

THE IMPACT OF NEW PESTS ON NEW ZEALAND AVOCADO PRODUCTION

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The main pests of New Zealand avocados are several species of native leafrollers, and the exotic greenhouse thrips (*Heliethrips haemorrhoidalis*) (first recorded in 1930) and latania scale (*Hemiberlesia lataniae*) (first recorded in the 1960's). The geographic isolation of New Zealand has helped to exclude many exotic pests of avocados present in other countries. The most important pests of overseas fruit crops that could affect the economy of New Zealand avocados (and other fruit crops) are fruit flies. Two other key pests of avocado overseas which would have a serious impact on New Zealand avocado production are the avocado thrips (*Scirtothrips perseae*) and the perseae mite (*Olygonichus perseae*).

The biosecurity effort within New Zealand focuses on preventing the arrival of new pests. MAF Biosecurity is the government agency, which is charged with keeping pests out of New Zealand. It carries out border control activities, maintains quarantine and pest surveillance services, and has the authority to carry out emergency responses to eradicate any unwanted organisms. Over the past few years, two major pest eradication exercises have been successfully carried out (Queensland fruit flies and the white spotted tussock moth). However, eradication will only be attempted after a favorable cost/benefit analysis, and the chances of a successful eradication are considered high. Once a pest becomes established in New Zealand, the development of control measures will largely fall to the affected parties. Despite the extensive MAF Biosecurity activities, approximately seven exotic species of insects have become established on New Zealand fruit crops each decade since about 1850 (Charles 1998).

The two most important consequences of the establishment of new pests of avocados in New Zealand would be the potential for trade barriers (the New Zealand avocado industry is increasingly export focused) and the loss of production. It would be difficult to quickly develop new control measures for new pests, as the relatively small size of the New Zealand avocado industry means there is very limited research funding. Information obtained from overseas would be extremely useful in quickly managing the arrival of new pest species. The short and medium-term solutions would have to be the development of insecticide control techniques.

In the long term, the potential of using biological control for controlling new pests would be assessed. However classical biological control is becoming increasingly difficult in New Zealand. New legislation (e.g. The Hazardous Substances and New Organisms Act 1996) has made the deliberate introduction of new natural enemies expensive and difficult. Introductions must be preceded by extensive host selection tests to ensure that no non-target species will be attacked, and a full risk analysis must be carried out. Only completely host-specific species can practically be considered for introduction. Increased reliance on insecticides is, therefore, the main outcome of new pests, and this in turn, leads to further market access restrictions, as maximum residue limits must be adhered to. However the Hazardous substances and New Organisms Act and international trends limiting the production of

'niche' insecticides with small markets will also probably severely restrict the availability of pesticides, especially those with new chemistry, for New Zealand avocado growers.

With relatively few entomologists researching avocados throughout the world, there are major benefits in sharing information and knowledge. The University of California web site offers extremely useful and practical information on managing pests, and can be internationally accessed with ease. An international networking of avocado entomologists would hopefully help to identify any 'tramp' species, and allow the most efficient strategies for managing them should they arrive.

Reference

Charles, J.G. 1998. The settlement of fruit crop arthropod pests and their natural enemies in New Zealand: an historical guide to the future. *Biocontrol News and Information* 19(2): 47-58.