

You can pinpoint the best time to spray through monitoring the flight of the pest by pheromone traps

They detect the moths, so that you can prevent the damage of the larvae:



MTA NKI  
Csalom♂N<sup>®</sup>

pheromone trap family

Pheromone traps are the intelligence agents of plant protection. The bait of a pheromone trap contains the sex pheromone of the female, and will attract the male moths of the same pest species.

For pests of: apple, pears, peaches, cherries, plums, grapes, other berries, vegetable crops, cereals, forest plants and ornamentals, stored products etc.



To order / to inquire:

**MTA ATK Növényvédelmi Intézet**

(Plant Protection Institute, MTA ATK)



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Traps of our trap family are offered to growers through the non-profit extension service of our Institute. Traps are sent to customers outside of Hungary by express service (usual partner TNT; service Global/Economy Express). Transfer costs depend on parcel weight, size and transfer agent. Please ask for a price quote for your actual order!

We acknowledge gratefully all orders, as income from selling traps will contribute to the financial support of the basic research activities of our team!

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Why use  
pheromone traps?

New  
products

List by latin  
name

List by plant  
culture

Trap  
designs

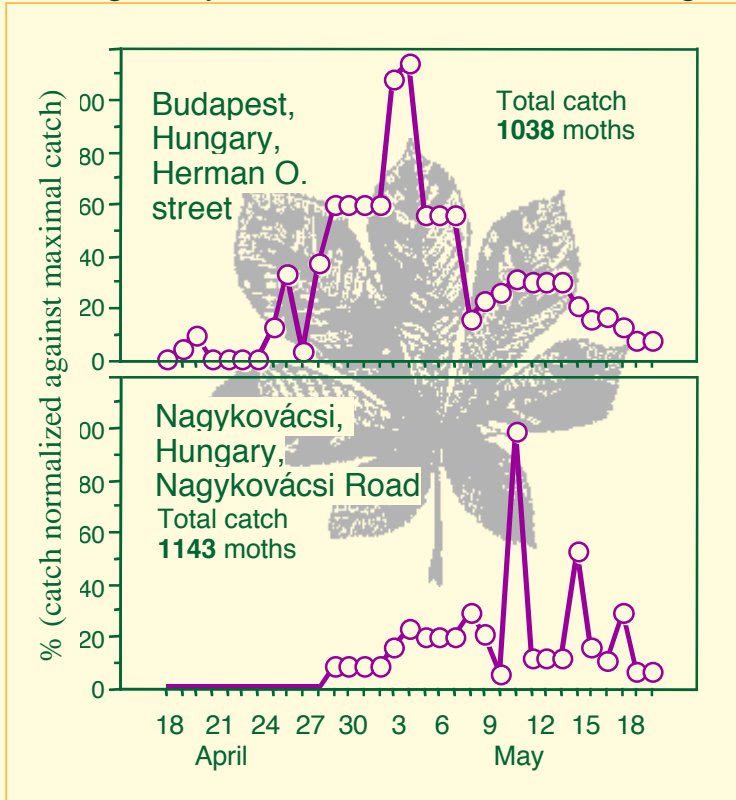
Diabrotica  
traps

About  
us

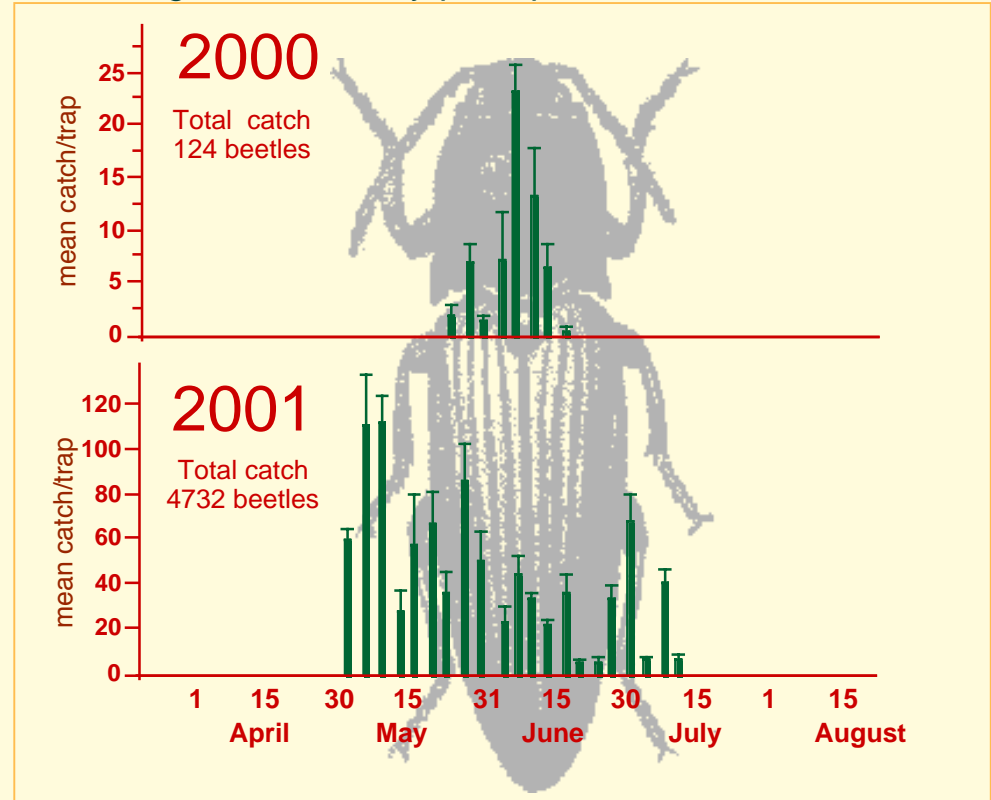
Next  
page

# Differences in flight dynamics - no guesswork is necessary, one can measure it with pheromone traps

The first occurrence (beginning of flight) and flight dynamics of a given pest can significantly differ between two sites (even if they are not too far apart), and, naturally, between consecutive years (predominantly due to differing weather conditions). See below some examples from our earlier studies. One of the major advantages of pheromone traps is that they detect and monitor the actual occurrence of the given pest at the given site and in the given year, so there is no need for guesswork in making the necessary plant protection decisions.



