

GMV Fruit Fly Area Wide Management Program Outlook January 2024

Use of this material in its complete and original format, acknowledging its source is permitted, however unauthorised alterations to the text or content is not permitted.

Summary

By late December 2023, Qff populations commenced their annual build up in the GMV. However, Qff numbers are lower this year than for most previous years (from late August to end of December). Unfortunately, weather forecasts for the GMV suggest that Qff will not be disadvantaged in January 2024 as is generally the case. Population reduction can be achieved by increasing fruit fly management that commenced in spring 2023. Continued active management is necessary to avoid population build up in late summer and autumn 2024.

Trends

Overall fly numbers

Fourteen trap inspections have been carried out since the beginning of the new Queensland fruit fly season in late August 2023, when trapping in the Goulburn Murray Valley recommenced under a new trapping grid (Fig. 1). The usual spring peak in fruit fly numbers occurred during early October and then tapered off towards the end of October. Currently (late December), Qff numbers per trap per week are starting to climb although they are still quite low - averaging at less than 1 FTW although there are some sites where more than 1 Qff have been trapped per week (see Table 4). Qff/trap/fortnight are also very low compared with previous seasons (see Table 2).

NOTE re unfavourable weather conditions: Under these conditions a high percentage of adult Qff find refuge until more favourable conditions return. However, a high proportion of immature stages (eggs and larvae and, to a lesser extent, pupae) are killed off by hot, dry weather. Unless controlled by consistent farm and community management the adult Qff in refuge can then feed a late summer/early autumn Qff population explosion – which coincides with the bulk of commercial crop ripening.

Since mid-November there has not been much change in the numbers of Qff trapped per trap (Table 1). Most trapping sites captured 0 to 3 Qff/week. No build-ups in Qff populations occurred from mid-November to the present. This means that the overall Qff population is stable. Forecast favourable weather conditions for Qff in January 2024 may encourage more rapid build-up over late summer and early autumn if not managed adequately.

GMV REGIONAL FRUIT FLY PROGRAM



Fig. 1. AVERAGE FTW (QFF/TRAP/WK) FOR THE 2023/24 FRUIT FLY SEASON IN THE GMV

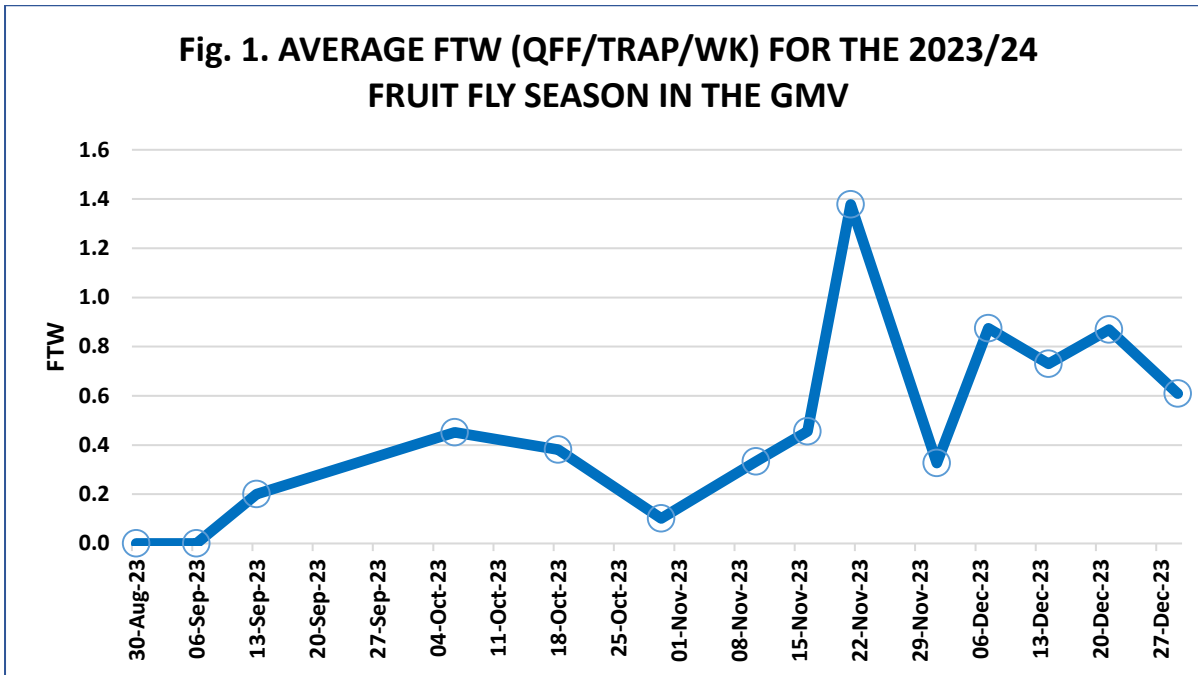


Table 1. Qff population size (as measured by trapping data) over time across the GMV.

