QFF CONTROL for COMMERCIAL HORTICULTURE

Always seek your own farm or business agronomy advice,
and always follow label directions!

TIPS from the Yarra Valley QFF Regional Co-ordinator
if QFF has been detected near you.

If you haven't already, now is the time to install ***traps***, apply ***bait*** and improve production area ***hygiene***. From this point, with the information building about the QFF risk to your production - further management decisions and other tools can be implemented.

Area Wide Management of QFF is required for effective QFF control. It is crucial to check in with your neighbours, and all of those along your produce supply chain (imports and exports).

TRAPS – an indicator tool

- Ensure male QFF **monitoring** traps are installed, and the lures are current.
  - Double check on the date the lures were deployed.
  - Refresh lures if need be, or refresh a percentage of trap lures so some are always fresh.
  - Aim to have all crop areas 'covered' by surveillance traps– crop areas within reach of a male QFF trap (about 250m)
  - Have some extra traps in high-risk areas like dams/creeks, damaged or rejected fruit, and home gardens
- Install or refresh protein (food) based QFF traps in key or high-risk areas. (note: 20m effective reach on average). These support male QFF surveillance efforts.
- All traps should be deployed at 1.5m high, in trees/foliage, out of direct sun, with good ventilation around them.
- Check traps at least weekly, or more often if possible.
- Record any QFF caught in traps and notify the Regional Co-ordinator or local Agronomist to promote *Area Wide* action from other land managers.

BAIT** - a control tool

- Apply protein bait to attract and kill QFF in the immediate area either:
  - As soon as traps indicate QFF in the area (*your traps, the YV surveillance grid traps, or the neighbour's traps*), or
  - Earlier if a high-risk crop or situation *(months earlier)!!*
- Mix fruit fly bait with water in your tank (as per label directions). Mix well to avoid clogging jets.
  - Bait only product - add an approved insecticide just prior to use (as per label directions)
  - Bait & insecticide premixed product – no need to add any extra active ingredients (as per label directions)

- Use a focused stream (a.k.a. “jet” or “continuous” stream) and apply whilst moving, to apply droplets of bait onto leaves of trees & shrubs and tall grasses (if label permits) - avoiding fruit (*1-1.5m high, can be higher). *Refer to label directions for your crop, your situation, and your chosen products.*
    - For crops with soft fruit or ground crops - focus on the property perimeter and other foliage trees, or use bait stations (e.g. on posts or tunnel benches – away from fruit)
    - Bait can be applied using a tank mounted on a tractor/bike/ute/trailer or even a knapsack – the idea is to keep moving and spread the droplets as broadly as possible to make it easy for QFF to access.
    - Remember the house garden, fence lines, sheds and fruit disposal areas.
- Re apply weekly or more often if in a high-risk region/climate (as per label directions).
- Re apply after rainfall or overhead irrigation as bait washes off the leaves (as per label directions).
- Repeat/Continue (as per label directions) until fruit fly pressure reduces (refer to traps and monitoring results).
- If more fruit fly pressure evolves, the baiting will need to continue until the QFF pressure reduces to zero (refer to traps and monitoring results)
    - Note: QFF larvae can take a few weeks to pupate and emerge and go looking for food/protein, so timing of baiting is crucial to get the next generation. The Yarra Valley (southern Vic) can be as long as 18 days between larvae moving out of fruit to pupate in the ground and later emerge as a fly. This would require a baiting program for many weeks.
- Bait is very effective …
    - Because hungry QFF seek it out.
    - Because the bait droplets do not target insects that are beneficial for the crop (they are more interested in prey insects or pollination duties).
    - Only when **everyone in your area** is also baiting.

PRODUCTION AREA HYGIENE - a control tool

- Pick all fruit before it falls to the ground (the larvae will pupate in the ground and survive to be a new generation)
- Destroy all fruit that has fallen on the ground -mulcher (destructive on larger fruit, some impact), slasher if low enough (some impact), tractor tyres (some impact), rollers (improved impact) or collect and treat (maximum impact).
- Treat fruit waste and/or remove it from the property to reduce QFF risk, e.g. heating, freezing, solarising, fermentation, rubbish collection, feeding to stock (responsibly), deep burial (with at least 500mm compacted cover) or investigate options of chopping/mulching/pulverising so the larvae could not survive.
- Review non-commercial host fruit trees/plants nearby and consider removal or reduction in size (to be able to install a fruit fly suitable net over for protection).

MALE ANNIHILATION TECHNIQUE (M.A.T.) - a control tool

- Evaluate if area wide management can be better achieved with the deployment of MAT devices over a large area.
- MAT devices are similar to the lure used in a male QFF attracting traps, except they are not paired with a container for counting flies caught, they are stand alone.
- MAT is designed to attract and kill male QFF, therefore reducing the available males in a population, to reduce the likelihood of breeding with female QFF, thus reducing the number of young QFF in the next generation. Over time (and area), and in combination with other QFF management techniques, this can have an impact in reducing the QFF population.
- Install into trees/foliage at 1.5m high
- MAT products can be used at varying rates 10-20/ha - according to QFF pressure) ***see labels or check with your agronomist for advised rates
  This approximately equates to:
  10/ha = 10/10,000 m^2 = 1 every 1,000m^2 or 31.6m x 31.6m grid (approx.)
  20/ha = 20/10,000 m^2 = 2 every 1,000m^2 = 1 every 500m^2 or 22.4 x 22.4m grid (approx.)
  *** this will vary due to perimeter placements, and 'shape' of the area*
- MAT lures need to be refreshed or replaced frequently and regularly (see label directions) to ensure effective QFF kill. For some brands, it can be 3 monthly. Yarra Valley could expect to use a Spring Summer and Autumn deployment.
- MAT will only work to reduce QFF reproduction if used as part of an area wide management plan (over area and over time).

COVER SPRAYS** - a control tool

- Evaluate if crops are at risk from QFF and investigate the use of QFF cover sprays.
- When applying cover sprays, most are broad spectrum insecticides and can be lethal to both QFF and non-target insects.
  Careful consideration is required for:
  - Biological predators in use for Integrated Pest Management programs
  - Stage of crop maturity
  - Neighbouring crops (risk of reinfestation to the crop if not controlled elsewhere)
  - Mangement of With-holding Periods (WHPs) for crop area re-entry and Maximum Residue Limits (MRLs) for crop harvest, including protocols and other target market requirements

*** All chemical use needs to be in accordance with the label and APVMA permits and registrations*

This information is correct at the time of publication (DEC 2023). Please always check with an agronomist, industry representative, crop or market protocol requirements, and any more current labels on products with active ingredients. This document does not mention Sterile Insect Technique (SIT), as it is not yet a widely used or viable option for QFF management in the Yarra Valley. It may be a tool used in later years, and the application of SIT in the Yarra Valley will have an impact on the information tips in this document when using the QFF control tools.

This document has been put together by Bronwyn Koll, Regional Co-ordinator for the Prevention and Awareness of QFF in the Yarra Valley –funded by Agriculture Victoria's Strategy Project "Managing Fruit Fly in Victoria 2021-2025"