Department for Environment Food & Rural Affairs

Plant Pest Factsheet

Otiorhynchus lavandus subsp. *lavandus*

Figure 1. *Otiorhynchus lavandus* subsp. *lavandus* - A European weevil species found in the UK for the first time in 2016. Length: 9-12 mm © Fera Science Ltd.

Background

In August 2016, specimens of a weevil species belonging to the genus *Otiorhynchus* (Coleoptera: Cucurlionidae) collected from the site of a commercial soft fruit producer in England were sent to Fera Science Ltd. for confirmatory diagnosis. Large numbers of these weevils had been collected, together with *O. sulcatus* (Fabricius) (black vine weevil), earlier in the summer in a crop of *Rubus idaeus* (raspberry) growing under protected cultivation, and foliar damage was observed. The unknown weevil did not key out as one of the 24 *Otiorhynchus* species currently known to be present in the UK. With more than 1500 known species in the genus and no unified keys, assistance from specialists both in

the UK and Europe was sought and the unknown weevil was identified as *Otiorhynchus lavandus* subsp. *lavandus* (Germar).

Geographical Distribution

Otiorhynchus lavandus has two sub-species, *O. lavandus* subsp. *lavandus*, which is the subspecies detected in the UK, is the most widespread and is native to south-eastern Europe. *Otiorhynchus lavandus* subsp. *lavandus* is recorded as present in Bulgaria, Croatia, Greece, Hungary, Italy, Macedonia, Serbia, Slovakia and Romania but was described from specimens collected in Austria. The other subspecies, *O. lavandus* subsp. *taumerkanus* Lorna is less common and currently known only from alpine areas of Greece.

Host Plants

Very little information is available. *Otiorhynchus lavandus* subsp. *lavandus* was reported to be a pest of V*itis vinifera* (grape vines) in Croatia in the late 1950s, with the adults causing feeding damage to emergent buds. In the UK, large numbers of adults were collected from the aerial parts of one polytunnel grown crop of raspberry, and although extensive leaf notching was seen in the crop these weevils were in a mixed population with the more common and widespread species, the black vine weevil, which will also cause such feeding damage. Even so, live larvae confirmed to be *O. lavandus* subsp. *lavandus* were collected from around the roots of the raspberry plants, and this provides clear evidence of a host association. Adult specimens were also collected separately from a strawberry crop in the same area but no plant damage was recorded or larvae collected from the soil.

Description

Egg: Spherical**,** approximately 1mm in diameter, translucent pale brown and shiny.
Larva and pupa: General characteristic as per. *Otiorhynchus sulcatus,* i.e. larvae: legless (apodous), creamy white with a light brown head capsule; pupae: white or pale yellow, naked i.e. no pupal case, and develops underground in a soil cell formed by the final larval instar.
Adult: (Figure 1.), Superficially similar in appearance to the common clay-coloured weevil (*O. singularis* (Fabricius)) but slightly larger. However, there are slight differences in the proportion of the body parts between the two species, and *O. lavandus* subsp. *lavandus* has elongate (Figure 2) rather than variegated round hairs (scale-like setae) on the wing cases (elytra) as seen in *O.singuluris* (Figure 3).

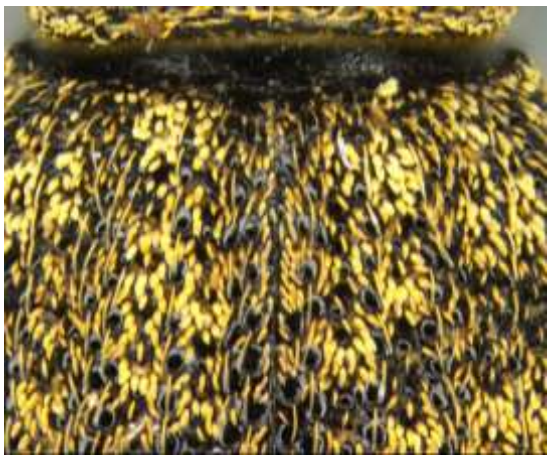

Figure 2. Part of the wing cases of *O. lavandus* subsp. *lavandus* showing elongate rather than round hairs © Fera Science Ltd.

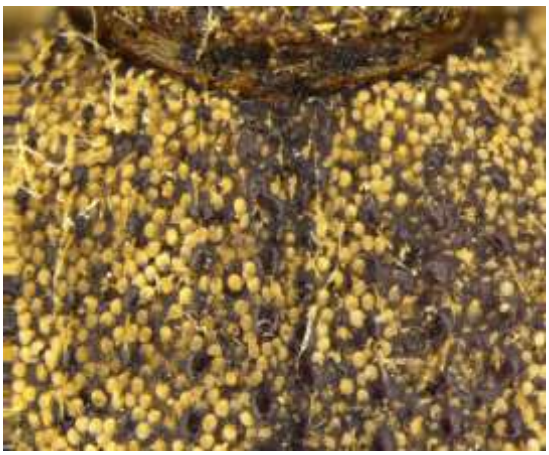

Figure 3. Part of the wing caes of *O. singularis* showing the round rather that elongate hairs © Fera Science Ltd.

