GROWERTALKS

Features

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Phytophthora Diseases Affecting Ornamentals & the Potential for Foliar Outbreaks

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Results from various ornamental disease surveys conducted over the past decade, and communication with diagnosticians who routinely receive ornamental disease samples, indicate that foliar outbreaks of Phytophthora remain a persistent issue affecting our industry.

Pictured: Early symptoms of foliar blight on anthurium caused by Phytophthora nicotianae.

It seems species of Phytophthora are present in all ornamental nurseries with the potential to cause significant disease of great economic importance. Phytophthora is routinely introduced into greenhouses and nurseries through contaminated stock plants, contaminated media and contaminated irrigation water. Once introduced, inoculum of the pathogen can spread by splashing irrigation water and through cultural practices such as potting, pruning and the movement of plant material.

The discovery of *Phytophthora ramorum* causing a serious disease on oak and other tree species in western U.S. nurseries set the stage for numerous studies conducting research on Phytophthora. A review of the literature on Phytophthora species associated with ornamental plants will reveal that numerous species are reported, and with an increase of scientists developing more specific and sensitive detection methods, we will likely see the reports of Phytophthora species affecting ornamental production continue to rise.

Based on crop type (e.g. tropical foliage, bedding plants, woody ornamentals, etc.) and geographic location, the Phytophthora species present can widely vary. For example, there are six species of Phytophthora reported on tropical foliage with *P. nicotianae* among the most common to cause foliar outbreaks, and more than a dozen Phytophthora species have been reported associated with foliar diseases of woody ornamentals with *P. citricola* among the most common.

Picture

d: Severe foliar blight of Pachira aquatica (money tree) caused by Phytophthora palmivora

It's crucial that growers understand the detection of Phytophthora in and among their plants is very important. The inoculum of this pathogen, capable of causing root rot as well as foliar diseases, increases from low (even levels so low they are undetectable) to high levels within a few days depending on the conditions. The increase of inoculum is caused by the rapid production of sporangia and zoospores from infected plant tissues when free moisture is present, and Phytophthora has a short generation time and great reproductive capacity, often leading to disease outbreaks in a short period of time.

Sometimes it seems that the disease can literally turn on overnight. The presence of free moisture and the leaf wetness period are the most important environmental factors associated with foliar outbreaks of Phytophthora. Leaf wetness is the presence of free water on the surface of a plant leaf that results from overhead irrigation, rainfall, fog or dew. It can form on any surface of the plant, but is mainly seen on the top and bottom sides of the leaves. Thus, irrigation practices to minimize leaf wetness and proper plant spacing to allow for air movement through the canopy are important disease management strategies for controlling foliar outbreaks of Phytophthora.

Pictured: Mandevilla leaves with brown to black spots and water-soaked margins caused by Phytophthora nicotianae.

Disease development is most often favored by hot, wet weather typical of summer months. Plants that are watered using overhead irrigation and maintained under conditions where the leaves will not dry are most prone to foliar outbreaks caused by Phytophthora.

Several fungicides have been developed for use on ornamentals infected with Phytophthora. These include etridiazole (FRAC 14), mefenoxam (FRAC 4), fenamidone (FRAC 11), propamocarb (FRAC 28) and fosetyl aluminum (FRAC 33). More recent fungicides include cyazofamid (FRAC 21), dimethomorph and mandipropamid (FRAC 40), fluopicolide (FRAC 43) and oxathiapipropalin (FRAC U15). Each of these compounds has demonstrated excellent activity for controlling Phytophthora in ornamental production settings.

When it comes to effective management of aggressive pathogens such as Phytophthora, preventative fungicide applications are a must. When applying any pesticide, always refer to the manufacturer's label for prescribed rates and application intervals. Always adhere to the instructions provided on the label. **GT**

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