

INFLUENCE OF CLIMATE.

Though no detailed observations have been made on the extent to which the pear-midge is influenced by climate, there are certain features worthy of mention. It is well known that climate is a limiting factor in the establishment and dispersal of insects, and variations in the intensity of midge infestation and in the period of first spring emergence in the different districts seem, in part at least, to be due to differences in moisture.

The areas where infestation is most severe are in the Waitemata and Eden Counties, and at Tasman and Riwaka in the Nelson District, but particularly the former; while in Hawke's Bay infestation is comparatively light. Further, the emergence of the first spring brood of midges commences during late September in Waitemata and Eden Counties and also at Tasman and Riwaka, but during the second week of October in Hawke's Bay.

The following figures (kindly supplied by the Dominion Meteorological Office) show the total mean rainfall in the three main midge areas for the months April to October, when the hibernating midge-larvæ are in the ground: Auckland (area 2), 29.32 in.; Motueka (area 9), 32.32 in.; Hastings (vicinity of area 7), 22.62 in. These figures show that the rainfall at Auckland and Motueka is much higher than at Hastings. This feature, when correlated with the earlier spring emergence of midge in late September in the vicinity of Auckland City and in the two Nelson districts, and the later emergence in October in the Hawke's Bay area, shows that moisture has apparently a direct influence upon the emergence of the overwintering stage of the midge. There are at present no temperature statistics from actual midge-infested areas available for comparison, though figures from the meteorological stations at Auckland, Nelson, and Napier show that Auckland has the highest temperature and Nelson the lowest—a feature seemingly bearing out the opinion that moisture is the main climatic factor influencing midge emergence.

CONTROL WITH CALCIUM CYANIDE.

Owing to the pear-midge larvæ when on the trees being protected by the rolled-up leaves, none of the sprays tested have been sufficiently effective. However, the habit of the larvæ entering the ground to hibernate and pupate presents an opportunity for control.

Though a number of insecticides have been experimented with in soil-treatment (*Journal*, August, 1921), no results of a practical value were obtained until the present season, when calcium cyanide was used. This is a preparation manufactured by the American Cyanamid Company, New York, and at the time of these experiments was prepared in three forms—granules, flakes, and dust. Owing to later improvements in the manufacturing processes, however, the granules can now be made at less cost and placed on the market at the same rate as formerly charged for the flakes, which have been withdrawn. On the cyanide being exposed to the atmosphere, hydrocyanic-acid gas is generated, and its value as a soil-fumigant is at once apparent. The opinion has been put forward that too great a danger to life is involved by the use of this material, but that is by no means so if ordinary common-sense is used in its handling. Certainly the danger is comparatively small when the cyanide is used out of doors.