The European pepper moth as a citrus nursery pest in South Africa



Fig. 1. Dead European pepper moth adult on the soil surface.

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Recently, the European pepper moth, *Duponchelia fovealis* Zeller (Lepidoptera: Crambidae), was recorded for the first time as a pest in a citrus nursery in South Africa.

The insect is endemic to the Mediterranean region but is now established in many countries in Europe, the Middle East and Africa, including South Africa (Putnam *et al.* 2010; http://www.africanmoths.com).

It has a broad host range, but is considered a serious agricultural pest of peppers and strawberries in Europe. It also attacks aquatic ornamental plants. Its natural habitat is freshwater and saltwater marshlands, so ornamental aquatic plants (especially if grown in a greenhouse setting) are particularly susceptible (Stocks and Hodges, 2011).

The adult moth is 9-12 mm long with a wingspan of 19-21 mm (Fig. 1). The female can lay up to 200 eggs, singly or in small batches on plants and other surfaces (Jackel et al. 1996). Larvae are light to dark brown with a dark brown head capsule (Fig. 2). They produce silk and may be found in association with webbing along the soil surface and in the plant. Larvae pupate either on the plant surface or the soil surface. There may be multiple generations throughout the year.

Larvae can apparently damage roots, leaves, flowers or buds, or can feed primarily on crop debris such as fallen leaves. Chewing damage can also be seen on the undersides of leaves, resulting in leaf necrosis, and stem girdling may also occur (Bethke and Vander Mey, 2011). The damage observed on citrus seedlings at a nursery in Kirkwood (Sundays River Valley, Eastern Cape) was girdling of the stems, caused by soil-dwelling larvae (Fig. 3). This was also observed on small seedling (< 10 cm) within tunnels in the nursery.

As no previous record of the European pepper moth attacking citrus of any sort or age (including seedlings) anywhere in the world could be found, it is not clear whether there is potential for ongoing infestations or if this was an isolated incidental attack. Nevertheless, nurseries and growers should be on the lookout.

Elsewhere in the world, the application of *Bacillus thuringiensis* against small larvae has been reported to be an effective control measure (Messelink and Van Wensveen, 2003; Bethke et al., 2012). Our own experience has shown that if larvae are too large (approximately 1 cm or longer), the application of a product like methomyl at a relatively high concentration may be necessary (chlorpyrifos did not appear to be effective). However, there are of course no registered products available in South Africa.

Opsomming

Onlangs is die Europese pepermot, *Duponchelia fovealis,* vir die eerste keer as 'n plaag in 'n sitruskwekery in Suid-Afrika aangeteken. Die skade wat op sitrus saailinge by 'n kwekery op Kirkwood opgelet is, is stamringelering wat deur die grondgedraagde larwes veroorsaak is. Omdat daar geen vorige rekord van aanvalle vanaf die Europese pepermot op sitrus van enige soort of ouderdom ter wêreld is nie, is dit nie duidelik of daar potensiaal vir verdere gevalle van besmetting is nie, en of dit bloot 'n eenmalige toevallige aanval was. Nietemin moet kwekerye en produsente op die uitkyk wees. Elders in die wêreld is aangetoon dat *Bacillus thuringiensis* blykbaar 'n doeltreffende beheermaatreël teen klein larwes is. Ons eie ondervinding wys dat as larwes te groot is, mag die gebruik van 'n produk soos metomiel dalk nodig wees.

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Fig. 2. European pepper moth larva.



Fig. 3. Girdled stem of a citrus seedling in a nursery, caused by the European pepper moth larva.

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