



**MASTER
GARDENER**
UF UNIVERSITY of
FLORIDA
IFAS Extension

107 Mehrhof Hall
PO Box 110675
Gainesville, FL 32611-0675
Phone: (352) 273-4521
Fax: (352) 392-1413
<http://mastergardener.ifas.ufl.edu>

Form 10

Florida Master Gardener Awards and Recognition Form Awards of Excellence

Each county is allowed **ONE ENTRY PER CATEGORY**. Although your Master Gardener Coordinator may have been heavily involved in this effort, only the efforts of the Master Gardeners themselves are to be evaluated. Points will be deducted if it is perceived that most of the effort or submission of entry forms came from the Master Gardener Coordinator.

Only efforts made since the last awards ceremony will be considered by the judges. Any new or re-certified active Florida Master Gardener(s) are eligible. In the event your entry does **not** take top honors in this category this year, we would encourage you to improve your submission and resubmit your entry next year should you *repeat or continue* this project. If your project has won in **ANY** year, it **CANNOT BE RE-ENTERED** again, despite any significant changes in format or participants.

Judges for the awards shall be appointed by the State Master Gardener Program Leader, University of Florida. Decisions by the judges will be final.

ALL APPLICATIONS MUST BE SUBMITTED IN ELECTRONIC FORMAT

SEE BELOW FOR APPLICATION CRITERIA:

The correct and completed award application forms including:

- A typed application form not to exceed 3 pages in length. Supporting materials (where requested may be additional pages)
 - The three pages must include the 150 word project summary.
- 12 point font
- No more than 8 photographs in addition to the three pages of text. (Photos no larger than 8 x 10)
- This form typed and completed including: appropriate category checked
- Name of MG Coordinator (The coordinator must approve application prior to admission)
- Application, photos and supporting materials must all be in PDF format and packaged into one document. Submissions are to be emailed to: twichman@ufl.edu

County: Hillsborough
Name of Project: Impatiens Issues and Alternatives
Project start date: April 2012 Project end date: April 2012
Name of person(s) typing application: Nicole Pinson
Name or names of Master Gardeners preparing application: Shari Rutherford
Name of Agent: Nicole Pinson

CATEGORY: Indicate only one category per entry form. You must assign your entry to a specific category to be considered for an award in that category. Entries are limited to the categories indicated below.

- | | |
|---|--|
| <input type="checkbox"/> Form 11 Beautification | <input type="checkbox"/> Form 18 Personal Communications |
| <input type="checkbox"/> Form 12 Demonstration Garden | <input type="checkbox"/> Form 19 Service to 4-H and other youth |
| <input checked="" type="checkbox"/> Form 13 Educational Materials Development | <input type="checkbox"/> Form 20 Special Audiences |
| <input type="checkbox"/> Form 14 Extension Awareness | <input type="checkbox"/> Form 22 Written or Verbal Mass Comm. |
| <input type="checkbox"/> Form 15 County Displays/Exhibits | <input type="checkbox"/> Form 23 County Master Gardener Newsletter |
| <input type="checkbox"/> Form 16 General Achievement | |
| <input type="checkbox"/> Form 17 Outstanding Master Gardener | |

Email PDF Applications to:

Tom Wichman
twichman@ufl.edu

TO BE ELIGIBLE ALL ENTRIES MUST BE RECEIVED BY AUGUST 1, 2012

Form 13
FLORIDA MASTER GARDENER
EDUCATIONAL MATERIALS DEVELOPMENT AWARD

Impatiens Issues and Alternatives

Early this year, Hillsborough County Master Gardeners began receiving resident phone calls asking why their impatiens were dying and how could they prevent it from happening. At the South Central District "Green Team" faculty meeting, the downy mildew problem was addressed and team members were asked to think about alternatives to downy mildew.

Nicole Pinson, Hillsborough County Urban Horticulture Agent and Master Gardener Coordinator, asked Master Gardener Shari Rutherford to research the problem, compile a summary of the issue, determine symptoms and control, and come up with alternatives to using impatiens in the landscape.

