Western corn rootworm - *Diabrotica v. virgifera* LeConte.

KLPfero+ trap

Adult male beetles are 4-7 mm long, have a flat body with 3 broad, dark stripes on their yellowish-white back. Sometimes the dark stripes are more or less converged. Thorax is not spotted, yellowish-brown, while the similarly looking and in Central Europe abundant non-pest elm leaf beetle (*Galerucella luteola*) is larger and has black-spotted thorax. 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**: 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, characteristic of the damage by western corn rootworm (WCR) larvae.

KLPfero+

draf.lorraine.agriculture.gouv.fr

The beetle, which is captured in the trap

www.kis.si

www.ipm.iastate.edu

www.
ianr.unl.edu

The damage of the adult beetle

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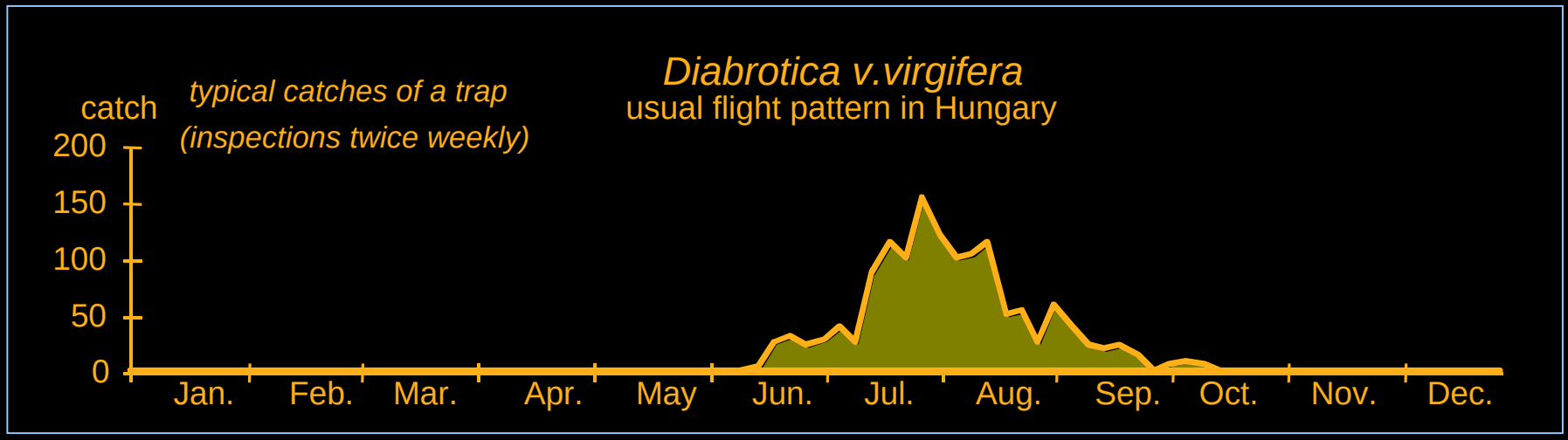
Adult beetles cause damage by chewing the grains at the tip of the unmatured maize-ears, They also damage the stigma, which can cause fertilization problems. This damage, however, is not so significant as the root-damage caused by the larvae. The **KLPfero+** traps should be placed at **1.0-1.5 m** height (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 **KLPfero+** trap: in Central Europe the pheromone baits of the trap do not attract any other insects. Apart from WCR very low numbers of other insects (flies, grasshoppers, etc.) may get into the trap by chance only. These are easily distinguishable
from WCR beetles. The **KLPfero+** trap is provided with the pheromonal WCR bait; thus it attracts predominantly male WCR.
However, if the need arises, a floral WCR bait (available on request) can also be added and the trap can be operated with both types of baits at the same time (in this case the sex ratio captured will resemble the natural sex ratio of the population around the trap).
The bait of the KLPfero+ trap does not loose from its 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 insects should be killed in the catch container.

WCR appeared in Europe quite recently. First beetles were discovered near Beograd (Yugoslavia) during the summer of 1992[1]. By 2004 many Central- and Western European countries have been infected[2]. Application of pheromone traps ensure early detection of the pest in a new geographical area, or the monitoring of the flight where the pest already established itself. Pheromone traps proved to be the most sensitive tool for detection of the beetle[3,4]. In 1996, for example, from the total of 788 WCR beetles captured in detection trials in Croatia, 769 was caught in pheromone traps and only 21 in other types of trapping devices[3].

