Queensland fruit fly numbers growing

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The Queensland fruit fly (QFF) population in the Greater Sunraysia Pest Free Area (GSPFA) is currently on its way up.

The first generation of offspring from adult flies that survived the winter are now starting to emerge from their pupal cases. These new flies are searching for sugar and protein in order to survive, reach sexual maturity, mate, find host fruit, and lay eggs.

What can you do during early summer?

- Use traps to check for the presence of QFF
- Visually check ripening fruit for fruit fly sting marks
- Consider using fruit fly baits and/or spraying. Protein bait sprays (containing protein and an insecticide) are most effective on newly emerged flies that are hungry and need to feed on protein to mate and lay their eggs. Bait sprays need to be applied every seven days (as directed) or more frequently in wet weather. For more information about protein bait sprays, visit the GSPFA website: www.pestfreearea.com.au/baits
- Remove any fruit trees you are not harvesting (e.g. from around the house and shed)
- Don't forget to strip fruit off the pollinators even if you are not selling it – leaving it on the tree provides a place for QFF to breed up

Why do QFF trapping rates vary so much during the year?

QFF populations, as measured by male traps, follow a similar pattern every year.

The graph in Figure 1 below shows a typical pattern of male QFF captures in the GSPFA on Agriculture Victoria's fruit fly trapping grid of 1150 traps.

There are five different situations that affect how many QFF are trapped throughout the year:

- Winter trough: In the GSPFA and most other areas in Victoria, winter temperatures kill off QFF eggs, larvae and pupae. However, adult fruit flies are very adept at moving to warmer sites progressively as day and night temperatures decline. The adult is more able to find refuge in warm, leafy locations, such as a lemon tree, to wait out the cold weather. At this stage, the fly isn't interested in finding a mate. It survives on stored food (sugar and protein it bulked up on during autumn) and by taking advantage of warm, early-winter days (not moving much except on those days). It's too cold for male QFF to be attracted to the AgVic traps on the GSPFA trapping grid, so very few flies are trapped during that time.

- Spring peak: Capture of adult flies that survived the winter (the new parent generation). From mid-August, as daily temperatures start to warm up, adult QFF that survived winter in their warm refuges begin to hunt for sugar and protein, which they need to mate and lay more eggs. They lay their eggs in any ripe or

ripening fruit around at the time – loquats, late-hanging citrus, early apricots, mulberries, berries, etc. Once these winter survivors have laid their eggs, they have no energy left and start to die off, with each female adult QFF leaving hundreds of eggs, larvae and pupae on the landscape.

- Pre-summer trough: Adults from the parent generation die out after laying masses of eggs in fruit. QFF pupae will also be present in the soil beneath their host plants at this time. Very few adult flies are trapped on the AgVic trapping grid, mainly because there are not many left.

- Summer peak: Ripening of a mix of fruits occurs during late summer and causes an overlap of QFF generations. Eggs, larvae and pupae existing on the landscape during the pre-summer trough start to mature and new adults start to emerge. The adult QFF population explodes during the summer. Often, many hundreds of QFF are trapped in the GSPFA at this time. These new-generation adults cause a great deal of damage to host fruit around in the summer, especially in warm, irrigated urban gardens. These flies and their offspring then move on to commercial orchards in surrounding districts.

- Winter drop-off: As winter approaches and the daily temperature declines, there is a slow decrease in trap numbers – to nearly zero in winter. It's too cold for traps to be attractive to flies. In fact, the male-targeting traps used in the AgVic trapping grid are bypassed by males in favour of sugar and protein sources. Protein-based traps catch both females and males at this time of the year. These traps and fruit fly baits are beneficial in that they take out a sizable part of the QFF population before it finds its refuges for overwintering and reduce the size of the subsequent population next spring.

Figure 1: Typical seasonal pattern of QFF captures in the GSPFA