Effective Area-Wide Management of the Queensland fruit fly

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\$7billion Australian Horticulture Industry

Queensland fruit fly ‘Qfly’ is the most significant insect biosecurity threat

Polyphagous; attacks almost all fruit crops and several fruiting vegetable crops

Key chemicals for Qfly control are limited

Sterile Insect Technique

Uses mass-reared insects, irradiated to render them sterile, to flood the wild male fruit fly population with released sterile male flies thereby minimising the possibility of wild insects mating to produce viable eggs

Most effective under an Area Wide Management or geographically-isolated scenario

Goal

Establish an effective model Area Wide Management Program incorporating the Sterile Insect Technique Program, to provide control of Qfly in an endemic area, that will inform the development of similar future campaigns.

AWM Site

- Four orchards totalling approx. 100Ha; control (no sterile flies) and trial (sterile fly releases) orchards
- Medium chill stone fruit; AU$6-7million/annum
- Geographically isolated from urban centres; largely sheep country
- Low-medium endemic \textit{B. tryoni} population

Sustainable Management

The program uses a combination of techniques to suppress fly numbers including sterile ‘bisex strain’ Qfly releases (approx. 4000 sterile males/ha), bait sprays, male annihilation technique (MAT), sanitation (removing fruit left post-harvest and managing non-commercial hosts) and fruit monitoring.

Outcomes After Two Consecutive Seasons

- Decreases in wild Qfly populations as high as 22 fold
- Wild Qfly remain suppressed to extremely low levels; <0.025 flies/trap/day
- Very low levels of fruit damage; e.g. <60 fruit infested in 60Ha
- Decreases in chemical from upto 4 cover sprays/season to 1/nil
- Numerous beneficial insects: “I didn’t have to spray for anything that bites, sucks or chews”, Andrew Finlay, Chair, Summerfruit Australia
- Fruit sold domestically (mostly Brisbane, Sydney & Melbourne) and internationally (Singapore, Hong Kong, Malaysia, Indonesia and the United Kingdom)
- No market access issues

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