**Example 1: Difference between sites.** Dynamics of the first flight of the horse-chestnut leafminer (*Cameraria ohridella*) in 2001 at two sites at a distance of ca 10 km from each other.



**Example 2: Difference between years.** Dynamics of the flight of the click beetle *Agiotes rufipalpis* in two consecutive years at Debrecen (Hungary; in each year two traps with *A. rufipalpis* pheromone bait were operated on the site).

# Newest members of the trap family (2018)



## **VARs+ trap – new, simplified design**

Based on our former VARs+ trap a new design has been developed, for easier assembling and maintenance (Available from: 2018).

# Newest members of the CSALOMON® trap family (2016-2017)



Foto: Bozsik G.

**European corn borer - *Ostrinia nubilalis* BISEX trap**  
 The bait in the CSALOMON® corn borer "BISEX" trap is NOT a pheromone, rather a feeding attractant, therefore the trap catches both **females** and males.  
 Recommended trap type: **VARL+**. (Available from 2016).



<http://www.lepiforum.de>

**Beet armyworm - *Spodoptera exigua***  
 This noctuid is a world-wide pest, it occurs in Eurasia, America, Africa and some parts of Australia. Its wide host range includes asparagus, beans and peas, sugar and table beets, celery, cole crops, lettuce, potato, tomato, cotton, cereals, oilseeds, tobacco, ornamentals, etc.  
 Recommended trap type: **VARL+**. (Available from 2017).



Foto: L.D. Shamanskaya

**Sea buckthorn fly - *Rhagoletis batava***  
 The pest originally widespread in Siberia and Russia caused recently severe damages in sea buckthorn plantations in several countries in North Europe. Its spread to hitherto uninfested countries in Europe can be expected. Recommended trap type: **PALz**. (Available from 2016).



[www.lepiforum.de](http://www.lepiforum.de)

**African cotton leaf worm - *Spodoptera littoralis***  
 The species is widespread in the Middle East and Africa, in Europe it occurs in some southern countries. It is highly polyphagous, damages many cultures. Recommended trap type: **VARL+**. (Available from 2017).



<https://upload.wikimedia.org>

**Box tree moth - *Cydalima perspectalis***  
 The highly invasive moth damages exclusively the ornamental *Buxus* spp. Its original occurrence area was Eastern Asia. It appeared in Europe in 2000, and by 2016 it spread to the east to the Ukraine and the Black Sea. Recommended trap type: **VARL**. (Available from 2017).



<https://extension.entm.purdue.edu/>

**Cabbage root fly - *Delia radicum***  
 A world-wide important pest of cabbage relatives and other crucifers. The lure in the trap is NOT a pheromone, rather a feeding attractant, therefore it attracts both **females** and males. Recommended trap type: **KLP+**. (Available from 2017).

# Newest members of the trap family (2015-2014)



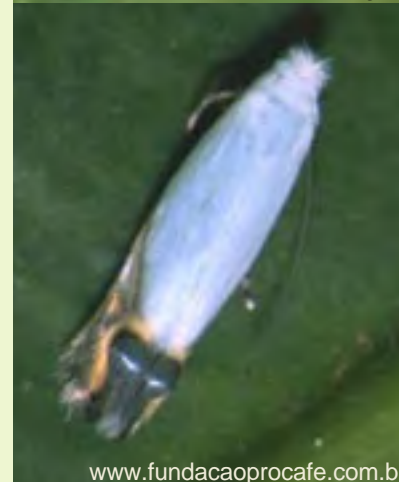
**"BISEX" trap: *Synanthedon myopaeformis*; *Cydia pomonella*; *Cydia splendana*; *Hedya nubiferana*.** The bait of the "BISEX" trap is NOT a pheromone, rather a synthetic FOOD ATTRACTANT. Therefore the trap catches both FEMALES and males. It can be recommended for use first of all in orchards with air permeation (=mating disruption) with pheromone, where pheromone-baited traps do not work. Recommended trap type: **RAG**. (Available from 2015).



**Splendid piercer (= nut fruit tortrix) - *Cydia splendana* Hübner. (= *C. triangulella* Goeze)** (Lepidoptera, Tortricidae). This moth is among the most important acorn pests of chestnut all over Europe. Recommended trap type: **RAG**. (Available from 2014).



**Northern corn rootworm - *Diabrotica barberi* Smith & Lawrence** (Coleoptera, Chrysomelidae). The principal host plant is maize. It causes damage similar to the western corn rootworm (*Diabrotica v. virgifera*). The northern corn rootworm has not been detected in Europe, but its introduction cannot be excluded. We supply the trap with a dual (pheromone AND floral) lure, so it catches both males and females. Recommended trap type: **KLP+**. (Available from 2014).



**Coffee leafminer - *Perileucoptera (Leucoptera) coffeella* Guérin-Meneville** (Lepidoptera, Lyonetiidae). It is an important pest of coffee in South America and Madagascar. It is not present in Europe and its introduction cannot be anticipated. Recommended trap type: **RAG**. (Available from 2014).