	6/10/23	30/10/23	21/11/23	1/12/23	14/12/23	29/12/23
% NO. OF TRAPS WITH 0 QFF	58.59	87.30	69.84	70.80	67.35	65.19
% NO. OF TRAPS WITH 1,2 OR 3 QFF	30.81	12.70	19.05	27.74	28.06	29.63
% NO. OF TRAPS WITH 4,5,6 OR 7 QFF	7.58	0	7.94	1.46	4.08	4.44
% NO. OF TRAPS WITH 8,9,10 OR 11 QFF	1.01	0	1.59	0	0.51	0.74
% NO. OF TRAPS WITH 12 OR MORE QFF	2.02	0	1.59	0	0	0

Comparison with previous years

The average number of Qff trapped each fortnight from mid-August to late December 2023 (i.e. the size of GMV’s Qff population) is low compared with previous years. The exception was late September 2023 where Qff populations commenced build-up earlier than usual due to favourable weather conditions (an early spring). These low figures may suggest that the Qff population is now lower than normal and could bring benefits to the Qff management program in the GMV.

Table 2. Average Qff/trap for each fortnight (F1 and F2) from late August to late December each pear from 2017 to 2023.

GMV	AUG F2	SEPT F1	SEPT F2	OCT F1	OCT F2	NOV F1	NOV F2	DEC F1	DEC F2
-----	--------	---------	---------	--------	--------	--------	--------	--------	--------

2017	0.09	0.00	0.64	3.91	0.64	0.00	0.36	4.00	6.00
2018	0.00	0.27	4.00	1.73	0.91	0.18	2.00	2.64	8.27
2019	0.23	0.46	1.08	3.62	2.08	0.38	0.54	1.46	7.85
2020	0.54	2.54	2.23	4.15	1.54	2.85	3.23	11.69	6.23
2021	0.54	1.08	0.69	2.00	2.62	2.77	1.69	2.85	4.08
2022	0.00	0.23	0.00	3.64	1.33	4.09	1.62	2.91	6.73
2023	0.00	0.16	1.19	0.57	0.20	0.34	0.40	0.54	0.53

