

# FUNGUS AND THE PLANT DISEASE TRIANGLE

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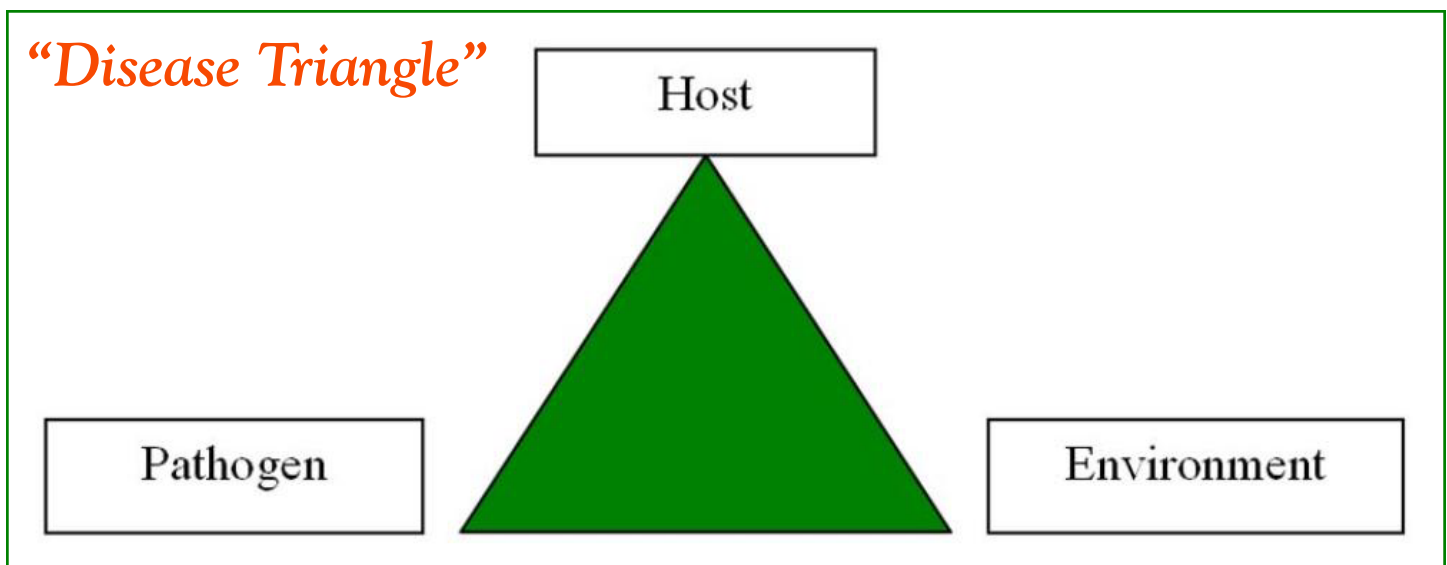
With all of the rain we have had this season, most plants are fat and happy for now. But some plants may be receiving too much water in poorly drained sites; some may have wet leaves for extended periods of time. This moist environment may also be the perfect opportunity for disease to gain a foothold and grow. A lawnmower wound here and pruning cut there may also provide an opportunity for a plant disease to enter. When we look at what is called the "Disease Triangle" all three sides - the environment, the pathogen or actual disease, and the host - must be present in order for a disease to develop. How does a plant disease take advantage of a plant? What can you do to prevent plant disease or at least limit its impact?

As the "Disease Triangle" suggests, a proper environment must be present for disease to grow. Moisture is certainly a factor that is readily available these days. High humidity, saturated ground, poor drainage and wet leaves all are environments that favor fungus to grow. Warm temperatures also promote fungal growth. Add to the mix a wound caused by a hedge trimmer or weed whacker and a door is potentially opened for a plant disease to get into the plant. Even the environment of insufficient light can help some types of disease flourish.

A fungal disease organism must also be present for an infection event to occur. A splash of spore-filled rain water, a contaminated tool of some type, or the installation of an already infected plant may help introduce a pathogen to your landscape. Heavy winds can actually help plant disease spread from plant to plant. The simple act of brushing up against a diseased plant while wet or tracking a fungus spore home on your shoes could bring a problem into your landscape.

For a plant to be a victim of a fungus, it must be susceptible and open to infection. Healthy plants will have a certain degree of resistance to disease; some may even be naturally resistant or selected for disease tolerance. Stress is one way that a plant may become an unwilling host of a fungal infection. Plants are stressed by a number of factors which make them more susceptible to invasion by disease. Nutrient deficiencies, for example, can provide an open invitation to opportunistic organisms. Just like people, too many stress factors can overwhelm a plant.

