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Barley yellow dwarf virus in Western Australia

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BARLEY YELLOW DWARF VIRUS IN WESTERN AUSTRALIA

By W. A. SHIPTON* and W. R. TWEEDIE, Plant Pathologists

BARLEY yellow dwarf virus disease was first positively identified in Western Australia in 1961. Records indicate that symptoms approximating those later found to be caused by this disease were reported as early as 1936.

In 1938 several late planted oat crops in the Donnybrook-Collie area were apparently severely affected by this then-unrecognised virus disease and it was estimated that in one crop the yield was reduced by 75 per cent. From 1938-1961 there are few records that can be interpreted as pointing to barley yellow dwarf virus infection.

Although the main cereal growing areas in Western Australia receive less than 20 inches annual rainfall, 61 per cent. of virus

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infected specimens received from 1961-1966 inclusive came from areas receiving more than 20 inches annual rainfall. In 1967, the disease was widespread but only 37 per cent. of identifications were made in the wetter areas. During 1968 a moderately severe outbreak was observed in the Albany district but the yield loss was not determined. The map shows the localities at which the disease has been recorded.

In the field the general pattern is that infection occurs on single plants or on plants in small patches. Rarely are crops as severely affected as observed by Harvey (1962).

Trials involving the use of the systemic insecticide "Metasystox" for the control of the aphid vectors have been conducted in high and low rainfall cereal growing areas. Barley yellow dwarf virus infection was recorded in five out of eight trials. Although the disease incidence in the trial plots was fairly representative of the incidence in the districts concerned, in only one instance (at Beverley in 1963) was yield increased through the use of the insecticide. In this trial a yield increase of 2.9 bushels per acre (12 per cent.) occurred in a wheat stand in which the plots were sprayed at three-weekly intervals with "Metasystox".

The information obtained from surveys and trials indicates that barley yellow dwarf disease is not serious in the main cereal growing areas. However, the surveys also indicate that the disease can cause serious losses, judging from the stunting of plants and the blasting of florets, in the wetter cereal growing areas in some seasons. In general, such losses appear to be restricted to individual crops at scattered localities.

Reference
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