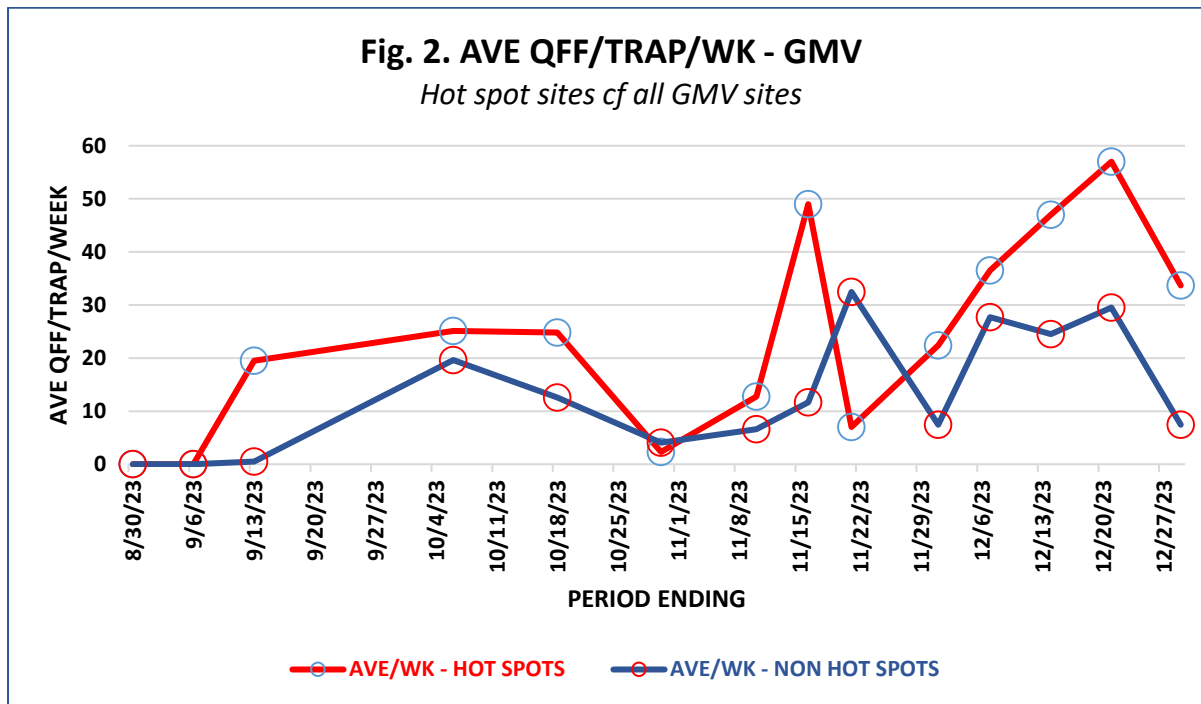
Hot spots

Of the 103 designated fruit fly hot spots in the GMV 17 were HIGH risk and 1 was at the VERY HIGH risk level by the end of December 2023 (Table 3).

Table 3. High and Very High risk GMV hot spot sites as of 29 December 2023

LOCATION	SITE ID	Actionable threat/risk
ARDMONA	G120	HIGH
ARDMONA	G121	HIGH
ARDMONA	G125	HIGH
COBRAM	FOM02	VERY HIGH
COOMBOONA	G141	HIGH
GRAHAMVALE	G037	HIGH
GRAHAMVALE	G040	HIGH
KYABRAM	G160	HIGH
LEMNOS	G024	HIGH
LEMNOS	G028	HIGH
MERRIGUM	G151	HIGH
MERRIGUM	G153	HIGH
MERRIGUM	G154	HIGH
MOORoopna	G192	HIGH
SHEPPARTON	G041	HIGH
SHEPPARTON	G054	HIGH
SHEPPARTON	G067	HIGH
TATURA	G113	HIGH

Qff numbers in hot spot sites are trending slightly higher than those in non hot spot sites (Fig. 2). This is expected as these sites have persistently high Qff numbers – one of the main reasons choosing them as hot spot sites. With extra attention being paid to the hot spot sites it is expected that Qff numbers will decrease over time compared with numbers from non hot spot sites.



Location effect

Average Qff numbers/trap/week (FTW) are currently higher in some locations than others (Table 4). This is reflected by the volume and type of Qff host plants in each location as well as the level of fruit fly management being employed there.

Kyvalley, Tatura and Kyabram are the top 3 Qff sites as of early December.

Table 4. FTW at each location (as of 29 December 2023)

Cells coloured red indicate areas with more than 1 Qff per week.

