

FCM PEST MANAGEMENT

The key to developing any successful integrated pest management (IPM) programme is to first gain a thorough understanding of the biology and ecology of the target pest. By Rob Elfick



Having an intimate knowledge of the lifecycle of a pest can help with identification of treatments that target the most vulnerable developmental stages of that pest. This, in turn helps to decrease population levels, as well as the risk of infestation and subsequent crop damage. Unfortunately, success is not easily achieved when dealing with native phytosanitary pests like the false codling moth (FCM). With every infested fruit carrying with it the potential for rejection by international markets, the threshold for what constitutes adequate FCM control is understandably very low. However, after years of research and collaboration between multiple industry stakeholders, growers now have more options than ever before for building an effective FCM management strategy (FMS).

With almost 20 years' experience in citrus pest management, River Bioscience and XSIT (RBX) are leaders in the on-going fight against FCM. These grower-owned companies have worked to cultivate the knowledge and expertise required to develop environmentally friendly products that provide growers with multiple treatment options for FCM, thus expanding their overall IPM toolbox. There are now RBX

products available for almost every life stage of the pest, with new products in the pipeline (Figure 1). We now offer everything from preventative area-wide pest management, such as Sterile Insect Technique (SIT) and mating disruption, to species-specific viruses, nematodes and macrobial biological control.

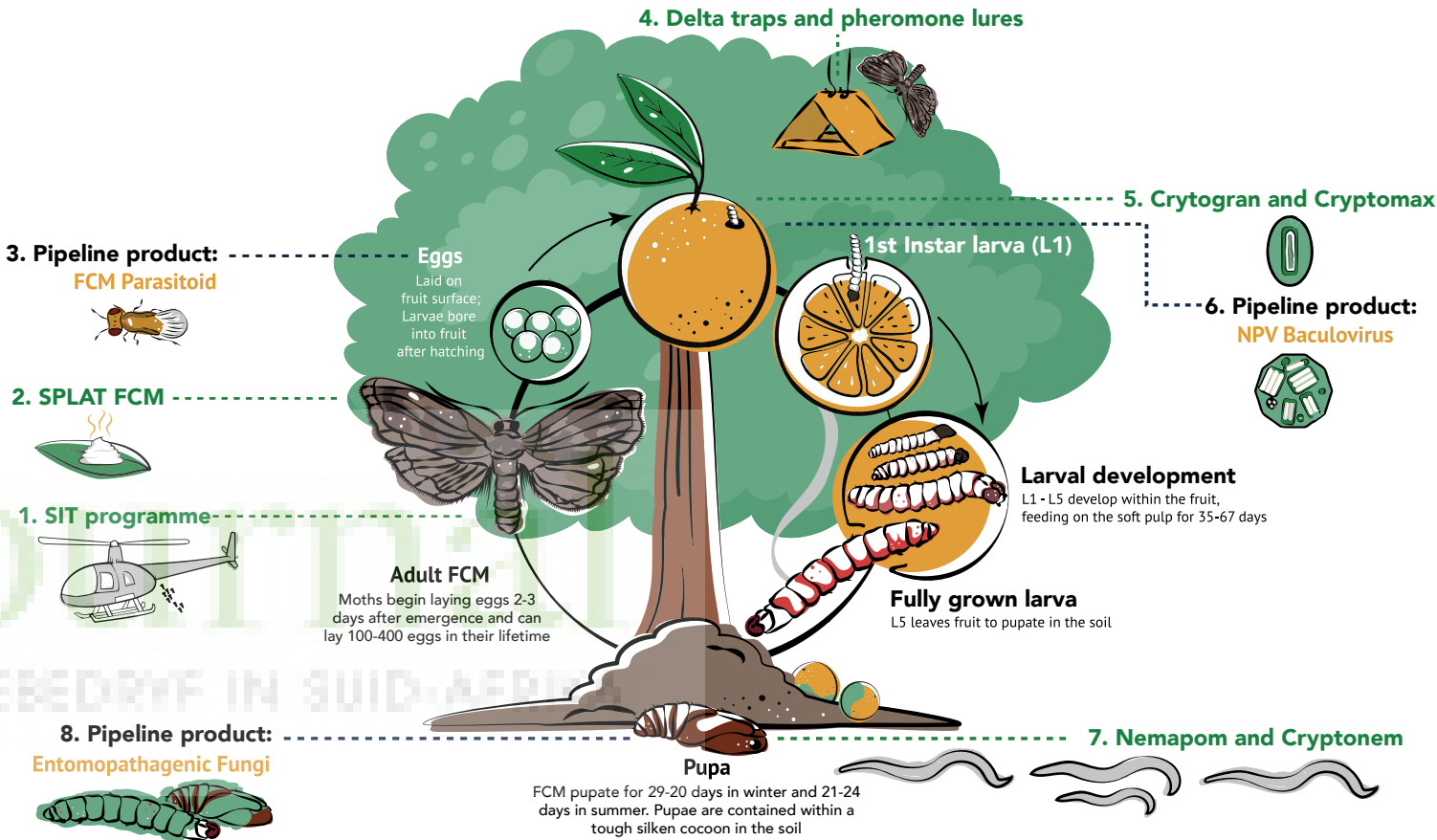
Although product development is a critical part of what we do at River Bioscience, it is only one piece of the IPM puzzle. Products that are pest-specific and environmentally friendly only work if they are used correctly, considering all factors in which the target pest needs to be



