



TURNIP MOSAIC OF HORSERADISH

Turnip mosaic, caused by *Turnip mosaic virus* (TuMV), is the most common disease of horseradish worldwide. It has been reported that all horseradish cultivars can be infected by TuMV. Plants can be infected at all growth stages, but symptoms are more pronounced toward the end of growing season (e.g., in September and October in Illinois). The host range of TuMV is wide and includes 318 species in 156 genera of 43 plant families, including Brassicaceae, Chenopodiaceae, Compositae, Leguminosae, and Solanaceae.

Symptoms

The most characteristic symptom of infection by TuMV is chlorotic mottling on the leaves (Figure 1). Chlorotic ringspots may appear on infected leaves at any development stage, which may gradually become necrotic. Other symptoms include black streaks on the petioles and, occasionally, a clearing of the leaf veins. Severely infected leaves die.

Disease Cycle

TUMV is setborne pathogen sets saved from TuMV-infected plants carry the virus to the following season. The virus carried in the set infects the leaves and then spread from infected leaves to other plants. TuMV is transmitted mechanically and in nonpersistent manner by 89 species of aphids. Generally, aphids retain TuMV for several hours after acquiring it. Usually, all of the plants in commercial fields are infected by TuMV. Weather conditions that promote a larger number of aphids and aphid migration facilitate the spread of this virus.

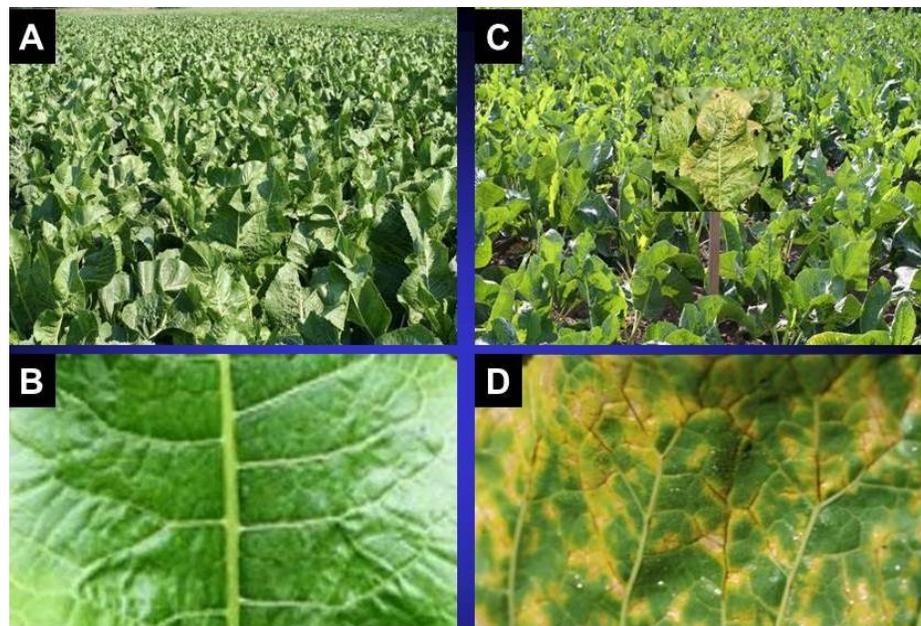


Figure 1. A, a horseradish field with healthy plants; B, a healthy horseradish leaf; C, a horseradish field with plants infected by Turnip mosaic virus; and D, a horseradish leaf with Turnip mosaic.

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Disease Management

No horseradish cultivar has been found resistant to TuMV. The most effective strategy for managing TuMV in horseradish is planting virus-free sets. Virus-free sets can be generated by the use of tissue culture. Since most plants become infected within one growing season in the fields, generating virus-free sets should be generated every year. When properly used, insecticides may aid in reducing aphid population densities and the secondary spread of the virus but will not protect plants against infection.