CONTROL OF MANUKA

POSSIBILITIES OF SCALE INSECT

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The death of manuka over an extensive area of Canterbury has attracted the widespread attention of farmers.

Only one species of manuka is involved; this is the scrub-manuka (Leptospernum scoparium); the tree-manuka (L. ericoides) is apparently not affected. This distinction is important, since it is the scrub-manuka that is such a problem to farmers over vast areas of the country.

It is thought that death of the scrub-manuka is due to insect attack. In consequence, a study of the manuka insects has been undertaken.

Of the various insects inhabiting both the scrub- and the tree-manuka, in both Islands, three species are of a type bearing on the problem. These are sap-sucking insects which belong to a group often responsible for the unthriftiness, and even death, of infested plants under favourable conditions. Not only do such insects weaken a plant by sucking out the sap, but at the same time they excrete copious quantities of a sugary substance called "honey-dew," which collects on the foliage and bark, and so hinders respiration. Furthermore, a sooty mould freely grows upon this "honey-dew," giving a blackened appearance to infected plants and, by shutting off the light, may also hamper the proper functioning of the leaves. These symptoms are found on the dying manuka.

Thus, such sap-sucking insects can injure a plant directly by draining the nutrient sap, and indirectly by virtually smothering the plant in "honey-dew" and the incidental sooty mould. Apart from these injurious influences, some species of sap-sucking insects transmit fatal plant-diseases, and in such cases the death of the infested plants can be greatly accelerated.

The three species of sap-sucking insects with which we are at present concerned are two species of mealy-bug and one species of scale insect.

The mealy bugs are definitely natives of New Zealand and normally infest both the tree- and scrub-manuka, as well as other plants. These mealy bugs apparently cause no serious

injury. On the other hand, the scale insect attracts attention as a possible agent in the death of scrub-manuka, though it occurs also on the tree-manuka, but seemingly with no ill-effect. The scale has not been recorded from natural infestations in the North Island, though apparently it has been artificially established there.

It is quite likely that this scale insect is not a New New Zealander as are the mealy bugs, but an alien, possibly from Australia or Tasmania. We have yet been unable definitely to identify the scale with any New Zealand species, and it is quite possible that it could have reached New Zealand on garden varieties of manuka imported from Australia; indeed, the same type of insect has been found on such plants. This is a feature being studied.

The dying manuka was first noted some years ago at Orari Gorge, in Canterbury. Since then it has spread over extensive areas, and now ranges from the Waipara river in the north to Opihi river in the south. Over this area, the scale insect infests both the tree and scrub species of manuka, but it is only the former that is dying out, even in mixed stands, all stages of the plants from the seedlings succumbing.

So far, the study of the scale reveals that the eggs occur from April to September, and the "crawler" stage, extremely minute, are found from May to September. It is during the crawler stage that natural migration takes place, mainly by the minute insects being carried by the wind, and on the feet or bodies of birds frequenting infested manuka, and even on the bodies of flying insects visiting the manuka to feed upon the sugary "honey-dew."

Whether or not this scale insect by itself, or as a transmitter of a fatal disease, is responsible for the dying manuka scrub, is the problem being studied. In the meantime nothing can stop the natural spread of the insect; just as nothing can stop the considerable trade that has developed in the sale and artificial distribution of infested manuka. In this commercial undertaking, purchasers of infested manuka should have a reliable opinion on whether they are receiving the scale insect or the mealy bugs—the latter being of no use; and if the infesting insect should be the scale, then whether it is being secured at the right time of the year.

Arising out of this problem of manuka control are two opposed schools of thought on the influence of manuka upon erosion. But I fear that the problem of erosion is rather beyond my ken.