Lettuce spotted wilt

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LETTUCE SPOTTED WILT

By H. L. HARVEY, B.Sc. (Agric.), Senior Plant Pathologist

SPOTTED wilt disease of lettuce was first recorded in Western Australia in 1937. Only traces of the disease are found in some years but in other years it seriously affects yields and quality.

Spotted wilt is most prevalent in spring and autumn crops.

Up to 40 per cent. of the plants in commercial lettuce crops in the Osborne Park market gardens were infected with spotted wilt during the spring of 1960. Some plants died and others were unmarketable or of poor quality.

SYMPTOMS

Brown Spots

Small dead spots which are brown with a lighter coloured centre appear on the infected lettuce leaves. They may be roughly circular or slightly elongated and...
begin as mere points which increase to up to 1/10th in. (Fig. 1).

The spots may coalesce to form large dead areas and under wet conditions these areas rot away to give the leaf a ragged appearance.

When plants become infected at an early to intermediate growth stage the centre leaves turn brown and stop growing. Such plants are not uncommon. They have relatively large outer leaves and a small cluster of brown centre leaves instead of a developing heart (Fig. 2).

The infection may cause growth to stop on one side of the plant. This results in one sided growth of the lettuce plant and of individual leaves which develop a lateral curvature (Fig. 3).

Late Infection

In plants with well formed hearts spotting may occur on both the outer and inner leaves (Fig. 4). Often with these late infections only the heart leaves are blemished. The plants look normal but when opened up the leaves show brown elongated marks running in the general direction of the main veins (see also Fig. 4).

CAUSE AND SPREAD

The disease is caused by the tomato spotted wilt virus which in nature is transmitted by thrips in the course of sap feeding. There is no evidence that the virus may be spread in gardens by seed, soil or by other means.

Hosts of this virus besides lettuce include certain other vegetables, flower garden plants and weeds. In Western Australia, there is no time in the year when one or more of these host plants is not available to serve as a nearby reservoir of the virus.

Fig. 2.—Left: Stunting, browning and death of the centre leaves due to spotted wilt. This is eight weeks after inoculation with sap from a naturally infected lettuce plant. Right: A healthy lettuce plant of the same age with a normally developing heart.

Fig. 3.—Lateral curvature of lettuce leaf from a plant infected with spotted wilt.
CONTROL

Control of the disease in Western Australia is difficult because lettuce crops are often planted in succession throughout the year on the same property. This and the fact that other host species may be growing close to the lettuce crops permits a year round carry-over of the spotted wilt virus.

For Best Control

(1) New lettuce plantings should be isolated from earlier plantings and from other vegetable hosts and flower gardens.

(2) Crops should be sprayed regularly from the early growth stage to control thrips.

   Recommended insecticides are: Rogor 40, Lebaycid or Metasystox. Stop spraying a fortnight before harvest.

(3) Thrip breeding should be reduced to a minimum—

   (a) By a vigorous weed control programme on the property and beyond it if possible.

   (b) By destroying old vegetable beds as soon as the crop has been harvested.
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