**San Antonio beetle - *Diabrotica speciosa* Germar** (Coleoptera, Chrysomelidae). In South America it damages apart from maize also soybeans, potato, etc. The San Antonio beetle has not been detected in Europe, but its introduction cannot be excluded. We supply the trap with a floral lure, so it catches both males and females. Recommended trap type: **KLP+**. (Available from 2014).



**Cylindric sticky insert** for KLP+, VARs+ (and other traps with „+“ sign in their codes). Our trap designs KLP+ and VARs+ work only if insects getting into them are killed off by an insecticide. We offer the cylindric sticky inserts to users for whom the use of an insecticide is inconvenient for some reason. Replacement sticky inserts are also available. Recommended trap type: **KLP+**, **VARs+**, **VARb3z+**, etc. (Available from 2014).

# Newest members of the trap family (2013)



insectimages.org



www.cirrusimage.com



Photo: Koczor S.

freenatureimages.eu



**Sunflower maggot fly - *Strauzia longipennis* Wiedemann** (Diptera, Tephritidae). The maggot damages the flower receptacles of sunflowers and related plants. The species originates from North America. It is an invasive species which recently appeared in Europe. Its eventual spread towards Central and South Europe can be expected. Our synthetic food attractant lure originally developed for the cherry fruit fly (*Rhagoletis cerasi*) also works well with this related fly species. Recommended trap type: **PALz**. (Available from 2013).

**Device for concentrating / collecting lacewing eggs in the field -**

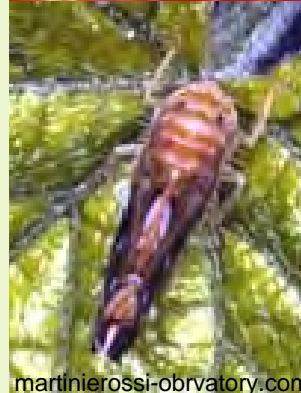
***Chrysoperla carnea* species group** (Neuroptera, Chrysopidae). This new innovative product is recommended for use by biological or organic growers. By using it you can concentrate eggs laid by naturally occurring lacewings in the garden or orchard to the plants you choose. The synthetic lure attracts *Chrysoperla* lacewings to the device and since the surface texture of the inner surface enhances egg laying, they will lay their eggs there. The large number of lacewing larvae hatching from the eggs will hunt for aphids and other pests on the given plant and in its close vicinity. One can also place the synthetic lure on overwintering boxes: in boxes with lure 2-3 times more lacewings will overwinter, resulting in higher lacewing population densities around the overwintering boxes next spring. Product code: **CHRegg**. (Available from 2013).



furs.si



entomophily.wordpress.com



martinierossi-obrvatory.com



inra.fr

**Spotted wing drosophila - *Drosophila suzukii* Cresson** (Diptera, Drosophilidae). This dangerous fruit pest (small fruits, peaches, grapes, etc.) originates from southeastern Asia, but has been introduced into Europe in 2008 (Spain), and is spreading ever since (until 2012 has been reported from France, Italy, Slovenia, Germany). Our VARL funnel trap (modified by the addition of a screen at the funnel part – thus larger insects are „screened out“ from the catch) proved to be very efficient for the capture of this small insect. The user shall pour a natural attractant and killing solution into the catch container of the trap. Best composition of the solution is: 150 ml red wine (with 10-14% ethanol content - for example Merlot type wines proved to be very good) + 150 ml apple vinegare (with 4-6% acetic acid content) (other natural vinegares can also be used) + some drops of household detergent. Recommended trap type: **VARL**. (Available from 2013).

**American grapevine leafhopper - *Scaphoideus titanus* Ball** (Hemiptera, Cicadellidae). This grapevine pest originates from North America, and is continuously spreading in Europe. Its main importance is not due to the direct feeding damage, but the fact that this species is the vector of the disease Grapevine flavescence dorée (Ca. *Phytoplasma vitis*). The disease damages the leaves and the fruits as well, and is an important quarantine pathogen. The American grapevine leafhopper can be monitored by using yellow sticky sheets (SZs), and greenish yellow sticky sheets (SZz) can also be used with similar efficiency. With the latter the monitoring of the European grapevine thrips (*Drepanotrips reuteri* Uzel) can also be performed. Recommended trap types: **SZs, SZz**.

**Wireworm bait trap (Chabert / Blot trap) - *Agriotes* spp.** (Coleoptera, Elaeiridae). It can be applied before sowing. Based on the number of wireworms caught one can estimate population density, and can decide on the necessity of the application of soil insecticides or other measures. The use of this trap is recommended on areas where large numbers of adult click beetles were caught in pheromone traps the previous years. The trap - apart from the most abundant *Agriotes* spp. - also catches other phytophagous wireworms, so these can also be monitored if the need arises.

Recommended trap type: **WW** (Available from 2013)

Next page

Go first page

# Newest members of the trap family (2012-2010)



www.pointernet.pds.hu

**Cabbage seed weevil** (*Ceutorhynchus assimilis*), **cabbage stem weevil** (*C. quadridens*), **rape stem weevil** (*C. napi*) (Coleoptera, Curculionidae). They damage rape, cabbage and related crucifers. Our non-sticky "hat" trap attracts all three weevils, and can be used for several years. Suggested application: to detect early occurrence of overwintering weevils at the overwintering site. Recommended trap type: **KLP+** (Available from 2012).



