DISTRIBUTION OF A NEWLY REPORTED LEAFHOPPER-TRANSMITTED CLOVER DISEASE IN EASTERN ONTARIO

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Introduction

A clover disease was reported recently in the Ottawa, Ontario, area and was shown to be transmitted by the leafhopper Aphrodes bicincta (Schrank) (1). At that time it was reported that clover plants could not be found in the field with symptoms typical of those observed in the greenhouse. Observations in the field in May 1969, during the early growing season, revealed numerous clover plants with symptoms similar to those observed in the greenhouse. The disease was most apparent on red clover and on white clover as a very obvious chlorosis or yellowing of leaf margins of newer leaves accompanied by moderate to severe stunting (Fig. 2).

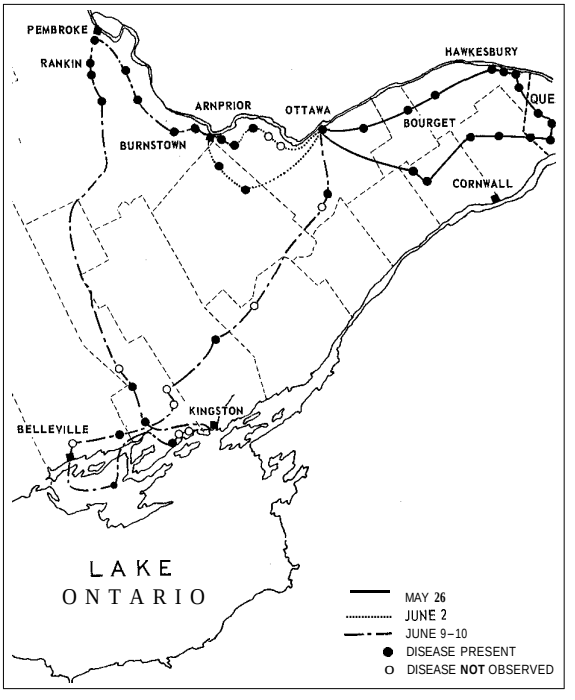

Figure 1. Distribution of a newly reported leafhopper-transmitted disease of clover in eastern Ontario, May – June 1970.

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Although symptoms of the disease were readily observed in 1969 in all clover fields at the Central Experimental Farm at Ottawa, no information was available on its distribution elsewhere. Accordingly, surveys were made in May and June 1970 to determine the distribution of this newly reported clover disease in eastern Ontario.

Methods

Surveying was done in fields of red (Trifolium pratense L.), white (Trifolium repens L.), and alsike (Trifolium hybridum L.) clovers, either in pure stands or in mixtures with one another or with alfalfa (Medicago sativa L.) and various grasses. Preference was given to fields containing red clover because the upright growth habit of this species made infected plants easier to see. Observations were made by walking toward the centre of the field as well as along the margin. Volunteer clovers growing along ditches and roadway were examined also.

Results and discussion

The dates on which survey trips were made, the areas covered, and the results obtained are given in Fig. 1.

East of Ottawa, the disease was observed in all 16 fields surveyed. In most fields the incidence of affected plants varied from trace (less than 1%) to light (up to 5%) and the disease was often more prevalent along the margin of the field than toward the centre. Near Bourget, Ont., however, infection reached 50% in some areas of a field in which red clover had been grown for several years. Symptoms were observed a number of times on volunteer clovers growing along ditches and roadways. The disease was found also in red clover in three fields examined in Quebec, near the Ontario border (Fig. 1).

From Ottawa westward to Pembroke, the disease was observed in 18 of 20 fields surveyed. Only trace amounts were found in 16 of the fields, but approximately 20% and 50% of the plants were infected in two fields near Burnstown and Rankin, respectively.

Southwest of Ottawa, infected plants were observed in 9 of 17 fields. The advanced stage of growth in the more southerly areas

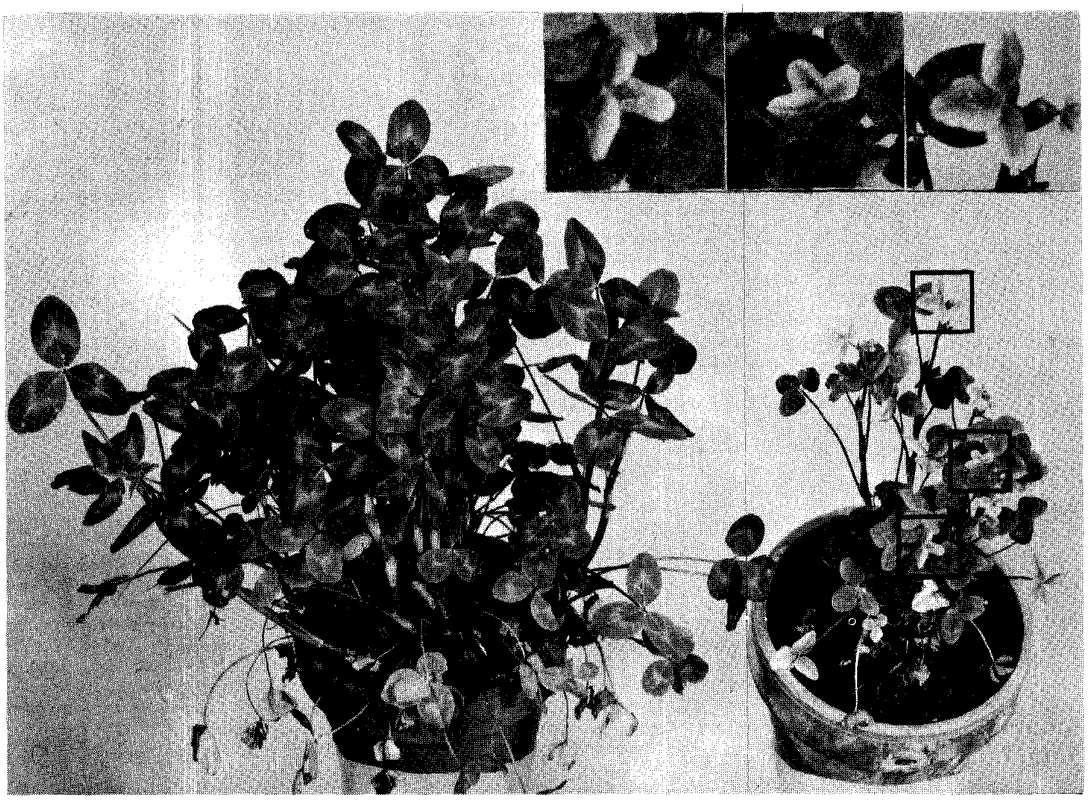

Figure 2. Symptoms of a newly reported leafhopper-transmitted disease on red clover naturally infected in the field. Left, healthy plant, Right, infected plant showing stunting and new leaves with chlorotic margins.

made observations more difficult and may have been responsible for the apparently lower disease incidence.

This survey has shown that the newly reported leafhopper-transmitted disease is present in most areas of eastern Ontario where clover is grown, having been observed in 43 of 53 fields surveyed. It is too early to assess the economic importance of this disease. The low level of infection observed in most fields suggests that it is of minor importance. However, the wide distribution, high incidence in some older stands of clover, and the stunting of infected plants indicate that the disease may have potential importance.

Literature cited

1. Chiykowski, L.N. 1969. A leafhopper transmitted clover disease in the Ottawa area. Can. Plant Dis. Surv. 49:16-19.