the leaves stay wet for six hours or more. Plants may become wet from water dripping from overhead, dew or condensation. Watering in the morning so the foliage can dry rapidly is one way to minimize *Botrytis*. Practices that reduce the relative humidity are also helpful and include spacing plants farther apart and providing good air circulation.

Prior to greenhouse workers "cleaning" plants by removing the lower senescent leaves, flower buds or infected plant parts, it would be wise to have a protectant fungicide on all of the plants prior to the activity and reduce the relative humidity (less than 65 percent) for three days following the cleaning. If *Botrytis* is present, a cleaning activity will result in a high number of conidia being released into the atmosphere where they can be spread throughout the greenhouse and be deposited onto healthy plants.

Fungicides are often important in managing *Botrytis*, but must be chosen carefully. Some *Botrytis* strains have become "resistant" and can grow and reproduce in the presence of some of the fungicides that used to offer effective control. It is very important to alternate fungicides so that the different modes of action are used.

In our new product trial for *Botrytis* on poinsettia, Decree, Chipco and Daconil were compared to several new products, some of which are not yet registered. Disease pressure was extremely high in our trial so all products were put to a difficult test.

A new active ingredient from Valent (V-10135) looked especially good and was better than Daconil Weather Stik. This new Valent product showed a level of control similar to Palladium (unregistered), Decree, Endorse and Chipco. Neither Insignia nor Actinovate limited *Botrytis* and were similar to the diseased untreated plants. All fungicides were applied as sprays every seven days. Always alternate the fungicides and choose different active ingredients so the *Botrytis* does not adapt to any particular active ingredient.

CONTACT INFORMATION

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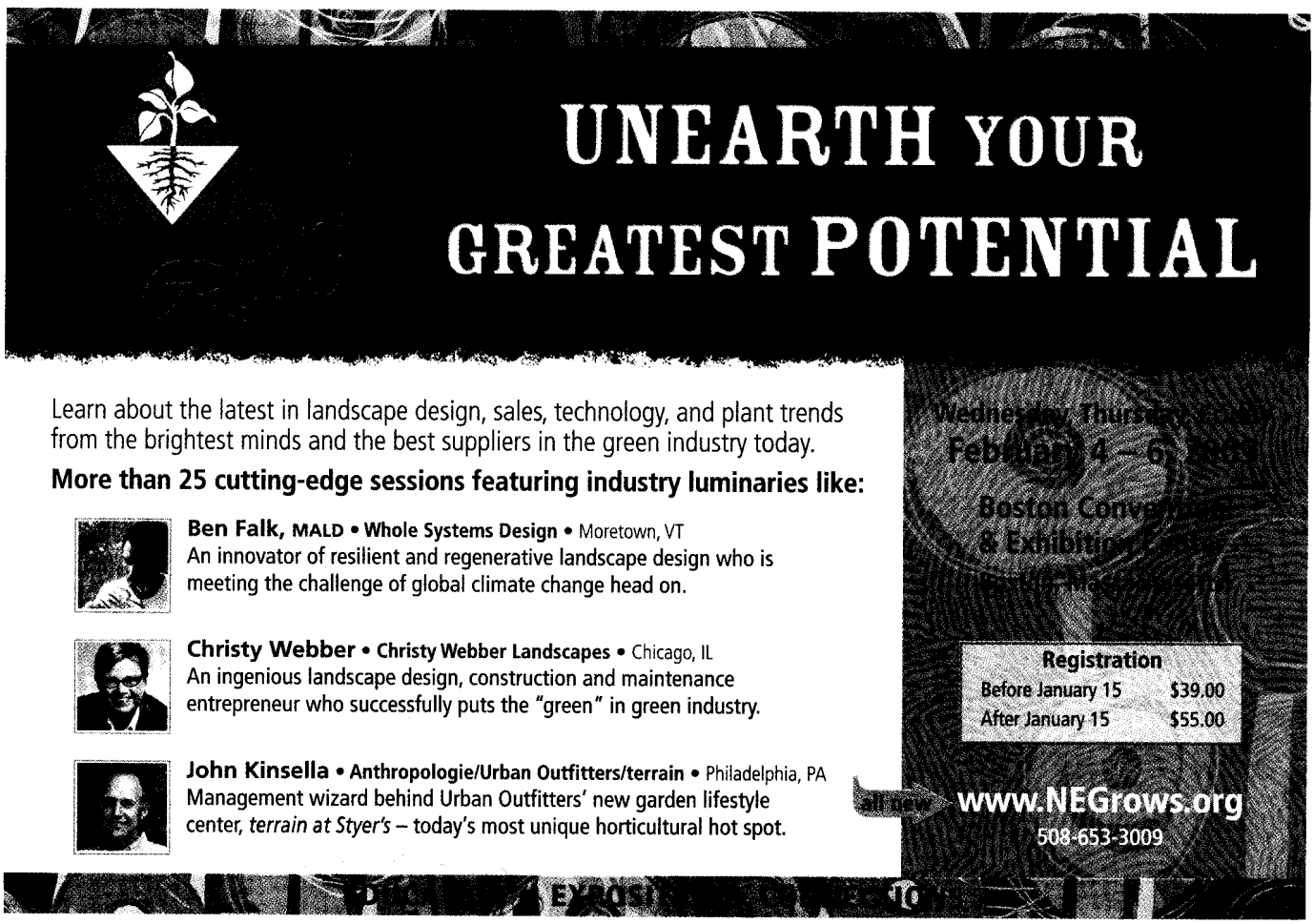

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