Fotó: B. Baric

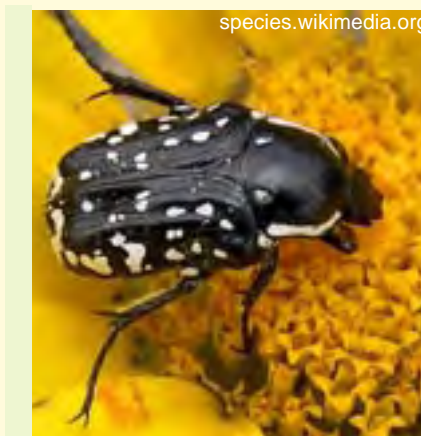
**Walnut husk fly** (*Rhagoletis completa*) (Diptera, Tephritidae). It is a pest of walnuts. Originates from North America. It is an invasive species in Europe. It is already present in Italy, Slovenia, Croatia, Germany, Switzerland and France (2011). Our synthetic food attractant lure originally developed for the cherry fruit fly (*R. cerasi*) also works well with this species. Recommended trap type: **PALz**. (Available from 2012).



Photo: Tóth M.

**Kunság green scarab** (*Anomala solida*) (Coleoptera, Melolonthidae) The species damages grapes and orchard trees by feeding on the foliage. It prefers sandy areas. Regular damages were reported from the Balkans, especially Serbia. Last outbreak took place in Hungary in 2010. Morphologically very similar to *A. vitis*, but smaller. The pheromone bait is highly specific, it DOES NOT attract *A. vitis* or *A. dubia*. Recommended trap type: **VARb3**. The trap is suitable for mass trapping. (Available from 2011).

Go first page



species.wikimedia.org

**Middle-east flower scarab** (*Oxythyrea cinctella*) (Coleoptera, Scarabaeidae, Cetoniinae). Morphologically similar to *Oxythyrea funesta* but smaller, it is a middle-east species. Causes regular damages by feeding on blossoms and ripening fruit in Turkey, Syria, Iran and neighbouring countries. Recommended trap type: **VARb3z**. The trap is suitable for mass trapping. This same trap is equally effective for the related *O. funesta*. (Available from 2011).



farm3.static.flickr.com

**Tomato leaf miner** (*Tuta absoluta*) (Lepidoptera, Gelechiidae). The pest originates from South America. In recent years it was detected in several European countries as well. The species is an important pest of tomato (both field grown and glasshouse produced). Recommended trap type: **RAG** [Available from 2010, in cooperation with PheroNet (Sweden)].



www.hmbg.org

**Marble-yellow straw pearl** (*Evergestis extimalis*) (Lepidoptera, Pyralidae). It is a pest of rape and related crucifers, mainly damaging the seeds. Its importance is greater in Eastern European countries. Recommended trap type: **VARL+** (Available from 2010).

Next page

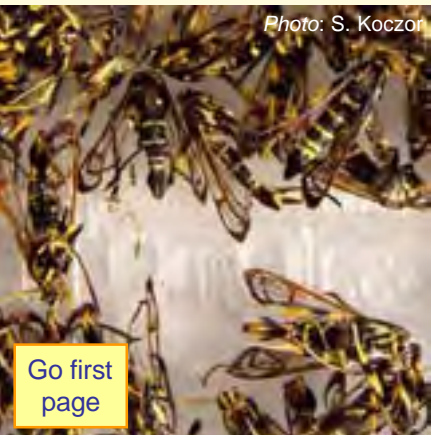
# Newest members of the **CsalomN** trap family (2010-2009)



**Pollen beetle (*Meligethes aeneus*)** (Coleoptera, Nitidulidae). A pest of rape and related crucifers. Main damage is caused by the adult beetles. Our non-sticky funnel trap (which can be used during several seasons) combines optimal visual and chemical attractant stimuli for the beetle. The trap also catches other, secondary *Meligethes* spp. Recommended trap type: **VARb3z+** (Available from 2010).



**honeylocust gall midge (*Dasineura gleditchiae*)** (Diptera, Cecidomyiidae). Pest of the ornamental honeylocust tree. The larvae induce the formation of galls instead of the young leaves. Identification of the pheromone was performed in cooperation with NRI (UK). Recommended trap type: **RAG** (Available from 2010).



**Yellow-legged clearwing (*Synanthedon vespiformis*)** (Lepidoptera, Sesiidae). A forestry pest mainly on oak, beech and chesnuts. Recently it caused sever attacks in Hungary in thornless blackberry (*Rubus*) plantations. The species is present in Europe, Africa and the Middle East. Recommended trap type: **VARL+, RAG** (Available from 2009).



**Hairy rose beetle (*Tropinota squalida*)** (Coleoptera, Scarabaeidae, Cetoniinae). The widely polyphagous adult beetle feeds on the flowers of many orchard trees and cultivated plants. It can damage also ripening fruits. The species is present in the south of Europe, North Africa and in Asia as far as India. The same bait attracts the closely related *Epicometis (Tropinota) hirta* at similar efficiency. Recommended trap type: the **VARb3k** trap combines best visual and chemical attractant cues (Available from 2009).



**Grape thrips (*Drepanothrips reuteri*)** (Thysanoptera, Thripidae). The species damages different grape varieties. It is present in Europe and in some parts of North America. Our trap attracts the species by its fluorescent yellow colour, it contains no chemical attractant. Recommended trap type: **SZz, PALz**. (Available from 2009).

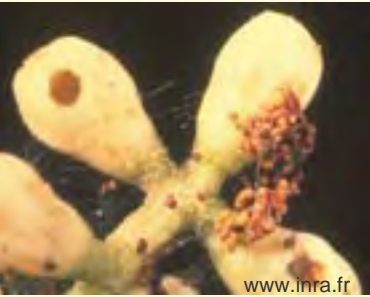


**Black cutworm (*Agrotis ipsilon*)** (Lepidoptera, Noctuidae). Host plants of the larva include cotton, rice, potato, tobacco, cereals, crucifers, but it can attack seedlings of almost any crop plants. The species is present in the warm and temperate regions of all the world. Recommended trap type: **VARL+**. (Available from 2009).





