Northern corn rootworm - *Diabrotica barberi* Smith & Lawrence

The beetle, which is captured in the trap

Adult beetles are 5-6 mm long, the thorax and elytrae are green, without dark stripes. This is the main difference in morphology between *D. barberi* and *D. v. virgifera*, which latter has dark stripes on the elytrae, and the basic colour is yellowish. Female beetles have shorter antennae, and their abdomens are large, yellow, full with eggs. By the males the end of the abdomen is more rounded. Larvae live in the soil among the roots and have a whitish, soft, maggot-like body.

Host plant is maize, but feeds also on some other graminaceous plants. Damage: similar to the western corn rootworm (*D. v. virgifera*) the greater damage is caused by the larvae, which chew and often bore throughout the root-stock and roots of maize in the soil. The whitened, spotted colour of the leaves is characteristic, shows deficiency in nutrients. Indirect damage: plants with dead roots often collapse, sometimes they can recover and straighten up, this way forming a "goose-neck" shape. Adult beetles cause damage by chewing the grains at the tip of the unmatured maize-ears, they also damage the stigma, which can cause fertilization problems. This damage, however, is not so significant as the root-damage caused by the larvae.

The damage of the larva, which should be averted

The CSALOMON® KLP+ traps should be placed at 1.0-1.5 m height (or below the upper level of vegetation) at maize plants 5-10 m inside a maize field. Recommended starting time of trapping in Central Europe is mid-June.

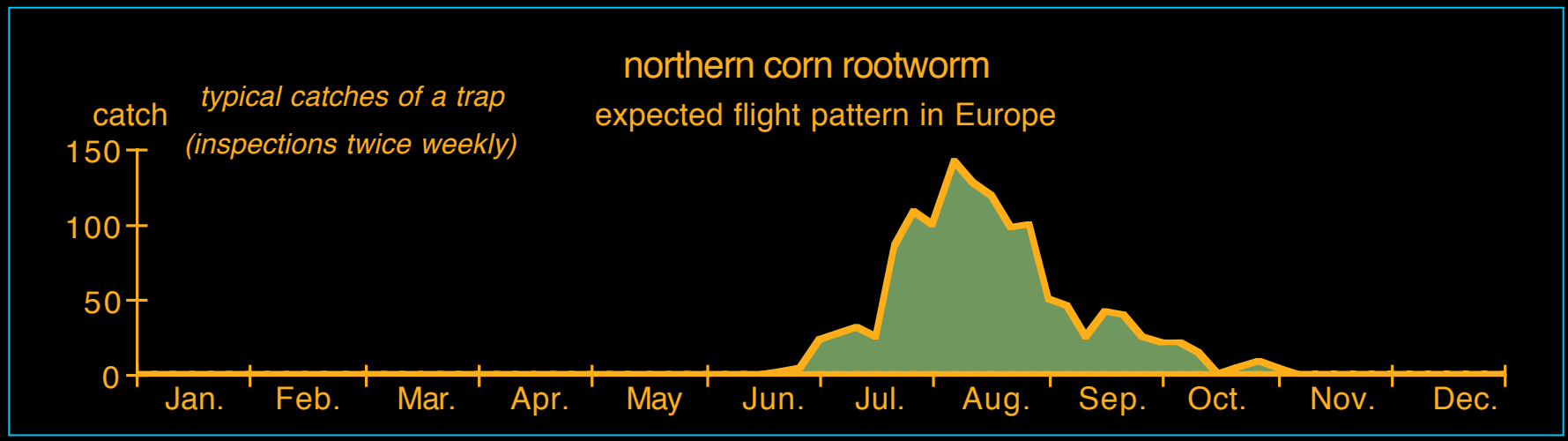
Selectivity of the CSALOMON® KLP+ trap: the trap is supplied with dual (pheromone and floral) lures. The pheromone lure for *D. barberi* may attract specimens of *D. v. virgifera* (however, pheromone lures for *D. v. virgifera* DO NOT attract *D. barberi*!). The same is true for the floral lure for *D. barberi*: it may attract specimens of *D. v. virgifera* (while the floral lure for *D. v. virgifera* will attract very little *D. barberi*). *D. v. virgifera* specimens caught can easily be told apart by the stripes on their elytrae from *D. barberi*.

The trap with dual lures will capture both female and male beetles, the sex ratio captured will resemble the natural sex ratio of the population around the trap. Apart from the two *Diabrotica* spp. very low numbers of other insects (flies, grasshoppers, etc.) may get into the trap by chance only. These are easily distinguishable from *D. barberi* beetles. The attraction of the chemical bait is improved by the yellow colour of the crawl-up panel.

The lures of the CSALOMON® KLP+ trap do not loose from their activity for at least 4-6 weeks in the field, depending on environmental conditions. In order to ensure reliable monitoring, the bait should be replaced after this time period. For satisfactory performance a killing agent (not provided with the trap) should be placed into the catch container.

