

XSIT system dramatically reducing FCM population in South Africa

In 1976, the insect *Thaumatotibia leucotreta*, also known as False Codling Moth (FCM) established itself in Citrusdal, South Africa's oldest citrus exporting region. This put citrus exports in a precarious position, with some growers reporting losses of up to 50-60% of their crops.

Nevill Boersma, Quality and Technical Manager of XSIT, an initiative of Citrus Research International (CRI) to market the Sterile Insect Technique (SIT), which helps in reducing the spread of FCM and reduces the population, explains that "FCM larvae enters the fruit, which consequently drops and rots. In the past, growers used lots of chemicals and pesticides with mixed success, but in 2006, after successful SIT trials conducted by Hendrik Hofmeyr and his team, the X-STERILE-INSECT-TECHNIQUE, or XSIT, was first commercialised."

[Click to take a look inside the XSIT facility at how the moths are reared.](#)

Xsit currently has 12,700 hectares contracted, both in the Eastern and Western Cape. "We produce 5 million sterile moths every day, which outnumber wild moths in the treated areas by at least 10 to 1. If the latter try to mate with the former, there will be no offspring and as a result, the population continues to drop every year," explains Boersma.

The institution also elaborates statistical data. "For every 5 hectares, we have one data station; a trap with sticky pads and a pheromone. We can then count how many males have been caught and see what the ratio is between wild and sterile and where the hotspots are. This is done 365 days a year," according to Boersma.



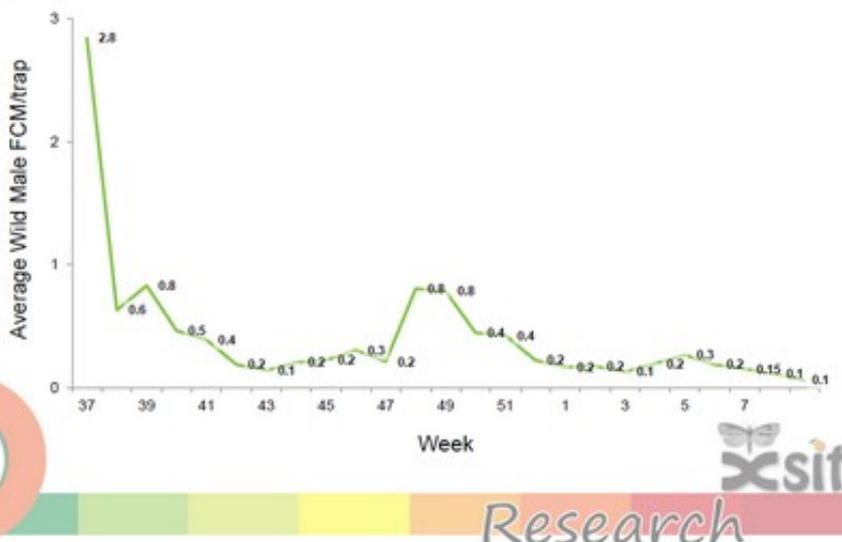
To ensure their spread, the sterile moths are dropped on the contracted orchards by means of gyrocopters. Their efficiency is guaranteed, as the institution makes use of a computer statistical/mathematical program and GPS. Once released, the sterile moths will start mating with any wild moths around, thus ensuring zero offspring.

To illustrate the programme's effectiveness, Nevill shares the success story of Gamtoos River Valley, which was implemented in 2014. "In this area, 2.8 males were being caught on average every week, and within a week we managed to bring it down to less than one wild male per trap. These growers have no need to spray chemicals anymore and can safely export the fruit to the European markets."

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Results: GRV 2014/15 Season

- Fantastic start-up, suppressing wild FCM population from the word 'GO'



It is worth stressing that, while FCM is not the only problematic insect, it entails a great phytosanitary risk, since the pest is not found anywhere else in the world. "Naturally, Europe and America want to keep it out, and with South Africa as the world's second largest citrus exporter, the FCM can pose a huge threat, but with this data, the risk is considerably reduced."

The only problem, according to Nevill, is convincing some growers about its installation, as unlike similar programmes in other countries, in South Africa it is not subsidised by the Government and therefore involves a considerable extra cost to the grower.

Results: WC 2007/08 to 2014/15

- Reducing risk of FCM interceptions, associated waste, protecting and increasing market-share.



% cartons rejected over a five year period from the Western Cape

Some pack houses have actually started to demand the implementation of XSIT. "For the export market, they must be able to show data. With two strikes from the Department of Agriculture, they must stop exporting, and if an interception takes place in Europe, the farm responsible will be liable for the costs," affirms Nevill.

In conclusion, Nevill stresses that, "most of the growers are supportive, as they are paying for a really good service, and if there are any problems, they can get in touch with us and we will solve them in the same day."

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