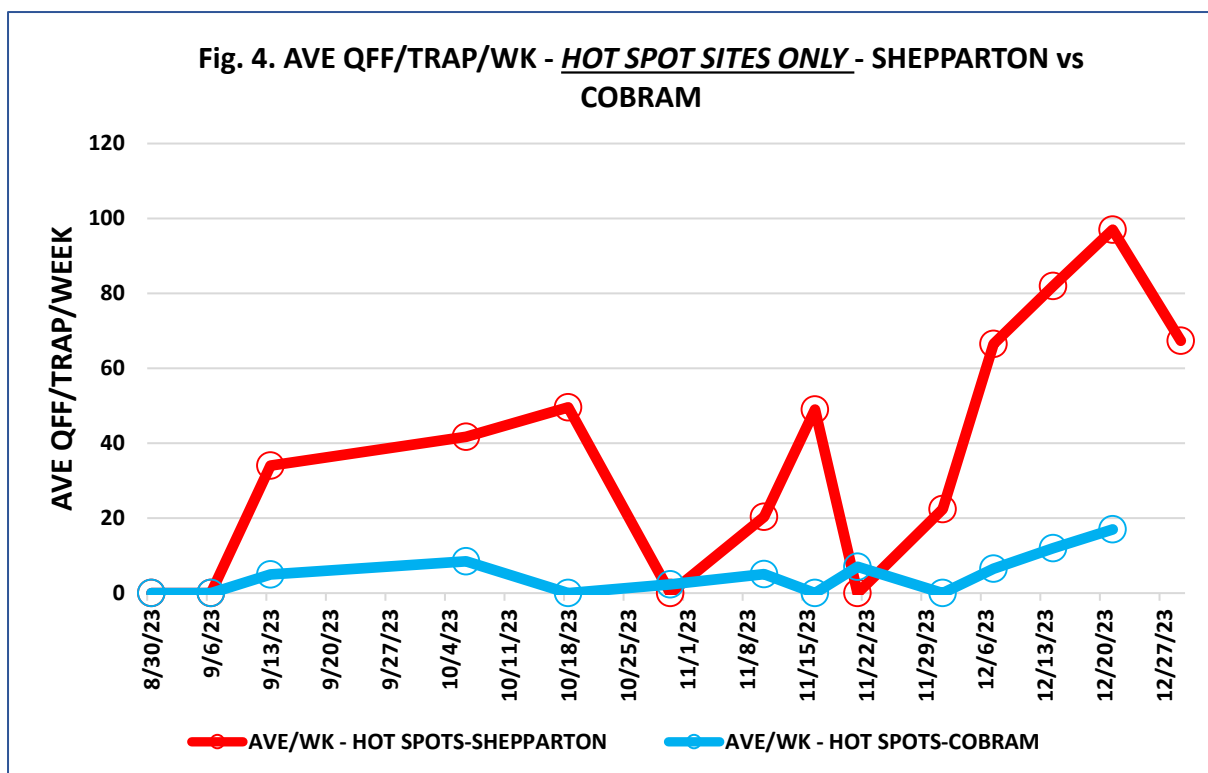
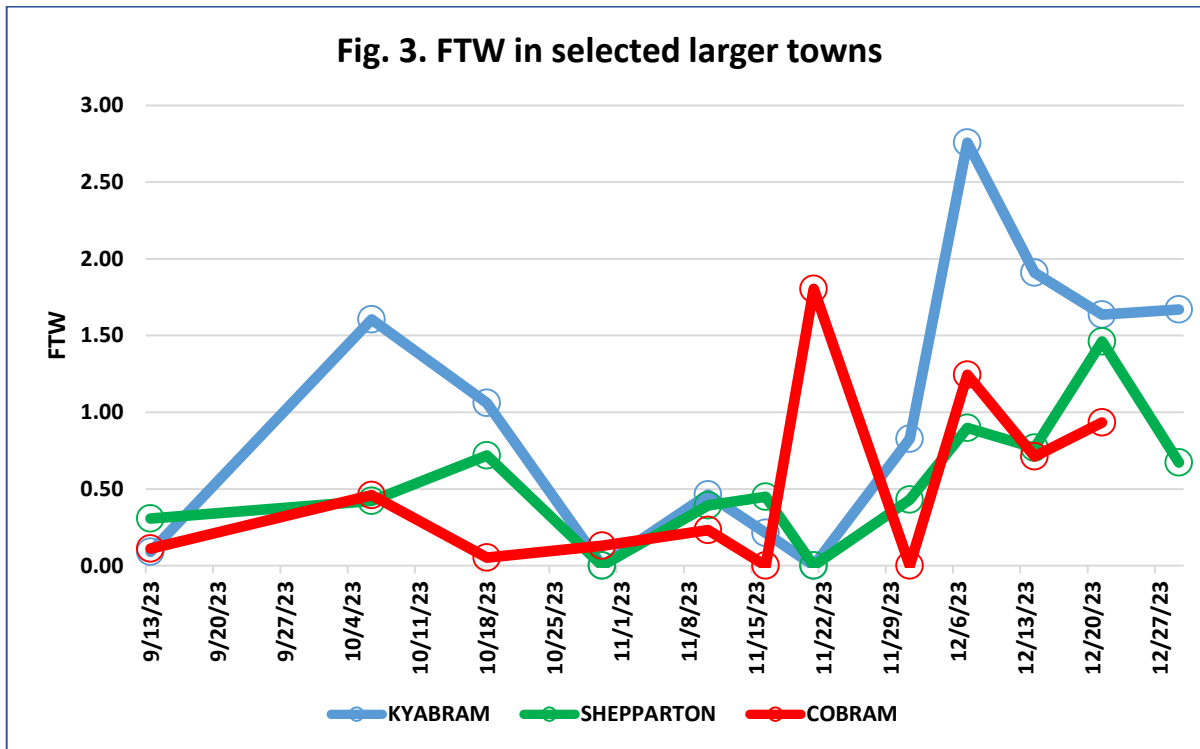
FTW (AVE. QFF/TRAP/WEEK)	LOCATION
2.00	KYVALLEY
1.67	TATURA

