FRUIT FLIES

Phytosanitary pest focus

Bactrocera Dorsalis (Oriental Fruit Fly)

One mated female can lay up to 800 eggs (specie-dependent)

The production of citrus, deciduous and subtropical fruits is often constrained by local fruit fly pests. By Rob Elfick

Rob Elfick

Fruit fly pests can either cause direct damage that results in crop losses, or hinder market access, as classified phytosanitary pests. Therefore, proactive fruit fly pest control is vital.

Multiple generations of fruit flies can occur within a year, and environmental factors like temperature affect their development. Fruit flies cause damage to fruit by stinging the fruit to deposit their eggs (**Figure 1**) underneath the fruit rind, which hatch into larvae (**Figure 2**). The larvae then feed on the fruit pulp, leading to decay and secondary infections. Larval development usually lasts for 10 - 25 days, after which the larvae leave the fruit to pupate in the soil and emerge as an adult fruit fly.

Figure 1: Fruit fly eggs

Figure 2: Fruit fly larvae

Figure 3: Invader lure

Export markets list all fruit fly species as phytosanitary pests, and a single larva could lead to an entire consignment being rejected.

Figure 4:
Capi and Quest lure

Figure 5:
Invader-B-Lok™

The puncture caused during ovipositing can cause secondary bacterial infections, both of which cause fruit rot. Export markets have all fruit fly species listed as phytosanitary pests, and a single larva could lead to an entire consignment being rejected, which could also affect market access.

Some precautionary practices have been found to be very effective. Monitoring for fruit fly is important, to establish the pest pressure within the orchard. This will help guide the control practices that need to be applied. Monitoring products like the Invader Lure (**Figure 3**) using the Lynfield Trap to monitor for *Bactrocera Dorsalis* (Oriental Fruit Fly) or the Capi and Quest lure (**Figure 4**) to monitor for *Ceratitis Capitata* (Mediterranean Fruit Fly) is useful

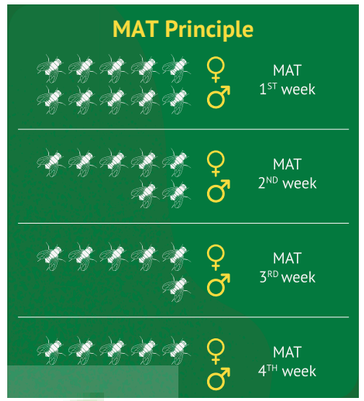

Figure 6: Male annihilation technique (MAT) principle

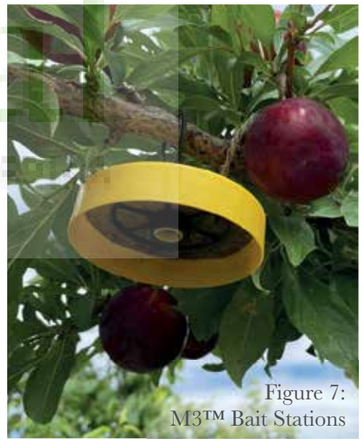

Figure 7:
M3™ Bait Stations

to measure pest pressure. Fruit flies can be found within the canopy of the crop, on ripe fruit or on decaying, fallen fruit.

Through monitoring efforts, growers can effectively protect their crops and establish the need for corrective action. With this, good sanitation practices can also assist with lower pest pressure. Removing rotten/fallen fruit, deadwood and invasive weeds can lower the chances of population growth and infestations.

With several control measures available for fruit fly, not all are environmentally friendly and can leave harmful MRLs behind. This needs to be considered when planning your season spray programme. River Bioscience remains committed to providing growers with sustainable solutions for phytosanitary pests and providing the necessary monitoring tools, as mentioned above.

Listed here are fruit fly control products available from River Bioscience that comply with integrated pest management programmes that are safe to use for both the consumer and the environment.

Invader-B-Lok™

Invader-B-Lok™ is a fibre block impregnated with methyl eugenol and mercaptothion (**Figure 5**). The methyl eugenol component of the Invader-B-Lok™ is highly attractive to males of several *Bactrocera* species. Male fruit flies that are attracted to the methyl eugenol mixture, die upon contact with the mercaptothion. The application of Invader-B-Lok™ follows the principle of the male annihilation technique (MAT) (**Figure 6**), targeting high levels of male mortality for species that respond to methyl eugenol. Eradicating males significantly reduces the amount of mating in the fruit fly population, thereby suppressing the population and lowering fruit infestation.

The efficacy of male annihilation is largely improved when combined with protein baiting, either through sprays or the use of protein bait stations, such as the M3™ which targets females.

M3™ Bait Stations

The use of M3™ Bait Stations (**Figure 7**) has proven to be an effective tool in controlling fruit fly populations in fruit orchards due to its attract-and-kill properties. The M3™ Bait Station contains protein hydrolysate and plant extract with alpha-cypermethrin, which attracts female fruit flies and kills them upon contact.

These measures will significantly reduce fruit fly infestations, and help sustain market access.

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