



University of California
Agriculture and Natural Resources

Bad News about Impatiens

One of California's most adored flowering plants, impatiens, is being threatened by a serious pest. You've probably noticed the common garden impatiens missing from store shelves and landscapes, parks, and gardens this year. What is going on? What is the problem?

The disease

Impatiens are dying from a relatively new plant disease called impatiens downy mildew, caused by the fungus-like, oomycete pathogen *Plasmopara obducens*. Although a problem for growers in wholesale nurseries since 2004, impatiens downy mildew has only recently started to affect supplies to stores and plants in gardens and landscapes in California. The pathogen primarily affects varieties of *Impatiens walleriana*, or hybrids with an *I. walleriana* parent and wild impatiens (*I. balsamina*). Note that this pathogen does not affect New Guinea impatiens (*Impatiens hawkeri*) or other bedding plant genera.

This disease develops rapidly, with a few leaves on apparently healthy impatiens beginning to show slight yellowing and stunting (Fig. 1) followed by development of white, powdery spores on undersides of leaves (Fig. 2), and later, by leaf and flower drop. Plants are likely to become completely defoliated within several weeks (Fig. 3). The pathogen produces air-borne spores, which can travel for many miles, as well as swimming zoospores and oospores, which can survive within soil and plant debris long term and infect healthy plants when replanted in the same area.



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Figure 1. Early symptoms of impatiens downy mildew showing stunting and yellowing of leaves (left and middle); healthy leaf on right.

What stores should do

Early detection is especially critical for this disease since chemical control has been shown to be ineffective once sporulation begins. Inspection and certain cultural practices can help limit the spread: Inspect new arrivals and reject or quarantine if in doubt.

- Scout routinely (at least weekly) to identify and remove diseased plants before epidemics can result.
- Turn leaves over to check for sporulation on the undersides of leaves.
- Reduce humidity by increasing plant spacing and air flow; avoid overhead watering, but if used, apply water early in the day to allow for drying of leaves by the afternoon.



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Figure 2. Sporulation of downy mildew on underside of impatiens leaf.

- Destroy and dispose of infected plants by bagging and putting them in the trash. Composting will not destroy spores.
- Remove all plant debris and soil particles, then clean and chemically disinfect benches before new plants are brought in.

What to look for

The first signs of disease are yellowing of a small number of leaves and stunting, followed by white sporulation on the undersides of leaves (Fig. 2), and finally leaf and flower drop. Look for:

- Yellowing leaves that look similar to a nutrient deficiency.

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- Leaves curl downward and may show stippling
- The plant drops leaves and flowers
- Fuzzy-looking growth on the underside of the leaves. These are structures that contain the spores that spread the disease.

What to tell customers

If a customer brings in a sample that appears to be the impatiens downy mildew, instruct them to remove the impatiens from their landscape, bag the plants, and dispose in the trash. Infected plants should not be compos-

ted. Fungicides are unlikely to provide reliable control in gardens, whereas removing infected plants may limit spread to other areas of the landscape.

Alternative plants used as substitutes for impatiens

Provide customers with suggestions about alternative bedding plants that grow well in shady areas of the landscape but will not be affected by the disease (Table 1).

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Table 1. Bedding plants that may be good alternatives to impatiens in some areas of California.

Bergenia hybrids
Cast-iron plant (<i>Aspidistra elatior</i>)
Caladiums
Clivia (<i>Clivia miniata</i>)
Coleus
Coral bells (<i>Heuchera hybrids</i>)
Corydalis lutea
Lady's mantle (<i>Alchemilla mollis</i>)
Lobelia
Maiden's wreath (<i>Francoa ramosa</i>)
New Guinea impatiens (<i>Impatiens hawkeri</i>)
Sweet alyssum
Wax begonias
Yellow archangel (<i>Lamium galeobdolon</i>)



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Figure 3. A planting of apparently healthy impatiens around a tree (left) and plants decimated 5 weeks later (right).

