SOUTH AFRICAN

fruit journal

DIE JOERNAAL VIR DIE VRUGTEBEDRYF IN SUID-AFRIKA **JUNE/JULY 2017**

Keeping tabs on olive seed wasp

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Figure 1. Olive seed wasp (OSW) larva (L) and pupa (P) inside developing olive seed.

During a study comparing olive fruit fly infestation in the Western Cape and Sicily, most of the prematurely dropped olives assumed to be infested with olive fruit fly turned out to be infested by native olive seed wasps (OSW). Two indigenous seed wasps, *Eurytoma oleae* and *Eupelmus spermophilus*, have previously been found to attack wild olives in the Eastern and Western Cape Provinces.

The female wasp uses her ovipositor to lay an egg inside the soft seed of the olive before the pit hardens. The larva feeds on the seed kernel and forms a pupa when fully developed (Fig. 1). When the adult wasp emerges (Fig. 2), it chews a hole through the pit and flesh to emerge from the olive, leaving a characteristic emergence hole (Fig. 3). Many of the olives drop when the seed kernel is destroyed, although some remain on the trees. Commercial cultivation and processing of olives is a relatively new industry in South Africa and very little is known about the local insect pests of cultivated olives. Because OSW does not occur in the olive producing countries in Europe and the Mediterranean region, there is no ready source of information for the industry to tap into.

With funding from SA Olive, a research project was launched by ARC Infruitec-Nietvoorbij, in collaboration with Dr. Giacalone and Prof. Caleca of Palermo University in Sicily (Italy) to determine (1) which seed wasp species (*Eurytoma oleae* and/or *Eupelmus spermophilus*) attacks cultivated olives, (2) the biology and seasonal occurrence of OSW, (3) its economic damage potential in cultivated olives, (4) the susceptibility of different olive cultivars and (5) the distribution of olive seed wasps in the various olive producing regions.

The information obtained during this study will make it possible to determine whether OSW poses an economic threat to olive production and will inform the development of monitoring and control strategies for OSW in cultivated olives.

The funding provided by SA Olive allowed researchers to leverage additional funding from the Department of Trade & Industry's Research and Technology Fund. This funding is critical to help cover the running cost of the project. It also makes it possible to retain Prof. Caleca and Dr. Giacalone on the research team and to co-opt Dr Barbara van Asch at Stellenbosch University's Department of Genetics onto the project team. She will assist with developing molecular markers so that OSW eggs, larvae and pupae found inside olive seeds can be identified to species level.

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Figure 2. Olive seed wasp emerging

Figure 3. Emergence hole left by olive seed wasp.