Managing Pythium on Poinsettia

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Pythium is a soil mold that is well known among greenhouse growers. This pest is not new nor one of the dreaded "invasive" pests that we seem to hear more about these days. Perhaps we've even grown a bit too comfortable with this pest and have become a bit lax in the needed preventive measures. After all, Pythium is just a root "nibbler." How much damage can it really cause? **On poinsettias, lack of vigor, uneven growth, and even stunted plants can result from a Pythium invasion.** When the cultural aspects of the crop are a bit off balance, such as high salts, the negative effects of Pythium can become magnified resulting in plant death. Overwatering the crop will also tip the balance in favor of Pythium root rot. Pythium's nickname isn't "water mold" for nothing!

- **Monitor and maintain fertilizer and pH at an optimum level.** Keep an eye on the weather conditions; water less when it is overcast and humid to avoid saturating the root environment.

Pythium is microscopic and can be found on plant benches, greenhouse floors, and hitchhike its way from greenhouse to greenhouse via soil or prefinished plants. Pythium takes up residence in the greenhouse where it survives from season to season and bides its time waiting for the right plant to attack.

- **Use a pressure washer when possible to dislodge soil and plant debris from hard surfaces and walkways within the greenhouse.** Then, treat the cleaned surfaces with a disinfestant. Any soil particle that clings to a walkway, bench, or plant container may contain Pythium and needs to be washed away before it comes into contact with a poinsettia root.

While Pythium root rot is extremely common on poinsettia, other pathogens could be to blame. Guessing can lead to trouble! If the problem is actually black root rot or Phytophthora, the poinsettias will continue to struggle despite best efforts. Knowing precisely what the problem is always the best path forward.

- **Use a clinic to diagnose the root rot problem.**

Detecting and identifying root rot early ensures that fungicide drenches can be most effective. If Pythium has had a significant head start, the root system of some plants will be too rotted and a fungicide drench won't be able to rescue them.

- **Look for symptoms of root rot including uneven plant growth.** If looking across the poinsettias makes you seasick because the height is uneven and looks like "waves," take a look at the roots.

Sometimes greenhouse sanitation, optimum plant growing conditions, and early disease detection aren't enough to ensure a healthy crop and fungicides are needed. If timely fungicide drenches have been made using appropriate rates and root rot continues to be a

problem, it is time to take a hard look at the products used. Perhaps the application interval needs to be shortened or a different product chosen. If Subdue MAXX has been the only or primary fungicide used over the years for Pythium control, it is possible that the pathogen has become resistant and is no longer affected by this fungicide. Overusing one fungicide is not good!

- **Pythium can be obtained from the infected poinsettias** and tested for resistance to metalaxyl and mefenoxam (the active ingredient in fungicides such as Subdue MAXX). Some diagnostic clinics offer this service.
- Alternate among the different active ingredients available among fungicides. This ensures that each fungicide application attacks the Pythium in a unique way.

If Pythium is sensitive to Subdue MAXX, then this fungicide will be effective in halting root rot. Some greenhouse growers who have struggled with Pythium problems have determined that Subdue MAXX does not control the disease and have had to rely on other fungicides. Banol, Truban and Terrazole are often used by growers when their particular Pythium is resistant to Subdue MAXX. Since Truban WP and Terrazole L have the same active ingredient, rotating among these fungicides is not recommended. Banrot is a mixture of two different active ingredients and targets Pythium along with Rhizoctonia and black root rot. Poinsettias rarely suffer from Rhizoctonia, so using Banrot for root rot on this crop is not ideal. FenStop SC*, Adorn, and Heritage 50 WDG*, Empress Intrinsic Brand Fungicide*, Segway O, Captan, and Alude are helpful products that have not historically been part of our standard control measures for Pythium and we continue to learn more about their range of activity and how to best use them.