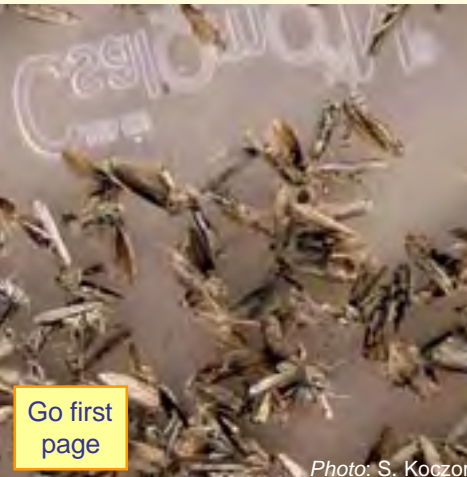
# Newest members of the **Csal<sub>♀</sub>m<sub>♂</sub>N<sup>®</sup>** trap family (2009-2008)



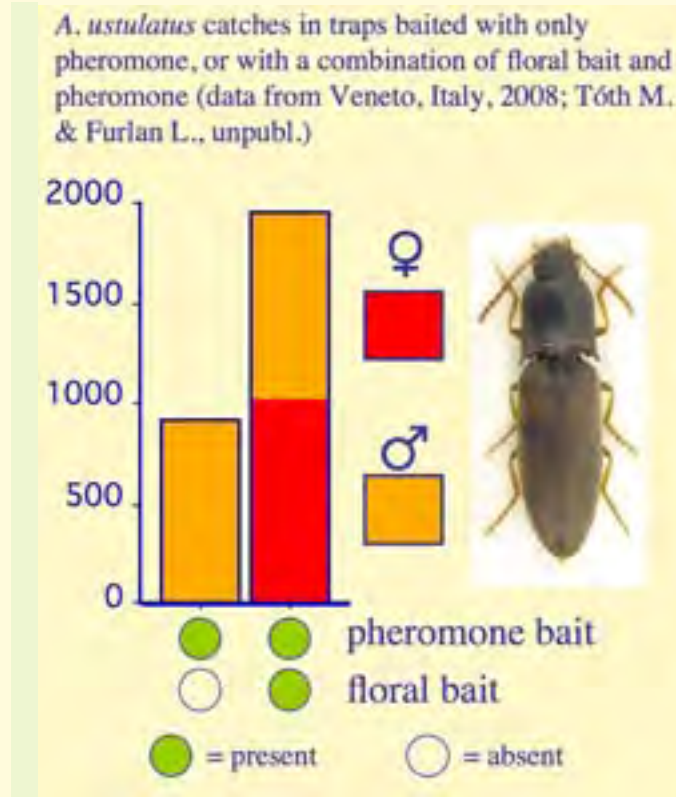
**Olive moth** (*Prays oleae*) (Lepidoptera, Yponomeutidae). An important pest of the olive tree, which is present in all areas where olive is grown. Recommended trap type: can be trapped with both the **RAG** or **VARL+** designs (Available from 2009).



**Potato tuberworm moth** (*Phthorimaea operculella*) (Lepidoptera, Gelechiidae). An important pest of potato (in the field and also stored), which is present all over the world. In Europe it is present in the Mediterranean countries, but its eventual spread towards the north cannot be excluded. Recommended trap type: **RAG**. (Available from 2009).



**Citrus flower moth** (*Prays citri*) (Lepidoptera, Yponomeutidae) Can be trapped with both the **RAG** or **VARL+** designs (Available from 2008).



A new trap catching both **FEMALES** and males of the click beetle ***Agriotes ustulatus*** (Coleoptera, Elateridae). In contrast to our earlier pheromone trap (which is still available) catching males, the present new trap is supplied with both a recently discovered female-targeted floral lure plus a pheromone lure, so catches large numbers of both females and males of this important click beetle pest. Recommended trap type: **VARb3**. (Available from 2009).



**True armyworm** (white-speck wainscot) [*Mythimna unipuncta*] (Lepidoptera, Noctuidae). A pest of various field crops all over the world. Recommended trap type: **VARL+** (Available from 2008).

# Newest members of the trap family (2008-2006)



Photo: M. Tóth

**Flower chafer** (*Oxythyrea funesta*): The adult beetle feeds on flowers and ripening fruits, causing similar damage as *Epicometis hirta*. The **VARb3z** trap combines best visual and chemical attractant cues (Available from 2008).



Photo: M. Tóth

**Poplar hornet clearwing** (*Aegeria apiformis*): The caterpillar bores holes into the trunks of poplar trees. In nurseries a single caterpillar can destroy a young poplar tree. Can best be caught with **VARL+** traps (Available from 2007).



**Click beetle** (*Agriotes proximus*) (Coleoptera, Elateridae). A member of the important pest click beetle complex in Europe. Same bait attracts also the closely related *A. lineatus*. Recommended trap type: **Yf** (Available from 2007).



Photo: Nagy Z. L.

**Banded apple pigmy** [*Nepticula (Stigmella) malella*] (Lepidoptera, Nepticulidae) [**RAG**]. The powerful sex attractant of this leafminer pest is again available from 2006.



**Alfalfa longhorn beetle** (*Plagionotus floralis*) (Coleoptera, Cerambycidae). A novel trap and bait combination has been developed. The trap catches both females and males. The most suitable **VARb3z** (fluorescent yellow) funnel trap type is capable of catching very large numbers (Available from 2006).

# Newest members of the **Gsalom<sup>®</sup>N** trap family (2006)



**Combined trap for *Agriotes obscurus* & *A. lineatus*** (Coleoptera, Elateridae). The **Yf** trap is supplied with a combined single bait and is capable of catching both species at similar sensitivity. To be used in areas where both species are present. (The species specific baits for *A. obscurus* and *A. lineatus* are still available) (Available from 2006).



