

Verticillium Wilt Disease

Verticillium is a fungus capable of infecting a wide variety of ornamental plants; some of the more important are chrysanthemums, China asters, snapdragons, roses, geraniums, and begonias. Symptoms vary with the host.

Snapdragons can appear completely healthy until blossoms develop; then the foliage can suddenly wilt completely. The conductive tissues of some varieties can turn brown or purple, particularly the woody stem tissues.

With chrysanthemums, there is usually a marginal wilting of the leaves, followed by chlorosis and eventually death and browning of the leaves, which remain attached and hang down against the stem. These symptoms commonly develop at first on only one side of the plant and only after blossom buds have formed. Young, vigorous plants usually remain symptomless.

The buds on one or two branches of red-flowered varieties of greenhouse roses turn blue and fail to open; the leaves and the green stem tissues may become mottled, and when the stem is shaken, the leaves fall from the plant and the stem dies. Additional shoots can develop from basal buds and go through the same sequence, though eventually a shoot may remain healthy. Usually no vascular discoloration occurs.

With semituberous-rooted begonias, some yellowing of leaf margins can occur, but the most distinctive symptom is the development of an extremely shiny lower leaf surface.

The symptoms thus are quite variable, but the most characteristic ones are one-sided development, wilting and yellowing of leaf margins progressing upward from the lowest leaves, lack of leaf and stem lesions, and normal-appearing roots.

The fungus causing the disease invades the soil and may persist there for many years. Initial infection usually occurs through normal roots, and the fungus grows upward through the water-conducting (xylem) tissues. Infected plants of some types (for example, chrysanthemums) are usually not killed by the fungus and, during periods of rapid vegetative growth, can appear symptomless.

Cultural Control

Cuttings taken from symptomless diseased plants can carry the fungus internally and introduce the disease to new areas. Obtain planting stock only from a reliable dealer, and purchase chrysanthemums and geraniums from propagators who culture index all nucleus stock (see "Bacterial Blight of Geranium" for a description of culture indexing).

Chemical Control

Plant only in soilless mixes or in soils that have been steamed or treated with chloropicrin to eliminate *Verticillium*.