Potato early blight and storage rot

Department of Agriculture, Western Australia
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POTATO EARLY BLIGHT AND STORAGE ROT

By the Plant Pathology Branch

POTATO Early Blight and storage rot are different phases of the same disease.

Both symptoms are caused by the fungus Alternaria solani.

The disease may attack both foliage and tubers, but the tuber rot phase of the disease has hitherto caused most concern to local growers because it causes obvious losses in storage. The less obvious but serious effects of the foliage blight have generally been overlooked, chiefly because the disease usually develops late in the season when the crops are approaching maturity. However it has been clearly demonstrated that foliage attack may cause considerable yield reduction.

Symptoms and effects

Foliage

The disease may attack all above-ground parts of the plant. Usually it appears first on the older leaves and gradually spreads upwards. It becomes obvious in the form of dark-brown or blackish, circular or irregular dead spots which are often concentrically zoned like a target (Fig. 1). Under humid conditions, the spots rapidly enlarge, and the disease may spread until all the foliage is involved. As a result of the foliage blight, the tops are killed prematurely with consequent reduction in yield.

Tubers

On the tubers, the disease produces small to very large, depressed lesions, which frequently have a gun-metal like sheen, but are sometimes dull brown or blackish in hue. The flesh underlying these lesions is generally affected, to a shallow depth only, with a dry rot and is discoloured brownish-black. This rot is commonly referred to by growers as "storage rot" (Figs. 2 and 3) because it only becomes obvious after the tubers have been held for some time.

Factors which favour the disease

The foliage attack is most likely during warm humid weather which is common in the main potato areas during the autumn months and the late spring and early summer. Severe epidemics frequently occur in crops maturing at these periods particularly if growing on swamp soils.
Fig. 2.—Dark sunken lesions, typical of storage rot on tubers.

Fig. 3.—Sectioned tuber showing the extent of dry rot resulting from the invasion by the early blight fungus.

watered by sprinkler or furrow irrigation, or exposed to showery weather or heavy dews. Under these conditions, the tops may be killed several weeks before they would normally decline.

Apparently tubers are only infected at digging time, when they come into contact with diseased foliage. Infection is favoured by early digging while the tubers are still in an immature state, when skin rubs inevitably occur. When the bagged potatoes are shaded with diseased foliage until sewn, severe infection may result.

**Control measures**

1. Spray the crop while the disease is still present in trace amounts only and just before the tops in adjacent rows meet, with a zineb, maneb or mancozeb spray* at a rate of 1½ to 2 lb. per acre, according to makers' recommendations. Thorough coverage particularly of the bottom foliage is necessary at this stage, and up to 100 gallons of spray per acre will probably be required.

2. About 10 to 14 days later, apply a second spray at the same rate.

3. Avoid digging prematurely as this predisposes tubers to storage rot.

4. Do not cover bagged potatoes with tops.

* Zineb is sold as—"Zebtox," "Zineb," "Dithane Z 78," "Wilmo Dithane," "Dithane Spray".
Maneb is sold as—"Dithane M22," "Maneb," "Manzate Maneb," "Le Neb," "Polyram M".
Mancozeb is sold as—"Dithane M45," "Zineb-Maneb Superior Fungicide".

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