Save the Date!

IPM Workshop for Retail Nursery Employees

January 21, 2014 in Oakland

Contact kwindbiel@ucanr.edu for more information

Two New Stink Bugs in California

Over recent months, there have been numerous reports of two new invasive stink bugs in new areas of California. Both stink bugs are likely to cause problems in gardens and may also be found aggregating in homes as the weather turns cool and wet. Be prepared to answer customer questions this winter and spring.

The brown marmorated stink bug feeds on a wide range of plants from fruit trees to vegetables and shade trees. The Bagrada bug is primarily a problem on plants in the mustard family and is already well established in many parts of southern California. For more information on these new pests, see the UC IPM web site <http://www.ipm.ucdavis.edu/pestalert/pabrownmarmorated.html> and <http://www.ipm.ucdavis.edu/pestalert/pabagradabug.html>.



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Figure 1. *Bagrada bug* adult and nymphs. This is a small stink bug, ¼ to 3/16 inch long as an adult.



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Figure 2. Brown marmorated stink bug adult, about ½ to 2/3 inch long. Note white bands on antennae.

“Deer-Resistant” Plants – Truth or Fiction?

Is there such a thing as a deer-proof plant? Perhaps...but there are a variety of reasons deer may choose to ignore or consume specific plant species at a particular time and place.

Certain plants native to California (and elsewhere) have evolved natural defenses against being eaten by browsing mammals; some are toxic, some are distasteful, and some have thorns. However, in recent decades, we've modified California's suburban and semi-rural environments in ways that have provided deer with lots of food resources, including both landscape and garden plantings that are highly-palatable and are green and lush during our state's normal dry season (Fig. 2). Furthermore, we have given deer extra protection through hunting restrictions, and historically we've controlled natural enemies of deer (such as mountain lions and coyotes) in and around human habitation. So, in many areas, deer densities in the recent past have reached an all-time high.

The plants most resistant to deer browsing are those that contain toxins of some type, such as oleander, which is poisonous to most mammals. Other plants may be poisonous only at certain stages of growth, and they will be seasonally deer-resistant. Many plants that may listed or labeled as “deer-resistant” will simply be low in terms of palatability or preference, but when food is scarce and/or deer are numerous, they will nonetheless be eaten.

Late summer and fall, before the first rains occur, is usually the time of year when deer find food resources in short supply. Some gardeners have observed that fawns seem to “sample” just about everything. During years of drought, deer seem to eat almost everything, including plants that have not been damaged in previous seasons. If deer damage to landscapes

occurs only for a short period during the late summer or fall, it is possible that application of commercial deer repellents can lower the palatability to deer of valuable plantings; this is most likely to succeed if treated plants are already low in terms of deer palatability and when deer have other food choices. Comparative tests of deer repellents generally show that those containing “putrescent whole egg solids” as an active ingredient are among the most effective, but when deer are starving, even the best repellents may not succeed.

Your store may carry your own list of deer-resistant plants. If not, consult your local UC Cooperative Extension office or UC Master Gardeners, or refer to gardening publications for suitable deer-resistant plants for your area. Two highly acclaimed books, *Deer in My Garden, Volumes 1 & 2*, were written by Nevada County-based Master Gardener Carolyn Singer based on her experience in the Sierra Nevada foothill environment. But realize that not all plants on such lists are going to be deer-resistant in every situation and what works for one region of California may not survive deer pressure in a different region. Talk to neighbors about what plants or methods have worked for them in the recent past.

Recognizing that deer damage differs according to location, time of year, plant age, weather, and deer numbers, it may be prudent to try a “trial-and-error” approach before investing in new plantings. You might choose a few plants you're considering, but leave them in their pots and place them in the area where you want to plant. Watch them for a few days to see if deer begin feeding on them. Be flexible about your choices. For valuable perennial shrubs and trees, it may

be necessary to provide a protective barrier, such as a wire mesh cylinder or a tree tube, until the plant reaches an age or height when it will be less susceptible to deer damage.

