

### What to Watch For

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Asking bug and disease experts what they think will be major greenhouse problems this season is like asking the sportscasters on ESPN who they think will win the World Series this year. (Hint: It'll be the Cubs again, #dynasty). It's difficult to predict because it's still early, but you can speculate based on what's happened during the last few years.

Another indicator is the weather. The Old Farmers' Almanac predicted that a majority of the country—mostly the Midwest and Mid-Atlantic regions—would have a horrible winter in 2016-17, with lots of snow and frigid temperatures. Although some parts of the country were dumped on a few times (like around Cleveland, Boston and New York City), much of the country (like in Chicago) had unseasonably warm weather.

When we asked Paul Pilon, Perennial Production Consultant and editor-at-large of our Perennial Pulse e-newsletter, what he thought might cause growers pest headaches this year, he said, "With the warmer weather this winter in most locations, I do anticipate more insects and mites will survive than usual. If I'm right, it's likely many growers will observe pests, particularly aphids and two-spotted spider mites, earlier than they would in a typical year. They may need to use more PGRs, too." (Read more about Paul's take on aphids on page 26.)

Stanton Gill, professor and IPM specialist, agreed: "I suspect that thrips will be big this year on the east coast because of the mild winter and some may overwinter outdoors, whereas, in most years, they would be winter-killed outdoors. And I have seen a fair amount of activity from spider mites with the recent sunny and warm weather that normally would not exist at this time of year."

We asked other academics and consultants what they thought you'd be seeing this spring. Make note and tell your staff to be on the lookout.

#### Powdery & downy mildew

"All I can do is guess at the 'Pathogen of the Season' because I haven't seen the beginnings of anything ugly yet," said Margery Daughtrey, Senior Extension Associate for Cornell University's Horticultural Research & Extension Center on Long Island. "What I've noticed the past few springs, though, is an increase in the number of growers who run into powdery mildew on calibrachoa."

Margery said that last year for the first time, she noticed the disease attacking the actual flower petals of calibrachoa plants, which made the flowers look "puny and grayish, rather than their usual clear, bright color."

"Although many growers may not have looked closely enough to see the powdery mildew, they may have noticed poor flower quality," she said.

So this is a crop to watch closely in 2017. Margery said that if you see any powdery mildew, fungicide treatments will preserve the quality of the finished products. There's no need to treat unless you see some powdery mildew on the calibrachoa foliage. With luck, she said, the highly susceptible cultivars won't be back, but many cultivars have at least some susceptibility to powdery mildew (*Podosphaera xanthii*), which can also go to verbenas.

"The trick is to look closely if any leaf yellowing is seen—it may be due to powdery mildew. If the coating of the fungus is thin, it is very hard to see without a microscope," said Margery.

With regard to downy mildew on *Impatiens walleriana*, Margery said she doesn't think there will be a huge problem because only a small number of growers are producing them in large numbers, at least in her area of the country.

Once the plants are out into the landscape, the weather will dictate if we'll see downy mildew, she said.

"Thus far, I haven't heard of any *impatiens* downy mildew showing up in production greenhouses, but it's early yet."

*(Editor's note: For the latest on *impatiens* downy mildew, refer to Margery's article in the March issue of GrowerTalks.)*

*Pictured: For the first time last year, disease experts started seeing powdery mildew appearing not just on calibrachoa foliage, but also the flower petals. The fungus makes the flowers look small*



and grayish instead of their normal bright color. Photo: Margery Daughtrey



### Thrips, aphids and whiteflies

Because growers in the U.S. grow such a wide range of crops, they tend to encounter a wide range of insects and mites, said Dr. Raymond Cloyd, entomologist at Kansas State University. So he believes that the biggest pest issues for spring 2017 (and beyond) will probably be the same as previous years, which includes Western flower thrips (WFT), aphids and whiteflies.

Ray broke down the reason these continue to be problems in four parts: 1) High female reproductive capacity; 2) wide plant-host range; 3) potential to develop resistance to insecticides; and 4) these insects may vector diseases (e.g., viruses).

And because fewer new active ingredients for pesticides are being introduced due to the costs and regulations associated with introducing a new one, Ray said that WFT will continue to be a primary insect pest due to resistance to insecticides and the ability to transmit Impatiens Necrotic Spot virus and Tomato Spotted Wilt virus. So those allow for a double whammy of problems at once.

Steve Frank, entomologist at North Carolina State University, agreed.

“For greenhouses, it is always thrips year round,” said Steve. “I don’t see anything different about this year except that, at least here, we are over 20 days ahead in terms of temperature where we usually are. So people may need to gear up and be alert sooner than usual. The same goes for other crops like nurseries; whatever pests they usually scout for will be out earlier.”

As far as what to look for, aphids and whiteflies excrete excess phloem as drops of honeydew, which make the leaves look shiny or sticky. The leaves may also have a black soot on them because the sugars in honeydew is also a substrate for sooty mold fungus. And WFT leave scarred blooms and deformed leaves.

### Broad mites & mealybugs

Suzanne Wainwright-Evans, owner of Buglady Consulting and a biocontrols expert, said that she started seeing broad mites in February, especially on New Guinea impatiens and cannabis. And they’re not just concentrated in one area; Suzanne said that she’s been seeing them all over the country.

“We know they have been an ongoing issue for a few years now in New Guinea Impatiens, so we are doing preventative programs with the predatory mite *Neoseiulus cucumeris*, stopping them before they get started,” said Suzanne. She said that this predatory mite also eats immature Western flower thrips.

Once you see signs of broad mite damage, which appears as distorted growth, you can’t reverse the affects, she said, so growers need to be proactive. For a spray program, Suzanne suggested using Avid, Pylon and Suffoil-X for management.

“These are pests that do not always appear, but when they do, they can cause problems very quickly,” said John Sanderson, Associate Professor of Entomology at Cornell University. “This is mainly because they are not expected and growers may not be on the lookout for them or know immediately how to handle them.”

John suggests that you do your homework—know where and when they might be expected, and have a course of action ready for them. This is especially true for growers who are using biological control.

“The appearance of these pests may require pesticides, so pesticides should be identified that would be compatible with the beneficials that the grower is using, if possible,” John said.

*(Editor’s note: For more information on broad mites, read Rick Yates’ article.)*

### Anthracnose

“It’s so difficult to predict what diseases will be problematic this coming season,” said Dr. Jill Calabro, Research & Science Programs Director for AmericanHort. “The mild conditions across the majority of the U.S. are expected to continue for at least a couple of months. Therefore, growers should expect to see diseases emerge earlier than normal this year.”

A potential late spring frost—which Jill said is the hallmark of a mild winter—could predispose trees and shrubs to attack from pathogens such as anthracnose.

Anthracnose can infect a variety of plants and symptoms start as irregular, angular leaf spots that sometimes follow leaf veins. Often this disease will move upward in a tree, starting on lower and inner branches and then move up the canopy. Leaf drop is very common. Fortunately, said Jill, anthracnose becomes less of an issue during the warmer and drier conditions of summer.

Control can be a challenge, she said. The best strategy is to minimize plant stress. However, in some situations, fungicide(s) may be necessary.

“Application timing is critical because it must be truly preventive,” said Jill. “In most cases, anthracnose will naturally subside as the weather becomes warmer and drier. So while growers may face some particularly aggressive anthracnose early on, this year’s predicted warmer-than-normal temperatures should bring it to an end soon!”

Weather in the Pacific Northwest, on the other hand, is expected to continue being cooler and wetter than normal into the spring. Therefore, anthracnose would likely persist and potentially infect the second leaf flush, said Jill. **GT**