UNIVERSITY OF ILLINOIS EXTENSION
College of Agricultural, Consumer and Environmental Sciences

report on
PLANT DISEASE

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DEPARTMENT OF CROP SCIENCES
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BEET POWDERY MILDEW

Beet powdery mildew, cuased b the fungus *Erysipe betae*, (syn., *Erisyphe polygoni*) was first observed in Califoria in 1937 on sugar beet. Now, it occurs wherever beet is grown in the United States and worldwide.

Symptoms

The disease appears as small disperse, whitish mats of hyphae and conidia on leaves. Under suitable weather conditions, the fungus spread rapidly over all leaf surfaces and eventually to all leaves on affected plats (Figure 1). Perfect stage of the pathogen (cleistothecia) may develop on some infected leaf areas.

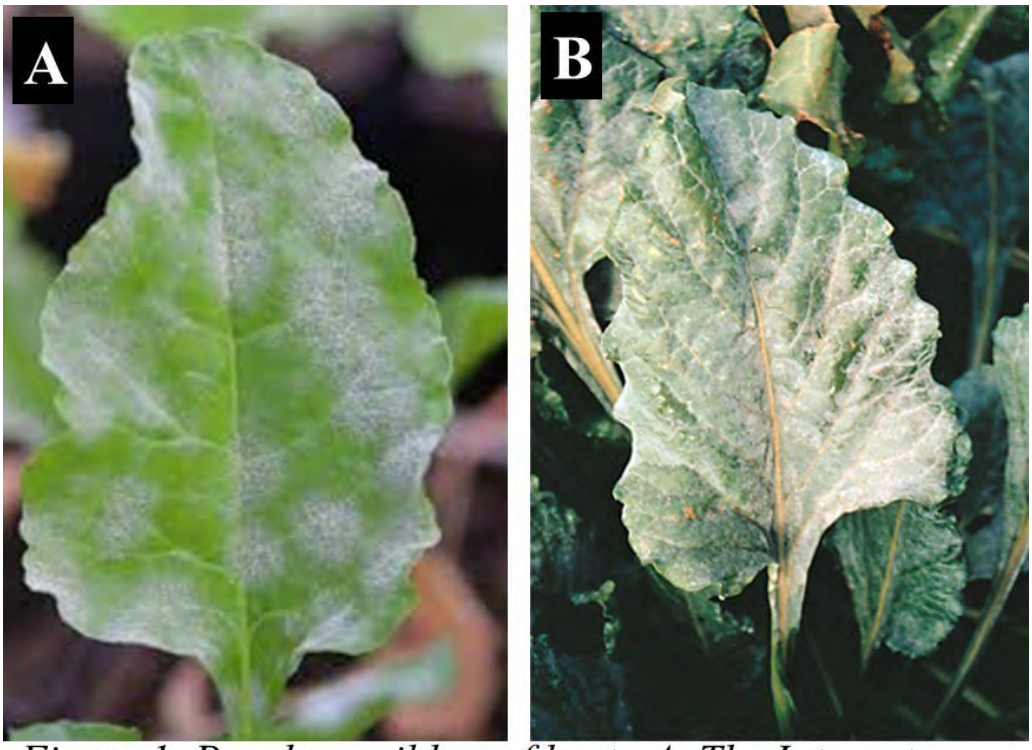

Figure 1. Powdery mildew of beet. A, The Internet (Gardenspath.com); B, APS (Courtesy E. G. Ruppel).

Disease Cycle

Erysipe betae is an obligate parasite, so it must have beet material to survive. The pathogen survives in the temperate winter climate as mycelium in crowns of escaped or wild beet apecies. The pathogen produces spores (conidia). Under favorable conditions, conidia are arried by wind to new beet plants. Hot, humid conditions, but without moisture present on the leaves, are optimum for disease development.

Although the fungus tolerate a wide range of environmenta conditions, it's growth and disease development are influenced by light, temperature, and relative humidity. Conidia can germinate at 0-100% relative humidity, but their germination increases as with an increase of relative humidity. The optimum temperature for disease development is 77ºF. The disease develops more rapidly in soils where soils are well supplied with soil water, whick increases relative humidity.

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Disease Management

- Plant resistant cultivars, if available. Considerable genetic variability to powdery mildew has been reported in beet cultivars.
- Keep the surface of soil dry. Wet soil provides humidity for disease development.
- Fungicides can be used to manage the disease. Potassium bicarbonate (e.g., Kaligreen), Cevya, Cueva, Fontelis, Merivon, Miravis, Regalia, Cabrio, Sulfur, Switch, Tilt, and Topaz fungicides have been reported effective for managing beet powdery mildew.