

GROWERTALKS

Pest Management

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Diseases of Tropical Houseplants

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Helminthosporium leaf spot on an Areca palm.



Typical anthracnose on an aglaonema.



Rhizoctonia blight on a Boston fern.



Erwinia blight on dieffenbachia.

(A complete listing of diseases of foliage plants by host [can be viewed in our digital edition.](#))

The first records of human interest in tropical foliage plants date back to the Sumerians and Egyptians, about 3,500 years ago. It wasn't until the early 1900s, however, that an industry developed for production and marketing of foliage plants. Technical information on diseases of foliage plants started in the 1920s with the greatest increase in the early 1970s, when the foliage plant industry expanded dramatically.

The University of Florida established the Agricultural Research Center in Apopka, Florida, in 1968 and research on these crops increased to an all-time high over the next 25 years. The advent of the Internet has further altered the course of disease management, as information is easily disseminated worldwide, often as fast as we move the diseases themselves. Since that time, there have been many other changes in the diseases that occur on these plants, the popularity and use of tropical foliage plants, and the means to prevent disease losses.

Tropical foliage plants are mainly produced in the warmer regions of the world where they won't need additional heating—they're after all mainly tropical in origin. They have the following characteristics that greatly affect the diseases that are most common:

- They're primarily being produced from cuttings.
- They're grown mainly as individuals, but can be seen in mass plantings indoors.
- They're moderate in their speed of production and can live for decades in the right indoor setting.
- They're routinely exposed to overhead irrigation and/or rainfall throughout much of their production life.
- They must be blemish-free since they're used for long periods of time in homes, malls, casinos and hotels.

Plants produced from cuttings are more likely to have certain diseases (like Fusarium) than those produced from seed. Fusarium can be superficial, causing stem rot, cankers and crown rot, but also can be systemic and

cause a wilt disease. The spores are produced in sticky masses and easily contaminate cuttings without being obvious.

Other fungi that are easily spread on cuttings include Colletotrichum (the cause of anthracnose), Myrothecium and Cylindrocladium. Other pathogens that are easily spread via cuttings are bacterial diseases, including soft rot (Dickeya and Pectobacterium), Xanthomonas and Pseudomonas leaf spots or blights.

Diseases that are so adapted to the propagation environment that they're constant fixtures in mist beds of foliage plant cuttings include soil-borne fungi like Rhizoctonia and Phytophthora. It's also important to know that some foliage plant cuttings produce roots rapidly, while others may take many weeks. The longer they're in the mist

environment, the more likely a fungal or bacterial pathogen will attack them. The length in propagation also makes them likely to be all but forgotten with respect to scouting and preventative treatments, including conventional or biological products.

Many of these plants come from a few plant families. These include the palms, the dracaena group, bromeliads and aroids (like dieffenbachia and anthurium). Diseases like *Xanthomonas* leaf spot on anthurium easily spread to other members of this plant family, including aglaonema, dieffenbachia and philodendron. On the other hand, many bromeliads (including *Aechmea*, *Guzmania* and *Vriesia*) are affected by *Helminthosporium* leaf spot, which also affects many palms.

Root rots are actually not as common on foliage plants as some other groups of ornamental plants. They often have very fleshy roots, which are somewhat harder to attack than tiny fibrous roots common on other ornamentals. It's also possible that the foliar blights and stem rot that are common on foliage plants kill the plants before the root rotters get a chance.

The natural environment for tropical foliage plants is warm and wet. Exposure to rainfall is typical of the tropical areas where they're native and they benefit from this condition during their production as well. Unfortunately, the diseases that accompany them also like wet leaves and the bacteria or fungal spores move easily by splashing irrigation or rainfall. They actually make the spores on the upper surfaces many times to facilitate their movement to new leaves or plants when a water droplet hits them. They're also sometimes surrounded by a sticky matrix, which allows the new spore or bacterium to stick to a leaf instead of being washed away by the next rain event or irrigation cycle. We find that most of the diseases that attack a particular group of plants do best under conditions that are best for the plant host, too. It's really all about evolution.

Rhizoctonia and Phytophthora aerial blights, bacterial diseases (especially soft rot) and crown rots caused by *Myrothecium* and *Fusarium* are each more active during warm and sometimes hot weather. In tropical growing locations, heat coincides with rainfall and each of these pathogens is further promoted. While I worked at the University of Florida in the 1980s, I rarely saw *Botrytis*, downy mildew, rust or powdery mildew. There are a few examples of diseases of foliage plants caused by these pathogens, but they're not the most common pathogens since the conditions they prefer are high humidity and cold to moderate temperatures. The first three pathogens are often very broad-based in their appetite for plants of almost any kind and easily move from one crop to the next regardless of how related the crops might be. Cleaning up the propagation area routinely is a must for keeping these pathogens from taking over.

Summary

Tropical foliage plants do have a specific disease profile, including:

- Cutting-borne pathogens, including *Fusarium*, *Colletotrichum* and *Myrothecium*, and bacteria like *Pectobacterium* and *Xanthomonas*
- Overhead irrigation in propagation and production leading to leaf spots
- Leaf spots caused by a wide range of fungi and bacteria that are easily splashed by rainfall, but not easily spread by the wind
- Very rarely do any diseases occur once plants are established indoors—the conditions do promote mites and other pests

Preventing everything is not a sustainable way to grow plants. It's costly, bad for the environment and does hurt plants, reducing their quality without the primary benefit of controlling a common disease. Once you know what you're facing, you can take the appropriate preventative steps. **GT**

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