

CERCOSPORA LEAF SPOT

OF

SUGAR BEETS

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Cercospora leaf spot, a disease of sugar beets, is becoming increasingly important to Idaho sugar beet growers. The disease has been observed in sugar beet fields for several years, but only recently has the disease caused measurable losses. The disease presently is most severe on sugar beets grown in southwestern Idaho. However, some losses occurred in south central Idaho in 1967. In the sugar beet producing areas east of Minidoka and Cassia counties the disease has been of minor importance.

The disease is caused by the fungus *Cercospora beticola*. In addition to sugar beets, this leaf spot fungus attacks table beets, chard, and weeds such as pigweed, lamb's quarter and dock. The disease causing fungus lives over the winter in infected, dead, nondecomposed plant material on the ground. The fungus in such material produces spores in the spring which are air-borne to nearby hosts. Free moisture in the form of dew, rain, fog, or a high humidity of 60 percent or more is essential for germination of the spores. After germination of the spore, penetration of the fungus occurs mostly through the natural openings (stomata) of the leaves. Within 7-10 days at temperatures between 60° and 90° F, new spores are produced in the infection sites. The new spores are blown or splashed to new sites on the same plant or to adjacent plants, initiating new infections.

SYMPTOMS

Cercospora leaf spot appears usually on the older leaves of the sugar beet. The first symptoms are visible as small, brownish spots with reddish-purple borders, giving the leaf a speckled appearance. As the disease advances, the spots

enlarge and turn gray. The center tissue of the old lesions drops out leaving ragged holes (Fig. 1). Infection on the leaf petioles (leaf stalks) may cause the leaves to turn yellow. Eventually, an infected leaf dies resulting in defoliation. The beet usually will have a high conical crown due to defoliation of older leaves and production of new leaves in the center of the crown. The fungus does not attack the root of the plant.

Infection early or at mid-season will reduce yields and sugar content since the plant nutrients are expended in replacing the leaves killed by the fungus. Infection late in the season (Mid-September—Mid-October) may reduce yields to some extent, but the greatest loss is the reduction in sugar content.



FIGURE 1

CONTROL

Cercospora leaf spot can be controlled easily with the proper use of fungicides. For best control start the fungicidal spray program before the first leaf spot symptoms appear on the sugar beets. One can determine when to apply the first spray by observing weed hosts adjacent to the field or sugar beet plants at edges of fields near weed hosts.

Usually the first spray will be required about the time the beet foliage begins to cover the rows.

Sugar beets grown under furrow irrigation may require one-three fungicidal applications spaced about ten days apart. Those grown under sprinkler irrigation may require sprays at each sprinkling interval after the initial spray has been applied.

Several chemical materials that control Cercospora leaf spot satisfactorily are listed in Table I.

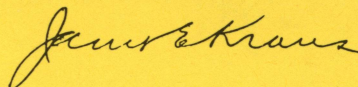
Table 1. Chemicals registered for control of leaf spot of sugar beets.

Common Name	Some Trade Names
Fixed Copper (various formulations)	
Dithane M-45	
Manzate D	
Polyram	
Mertect	
Duter	

The materials should be applied according to directions on the label.

Coverage of leaf surfaces can be improved by adding a spreader-sticker agent to the spray material. Use the material suggested by the manufacturer of the fungicide you purchase.

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