1.64	KYABRAM
1.56	MOORoopNA
1.50	COOMBOONA
1.46	SHEPPARTON
1.36	GRAHAMVALE
1.20	COBRAM EAST
1.00	MERRIGUM
1.00	LEMNOS
1.00	TALLYGARoopNA
1.00	KATUNGA
0.93	COBRAM
0.67	KOONOOMOO
0.63	ARDMONA
0.50	TATURA EAST
0.40	KIALLA
0.33	INVERGORDON
0.29	SHEPPARTON EAST
0.25	ORRVALE
0	UNDERA
0	BUNBARTHA
0	TOOLAMBA
0	MOORoopNA NORTH WEST
0	MOORoopNA NORTH
0	TOOLAMBA WEST
0	LANCASTER
0	KAARIMBA
0	ZEERUST
0	MUCKATAH

Selected larger towns

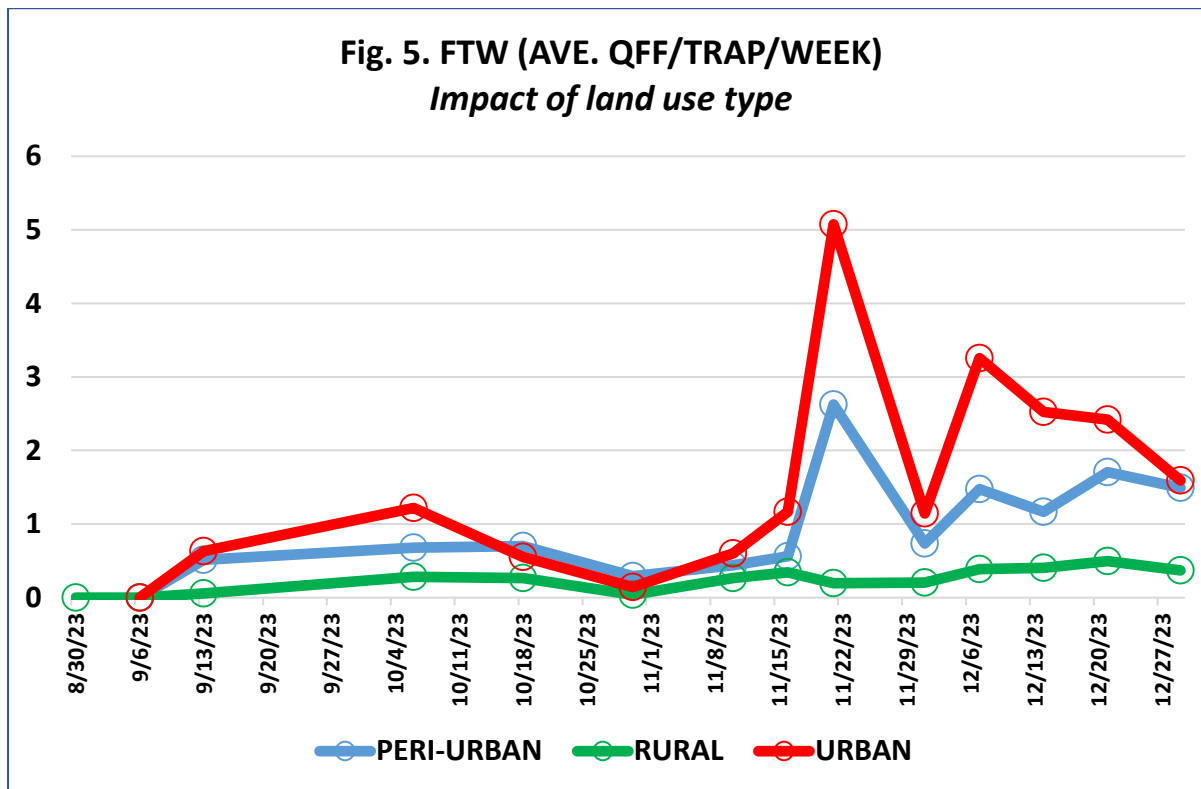
FTW data for Kyabram, Shepparton and Cobram show that since the recommencement of trapping in the GMV Kyabram had high Qff numbers in early October but Cobram, although starting with low numbers are starting to build up considerably up to late November (Fig. 3). Since then Cobram and Shepparton data are lower than those for Kyabram.

When hot spot data are compared between Shepparton and Cobram (Fig.4) it appears that Qff control is better in Cobram than Shepparton. It is not yet known why this is the case. More data are needed over time along with discussion with the Fruit Fly Coordinator.