**Leopard moth (*Zeuzera pyrina*)** (Lepidoptera, Cossidae). The larva live inside the branches of fruit trees and bushes. The **VARb3** traps baited with the pheromone should be placed above the tree canopy for best results (Available from 2006).



**Yellowjackets (*Vespula germanica*, *V. vulgaris*, *V. crabro*)** (Hymenoptera, Vespidae). The design of the **VARL** funnel traps is especially suited for the capture of yellowjackets. It is necessary to add natural bait liquid (i.e. beer & orange juice 1:1 mixture; to be added by the user) for best results (Available from 2006).



**Shot-hole borer (*Xyleborus dispar*)** (Coleoptera, Scolytidae). This pest bores galleries in the wood of many fruit trees. The sticky **PALX** traps should be baited with min. 20% ethanol (to be added by the user; methylated industrial alcohol is NOT SUITABLE) (Available from 2006).



**Mediterranean fruit fly (males) *Ceratitis capitata*** (Diptera, Tephritidae). The **VARs+** funnel traps baited with the attractant proved to be giving best catches (Available from 2006).

# Newest members of the trap family (2006-2005)



Photo: J. Vuts

**Rose chafers** (*Cetonia a. aurata*, *Potosia cuprea*) A novel trap and bait combination has been developed for these pests. The bait attracts both pests (which usually damage fruits together), and both females and males. The most suitable **VARb3k** trap type is suitable also for mass trapping thereby directly decreasing damage levels (Available from 2005).



Photo: E. Voigt



Photo: L. Furlan

**Southern sugar-beet weevil** [*Conorrhynchus (Cleonus) mendicus*] (Coleoptera, Curculionidae) - Our newly discovered attractant can be used with our **TAL** trap design or with conventional pitfall traps, attracting both female and male weevils. Same bait attracts also the related sugar-beet weevil *Bothynoderes (Cleonus) punctiventris* (Available from 2006).



Photo: M. Tóth

**KLP ("hat") trap:** New, efficient, high capacity, non-sticky trap for catching the **western corn rootworm** (*Diabrotica v. virgifera*). The **KLP** trap is as sensitive as the conventional sticky **PAL** or **PALs** traps. It is suitable from both detection and monitoring purposes; its catch capacity is very large (several thousand beetles). The trap is highly selective. Assembling is easy, maintenance is clean (no more sticky fingers!). It is much simpler than its forerunner the **VARs+** funnel trap. **KLPfero+:** with peromone bait (catches only males); **KLPflor+:** with floral bait (catches predominantly females). In the field it can be operated during 4-6 weeks with the accessories included. The useful life of the trap can be prolonged to even a full season by regular exchange of the bait to a new one. However, the trap can be used to catch **ONLY** the **SAME SPECIES** as before! For best efficiency it is necessary to kill the insects caught in the catch container (Available from 2005).



Photo: M. Tóth

*Diabrotica v. virgifera* captures in a **KLP flor+** trap

# Newest members of the trap family (2006-2005)



Photo: M. Tóth

**Cabbage flea beetles**  
(*Phyllotreta* spp.) (Coleoptera, Chrysomelidae) A novel attractant attracts both sexes of all important pest cabbage flea beetles, i.e. *P. cruciferae*, *P. vittula*, *P. undulata*, etc. Populations of *P. vittula* damaging on maize can also be trapped. The recommended **KLP+** trap type is suitable also for mass trapping thereby directly decreasing damage levels (Available from 2006).



*Phyllotreta* spp. damage on cabbage leaf

Photo: É. Csonka



Photo: B. Péntzes



**Yf (click beetle) trap** (=“YATLORf”); **Manufacturer of trap is RO-SA Micromecanica s.a.s., San Donà di Piave, VE, Italy).** We offer the trap with species-specific pheromone bait. It is highly efficient in capturing click beetle (*Agriotes*) species. In the field it can be operated during 4-6 weeks with the accessories included. The useful life of the trap can be prolonged to even a full season by regular exchange of the bait to a new one. However, the trap can be used to catch **ONLY the SAME SPECIES** as before (Available from 2005).



Are they really  
so good?!

# Pheromone traps can be obtained for the following pests:

List by scientific names (page 1 out of 2)  
(other insect orders on next page)

I've tried  
them!!!



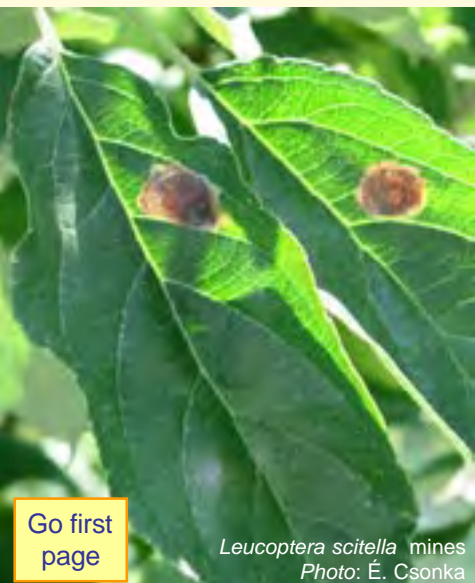
## LEPIDOPTERA

*Abraxas grossulariata* [RAG]  
*Adoxophyes orana* [RAG]  
*Aegeria apiformis* [VARL+]  
*Agrotis crassa* [RAG]  
*Agrotis exclamationis* [RAG, VARL+]  
*Agrotis ipsilon* [RAG, VARL+]  
*Agrotis segetum* [RAG, VARL+]  
*Aleimna loeflingiana* [RAG]  
*Alsophila quadripunctaria* [RAG, VARL+]  
*Amathes c-nigrum* [RAG, VARL+]  
*Anagasta/Ephestia kuehniella* see  
*Plodia interpunctella*  
*Anarsia lineatella* [RAG]  
*Aphelia paleana* [RAG]  
*Archips podana* [RAG]  
*Archips pulchellana* [RAG]

