Department of Agriculture and Food

GOVERNMENT OF WESTERN AUSTRALIA

Fruit fly trial in Western Australia

Western Australian researchers are trialling technology which offers an innovative way to control the destructive fruit pest, Mediterranean fruit fly.

The research is funded by the Department of Agriculture and Food, Western Australia (DAFWA) and Horticulture Innovation Australia Limited.

Mediterranean fruit fly

Mediterranean fruit fly (*Ceratitis capitata*) is a serious horticultural pest in Western Australia (WA). It attacks a range of cultivated fruits and some fruiting vegetables.

Medfly, as it is commonly known, costs the WA horticulture industry millions of dollars annually in lost production and control costs.

Growers use a range of methods to combat fruit fly, including pesticides, baiting and orchard hygiene. The withdrawal of organophosphates from use in commercial orchards has led to renewed interest in innovative solutions against fruit fly.

The current technique - SIT

Sterile Insect Technique (SIT) involves sterilising male Medfly using radiation. The sterile male flies are then released in targeted fruit growing areas that have large wild populations of the pest. The sterile flies mate with wild females, but no offspring are produced. This reduces the pest population over a series of releases.

It is a clean, environmentally-friendly method of pest control, but its success is limited because the sterile flies are less vigorous than wild flies. Radiation can weaken the newly sterilised insects, making them less able to compete with wild males.

The technique is generally used in conjunction with other control methods.

A new technique

A Medfly strain has been sourced from University of Oxford spinout company Oxitec, based in the United Kingdom.

The approach is similar to SIT but instead of using sterilising radiation, pest control is achieved by using a self-limiting gene along with a colour marker to track and trace the insects in the environment.

The males pass on the 'self-limiting gene' causing the female offspring to die before they can reproduce and sting the fruit.

The male flies are expected to be free of the adverse effects of sterile male flies weakened by radiation under conventional SIT methods.

The trial

The trial will determine whether the purpose-bred male fruit flies can be reared successfully and cost-effectively in a controlled laboratory environment and if they can successfully compete with pest males and SIT males.

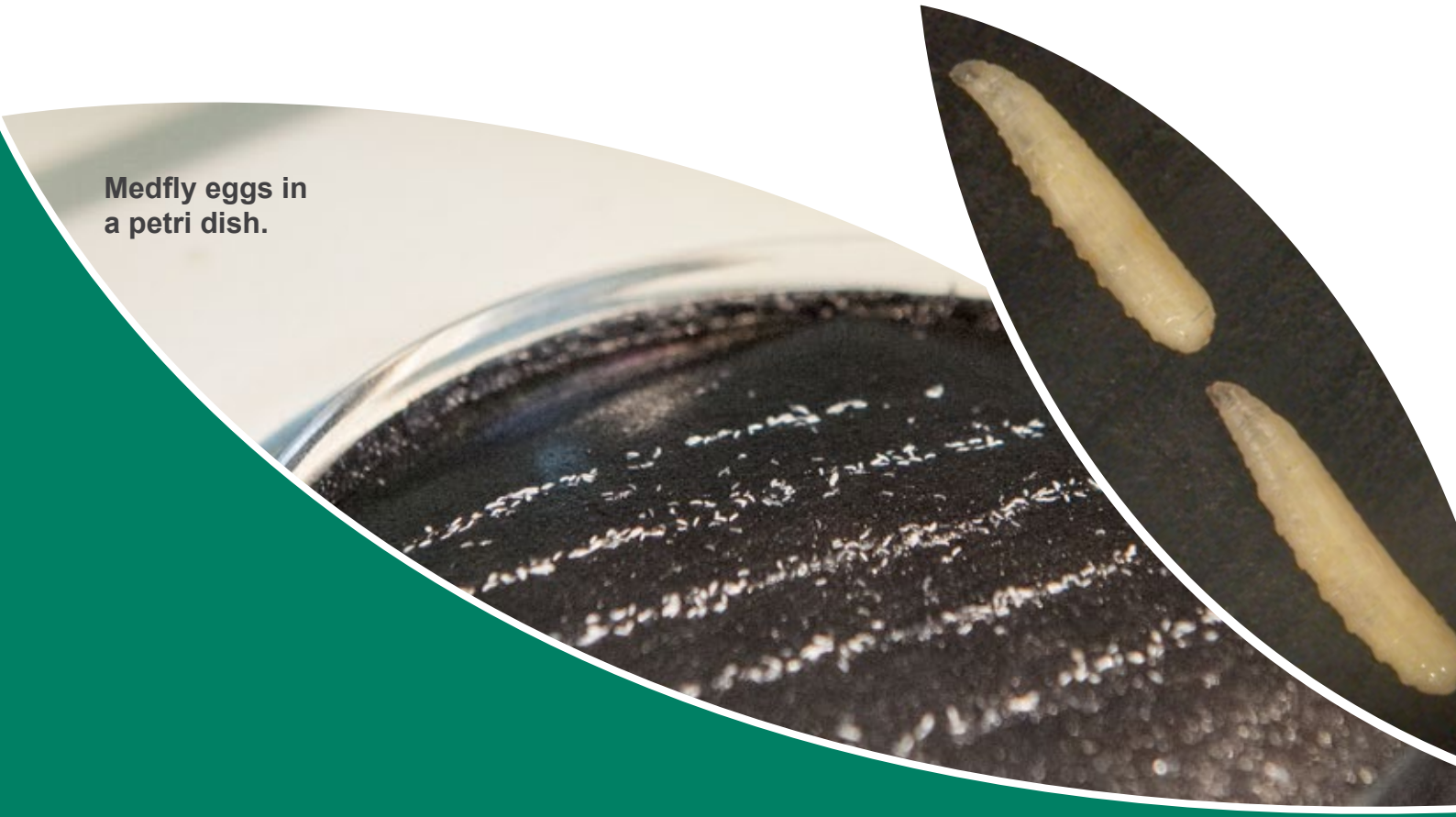
The flies were imported into Western Australia from the United Kingdom under permit at the egg stage and reared at approved research facilities operated by DAFWA.

Their performance will be tested in glasshouse trials. This involves the release of the Oxitec males into a tent within the glasshouse with females to examine their mating performance. The trial will be replicated to compare their mating competitiveness against the pest males and SIT males.

The outcome of the trials will inform future research work. Further trials would be subject to approval from the Office of the Gene Technology Regulator and other Australian regulatory agencies.

Legislative requirements

The trial is subject to quarantine and regulatory conditions required by the Australian Department of Agriculture and Water Resources, Australian Department of Environment and the Office of the Gene Technology Regulator.



Medfly eggs in a petri dish.

More information

More information on the trial is available from the DAFWA website **agric.wa.gov.au**

More information on Oxitec's approach is available from **oxitec.com**