



# Pest e-alerts



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## Downy Mildew of Impatiens

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Impatiens (*Impatiens walleriana*) are a shade-loving annual that is widely planted in Oklahoma and throughout the United States. A fungal-like disease called downy mildew (*Plasmopara obducens*) has been in the news as a concern for home gardeners. Two recent articles have appeared, one in the [Tulsa World](#) and another in the [New York Times](#). It is likely that you will receive questions about this disease and possibly plant samples.

Downy mildew thrives under cool, wet conditions. These conditions are found in the spring in Oklahoma, but it is not likely that our environment will support the disease in the summer. Downy mildew of impatiens is primarily a problem in Eastern states which have higher humidity and lower temperatures throughout the growing season.

The most susceptible impatiens to this pathogen is *Impatiens walleriana*. These impatiens are referred to as standard garden or common impatiens, double impatiens or mini-impatiens. Balsam or garden balsam (*Impatiens balsamina*) is susceptible, but this plant is less common and symptoms are less severe than on *I. walleriana*.

Although downy mildew diseases do occur on other plants such as roses and cucurbits, they are caused by different species than the downy mildew that affects impatiens. (For example, *Plasmopara sparsa* is the downy mildew species found on roses and *Pseudoperonospora cubensis* is the downy mildew species found on cucurbits). Each downy mildew fungus has a specific and narrow host range, so they are unable to attack other types of plants in the

landscape. New Guinea impatiens (*Impatiens hawkeri*) which are related to garden impatiens, are NOT a host of this fungal disease.

Garden impatiens are planted in the winter or early spring by greenhouse growers. During production, the greenhouses are often cool and humid which is conducive for disease development. Early symptoms of impatiens downy mildew may be subtle, so that greenhouse growers do not recognize the symptoms. These early symptoms include light-green or yellow leaf color and downward curling of the leaves (Fig. 1). Plants may be stunted if they are infected early in production.



**Fig 1.** Early symptoms of impatiens downy mildew include yellow-green leaf color and downward curling of the leaves.

As downy mildew disease progresses, the leaves and flowers may drop from the plant to leave barren stems (Fig. 2). Normal impatiens are smooth on the underside of leaves and often a purplish color is visible. As the disease advances, impatiens with downy mildew will have white

to gray fluffy growth on the underside of the leaves (Fig. 3). If cool and wet conditions continue, the stems may become soft and collapse.



**Fig 2.** Downy mildew of impatiens. Note that many leaves have dropped and the remaining leaves have white, fluffy growth on the underside of the leaves.



**Fig 3.** Underside of impatiens leaves. The leaves on the left are healthy. Leaves on the right have signs of downy mildew (note the white, fuzzy growth).

To manage downy mildew disease, it is always best to start with clean plants. If clients have recently purchased or installed plants, immediate removal is the best recommendation. It is possible that the plants may appear unsightly or be killed, especially if moderate temperatures and periods of moisture continue. Plants that are removed should be discarded in the trash and not composted. Growers should wait to install impatiens until after temperatures increase and moisture decreases. Consider planting other shade-loving plants such as wax begonias and Coleus into the landscape, especially if downy mildew has been a problem in the past. Fungicides are not generally recommended for home gardens.

Downy mildew of impatiens is relatively easy to diagnose if you observe the fluffy growth as shown in Figure 3. Although you may be able to make this diagnosis yourself, I would ask that you submit images to the PDIDL at [sickplants@okstate.edu](mailto:sickplants@okstate.edu) for confirmation. We would like to keep track of any incidences to better monitor the situation and determine how our unfavorable environmental conditions will affect the disease through the summer. Although gardeners may purchase infected plants from garden centers, I suspect that once the temperatures increase above 90°F, that this disease will not be a problem in the landscape.

Last month, I purchased plants from a local garden center and installed the impatiens into my own landscape. At the time of planting, I noticed a few symptomatic leaves that had fallen off in the bottom of the tray. Obvious symptoms were not present on the plants at that time. Today, I examined the plants and noted that most of the planting had the characteristic signs of downy mildew (Fig. 4). Since my husband and I are both plant pathologists, we intend to observe these plants through the growing season to determine how the disease fares under Oklahoma conditions. At this time, the primary observation is that many of the symptomatic plants are not flowering or are partially flowering (Fig. 5). I have not observed any defoliation and not all plants or leaves are affected. The plants have increased in size and I am anxious to observe the progression of the disease. In a future newsletter, I will provide an update on the situation.



