

Catching vine weevils with odors

April 20 2012, By Rob van Tol



Catching the vine weevil (Otiorhynchus sulcatus) is now possible with the identification of odours these weevils find attractive. Scientists of Plant Research International, part of Wageningen UR, discovered that vine weevils prefer three distinct odours. This research has been published in *BioOne Online Journal*.

The scientists collected odours from <u>ornamental plants</u> (of the yew and spindle tree families) the weevils are fond of. Exposure of the <u>antennae</u> of the vine weevils to these substances resulted in the identification of sixteen substances to which the weevils responded. The procedure was as follows: the antennae, remaining active for half an hour after removal from the weevils, were placed between electrodes and brought into contact with the odours. The odors that could be detected by the weevils caused a small current. This is how the scientists identified the



substances that could be smelt by the weevils.

There is, however, a large difference between being able to smell or being attracted by a substance. The sixteen substances that caused a current in the antennae of the weevils have therefore also been tested in a lab trial on attractiveness followed by further testing of a selection of these odors – separately and in a mixture of different compositions – in a strawberry field in Oregon (United States) and in various ornamentals such as yew and rhododendron, crops in which these weevils cause great damage. The three substances that were found to be most effective have meanwhile been patented for application in a vine <u>weevil</u> trap. A new trap type, specifically for this weevil species, has meanwhile been developed and patented as well. The combination of these odours and trap will this year be tested at field scale, in the USA as well as in the Netherlands. These follow-up projects are financed by the Horticultural Board in the Netherlands and the USDA-ARS in the USA.

Vine weevils present a major problem in the ornamental sector and in small fruit production. The weevils chew at the leaves but this damage is usually not very large. The largest problems are caused by the larvae of the weevil that eat the roots of the plants. This is difficult to see because the weevils are active at night and the larvae live belowground. After the appearance of the first weevils (end of May) the grower has no more than three to four weeks to control them before they start laying eggs. The trap that has been developed by Plant Research International and the USDA-ARS does not primarily serve to catch all weevils but is developed to detect the weevils at an early stage. Growers, or home gardeners in whose gardens the weevils cause problems, can then take appropriate measures. Research on combining odor with a chemical or biological control (Lure & Kill) is currently being investigated as well.

More information: *Journal of Economic Entomology* 105(1):169-175. 2012. <u>doi: 10.1603/EC11248</u>



Provided by Wageningen University

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