

Qld fruit fly scientists in race against time

June 23 2011

Parts of Australia's fruit and vegetable industry are under threat, with Queensland University of Technology (QUT) scientists racing to find new ways to control a major horticultural pest before chemical treatments are restricted.

Associate Professor Anthony Clarke, from QUT's Faculty of Science and Technology in Brisbane, is leading Australia's largest team of university researchers examining non-chemical based ways to fight [fruit flies](#), including promising "lure and kill" techniques using ginger essence.

Professor Clarke, lead author of the largest ever review of Queensland fruit fly research recently published in the international journal *Annals of Applied Biology*, said there were major gaps in the research of this destructive Australian pest.

"Most research has not focused on issues related to the control of the fruit fly," he said.

"While we have very detailed information about select aspects of the insect's biology, much knowledge of the organism's general biology and ecology, particularly information crucial to developing sustainable pest management options, is largely lacking."

The Australian Pesticides and Veterinary Medicines Authority (APVMA) is reviewing the use of dimethoate and fenthion, which are insecticides used for fruit fly control, because of possible human health

and environmental concerns. The chemicals are banned or have restricted use in Europe and the USA.

A draft report, scheduled for release by mid-year, is expected to restrict or possibly ban uses of these chemicals in Australia.

The APVMA previously said any changes to existing uses of dimethoate and fenthion for fruit fly control could have a significant impact, affecting the whole fresh fruit and vegetable supply chain.

The insecticides are used in Australia to treat commercially grown [fruits and vegetables](#) such as apples, avocados, capsicums, eggplants, strawberries and stone fruit, including post-harvest dipping of some crops.

"It is widely expected the use of dimethoate and fenthion is going to be restricted. The loss of these chemicals would be a major problem for fruit growers, particularly fruit and vegetable growers in tropical and subtropical Australia," Professor Clarke said.

"Our research is fundamentally important to ensure that Australia's fruit and vegetable industry continues to be successful."

Professor Clarke said a new insectary lab at QUT's Gardens Point campus will enable researchers to breed and study a pest that costs the economy about \$100 million a year in regulatory and control costs and ruined produce.

Research underway at the insectary, which is custom built to maintain conditions suitable for fruit flies, includes:

- Investigating lure and kill techniques using ginger essence

(zingerone) to attract male fruit flies, which are then killed using a small amount of insecticide placed in traps. Zingerone has been found to attract fruit fly species that don't usually respond to lures.

- Answering fundamental questions about fruit fly ecology, including foraging and mating habits, to better inform growers on pest management.
- Examining the genetic make-up of fruit flies in regions of the world to determine if there are different species. This research could have major implications for trade.

Research fellow Dr Solomon Balagawi, who is among six researchers and PhD students studying fruit flies at QUT, said the research would help inform growers of best practice to reduce the use of insecticides.

"If fruit flies are a major pest we have to understand their ecology," he said.

"There are fundamental questions we still don't know. Through research we can pass on some recommendations that can be easily adopted by growers to repel fruit flies without relying only on chemical-based treatments."

Professor Clarke said fruit flies, once confined to the tropical and subtropical coastal Queensland and northern NSW, had become more widely established in eastern Australia. Outbreaks have also occurred in other Australian states, including South Australia and Western Australia, where the fly does not normally occur.

Provided by Queensland University of Technology

Citation: Qld fruit fly scientists in race against time (2011, June 23) retrieved 20 June 2024 from <https://phys.org/news/2011-06-qld-fruit-scientists.html>

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