Land use type

Urban trap sites are currently trending close to peri-urban sites which are higher than rural trap captures rates (Fig. 5). This could mean that many of the suitable host fruit for Qff situated in urban areas have now finished cropping (harvested, eaten by birds or dropped off the tree). Qff may now be migrating from urban areas to peri-urban sites and therefore closer to commercial crops.



Forecast

In the GMV, fruit fly numbers generally increase in severity from late November and peak in December with a second peak in the autumn. Qff builds up very rapidly in urban and peri-urban sites with a mixture of high amounts of untended fruit, garden irrigation and evergreen refuges while rural sites remain quite low as there is still not much ripe fruit around. Rural sites with high Qff numbers at this time are likely to have persistent Qff populations surviving in untended home gardens and untended non-commercial fruit trees on the block.

As urban crops decline with harvest and bird predation in the summer Qff also decrease while peri-urban and rural increase. This reflects the movement of Qff from urban, through peri-urban and into rural areas from mid-summer to autumn. This occurs due to the “pull” of large volumes of commercial crops ripening in rural areas at this time.

It is expected that similar trends will occur during 2023/24. The size of the peaks and their timing will depend on weather and fruit fly management measures implemented during the spring and early summer.

Weather

The Bureau of Meteorology <http://www.bom.gov.au/climate/outlooks/#/overview/summary/> - accessed 7 January 2024) forecasts lower than average maximum temperatures and higher than average minimum temperatures for January 2024 in the GMV. Rainfall, too, is likely to be higher than average.

The forecast maximum daily temperature for Shepparton for January 2024 is only 34.6°C (Table 5). This is not detrimental to the survival capability of adult Qff. If infested fruit fall to the ground and are subsequently exposed to the sun at these temperatures eggs and larvae will die. Eggs and larvae in fruit in the shade and on the tree will probably survive.

This suggests that Qff populations will not slow down much over January 2024 unless vigorous area-wide management programs are set in place and maintained.

Higher rainfall will improve fruit set. It will also promote the growth of fungi and bacteria providing easier access to food sources for Qff. Therefore, Qff population could build up in January 2024, especially since maximum temperatures are likely to be lower than usual at this time. Generally January is a time when hot, dry conditions prevail in the GMV but this year the weather may be more favourable for Qff survival and spread due to more favourable weather conditions. If rain then occurs in autumn a rapid increase in Qff numbers will ensue unless Qff management programs have been instigated.

Table 5. Actual (up to 6 January 2024) and forecast temperatures and rainfall for Shepparton for the month of January 2024 (<https://www.visualcrossing.com/weather/weather-data-services> - accessed 7 January 2024).

Date	Temp max (°C)	Temp min (°C)	Rain (mm)
1/1/2024	32.3	17.5	0
2/1/2024	32.4	17.5	10.078
3/1/2024	31.5	18.5	0.892
4/1/2024	30.1	20	0.153
5/1/2024	31.6	20.2	0
6/1/2024	30.5	20.3	0
7/1/2024	25.7	20.3	30.5
8/1/2024	25.3	17.9	12.4
9/1/2024	27.3	16.8	3.8
10/1/2024	30.8	17.4	0
11/1/2024	32.7	18.2	0
12/1/2024	34.6	20.1	0
13/1/2024	34.2	22.8	1.4
14/1/2024	33.3	20.1	13.8
15/1/2024	20.6	17.8	2.2
16/1/2024	26.3	17.5	0.1
17/1/2024	27.1	17.9	0.1
18/1/2024	26.5	17.6	0
19/1/2024	28.7	18.2	0
20/1/2024	30.1	16.7	0
21/1/2024	31.2	19.7	0
22/1/2024	32	16.7	2.1
23/1/2024	32.6	16	0
24/1/2024	31.9	15.4	0.9
25/1/2024	32.7	16.4	1.3
26/1/2024	32.7	16.7	3
27/1/2024	31.4	16.3	2
28/1/2024	32	15.9	0.7
29/1/2024	31.5	16	2
30/1/2024	31	15	2.9
31/1/2024	30.1	14.9	0.9

For more information on fruit fly control and Area Wide Management strategies, visit www.fruitflycontrol.com.au or scan the QR code below.



This report was produced by Janren Consulting Pty Ltd for the GMV Fruit Fly Area Wide Management Program in collaboration with the Program Coordinator. The Program is supported by the Victorian Government.