

Impatiens Downy Mildew

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For years, impatiens have been an old standby for reliably providing color in shady spots. Impatiens are a staple for many gardeners because they are inexpensive and thrive in shade and part sun, covering large areas in wide swaths of color. Over the past two growing seasons, the use of this common ornamental has been threatened in many parts of the US by impatiens downy mildew. This disease is not a new one; reports of the disease in Wisconsin date back to at least the 1940's, with other credible reports in the US dating back to the 1800's.

Recent problems with impatiens downy mildew appear to have had their origin in the UK in 2003. Some greenhouses in the US reported issues in 2004, although these outbreaks were relatively scattered and did not cause significant losses. By December, 2011 however, severe impatiens downy mildew was reported in Florida, and many northern greenhouses reported the disease in early 2012. The disease showed up in many landscape settings across much of the US during the 2012 growing season. By year's end, over 30 states (including Wisconsin) reported the disease.

Downy mildews are not uncommon diseases on ornamentals. However, the pathogens that cause these diseases tend to be very host specific. Impatiens downy mildew is caused by a fungus-like microorganism (technically a water mold) called *Plasmopara obducens*. The pathogen can infect both ornamental impatiens (including *Impatiens walleriana* and *I. balsamina*) as well as native impatiens such as jewelweeds (*I. capensis* and *I. pallida*). New Guinea impatiens (*I. hawkerii*) and its hybrids appear to be resistant/tolerant, and other ornamentals are immune (i.e., they are not affected at all).

Impatiens downy mildew typically develops during cool, wet/humid weather. Therefore spring and fall are periods when the disease is most likely to develop. Initial symptoms of impatiens downy mildew can include off-color, light green leaves with a stippling pattern that resembles spider mite feeding injury. Infected leaves often curl down. Younger tissues are especially susceptible to infection, so symptoms are often first observed on the terminal growth. Stunting and reduced flowering can result, followed by leaf and flower drop, stem collapse and, in severe cases, plant death. Plant collapse

is more likely to happen in a landscape setting where early symptoms of the disease are more likely to go unnoticed.

If you see symptoms characteristic of impatiens downy mildew, check the undersurfaces of leaves for a white, downy growth. This growth is reproductive structures of *P. obducens*. This pathogen reproduces prolifically, particularly when weather conditions are cool and moist. Under drier, hotter conditions this downy growth may be sparse and difficult to see. *P. obducens* also produces thick-walled survival spores that are formed in infected tissue and can be found in dead impatiens debris, as well as in soil. The long-term survivability of these spores (particularly in Wisconsin's climate) is not completely understood, although similar spores produced by other downy mildew organisms can survive several years.

The best strategy for managing impatiens downy mildew is to try to prevent the disease. Once symptoms are observed, management options are much more limited. To help limit the impact of impatiens downy mildew:

- **Use a wide range of herbaceous ornamentals in your garden.** Disease problems tend to be more severe and have their biggest impact when people plant a lot of the same type of ornamental. By interspersing a variety of ornamentals, you can help limit spread of pathogens. In addition, if you do have a disease problem, only a few plants will be affected and loss of these plants will have less of an aesthetic impact on your landscape. Other good alternatives to impatiens include alternanthera, begonias, coleus, iresine and torenia.
- **Consider using New Guinea impatiens or varieties that are hybrids of New Guinea impatiens.** New Guinea impatiens and their hybrids are resistant/tolerant to impatiens downy mildew and should perform reasonably well even when the pathogen is present.
- **Carefully inspect any impatiens that you buy (particularly susceptible varieties) for downy mildew symptoms.** If you see symptoms, DO NOT buy the plants and inform the supplier that you suspect he/she has a disease problem.
- **DO NOT plant your impatiens right away.** Oftentimes obvious symptoms of impatiens downy mildew may not appear for five to 14 days. Keep impatiens in a holding area before planting them in the landscape to be sure they are not infected. Keep plants from different suppliers as far apart as possible. That way, if one set of plants is infected, you can attempt to limit spread to other impatiens.
- **DO NOT plant impatiens in the same location as last year.** Because the impatiens downy mildew organism produces (potentially) long-lived resting

spores, you should keep your new impatiens plants from a potential source of the pathogen (i.e., debris from old impatiens plants and even the soil in the bed where they were planted last year). Moving plants from place to place each year (called “rotation” in agricultural circles) is something you should consider doing for all annuals every year.

- **Space plant as far apart as possible in the garden.** Allow enough space so that plants will not overlap when they have grown to their full size. Adequate spacing will allow for good air movement that will promote rapid leaf drying. Dry leaves are less favorable for the downy mildew organism to infect.
- **Work in potentially contaminated beds last.** If you are concerned that you have had an impatiens downy mildew problem in the past (or suspect you have one during the current growing season), this pattern of gardening will help prevent inadvertent spread of the impatiens downy mildew pathogen as you move from bed to bed.
- **Clean and decontaminate garden tools (and other items).** The impatiens downy mildew pathogen could potentially survive on bits of plant debris or even soil clinging to tools, pots, shoes, tires, work surfaces, etc. Rinse tools and other items with a strong stream of water to remove these contaminants, then use either 10% bleach or 70% alcohol (for at least 30 seconds) to complete decontamination. Note that alcohol is preferred for tools as bleach can be corrosive to metals.
- **DO NOT water overhead or with a sprinkler.** Such watering techniques wet leaf surfaces which can provide a more favorable environment for infections to occur. Consider using soaker or drip hoses instead. These hoses apply water directly to the soil and minimize the amount of water that ends up on leaves.
- **Remove infected plants immediately.** This will help limit spread of the pathogen to other plants and limit the number of resting spores that end up in the soil. Bag up and seal any symptomatic plants in a garbage bag. You may also want to remove asymptomatic impatiens plants within a three foot radius of the infected plants as these plants also likely will be infected. Put the bagged plants in the garbage; DO NOT compost these plants.

If you are concerned that you are having problems with impatiens downy mildew, you can submit a sample to the Plant Disease Diagnostics Clinic to have the problem diagnosed. You can find get details on sample submission at the clinic website (pddc.wisc.edu), by calling (608) 262-2863 or by emailing bdh@plantpath.wisc.edu.