

GROWERTALKS

Features

3/21/2012

Assessing Your Risk for Impatiens Downy Mildew

Dr. Colleen Warfield

“What is the risk of getting impatiens downy mildew at my growing facility?” That question is being asked with greater frequency as the awareness and recent attention to this disease problem has grown.

Impatiens downy mildew can be spread when infected plant material (plugs, cuttings, liners) is shipped from one location to another, and by local- and long-distance movement of airborne spores. Airborne spores can travel surprisingly long distances by wind currents in the atmospheric boundary layer. Each year as part of its annual Cucurbit Downy Mildew Forecasting Program, the North American Plant Disease Forecast Center in Raleigh, North Carolina, uses meteorological models to predict where airborne spores from known, infected cucurbit plants are most likely to travel over the next 48 hours. Cucurbit downy mildew spores (that affect plants like squash, pumpkins, cucumbers, watermelon, etc.) can be blown an impressive 600 miles in 48 hours! Of course, the spores must land on a susceptible host for infection to occur. In addition, the forecasting program predicts whether the weather conditions at the projected location and along the projected pathway will be favorable for disease development. So while long-distance spread by airborne spores is a real possibility, the transport of infected plant material is perhaps more important for the long-distance spread of impatiens downy mildew.

Impatiens downy mildew vs. cucurbit downy mildew

It's quite interesting to look at the similarity between the locations where impatiens downy mildew was reported in landscapes in 2011 and 2012 (see map) and where cucurbit downy mildew outbreaks occurred during the same time period. While these two diseases are caused by two, completely different species of downy mildew on their respective hosts, the environmental conditions that favor the development of these two diseases is very, very similar. Cucurbit downy mildew outbreaks may provide some insight into whether or not conditions in a given location are favorable for disease development of impatiens downy mildew.

Although cucurbits are grown throughout the United States, the cucurbit downy mildew outbreaks have historically occurred more or less in the same geographic regions year after year, which reflects both favorable weather conditions for the development of downy mildew in these regions of the country and consistent patterns of spread. Roughly two-thirds of the continental U.S. is outside the geographic regions where cucurbit downy mildew has historically occurred. That is a good sign for the many growers and

landscapers located in those regions, as presumably environmental conditions are not as conducive to downy mildew. If you're interested in looking at current and historic epidemic status maps, or following the 2012 cucurbit downy mildew risk forecasts, the Cucurbit Downy Mildew Forecasting Center can be found at <http://cdm.ipmpipe.org>.

One biological difference between cucurbit downy mildew and impatiens downy mildew is that the cucurbit downy mildew pathogen does not survive in crop debris or the soil. Instead it overwinters in living green tissue in areas like southern Florida where cucurbit plants do not freeze during the winter. Each year airborne cucurbit downy mildew spores are spread from the southeastern U.S. northward. In 2011, cucurbit downy mildew was first observed in Miami-Dade County, Florida, on February 9. By April, it had spread to South Carolina; by July to Wisconsin; to New York in August; and a new report in Florida in October.

Locations where impatiens downy mildew was confirmed in the landscape in 2011/2012

2011

Cape Cod, MA: July
Niagara Region, Canada/New York: ~August
Saratoga, NY: ~August
Verona, MI: ~August
Chicago (north and west suburbs): August/September
Long Island, NY: September
San Diego, CA: September
West Lafayette, IN: September
Champaign-Urbana, IL: October
Twin Cities, MN: October
Santa Barbara County, CA: October/November
Palm Beach County, FL: December