[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] Igrc-Barčič, J. IWGO Newsletter, 16(2):22-23, 1996; Zlof, V. IWGO Newsletter, 16(2):16-17, 1996. [4] Ilovai, Z. IWGO Newsletter, 16(2):18, 1996; Tóth, M. et al., Növényvédelem, 32:447, 1996.



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phone. +(36-1)-391-8637, +(36)-30-9824999; fax +(36-1)-3918655; e-mail: <csalomon.orders@julia-nki.hu> or <h2371tot@ella.hu>; internet: <http://www.julia-nki.hu/traps/>.

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!)

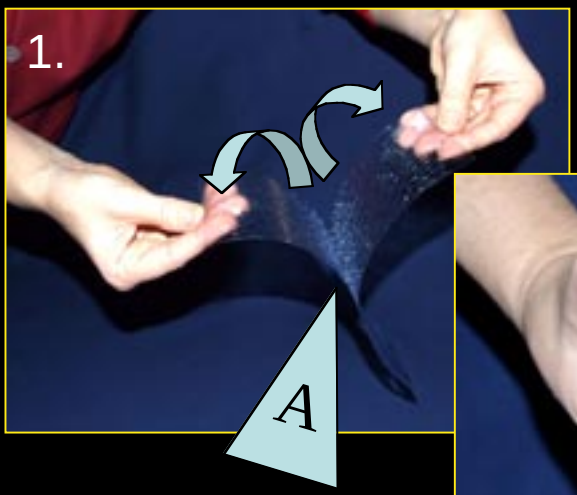
Colleagues in Italy successfully used an anti-moth strip VAPE bought in Italian supermarkets. This strip is having transfluthrin as active ingredient.

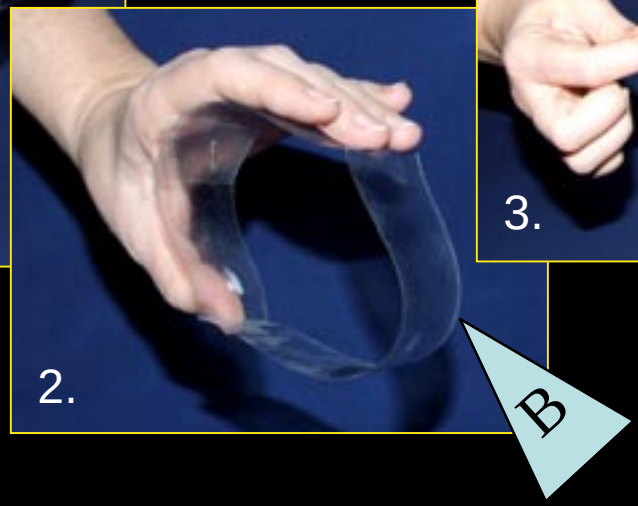
Another successful solution was to use pieces of dog collars (anti mite collars for pets) with diazinone (15%).

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.

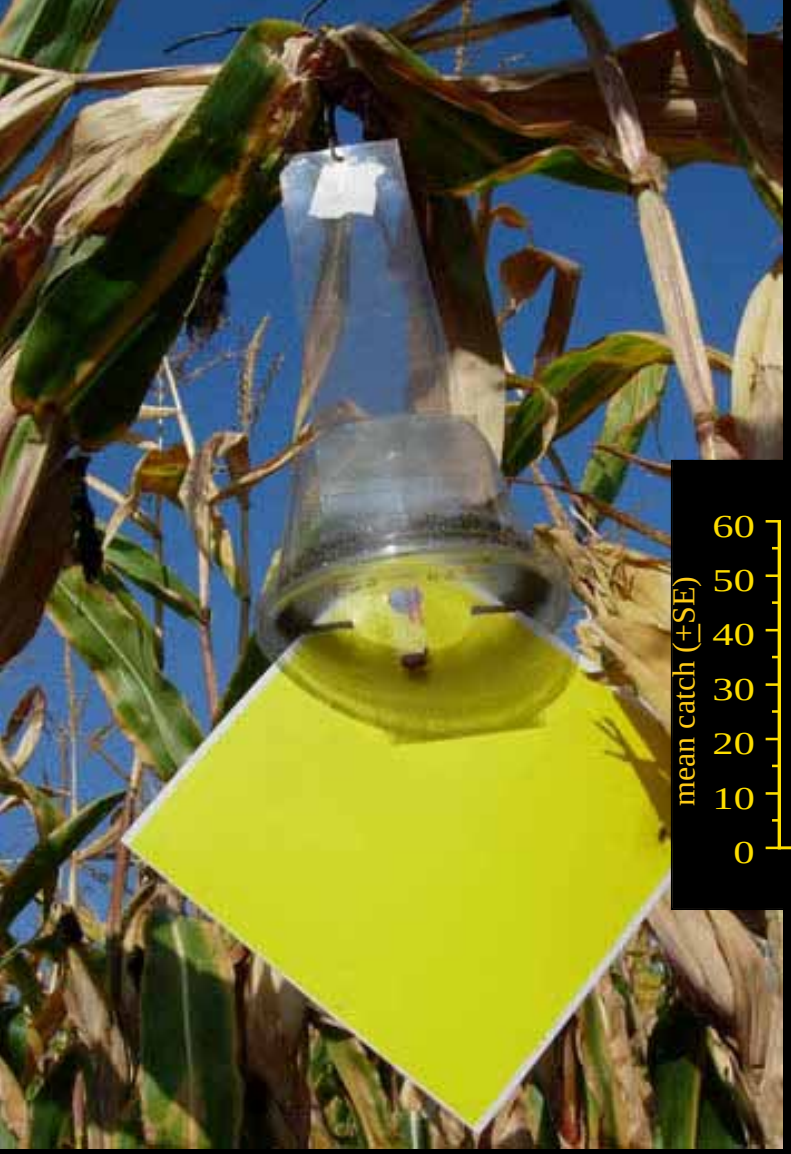
For users who find the application of insecticides inconvenient for any reasons, as an alternative we supply our cylindric sticky insert (sent as a supplement to KLP+, VARs+ and VARb3z+ trap types).

