Adaptive Area Wide Management of Qfly using SIT 2016 #1

Area Wide Management – what is it?

The advent of sterile insect technology (SIT) is something we are all eagerly awaiting; the need for a comprehensive SIT program to improve and maintain market access has been acknowledged and is being supported through a coordinated research program. While this research progresses, the time for a concerted effort in Area Wide Management (AWM) is now!

AWM is considered vital for control of fruit fly, and enhances the success of SIT. AWM has been used successfully for other fruit flies around the world (Chile, Israel, Mexico South Africa). Queensland fruit fly (Qfly) presents a unique opportunity for the horticulture sector in Australia to work together on an AWM approach.

What?

Essentially AWM is a pest management strategy employed across a well-defined local area or region, including all fly habitats within that area, in order to reduce the total Qfly population. A reduced population in all habitats reduces the likelihood of Qfly moving into farms and orchards from habitats such as backyard gardens and/or native hosts. This means that any strategies used on-farm should become more effective, and over time contribute to lower pest populations.

Ensuring all habitats within an area are appropriately managed is not an easy task; AWM requires that any and all control methods are synchronised and coordinated. This coordination could be across neighbouring orchards, across an urban setting, or across both production and urban settings. It requires commitment and participation from all community members; gardeners, growers, government.

Why?

AWM is seen as a sustainable pest control approach; one that is not entirely reliant on chemicals. With the loss of key chemical controls for Qfly such as dimethoate and fenthion, AWM poses a good alternative solution. Qfly can breed and achieve large populations off-farm which can often go unnoticed, or unmanaged. In fact AWM is an appropriate choice for Qfly; it matches the biology of the fly.
Qfly is;

- mobile – treating all areas reduces the likelihood of flies moving from neighbouring land back into production areas.
- polyphagous (laying eggs into a large number of different plants) – treating all areas includes all potential host plants that support Qfly populations, including native hosts
- multivoltine (producing multiple generations within a season) – treating all areas includes populations at all different stages

When?

AWM is a long-term approach and needs to be considered a year-round approach; as per management of Qfly on-farm. The methods or treatments used in AWM can be the same as those used on-farm, depending on the acceptance of those methods by the regional community. Treatments used on-farm such as hygiene, baiting trapping and monitoring can be used off-farm as part of an integrated AWM program.

Hygiene, such as removal or control of breeding habitats in an urban space is a challenge in AWM. Trapping provides a good option in urban areas as traps are contained and require little maintenance. Finding the best suite of strategies for your area takes time and planning; AWM needs to be well considered and the sooner these factors are considered the sooner an effective AWM approach can start.

This project is supported by Horticulture Innovation Australia and CSIRO through funding from the Australian Government Department of Agriculture and Water Resources as part of its Rural R&D for Profit Programme. The project is part of the SITplus initiative, and the project partners include Wine Australia, Queensland University of Technology, South Australia Research & Development Institute, Primary Industries & Regions SA, New South Wales Department of Primary Industries, Victorian Government Department of Economic Development, Jobs, Transport and Resources, and BioFly (Israel).

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How?

Any AWM approach requires a coordination, consistency and continuity. Commitment from all involved is vital. The SITplus consortium is dedicated to implementing an integrated AWM approach and the Adaptive Area Wide Management Project is seeking to develop guidelines for adaptive AWM of Qfly. For example, the biophysical component of the project is developing a habitat suitability model which will be tested in the field later in the year. This will lead to better understanding of where and when the fly is present that can inform allocation of resources for AWM and SIT. The social component of the project is about to undertake focus group sessions in five regional areas to unravel the key factors that create barriers to, and encourage involvement in, an AWM approach. The economics component is working on a baseline costing model for current management practices and will lead to comparative economic analyses with AWM and SIT.

What's next?

As results and new discoveries come to light they will be incorporated into our on-the-ground support of AWM. Communication of up to date knowledge will help AWM in your region; it is difficult to participate in anything when you don't know what's involved or why. The "Adaptive Area Wide Management of Qfly using SIT" project is committed to providing practical outcomes, ensuring research is applicable regionally. It has been very encouraging to see such a high level of input from growers to date, especially given that it has been a busy harvesting time for many. Information from the recent Qfly survey is extremely valuable as it is being used to inform future support for regions; regionally-focussed extension and AWM support. There is genuine interest and positivity from growers about the development of area wide management (AWM) and the potential use of sterile insect technology within the context of AWM.

Look out for more articles like this one, and for upcoming events in your region. For further information please contact Dr Penny Measham.

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