controlled. As such, we have endeavoured to ensure our technical and research teams have the skills and knowledge to provide industry stakeholders with the scientifically sound information they need to make the

FCM products

No.	Product	Benefits
1	SIT programme	Area-wide FCM population suppression that employs over 200 people in our agricultural communities
2	SPLAT FCM	Pheromone-based mating disruption for population suppression
3	"Pipeline product: FCM parasitoid	A natural enemy of FCM that attacks and kills eggs; can be used together with SIT and MD for FCM population suppression
4	Delta traps and pheromone lures	Monitoring of FCM populations to ensure product efficacy, and as an early warning system for infestations
5	Cryptogran and CryptoMax	Locally manufactured GV baculovirus to control larvae before they enter fruit; sustainable with no MRL repercussions
6	Pipeline product: NPV Baculovirus	New product for controlling tortricid moth larvae, including FCM, litchi moth and macadamia nut borer
7	Nemapom and Cryptonem	Predatory nematodes that attack FCM pupae in the soil
8	Pipeline product: Entomopathogenic fungi	A unique soil dwelling fungi that kills up to 80% of FCM pupae and fifth instar larvae in the soil



FCM Lifecycle Illustration with product integration

best possible decisions, and to use products in a way that maximises their efficacy. These vital services are linked to the gathering and sharing of knowledge in the international scientific community. To date, between RB and XSIT internal staff, the team has published over 25 peer-reviewed research publications on a range of IPM topics.

The time invested by River Bioscience and XSIT into FCM research has benefitted the fruit industry of SA as a whole by greatly contributing to understanding FCM and its behaviour in the agro-ecosystem. The RBX group's continued dedication to research is reflected in the improvements made at the XSIT facility in Citrusdal, and in the building of a new lab facility at the River Bioscience headquarters in Gqeberha. These facilities allow the team to continue providing value through rigorous studies and trials that aid producers in taking FCM

management from strength to strength.

It is important to note that at its core, IPM is a holistic strategy that encompasses all aspects of the agricultural sphere. Successful programmes take into consideration not only crops, the environment and economics, but also the people involved in the agricultural community. In implementing FCM management, the RBX Group seeks to support farmers and agents as well as the communities in which they operate. The XSIT facility now employs over 200 people and River Bioscience has grown to over 50 employees. The experience, knowledge and expertise of these employees is the foundation of the RBX Group. With their help and the help of producers and collaborators, the group hopes to continue working together to bring integrated and sustainable FCM management to citrus and other fruit growing industries.

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