Shari researched the issue and wrote an article on downy mildew that was included in the Hillsborough County Master Gardener newsletter and mailed or emailed to 130 Master Gardeners and UF Faculty/Staff. In addition to explaining the problem and symptoms, she incorporated Florida-Friendly LandscapingTM principles into the article. Examples of FFL principles that are linked with the downy mildew problem include water efficiently, fertilize appropriately, and right plant, right place. At the end of the article, she included contact information to the Hillsborough County Extension Office and provided a list of sources for additional information. Shari's article was reviewed for content, ease of understanding, and accuracy by MG Coordinator, Nicole Pinson.

Shari demonstrated an ability to communicate effectively through writing, to work independently and accept responsibility, a willingness to accept supervision and cooperate with office staff, and an ability to read and interpret Extension literature and research articles.

Summary

Impatiens Issues and Alternatives

This project was of use to existing Master Gardeners because it explained a current issue and offered information about how to handle the problem. Master Gardeners used the article in the plant clinic with phone, email and walk-in customers. Recommendations are consistent with current research findings and literature provided by the UF/IFAS Extension Service. Master Gardeners also communicated the information at library plant clinics, garden club meetings, and speakers' bureau presentations. In addition, the article was used by faculty members of the Green Team to develop a UF/IFAS fact sheet to be distributed to homeowners and commercial clientele. See attached article and fact sheet which was peer reviewed by five agents. The fact sheet is uploaded to the Hillsborough County Extension website, which receives more than 20,000 hits per month, and the Hillsborough County Extension blog.

Timely Topic: Downy Mildew

by Shari Rutherford, Hillsborough County Master Gardener, and Nicole Pinson, Urban Horticulture Agent/Master Gardener Coordinator

Downy Mildew has nothing to do with fabric softener. All kidding aside, this is why the impatiens orders are at a minimum at the garden centers this year. Downy mildew affects all hybrids and varieties of *Impatiens walleriana*, which is the most prevalent type of impatiens. How do you know when your impatiens have it? New growth and young plants are most susceptible and may show symptoms first. Initially, leaves may appear yellowish (chlorotic) or speckled. You may see faint gray lines on the tops of leaves and notice leaf edges beginning to curl downward. As the disease progresses, you may observe whitish downy looking growth, the spore-containing structures, on the undersides of leaves. Then, leaves and flowers drop, leaving you with mostly stems and eventual complete collapse of the plant.



Undersides of leaves show white downy mycelia growth. <UF Laura Sanagorski>

Downy mildew is caused by a water mold type pathogen, called *Plasmopara obducens*. The pathogen first appeared in Palm Beach County in 2011, and is a known pest in Europe and the northeast U.S. The incubation period from time of infection to evidence of symptoms is 5-14 days. Downy mildew can spread in two different ways: 1) by zoospores moving through water, and 2) by wind when spores are contained in a larger structure called a sporangium. In addition, spores called oospores can form inside plant tissues, where they remain viable for years. Downy mildew spreads quickly, so it is very important to scout for early signs of symptoms and disease.

Well, if you already have impatiens, or you can't live without them in your garden, what's next? This pathogen is found where high humidity, cool temperatures, and overcrowding conditions are present. Warm weather may help reduce *Plasmopara obducens*' impact, however, the Florida Department of Agriculture and Consumer Services, Division of Plant Industry states, "summer survival of these resistant oospores under Florida conditions is unknown."

According to Laura Sanagorski, Environmental Horticulture Extension Agent, and Bill Schall, Commercial Horticulture Extension Agent, Palm Beach County, "prevention is the only effective management strategy."

You can practice a few Florida Friendly Landscaping™ principles and good cultural controls to limit the presence of *Plasmopara obducens*. Here are few tips for your garden:

- As stated before, downy mildew can spread by spores transported by water and wind. Water efficiently. Eliminate nighttime watering and overhead irrigation.
- Fertilize appropriately. Excessive fertilization can lead to unhealthy plants and increased susceptibility.
- Avoid overcrowding plants. Leaves of plants spaced too closely together take a longer period of time to dry and encourage pathogen-favorable conditions.
- Remove infected plants and branches, seal in a bag, and dispose in the trash. Do not compost infected plant material, because the oospores remain viable and can harm future impatiens plants.
- The Florida Department of Agriculture and Consumer Services, Division of Plant Industry recommends choosing other types of bedding plants, for example, begonias. Two less common varieties that are more expensive and aren't available in as many colors, SunPatiens and New Guinea, are not susceptible to downy mildew.
- Seed propagated plants are a safer option than asexually propagated plants. Avoid rooted cuttings for now.

