

THE PEAR-MIDGE.

FURTHER OBSERVATIONS AND CONTROL WITH CALCIUM CYANIDE.

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THE original account of the pear-midge (*Perrisia pyri*) in New Zealand—published in this *Journal* for August, 1921—dealt with the life and seasonal histories of the insect, and results of control experiments carried out at that time. In the following pages the position is reviewed from the first appearance of the midge in the Dominion to the present time, and the results of control experiments with calcium cyanide are discussed.

A feature in the midge-infested areas near Auckland, where the pear-trees have been subjected to severe infestation for the past four or five years, is that the trees are stunted, and the leaves which do develop are dwarfed, while their green colour has assumed a fairly yellowish tint.

SPREAD OF THE MIDGE.

Auckland: The initial outbreak of pear-midge in New Zealand occurred in the spring of 1916 at Avondale, near Auckland (area 1 on map). From there it rapidly spread during the succeeding years to adjoining districts, and by the 1920-21 season had become established over Eden County and southern part of Waitemata County (area 2, shaded), as well as in the Waikato (area 6). In the following season it appeared northward at Huapai (area 3) and Komiti (area 4), and southward at Te Kauwhata (area 5).

Hawke's Bay: At Hastings (area 7) the midge appeared during the spring of 1920, infesting a block of orchards eastwards of the railway.

Nelson: The midge made its first appearance in the South Island in an orchard at Tasman (area 8) during the spring of 1921, and spread from there to adjoining areas, as well as attacking orchards separated from the originally infested one by low ridges. Shortly after this the midge was reported westward at Riwaka (area 9), while not until last spring (1924) did it appear to the west in the orchards in the Redwood's Valley and Stoke districts (area 10).

A consideration of these midge-infested districts shows that they lie in at least five naturally isolated areas: Waitemata and Eden Counties (1, 2, and 3), Komiti (4), Waikato (5 and 6), Hawke's Bay (7), and Nelson (8, 9, and 10). The natural barriers are distance, air-currents, sea, or mountain-ranges. The absence of pear-orchards over given areas is also an isolating factor.

Two factors have been responsible for the spread of the midge from its initial point of establishment at Avondale to the other districts recorded above. These factors are (1) natural dispersion by the flight of the insect aided in many cases by wind, and (2) artificial dispersion in the larval and pupal stages in soil surrounding roots of nursery stock.