Unlike *D. v. virgifera*, which has been inroduced and spread already in many European countries[1,2], *D. barberi* has not been detected in Europe (2013). Since its original occurrence area in North America partly overlaps with that of *D. v. virgifera*, its introduction sooner or later into Europe cannot be excluded. *D. barberi* is on the EPPO A1 list. *D. barberi* is more cold resistant than *D. v. virgifera*. The CSALOMON® KLP+ trap has been designed first of all for early detection purposes. When a population establishes, the easiest way to control *Diabrotica* is by crop rotation[3]. Where this is not possible, soil insecticides can be applied.

[1] *Čamprag, D., Bača, F. Pesticide Science, 45:291-292, 1995.* [2] *for current distribution of WCR in Europe see www.mkk.szie.hu/dep/nvtt/wcrnet* [3]*Kukuruzna zlatica. ed. D. Čamprag. Društvo za zaštitu bilja Srbije, Beograd, 1995.*



To order / to inquire: MTA ATK Növényvédelmi Intézet (Plant Prot. Inst. CAR HAS) Budapest, Pf 102, H-1525, Hungary; phone. +(36-1)-391-8637, +(36)-30-9824999; fax +(36-1)-3918655;
e-mail: <csalomon.orders@agrar.mta.hu>; internet: <www.csalomontraps.com

When using our KLP+, VARs+ or VARb3z+ trap designs it is **absolutely necessary** to kill insects getting into the trap. The most widespread insecticide used in pheromone traps worldwide is an anti-moth strip with dichlorvos (DDVP 15-20%) active ingredient. (This from 2010 is not permitted in some countries!)

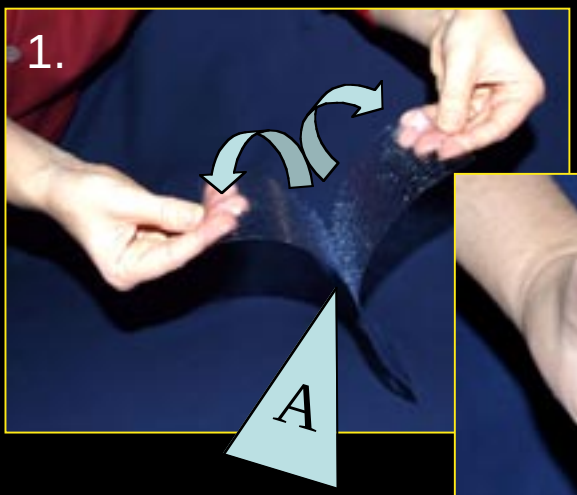
Colleagues in Italy successfully used an anti-moth strip VAPE bought in Italian supermarkets. This strip is having transfluthrin as active ingredient.

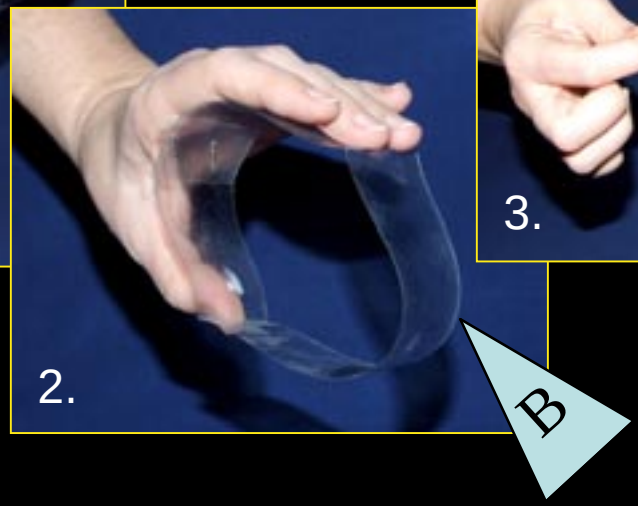
Another successful solution was to use pieces of dog collars (anti mite collars for pets) with diazinone (15%).

One can also spray the inside surface of the traps and catch containers (the largest surface possible) with sprayable household insecticides (permethrin, empethrin or deltamethrin active ingredients all found suitable), however, in this case one has to re-spray at weekly intervals.

For users who find the application of insecticides inconvenient for any reasons, as an alternative we supply our cylindric sticky insert (sent as a supplement to KLP+, VARs+ and VARb3z+ trap types).

Assembling instructions for Cylindric sticky insert





1. Separate one sticky insert (A) from the pair of inserts!
2-4. Place the sticky insert into the holder ring (B), so that the STICKY SIDE FACES INSIDE!
5. Put the assembled cylindrical sticky insert into the catch container of the KLP trap!
6. Place on it the plastic cone and assemble the trap as usual!

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D. barberi

A typical side catch in the traps can be *D. v. virgifera*, which can easily be told apart based on the dark stripes on its elytrae from the target species.

So the beetle looks, which is caught in the CSALOMON® KLP+ trap!