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FOLIAR NEMATODES OF HERBACEOUS ORNAMENTALS

Many bedding plants and herbaceous perennials can be attacked by foliar nematodes. In severe cases, the nematodes may cause discoloration of leaves, early defoliation, and deformation of the new growth. Although the damage from foliar nematodes is nonlethal, it can make ornamental plants less saleable and attractive in greenhouse, nursery, and landscape settings.

SYMPTOMS AND DIAGNOSTICS

The initial symptom of a foliar nematode disease appears as small, yellow spots or blotches on leaves (Figure 1). As the diseases develop, blotches turn into brown or reddish-brown spots with angular or irregular shapes because the movement of the nematode is vein-delimited (Figures 2 and 3). When young plants are infected, new growth may become stunted and twisted (Figure 4). Angular lesions caused by foliar nematode can often be confused with bacterial leaf spots or downy mildew infections. For a correct diagnosis, send symptomatic samples to a plant disease diagnostic laboratory for examinations. When flower buds get infected, the plant may produce deformed or undersized flowers.

DISEASE DEVELOPMENT

The foliar nematodes are caused by microscopic worm-like organisms in the genus *Aphelenchoides*. These pathogens have very wide host ranges including abelia, anemone, monkshood, columbine, wild ginger, aster, astilbe, begonia, Siberian bugloss, fern, chrysanthemum, dahlia, carnation,

Figure 1. Yellow and light-brown spots on an anemone leaf.

Figure 2. Angular and irregular brown lesions on anemone leaves.

Figure 3. Angular brown lesions on a fern leaf.

Figure 4. Irregular brown lesions and distortion of salvia leaves.

purple cornflower, wild geranium, hellebore, coral bells, hosta, impatiens, iris, lupine, daffodil, peony, phlox, cineraria, rudbeckia, African violet, salvia, verbena, garden violet, and zinnia. The nematodes survive in infected plant materials, such as stock plants, dormant buds, and dry plant debris on the ground. But, without a host, the nematodes cannot survive in the soil for more than three months. Propagation materials including cuttings, plugs, and transplants are means of long-distance dispersal of the pathogens. Foliar nematodes can be spread between plants or leaves by splashing water from rain or overhead irrigation, or by direct contact for a short distance. Nematodes need free water on the surface of plant tissues to swim and find infection sites. The infection site of foliar nematodes includes stomata and wounds. After the infection, nematodes can complete their life cycle from eggs to adults in 2-4 weeks depending on host species and environments. Moderate temperatures and moist or wet conditions (dew, irrigation water, or rain) are favorable for foliar nematode diseases.

MANAGEMENNT

Cultural practice: Inspect plant materials for foliar nematode symptoms and avoid introducing the pathogens into your garden or greenhouse. When diseased plants are found, discard the plants to reduce the chance of further spreading the disease. Avoid overhead irrigation, if possible, to reduce the risk of dispersing nematodes between plants. Water plants directly to the soil, rather than onto leaves by using a soaker hose or a drip system. Keep proper space between plants to promote air circulation and minimize spread of the nematodes via water splash. Remove plant debris completely from the landscape. Do not place infected plants in a compost pile. Do not handle plants when they are wet.

Chemical treatment: There are no registered chemicals for an effective control of foliar nematodes.

READ THE LABEL BEFORE APPLYING ANY PESTICIDE! We keep all archives of our fact sheets posted. While most practices for disease management do not change over time, please be aware that changes in pesticide regulations occur constantly. When applying pesticides, always consult the label to make sure the pesticide is approved for use on your plants.