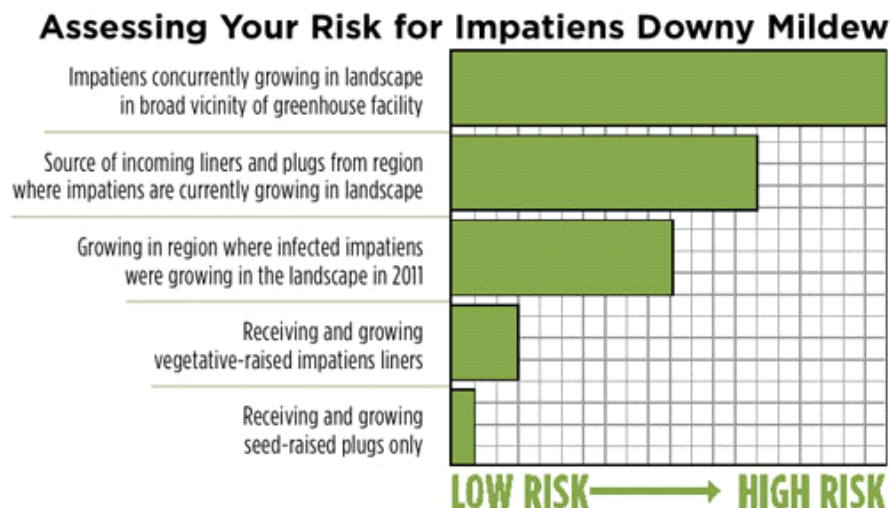
2012

Bradenton, FL: January
Miami, FL: February
Naples, FL: February
Ruskin, FL: March

In 2012, the first observation of cucurbit downy mildew was on January 10 in Miami-Dade County, Florida. Impatiens downy mildew has been active in southern Florida landscapes since the first report in mid to late December 2011 and was continuing to spread in southern Florida as of March 2012. This is further evidence that the environmental conditions favoring these two downy mildew diseases are very similar.

In contrast to cucurbit downy mildew, the impatiens downy mildew pathogen produces overwintering/survival structures called oospores in infected plant tissue. These oospores can survive in infected plant debris in landscape beds and have the potential to germinate and cause new infections on *I. walleriana* the following season. Therefore, outbreaks are possible across the country in regions where impatiens downy mildew was known to occur in landscape beds in 2011. There is evidence in Europe of oospore survival in landscape beds from season to season. Impatiens planted into oospore-contaminated beds are often stunted, which can be an indication of early infection. These infected impatiens are a source of airborne spores. In addition,

the potential exists (although not proven) that impatiens downy mildew oospores may germinate and produce airborne inoculum capable of local spread.



Assessing your risk

Is your growing facility located in a region of the country where impatiens downy mildew was observed in 2011 or 2012? If yes, are *I. walleriana* currently growing in the landscape? Airborne spores released from infected plants (and possibly overwintering oospores) in the landscape may blow into your greenhouses. Therefore, a higher risk exists for getting impatiens downy mildew in your facility (see graph). It's important to be especially vigilant in scouting for early disease symptoms and protecting your impatiens crop preventatively.

Is your source of incoming plugs and liners from a location where *I. walleriana* are currently growing in the landscape? If yes, is your supplier using a preventive management program for impatiens downy mildew? Inspect plants upon arrival and frequently scout for early disease symptoms (don't forget to look at the underside of leaves). You may want to consider a preventive fungicide program because there is a risk that plants may be infected, but are not yet showing symptoms.

Vegetatively propagated *I. walleriana* are susceptible to downy mildew. When produced and grown under a preventive disease management program, there is a small risk of introducing infected liners into a growing facility. Because again, the liners may be infected but not yet showing symptoms. Because downy mildew can spread quickly, prevention is important. You may want to consider a preventive fungicide program depending on the history of impatiens downy mildew in the geographic location of your facility.

Seed-raised *I. walleriana* are also susceptible to downy mildew, but there is no evidence of seed transmission. Therefore, seed-raised plugs carry very little risk of introducing this pathogen on their own, but they can become infected from other sources. If possible, separate vegetatively propagated and seed-raised impatiens to minimize cross-contamination and spread. If you're located in an area where impatiens downy mildew was reported in 2011 or 2012, consider a preventive program for downy mildew control.

For more information, see the article in the January issue of *GrowerTalks* titled ["Downy Mildew of Impatiens"](#)

or visit www.ballhort.com/growers to view the Grower Guidelines. **GT**

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