What if you see signs of Downy Mildew on those impatiens you couldn't live without? Chemical treatments are no guarantee of a cure and can be very expensive. They are much more effective when applied preventively. If you notice signs of downy mildew, Sanagorski and Schall recommend that you follow quickly with protective fungicide treatments. For replacement in heavily infested beds, consider selecting a resistant flower species or another type of plant. "It's devastating because it's a very easy plant to grow. It's a huge business to lose," said Brad Bethurem, owner of Brad's Bedding Plants Inc. west of Delray Beach. "We're not going to grow another impatiens until they change the genetics." Seed producers such as Ball Horticultural and Syngenta, are researching how to prevent downy mildew, which is now a problem statewide.

Fungicides for Use in Managing Downy Mildew on *Impatiens walleriana* in home landscapes.

Non-Commercial-Homeowner Products
Concern Copper Soap Fungicide(copper octanoate)
Ferti-lome Broad Spectrum Landscape and Garden Fungicide(chlorothalonil)
Monterey Agri-Fos(phosphorous acid)
Ortho Max Garden Disease Control(chlorothalonil)
Southern Ag Liquid Copper Fungicide(copper ammonium complex)
Southern Ag Triple Action Neem Oil(extract of neem oil)

The label is the law; be sure to use products only in a manner consistent with the manufacturer directions on the labels.

That brings me to one final option to combat Downy Mildew: choosing other alternatives to impatiens in your landscape this year. New Guinea impatiens, *Impatiens X hawkeri*, are considered very tolerant. Another option to consider is vinca, as the flowers and available colors have some similarities to impatiens. They are not as thirsty as impatiens, and they do prefer sun to shade. A more shade tolerant annual you might consider is torenia, also called wishbone flower. It is in the snapdragon family, has a nice mounding habit and is available in a variety of colors. There is also a trailing variety, although this is not as readily available commercially. Torenia is more tolerant of the heat and humidity in central Florida than many tender annuals, thus it is a fairly long lasting in the landscape. Some professional landscapers are substituting Lobelia, Osteospermum and Begonias for impatiens.

What I did this year was to go for just a few impatiens, but I kept them isolated to pots and window boxes. I'll plan to move them out quickly if I see signs or symptoms, but for now, I like my pretty pink impatiens in window boxes in the shade.

Residents can contact the **Hillsborough County Extension Office** for assistance in finding solutions to gardening problems, at (813) 744-5519.

Sources:

Salisbury, Susan. 2012. Disease killing impatiens, Florida's top landscape flower. The Palm Beach Post. <http://www.palmbeachpost.com/money/disease-killing-impatiens-floridas-top-landscape-flower-2171998.html> (accessed March 6, 2012)

Sanagorski, L. and B. Schall. 2012. Downy mildew on impatiens. <http://palmbeachcountyextension.wordpress.com/2012/01/26/downy-mildew-on-impatiens/> (accessed March 6, 2012)

Schubert, Tim. 2012. Pest Alert: Downy Mildew of *Impatiens walleriana* caused by *Plasmopara obducens*. The Florida Department of Agriculture and Consumer Services, Division of Plant Industry. <http://www.freshfromflorida.com/pi/pest-alerts/pdf/downy-mildew-of-impatiens.pdf> (accessed March 6, 2012)

FACT SHEET: Impatiens Issues and Alternatives

Nicole Pinson, Hillsborough County Urban Horticulture Agent/Master Gardener Coordinator, Lynn Barber, Hillsborough County Florida-Friendly Landscaping™ Agent, Shari Rutherford, Hillsborough County Master Gardener, Shawn Steed, Hillsborough County Environmental Horticulture Production Agent, B.J. Jarvis, Pasco County Extension Director and Horticulture Agent, and Doug Caldwell, Collier County Extension Commercial Horticulture Agent.

Downy mildew on Impatiens has had a dramatic impact on this widely-utilized landscape plant and commercial ornamental production. Downy mildew is a highly aggressive disease that spreads rapidly, killing Impatiens, specifically *Impatiens walleriana*. It is recommended that you purchase only varieties other than *Impatiens walleriana*.

It is easy to identify downy mildew. New growth and young plants are most susceptible and may show symptoms first. Initially, leaves may appear yellowish (chlorotic) or speckled. You may see faint gray lines on the tops of leaves and notice leaf edges beginning to curl downward. As the disease progresses, white spores are observed on the undersides of the leaves. Then, leaves and flowers drop, leaving mostly stems and the eventual complete collapse of the plant. Downy mildew spreads quickly, so it is very important to scout for early signs of symptoms and disease if you want to protect them.