Biology

Unlike the black vine weevil which is parthenogenetic (all adults are females), *O. lavandus* subsp. *lavandus* is sexually reproductive. Both male and female specimens have been collected from the population in England and observed mating (something not usually observed in other *Otiorhynchus* species) and laying eggs. There are no known studies regarding the biology of this species and nothing seems to be known about its developmental parameters.

Damage

Evidence of weevil damage includes leaf notching caused by the feeding activities of the adults and this was observed in the raspberry crop in England. The peak period of damage was between June and August with 70% of the affected crop showing notching of the leaves up to a height of 60 cm from the ground (Figure 4.). However, the amount of damage that can be attributed to *O. lavandus* subsp. *lavandus* is unclear as the black vine weevil will also cause such damage. No data specific to *O. lavandus* subsp. *lavandus* is available at this time.

Figure 4. Leaf notching to raspberry leaves, typical adult *Otiorhynchus* weevil feeding damage © Fera Science Ltd.

Control

There is no specific information available about how to control *Otiorhynchus lavandus* subsp. *lavandus*, however, it is likely that control methods used for vine weevil would be the most appropriate. One of the most important elements of managing vine weevils is monitoring. The adults are generally nocturnal, emerging just after dusk to feed on the foliage of plants, but it is possible to spot them using a torch during the hours of darkness. In the daytime they remain concealed in growing media, soil or under plant debris, under plant containers or rims, under polythene or ground-cover matting or any other suitable refuge. Artificial refuges, for example, 15 cm squares of wood, dark plastic or screwed up balls of newspaper can be put out as a means of monitoring for the presence of adult weevils (http://www.fargro.co.uk/content/publications/vineweevil_0614.pdf). Grooved boards or corrugated plastic can also be used as monitoring tools, however in the current AHDB Horticulture-funded project HNS 195 'Improving vine weevil control in hardy nursery stock' it has been shown that a commercial vine weevil trap is more effective in trapping vine weevil adults (AHDB Horticulture Factsheet 24/16). Larvae can be monitored by searching through growing media around the roots. A physical method of control that has been used by the grower where *O. lavandus* subsp. *lavandus* was found is to shake plants over collecting sheets at night, whilst the adults are active. The weevils can then be disposed of. Good hygiene practices such as weed control and the removal of possible refuges such as plant debris and used growing media can also contribute to control.

Bio-control agents

A number of species of entomopathogenic nematodes are sold to control vine weevils. *Steinernema kraussei* (Steiner) (which is active down to 5°C), *Heterorhabditis downesi* Stock, Griffin & Burnell (active down to 8°C), *Steinernema feltiae* (Filipjev) (8°C) making them most suitable for late autumn and early spring, whereas *Heterorhabditis bacteriophora* Poinar requires higher temperatures i.e. >12°C to be effective thus making this species more appropriately deployed in the warmer parts of the growing season. There is also a product on the market for use against vine weevils and other pests which includes a mix of *Steinernema carpocapsae*, *Steinernema feltiae* and *Heterorhabditis*

bacteriophora (this is active down to 10°C). All nematode species can be applied as a drench or through irrigation lines depending on the situation and following the instructions provided with the product. In addition, entomopathogenic fungi such as *Metarhizium anisopliae* (Metschn.) Sorokin [now called *M. brunneum*] with the commercial product name 'Met52 Granular Bioinsecticide' is effective between 15 and 30°C and is approved for use pre-planting by growing media or soil incorporation in a range of crops including raspberry and strawberry.

Pesticides

Two foliar insecticides will give some incidental control of adult vine weevils when used for control of other pests, 'Chess WG' (a.i. pymetrozine) and 'Steward' (a.i. indoxacarb). There is an Extension of Authorisation for Minor Use (EAMU) for applications of Chess WG to protected strawberry with a three day harvest interval (1249/2016). Chess WG also has an EAMU (1258/2016) for use on protected raspberry with a three day harvest interval. Steward has an EAMU (988/2013) for use on protected raspberry (1 day harvest interval), outdoor raspberry (7 day h.i.) and has an EAMU (1031/2014) for use pre-harvest (up to BBCH 59) and for post-harvest applications to outdoor strawberry crops. Pesticide approvals are regularly changed and the current status should be checked before they are used. The conditions on pesticide product labels and the conditions of EAMUs must be read and followed.

Advisory Information

Statutory action will not be taken against findings of *Otiorhynchus lavandus* subsp. *lavandus* and it is not necessary to notify the Plant Health and Seeds Inspectorate, Scottish Government or DAERA Plant Health Inspection Branch if the pest is found. Commercial fruit growers and vineyards, but particularly organic growers, may wish to monitor for its presence.

For additional information on UK Plant Health please see:
https://planthealthportal.defra.gov.uk/
https://www.gov.uk/plant-health-controls
http://www.gov.scot/Topics/farmingrural/Agriculture/plant/PlantHealth/PlantDiseases
https://www.daera-ni.gov.uk

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