

# Waging War on Moth Malefactors

## Does Oriental fruit moth mating disruption work for false codling moth?

By Anna Mouton

**S**outh Africans have heard a lot about criminal families in recent years thanks to revelations of state capture and other nefarious doings. Growers will be familiar with one family whose activities are especially damaging to the fruit industry — the Tortricidae. The Tortricidae are a family of moths whose members include some of the world's worst agricultural villains including codling moth, false codling moth, pear leaf roller, and Oriental fruit moth. These pests damage fruit and complicate market access for exporters. How can producers fight back and gain the upper hand?

Dr Daleen Stenekamp is a researcher in applied crop protection. She explains that one of the challenges of dealing with closely related moth malefactors is that they are often hard to tell apart. "We worked on stone fruit and the problem is that you get both false codling moth and Oriental fruit moth in stone fruit. The moths look different but the larvae and fruit damage look the same. Oriental fruit moth occurs worldwide so it's not a quarantine pest like false codling moth. But for exports you need to ensure that your fruit isn't rejected because someone finds Oriental fruit moth damage but they think it's false codling moth."

Both Oriental fruit moth and false codling moth can be effectively controlled by mating disruption. Growers can hang pheromone dispensers in their orchards early in the season to prevent moths from mating and laying eggs on fruit. But mating disruption can become expensive if you need to use different dispensers for different moths.

"Oriental fruit moth and false codling moth mating disruption use the same pheromones," Stenekamp says, "but in different ratios. So the question was, can mating disruption for Oriental fruit moth have an effect on false codling moth?"

### GOOD NEWS AND BAD NEWS

Stenekamp and her team compared mating disruption for Oriental fruit moth and false codling moth by placing pheromone dispensers in several stone fruit orchards and releasing a large number of sterile false codling moths in these orchards as well as in control orchards with no dispensers. They hung out traps to monitor the effect. The trials were conducted over two seasons.

On the bright side, growers can be assured that mating disruption works wonders on false codling moth. "On one farm where we worked, there was an

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orchard with terrible damage, to the extent that the farmer lost nearly his entire harvest in that orchard," Stenekamp recalls. "Then he used mating disruption and he had minimal damage at the end of the first season and none at the end of the second.

"He had another orchard, which was one of our controls, and always suffered severe damage. He decided to use false codling moth mating disruption there as well — which wasn't so good for our research. But I completely support his decision."

The bad news is that growers won't be able to rely on one type of mating disruption to control both moths. "We discovered that the Oriental fruit moth mating disruption did affect the false codling moths, but with zero tolerance to false codling moth it wasn't sufficient," Stenekamp states, "whereas the false codling moth mating disruption pretty much shut down the traps so that we caught nothing."

Stenekamp recommends that growers use pheromone traps and fruit damage assessments to determine which moths are the culprits on their

farms. "It's very important to have larvae in fruit identified and not to assume that it's false codling moth. There are others it could be." Correct identification is important when deciding on the best control strategy, especially with methods that target species selectively, like mating disruption.

Monitoring will also show whether control is working. "If you're using mating disruption you would expect to catch no moths in your traps. If you're catching moths, something is wrong," Stenekamp cautions. "You could, for example, have a very long, hot season and your mating disruption starts fading towards the end. You may need to supplement it, especially if you have a late cultivar."

Stenekamp believes that mating disruption is a crucial weapon in the war on moths. "Mating disruption works. And I think sterile insect technique combined with mating disruption is a very good option if you have problems with false codling moth — rather than relying on chemicals when we are becoming more limited with regards to chemical use."

Stenekamp's research was funded by Hortgro Pome and Hortgro Stone as part of a larger project on surveillance and control of false codling moth. **FQ**