*Archips rosana* [RAG]  
*Autographa gamma* [RAG, VARL+]  
*Cacoecimorpha pronubana* [RAG]  
*Cameraria ohridella* [RAG, VARL+]  
*Chiasma clathrata* [RAG]  
*Clysia ambiguella* [RAG]  
*Cnephasia pumicana* [RAG]  
*Colotois pennaria* [RAG, VARL]  
*Cossus cossus* [VARb3]  
*Cydalima perspectalis* [VARL]  
*Cydia nigricana* [RAG]  
*Cydia pomonella* [RAG]  
*Cydia pomonella* BISEX [RAG]  
*Cydia pyrivora* [RAG]  
*Cydia splendana* [RAG]  
*Cydia splendana* BISEX [RAG]  
*Discestra trifolii* [RAG]  
*Diurnea phryganella* [RAG]  
*Enarmonia formosana* [RAG]  
*Erannis aurantiaria* [RAG, VARL+]  
*Erannis leucophaearia* [RAG, VARL+]  
*Erannis marginaria* [RAG, VARL+]  
*Etiella zinckenella* [RAG]  
*Evergestis extimalis* [VARL+]  
*Evetria buoliana* [RAG]  
*Evetria duplana* [RAG]  
*Grapholita funebrana* [RAG]  
*Grapholita janthinana* [RAG]  
*Grapholita lobarzewski* [RAG]  
*Grapholita molesta* [RAG]  
*Hedya nubiferana* [RAG]  
*Hedya nubiferana* BISEX [RAG]  
*Helicoverpa armigera* [RAG, VARL+]  
*Homoeosoma nebulellum* [RAG]

*Leucoptera scitella* [RAG]  
*Lithocolletis blancardella* [RAG]  
*Lithocolletis corylifoliella* [RAG]  
*Lobesia botrana* [RAG]  
*Lymantria dispar* [RAG, VARs+]  
*Lynoetia clerkella* [RAG]  
*Mamestra brassicae* [VARL+]  
*Mamestra oleracea* [RAG, VARL+]  
*Mamestra suasa* [RAG]  
*Mythimna (Pseudaletia) unipuncta* [VARL+]  
*Nemapogon granellus* [RAG]  
*Nepticula (Stigmella) malella* [RAG]  
*Operophtera brumata* [RAG, VARL]  
*Orthosia cruda* [RAG, VARL+]  
*Orthosia gothica* [RAG]  
*Orthosia incerta* [RAG]  
*Orthosia munda* [RAG]  
*Orthosia stabilis* [RAG, VARL+]  
*Ostrinia nubilalis* BISEX [VARL+]  
*Pandemis heparana* [RAG]  
*Panolis flammea* [RAG]  
*Paranthrene tabaniformis* [RAG, VARL+]  
*Peribatodes rhomboidaria* [RAG, VARL+]  
*Perileucoptera (Leucoptera) coffeella* [RAG]  
*Petrova resinella* [RAG]  
*Pexicopia malvella* [RAG]  
*Phthorimaea operculella* [RAG]

*Plodia interpunctella/A. kuehniella* [RAG, VARL]  
*Plutella maculipennis* [RAG]  
*Prays citri* [RAG, VARL+]  
*Prays oleae* [RAG, VARL+]  
*Recurvaria leucatella* [RAG]  
*Recurvaria nanella* [RAG]  
*Scrobipalpa ocellatella* [RAG]  
*Sitotroga cerealella* [RAG, VARL+]  
*Sparganothis pilleriana* [RAG]  
*Spilonota ocellana* [RAG]  
*Spodoptera exigua* [VARL+]  
*Spodoptera littoralis* [VARL+]  
*Swammerdamia pyrella* [RAG]  
*Synanthedon myopaeformis* [RAG, VARs+]  
*Synanthedon myopaeformis* BISEX [RAG]  
*Synanthedon tipuliformis* [RAG, VARs+]  
*Synanthedon vespiformis* [RAG, VARL+]  
*Tephрина arenacearia* [RAG]  
*Theresimima (Ino) ampelophaga* [RAG, VARL+]  
*Tortricodes tortricella* [RAG]  
*Tortrix viridana* [RAG]  
*Tuta absoluta* [RAG]  
*Zeuzera pyrina* [VARb3]



*Leucoptera scitella* mines  
Photo: É. Csonka

Go first  
page

Next  
page



Are they really  
so good?!

# Pheromone traps can be obtained for the following pests:

I've tried  
them!!!



## COLEOPTERA

*Agriotes* spp. wireworm bait trap [WW]  
*Agriotes brevis* [Yf]  
*Agriotes lineatus* [Yf]  
*Agriotes litigiosus* [Yf]  
*Agriotes obscurus* [Yf]  
*Agriotes obscurus* & *A. lineatus*  
 trap w. combined bait [Yf]  
*Agriotes proximus* [Yf]  
*Agriotes rufipalpis* [Yf]  
*Agriotes sordidus* [Yf]  
*Agriotes sputator* [Yf]  
*Agriotes ustulatus* [VARb3]  
*Agriotes ustulatus* females&males  
 [VARb3]  
*Anomala solida* [VARb3]  
*Anomala vitis / dubia* [VARb3]  
*Bothynoderes (Cleonus)*  
*punctiventris* [TAL]  
*Cetonia a. aurata* [VARb3k]  
*Ceutorhynchus assimilis*,  
*C. quadridens*, *C. napi* [KLP+]  
*Conorrhynchus (Cleonus) mendicus* [TAL]