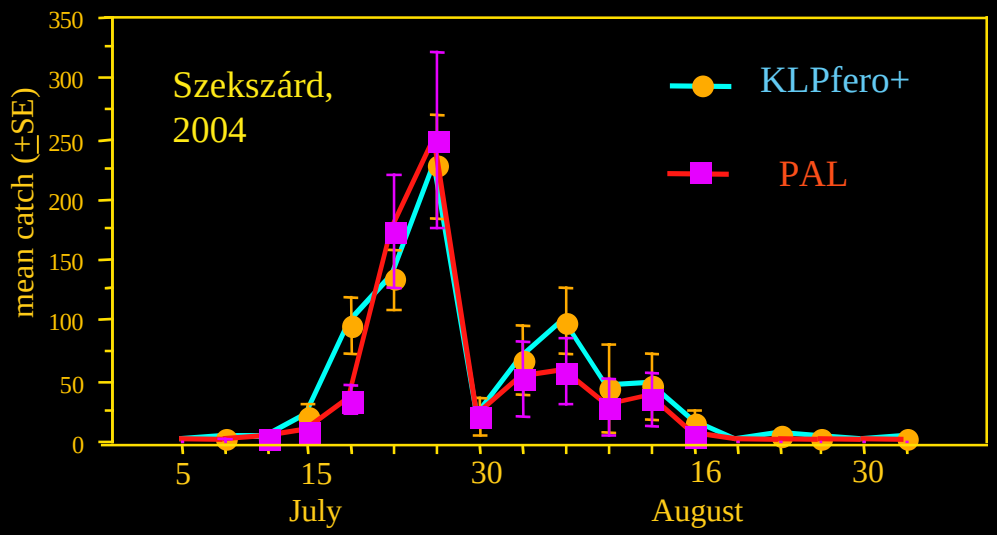
Assembling instructions for Cylindric sticky insert

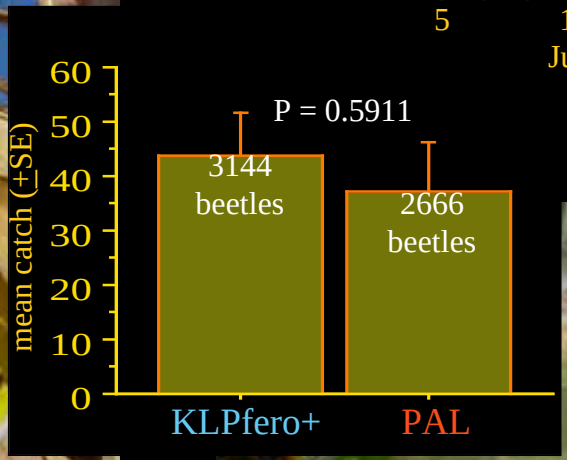




1. Separate one sticky insert (A) from the pair of inserts!
2-4. Place the sticky insert into the holder ring (B), so that the STICKY SIDE FACES INSIDE!
5. Put the assembled cylindrical sticky insert into the catch container of the KLP trap!
6. Place on it the plastic cone and assemble the trap as usual!







In field comparison tests, with respect to all catch characteristics studied, KLPfero+ performed similar to the sticky PAL.