Undersides of leaves show white Downy mildew growth. UF Laura Sanagorski

Downy mildew is caused by a water mold type pathogen, called *Plasmopara obducens*. The pathogen first appeared in Florida in Palm Beach County in 2011 and is a known pest in Europe and the northeast U.S. The incubation period from time of infection to evidence of symptoms is between 5-14 days. Downy mildew is spread by spore movement via air or water and can remain viable for years in the host plant or surrounding soil. Therefore good landscape or nursery hygiene is critical to eliminate this pathogen from further spread.

This pathogen is found where high humidity, cool temperatures, and overcrowding conditions are present. Warm weather may help reduce the impact of Downy Mildew; however, the Florida Department of

Agriculture and Consumer Services, Division of Plant Industry states, "summer survival...under Florida conditions is unknown."

According to *Laura Sanagorski, Environmental Horticulture Extension Agent*, and *Bill Schall, Commercial Horticulture Extension Agent, Palm Beach County*, "prevention is the only effective management strategy." You can practice a few Florida-Friendly Landscaping™ principles and good cultural controls to limit the presence of *Plasmopara obducens*. Here are few tips for your garden:

- Downy mildew can spread by spores transported by water and wind, water efficiently. Eliminate nighttime watering, reduce humidity on the leaves and overhead irrigation.
- Fertilize appropriately. Excessive fertilization can lead to unhealthy plants and increased susceptibility.
- Avoid overcrowding plants. Leaves of plants spaced close together take a longer period of time to dry and encourage pathogen-favorable conditions.
- Remove infected plants and branches, seal in a bag, and dispose in your household trash. Do not compost infected plant material, because the oospores remain viable and can harm future *impatiens* plants.
- Do not replant *Impatiens walleriana* in the same location because the spores remain viable in the soil.
- The Florida Department of Agriculture and Consumer Services, Division of Plant Industry recommends choosing other types of bedding plants, for example, begonias. There are two less common *Impatiens* varieties that are not susceptible to downy mildew but are more expensive and not available in as many colors. They are SunPatiens and New Guinea, *Impatiens X hawker*. Consider selecting alternatives to *Impatiens* in your landscape. There are several other plant options with similar *Impatiens*' qualities: Wax Begonia, White Alyssum, Geranium, Petunia, Viola, Vinca, Torenia, Osteospermum, Dwarf Penta, Lobelia, Polka-Dot Plant, *Euphorbia*, *Bacopa*, and Caladiums. See the chart below for other alternatives.

Chemical treatments are no guarantee of a cure and can be very expensive. Fungicides are much more effective when applied preventively. If you notice signs of downy mildew, Sanagorski and Schall recommend that you follow quickly with protective fungicide treatments. For replacement in heavily infested beds, consider selecting a resistant flower species or another type of plant.

Please see the video created by Collier County Master Gardeners and Doug Caldwell at:
<http://www.youtube.com/watch?v=Q-H3EIXRzhE> or <http://tinyurl.com/8y44dsw>

Fungicides for Use in Managing Downy Mildew on *Impatiens walleriana* in home landscapes

Non-Commercial-Homeowner Products

Concern Copper Soap Fungicide (copper octanoate)

Ferti-lome Broad Spectrum Landscape and Garden Fungicide (chlorothalonil)

Monterey Agri-Fos (phosphorous acid)

Ortho Max Garden Disease Control (chlorothalonil)

Southern Ag Liquid Copper Fungicide (copper ammonium complex)

Southern Ag Triple Action Neem Oil (extract of neem oil)

The label is the law. Use products only in a manner consistent with the manufacturers' label directions.