**Fig 4.** Underside of impatiens leaf with downy mildew. Plants were purchased locally about 1 month ago and installed in my landscape.



**Fig 5.** Three impatiens plants in the same landscape. Top, Healthy impatiens. Middle, Severe downy mildew infection. Bottom, Left half of plant has unaffected leaves, right half has signs of downy mildew on the underside of the leaves.

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## Pecan nut casebearer captures recorded in Oklahoma

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Early activity of pecan nut casebearer (PNC) was not in the cards for this year. Based on trap captures across the state, the first moths (13) detected in Oklahoma arrived around the Burneyville area (Love County) on May 18, with follow up captures on May 20 of nearly forty moths. This activates first sustained flight on May 18 which is actually a little later than normal for southern Oklahoma and should put treatment timing for that area from May 30 to June 3. The first moth was recovered in Perkins, Oklahoma on May 22, with subsequent monitoring on the horizon.

Before setting the official arrival time for this location, we prefer to capture more than one moth on a single isolated night to confirm first (sustained) flight activity. Remember, oviposition (egg laying) by moths will begin 7-10 days after initial catch and nut entry starts about 12-16 days after initial catch.

To track PNC activity you can go to the Pecan ipmPIPE website at <http://pecan.ipmpipe.org/maps> . Area wide activity can be found in the PNC Risk Map and you can make your own forecast for oviposition in the PNC Forecast map link. All that is needed for this individual forecast is the date of your initial catch and marking your orchard site in the map.

There seems to be a great deal of variability in pecan fruit set this year, perhaps based on freeze events for your local area, or management differences on one cultivar versus another, so careful consideration should be given to crop load when making decisions to treat PNC. Products recommended for PNC include the softer products (Intrepid, Confirm, B.t.) that are gentler on beneficial organisms and safer for the environment. At the website <http://pecan.ipmpipe.org/> there is a searchable insecticide data base (and fungicide data base) in the "Tool Box" link on the left of the home page. The site allows growers to search by active ingredient, pest, company, organic certification, or you can look at the entire list of labeled pecan insecticides for any and all pests.

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## Flatheaded Appletree Borer Problems

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Recently, with the advent of good growing conditions, several growers have noticed sickly looking trees, marked by sloughing bark, wispy top growth denuded of leaves, and in some

cases evidence under the bark of insect tunneling. Unfortunately, several of these trees are not long for this world. Some may be salvaged if symptoms are not too severe. The culprit is likely the flatheaded appletree borer, *Chrysobothris femorata*. This is a beetle pest, sort of metallic in color and wedge or football shaped, and about ½ inch long. The adults occur from March to November with greatest abundance occurring in May and Mid-August or Mid-September. Points of infestation are often detected by frothy sap oozing from cracks in the bark. The bark may also take on a darkened, wet appearance and be depressed in those areas affected. Often the damage is on the sunny side of trees and the larvae are the damaging stage that burrows under the bark creating long, winding tunnels sometimes encircling the tree. In older trees, the burrows are confined to circular areas under the bark. Generally, these insects affect weakened trees that may be on the verge of death. So what caused their demise? The primary culprit is likely two years of extreme drought. Normally, healthy trees have the upper hand with this insect; however, when these conditions occur for such a prolonged period the insect takes advantage of their weakened state. Female beetles begin laying eggs about four to eight days after mating and live about one month after emergence. Each female lays about 100 eggs, which hatch in 8-16 days. The newly hatched larvae chew holes through the bark and feed in the phloem. As soon as the larvae are fully developed, they tunnel into the sapwood where a pupal chamber is prepared by plugging the burrow tightly with frass. It will then overwinter as a larva and pupate the following spring or summer. Adults emerge by cutting small oval emergence holes through the bark. Normally, there is one generation per year.



Most insecticides used for beetle control will keep these in check if timed properly; however, Lorsban 4E applied to the trunk, to the point of runoff, can provide systemic control,

particularly in younger trees. Homeowners may use pyrethrins, or imidacloprid products, but once again timing is critical.

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