- **Rotate either Banol and Truban WP or Terrazole L with Subdue MAXX** in a program to control root rot and delay potential problems with fungicide resistance.
- **Use FenStop SC*, Adorn, and Heritage 50 WDG*, Empress Intrinsic Brand Fungicide*, Segway O, Captan, and Alude preventively** before problems become severe and in a program with Banol, Subdue MAXX and Truban or Terrazole. The time between fungicide applications should not be stretched beyond the minimum interval listed on the label.

*These fungicides have a similar mode of action.

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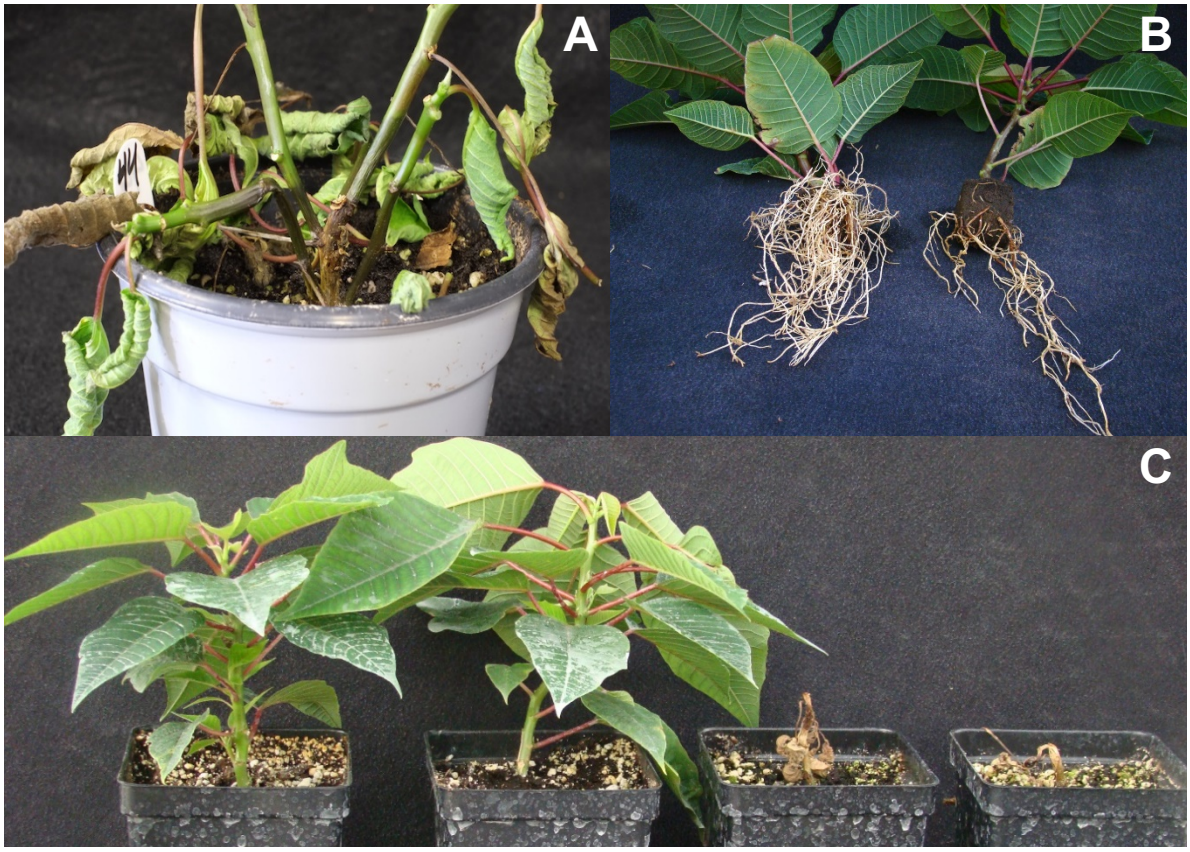

Figure 1. Pythium root rot on poinsettia. A, closeup of crown rot, water-soaking and dieback of stems. B, comparison of healthy roots (left) and infected roots (right) of cuttings. C, fungicide-treated (left) versus untreated poinsettia plants.