Before any action is taken, it is imperative that a proper diagnosis be obtained. What is the disease? Is it already too late to treat? Our office can help with this task either with the assistance of a Master



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Gardener volunteer or a Horticulture Staff member. We may even tap into our network of Specialists and Research Stations to help determine a diagnosis. We have a myriad of tools and resources to help obtain an accurate diagnosis.

Even before we face an accurate diagnosis, and well before we break out the fungicides, there are a number of non-chemical options that the gardener can consider in the battle with fungus. Stress-free plants are resistant plants. Proper irrigation, fertilization, and even planting the right plant in the right place are all strategies to reduce the susceptibility of plants to disease. A simple error like over-fertilization, which can promote abundant, yet tender tissue more easily invaded by fungal diseases, is a cultural practice that should be avoided. As mentioned before, the selection of genetically resistance plants (such as certain tomatoes) can also be a powerful tool in reducing the chances of a fungal disease outbreak.

Fungicides have there place and are most effective

as a fungal disease preventative. Fungicides are by nature chemicals used to prevent the growth of a fungus. Many fungicides are used as a protectant where a protective barrier is formed keeping out fungi. Such fungicides have to be applied well in advance of the potential fungal invasion - timing is often tricky and windows of opportunity may be small. This type of fungicide is good for prevention only and will have no effect on infections that are already actively growing in the plant. Some fungicides are systemic and move inside the plant. This action may offer some curative properties that help stop the disease. All fungicides, as with all pesticides, have a label that must be read completely and followed to the letter. The label is the law, so make sure to the read the label!

As with all plant diseases, knowing the identification and biology of the offending organism, determining the environmental conditions conducive for infection, and being aware of the characteristics of the host plant, are all necessary to properly manage or in some cases avoid trouble with fungi.

Resource:

Harmon, P., Palmateer, A. & Ribbeck, R. (2006) *Homeowner's Guide to Fungicides for Lawn and Landscape Disease Management*. UF/IFAS Extension Service.

For more information on all types of fungal plant disease, please contact our Master Gardeners on the Plant Lifeline at 941.764.4340 from 1:00pm-4:00pm Mondays, Wednesdays, and Fridays. Our office is located at 25550 Harbor View Road, Suite 3, in Port Charlotte.

MONTHLY PLANT CLINICS ARE SATURDAYS FROM 9:00AM-12:00PM.

- **Powell's Nursery** ..... 1<sup>st</sup> Saturday of month
- **Peachland Publix**..... 2<sup>nd</sup> Saturday of month
- **Home Depot** (*Punta Gorda, Port Charlotte, Englewood*)..... 3<sup>rd</sup> Saturday of month
- **Lowes** ..... 4<sup>th</sup> Saturday of month

PLANT CLINICS AVAILABLE ACROSS THE COUNTY:

- **Demonstration Garden** (6900 Florida Street, PG) Thursdays 9:00am-11:00am.
- **Englewood/Charlotte Public Library** Thursdays 10:00am-1:00pm.
- **Mid-County Regional Library** 1<sup>st</sup> and 3<sup>rd</sup> Thursday of month 1:00pm-3:00pm.
- **Punta Gorda Library** 2<sup>nd</sup> and 4<sup>th</sup> Wednesday of month from 10:00am-1:00pm.
- **Edison College Learning Resources Library** 3<sup>rd</sup> Tuesday of month 1:00pm-4:00pm.
- **South Gulf Cove Learning Garden** (13577 Blake Drive, PC) 3<sup>rd</sup> Wednesday of month from 9:00am-12:00pm.

Ralph Mitchell ([Ralph.Mitchell@charlottefl.com](mailto:Ralph.Mitchell@charlottefl.com)) is the County Extension Director/Horticulture Agent for Charlotte County Extension Service. Contact a volunteer Master Gardener from 1:00pm-4:00pm Monday, Wednesday, and Friday at 941.764.4340 or by email ([Master.Gardener@charlottefl.com](mailto:Master.Gardener@charlottefl.com)).

For more information about our Florida Yards and Neighborhoods Program, please contact our FYN Horticulture Program Assistant, Allison Steele, at 941.764.4351. Allison can help educate you about the Florida Yards & Neighborhoods Program so that you can create a beautiful, Florida-Friendly landscape that saves you time and money while conserving precious water resources and reducing pollution.