ANNUAL ALTERNATIVES FOR IMPATIENS IN CENTRAL FLORIDA																	
COMMON NAME	EARLIEST PLANTING & TYPICAL REMOVAL DATES												EXPOSURE			Cold Tolerance	Spacing (inches)
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Full Sun	Sun AM or PM	No Direct Sun		
Alyssum						R				P			XX	X		Hardy	10 - 12
Bacopa						R				P			XX	X		Tender	10 - 12
Begonia (Wax)		P									R		X	XX	X	Tender	12 - 14
Calibrachoa					R					P			XX	X		Hardy	18 - 24
Cape Daisy		P			R								XX	X		Tender	12 - 14
Carnation					R						P		XX	X		Hardy	8 - 10
Coleus			P								R		XX	XX	X	Tender	18 - 24
Crossandra				P							R		X	XX	XX	Tender	10 - 12
Dahlberg Daisy		P					R						XX	X		Hardy	8 - 12
Dianthus					R					P			XX	X		Hardy	10 - 12
Dusty Miller									R	P			XX	X		Hardy	12
Geranium *			P							P			XX	X		Tender	16 - 24
Gomphrena		P							R				XX	X		Tender	12
Kalanchoe							R			P			XX	X		Tender	12
Lobelia			P		R								XX	X		Tender	12 - 14
Marguerite Daisy		P		R									XX	X		Tender	12 - 14
Marigold **			P			R			P			R	XX	X		Tender	10 - 16
Melampodium		P								R			XX	X		Tender	12 - 18
Moss Rose			P								R		XX	XX		Tender	10 - 12
New Guinea Impatiens			P								R			XX		Tender	30
Pansy					R							P	XX	XX	X	Hardy	10 - 14
Pentas			P									R	XX	X		Tender	18 - 30
Petunia					R					P			XX	X		Hardy	12 - 24
Snapdragon					R					P			XX	X		Hardy	10 - 15
Torenia			P									R	X	XX		Tender	12 - 18
Verbena						R				P			XX	X		Hardy	12
Viola					R					P			XX	X	X	Hardy	8 - 10
Vinca					P							R	XX	X		Tender	12
Zinnia **	R		P				R		P				XX	X		Tender	12 - 15
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					
<div>* Remove when declined. P Earliest Planting Date</div> <div>** Length of time to removal varies. R Typical Removal Date</div> <div>Exposure: XX = Optimum Performance X = Acceptable Performance</div> <div>Source: "Gardening with Annuals in Florida" http://edis.ifas.ufl.edu/mg319</div>																	

The above table was adapted from the source cited.

REFERENCES:

Anonymous. 2011. How To Overcome Downy Mildew Spread On Impatiens. Greenhouse Grower.
<http://www.greenhousegrower.com/article/23485?browserPass=1>

Brown, Stephen H, 2012. Colorful Plant Beds for South Florida and Similar Climates.
http://lee.ifas.ufl.edu/Hort/GardenPubsAZ/Annual-Flowers-Bedding_Plants.pdf

Commonwealth Agricultural Bureau International. 2007. Distribution Maps of Plant Diseases No.1002,
Plasmopara obducens, edition 1, April 2007. CAB International. 3 pp.

Saccardo, P.A., 1888. *Plasmopara obducens* Schroet. Sylloge Fungorum 7: 242-243.

Sanagorski, L. and B. Schall. 2012. Downy mildew on impatiens.
<http://palmbeachcountyextension.wordpress.com/2012/01/26/downy-mildew-on-impatiens/>

Salisbury, Susan. 2012. Disease killing impatiens, Florida's top landscape flower. The Palm Beach Post.
<http://www.palmbeachpost.com/money/disease-killing-impatiens-floridas-top-landscape-flower-2171998.html>

Schubert, Tim. 2012. Pest Alert: *Downy Mildew of Impatiens walleriana* caused by *Plasmopara obducens*.
The Florida Department of Agriculture and Consumer Services, Division of Plant Industry.
<http://www.freshfromflorida.com/pi/pest-alerts/pdf/downy-mildew-of-impatiens.pdf>

Warfield, C.Y. 2011. Downy mildew of Impatiens. GrowerTalks.
<http://ballpublishing.com/GrowerTalks/ViewArticle.aspx?articleid=18921>

Wells, E.C., 2011. Impatiens downy mildew: tips for retailers. Green Profit.
<http://www.ballpublishing.com/GreenProfit/ViewArticle.aspx?articleID=18952&highlight=impatiens+downy+mildew#>

Zurko, J. 2011. Joining forces. GrowerTalks.
<http://ballpublishing.com/GrowerTalks/CoverStory.aspx?articleID=18917&highlight=zurko+impatiens+downy+mildew>

For assistance with horticultural questions, contact your local County Extension Service. More gardening information is available at <http://edis.ifas.ufl.edu>.