If you have only been growing one type of plant, for instance tropical foliage plants, you might think all plants get the same diseases. In my 35 years as a plant pathologist, I have worked on nearly all types of ornamentals from cut flowers to foliage plants to bedding plants, woody ornamentals, herbs and herbaceous perennials. There are some general differences between the various ornamental groupings that I have noticed. In February, I covered bedding plants. In this second article in the new series, I will cover tropical foliage plant diseases.

Some of the elements that affect which diseases attack a group of plants include: type of propagation material used, production conditions (greenhouse vs. nursery), utilization (landscape vs. potted house plant), seasonal timing (winter vs. summer) and longevity of the crop (turnover in the final use site). Another interesting difference is what part of the plant we focus on. For instance cut flowers must have perfect flowers while tropical foliage plants are usually not grown for their flowers.

Tropical foliage plants have the following characteristics:

- They are primarily being produced from cuttings.
- They are grown mainly as individuals but can be seen in mass plantings indoors.
- They are moderate in their speed of production and can live for decades in the right indoor setting.
- They are routinely exposed to overhead irrigation or rainfall throughout much of their life.
- They are more valuable on a unit basis than bedding plants but must be blemish-free since they are used for long periods of time in homes and interiorscapes. In the case of tropical foliage plants, they are also produced mainly in the warmer regions of

Tropical Foliage Plants: Your Worst Enemies

By A.R. Chase
the world where they won’t need additional heating — they are after all tropicals.

**Why are propagation diseases so common on foliage plant cuttings?**

Any plant produced from a cutting is likely to have problems with Fusarium since it is so easy to infect the stock plant and spread the fungus along with the new cuttings. Fusarium can be superficial 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), Cylindrocladium and Myrothecium. Other pathogens that are easily spread via cuttings are Pectobacterium (bacterial soft rot), Xanthomonas and Pseudomonas leaf spots. In addition to these problems that might be contaminating an unrooted cutting, there are diseases that are so adapted to the propagation environment that they are constant fixtures in mist beds of foliage plant cuttings. This group of pathogens includes soil-borne fungi like Rhizoctonia and Phytophthora. It is also important to know that some foliage plant cuttings produce roots rapidly while others may take many weeks. The longer they are in the mist environment the more likely a fungal or bacterial pathogen (or insect...
pests) will attack them. The length in propagation also makes them likely to be all but forgotten with respect to scouting and preventative treatments.

**Why do so many foliage plants get the same diseases?**

The answer to this one is that so many of the 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 Vriesea) are affected by Helminthosporium leaf spot, which also affects many palms. Root rots are actually not as common on foliage plants as other groups of ornamentals. This may be due to the condition of growing in leaf litter with little actual soil in their natural environment. They also often have very fleshy roots, which are somewhat harder to rot than tiny fibrous roots. Indeed, we probably would not see root pathogens much at all if we did not insist on growing many of our ornamentals in peat-based media that retain more water than the plants naturally need.

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 is really all about evolution.

**What does overhead irrigation do to tropical foliage plant diseases?**

The natural environment for tropical foliage plants is warm and wet. Exposure to rainfall is typical of the tropical areas where they are 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 are 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 is really all about evolution.

**Why do diseases prefer warm to hot temperatures?**

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 are 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.

**What are the diseases of foliage plants in interiorscapes?**

Well, in my opinion they are almost non-existent. This is because overhead irrigation is pretty much frowned upon in malls, hotel lobbies and banks. The conditions that we like for our homes and businesses are not good for foliage plant diseases. We do see many physiological problems and pest problems since we always push the envelope on what uninhabitable spots we want to grow a plant. So, although I used to get a lot of samples of ailing foliage plants from interiorscapes, unless the plants went into the installation diseased it really did not come down with one indoors. They did however, suffer from too little or too much water, mites, scale and mealybugs and fluoride damage. The one disease I did see in the 1980s was Phomopsis blight on Ficus spp. This was a case of latent infections that became active when the trees were treated badly indoors and stressed.

**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.
- Leaf spots caused by a wide range of fungi and bacteria that are easily splashed by rainfall but not easy spread by the wind.
- Overhead irrigation in propagation and production leading to leaf spots.
- Very rare diseases once established indoors - the conditions do not promote diseases but they do promote mites and other pests.

Preventing everything is not a sustainable way to grow plants. It is costly, bad for the environment and does hurt plants reducing their quality without the primary benefit of controlling a common disease.

A.R. Chase is plant pathologist at Chase Agricultural Consulting LLC and can be reached at archase@chaseresearch.net.