To find out more about managing deer, see the UC IPM Pest Note at <http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn74117.html>.

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W. P. GORENZEL, UC

Figure 1. Mule deer



J.K. CLARK, UC IPM

Figure 2. Deer feed on leaves and newest tender shoots and stems, leaving a ragged appearance.

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Using Traps and Barriers for Insects and Other Pests

Traps and physical barriers can be excellent tools for detecting, catching, or preventing pest invasions. Most retail nurseries and garden centers carry a variety of these types of tools. Display them together with other products to help customers implement a multi-pronged IPM program to most effectively manage their pests.

Traps

Traps may be used to monitor or detect a pest population, to catch and identify the pest, to reduce local pest density, or more than one of these functions. Commercial traps are available for controlling or detecting various moth species (pheromone traps), whiteflies and thrips (sticky traps), flies and yellowjackets, snails and slugs, bed bugs, spiders, cockroaches and many other pests.

Pheromone traps use attractants produced by an organism to affect the behavior of other members of the same species. These traps usually have a sticky surface or chamber for catching the pests. Pheromone traps are often most useful in monitoring the presence, location, or activity of pests but may not actually reduce pest numbers, so it's critical to use the traps along with cultural, biological and chemical

control methods as needed. Common pheromone traps include those for codling moth, clothes moths, pantry moths, and german cockroaches.

Many sticky traps, such as those for whiteflies, thrips, spiders, cockroaches, or fungus gnats, don't use a lure or chemical pheromone to attract the pest, but instead intercept crawling or flying pests in areas they travel. Other traps that use a food or a chemical lure to attract flies or yellowjackets can help reduce these nuisance pests around the yard. Commercially available snail and slug traps can be baited using beer or a water/sugar/yeast mixture.

Depending on the pest, customers may need to place several traps around the home or landscape to determine the pest's location or level of infestation. Traps should be checked frequently and changed if necessary.

Barriers and Screens

Sometimes the best way to prevent pest damage is to keep the pests away with physical barriers. Caulking up cracks in homes and structures or installing door sweeps can exclude spiders, ants, and other crawling insects from getting inside. Keep ants out of trees and shrubs by applying sticky barriers such as Tanglefoot to



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the trunks. Install copper barriers to keep snails and slugs from reaching plants in raised beds or from climbing up trees.

Place row covers, hot caps, and other types of plant cages over young plants to keep pests out. Covers can be removed after the sensitive seedling stage or left on for added protection from insects and birds.

If your store carries home improvement items, assist your customers in repairing or replacing openings and holes in window and door screens. Properly maintained screens help keep an array of flying or crawling pests such as ants, flies, mosquitoes, spiders, and rodents out of the house.

Use as part of IPM

Tell your customers it's important to use these tools in conjunction with other methods such as cleaning up attractive food sources (rotten fruit, pet food spills, garbage); removing clutter, weedy areas, and other hiding places that may harbor pests; hand-picking or hosing off pests; properly irrigating, fertilizing, and pruning plants; and if needed, applying a pesticide that targets that pest but doesn't harm people, pets, beneficial organisms, or the environment.

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Produced by the University of California Statewide IPM Program with partial funding from the USDA NIFA EIPM Coordination Program. To simplify information, trade names of products have been used. No endorsement of named products is intended, nor is criticism implied of similar products not mentioned.

For more information about managing pests, contact your University of California Cooperative Extension office listed under the county government pages of your phone book, or visit the UC IPM Web site at www.ipm.ucanr.edu.

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WHAT IS IPM? Integrated Pest Management (IPM) programs focus on long-term prevention of pests or their damage through a combination of techniques including resistant plant varieties, biological control, physical or mechanical control, and modification of gardening and home maintenance practices to reduce conditions favorable for pests. Pesticides are part of IPM programs but are used only when needed. Products are selected and applied in a manner that minimizes risks to human health, beneficial and nontarget organisms, and the environment.