*Bothynoderes (Cleonus) punctiventris* Photo: L.Z. Nagy



Go first  
page

## List by scientific names (page 2 out of 2)

insect orders other than Lepidoptera (for Lepidoptera see prev. page)

*Diabrotica barberi* [KLP+]  
*Diabrotica speciosa* [KLP+]  
*Diabrotica v. virgifera* males  
 only [KLPfero+, PAL]  
*Diabrotica v. virgifera* females mainly  
 [KLPflor+, PALs]  
*Diabrotica v. virgifera* natural sex  
 ratio [VARs+]  
*Epicometis (Tropinota) hirta*  
 [VARb3k]  
*Meligethes aeneus* [VARb3z+]  
*Oxythyrea cinctella* [VARb3z]  
*Oxythyrea funesta* [VARb3z]  
*Plagionotus floralis* [VARb3z]  
*Phyllotreta* spp. [KLP+]  
*Potosia cuprea* [VARb3k]  
*Tropinota squalida* [VARb3k]  
*Xyleborus dispar* [PALX]

## DIPTERA

*Ceratitis capitata* males [VARs+]  
*Dasineura gleditchiae* [RAG]  
*Delia radicum* [KLP+]  
*Drosophila suzukii* [VARL]  
*Rhagoletis batava* [PALz]  
*Rhagoletis cerasi* [PALz]  
*Rhagoletis cingulata* [PALz]  
*Rhagoletis completa* [PALz]  
*Strauzia longipennis* [PALz]

## HYMENOPTERA

*Hoplocampa* spp. [PALf] (white sticky  
 sheets, no bait) *Vespa* spp. (*V.*  
*germanica*, *V. vulgaris*,  
*V. crabro*) [VARL; addition of natural bait  
 liquid (i.e. beer&orange juice mixture) by  
 user necessary]

## THYSANOPTERA

*Drepanothrips reuteri* [SZz, PALz] (fluor.yellow  
 sticky sheets, no bait)  
*Frankliniella occidentalis* [SZINb]  
 (yellow/blue sticky sheets, no bait)  
*Thrips tabaci* [SZz, PALz] (fluor.yellow sticky  
 sheets, no bait)

## HEMIPTERA

*Scaphoideus titanus* [SZs/10, SZz/10]

## HOMOPTERA

*Trialeurodes vaporariorum* [SZINb/10]  
 (yellow/blue sticky sheets, no bait)

## NEUROPTERA

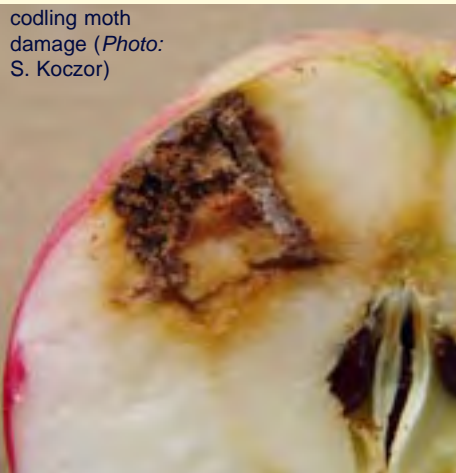
*Chrysoperla carnea* species group [CHRegg]



*Bothynoderes (Cleonus)*  
*punctiventris* caught in TAL trap

Next  
page

# LIST OF PESTS BY PLANT CULTURES (page 1 out of 4)



codling moth damage (Photo: S. Koczor)

## apple, pears:

*Adoxophyes orana* [RAG]  
*Cydia pomonella* [RAG]  
*Cydia pomonella* BISEX [RAG]  
*Cydia pyrivora* [RAG]  
*Leucoptera scitella* [RAG]  
*Lithocolletis blancardella* [RAG]  
*Synanthedon myopaeformis* [RAG, VARs+]  
*Synanthedon myopaeformis* BISEX [RAG]



*Ceratitidis capitata* damage (Photo: M. Tóth)

## peaches, apricots:

*Anarsia lineatella* [RAG]  
*Cetonia a. aurata* [VARb3k]  
*Grapholita molesta* [RAG]  
*Potosia cuprea* [VARb3k]



www.inra.fr

## plums:

*Grapholita funebrana* [RAG]



cherry fruit fly maggot (Photo: E. Voigt)

## cherries:

*Rhagoletis cerasi* [PALz]  
*Rhagoletis cingulata* [PALz]



*Epicometis hirta* damage on strawberries (Photo: I. Sivcev)

## various orchard pests:

*Anomala dubia* [VARb3]  
*Archips podana* [RAG]  
*Archips pulchellana* [RAG]  
*Archips rosana* [RAG]  
*Ceratitidis capitata* males [VARs+]  
*Cossus cossus* [VARb3]  
*Cydia splendana* [RAG]  
*Cydia splendana* BISEX [RAG]  
*Drosophila suzukii* [VARL]  
*Enarmonia formosana* [RAG]  
*Epicometis (Tropinota) hirta* [VARb3k]  
*Grapholita janthinana* [RAG]  
*Grapholita lobarzewski* [RAG]  
*Hedya nubiferana* [RAG]  
*Hedya nubiferana* BISEX [RAG]  
*Hoplocampa spp.* [PALf] (white sticky sheets, no bait)  
*Lithocolletis corylifoliella* [RAG]  
*Lynoetia clerckella* [RAG]  
*Nepticula (Stigmella) malella* [RAG]  
*Operophtera brumata* [RAG, VARL]  
*Oxythyrea cinctella* [VARb3z]  
*Oxythyrea funesta* [VARb3z]  
*Pandemis heparana* [RAG]  
*Perileucoptera (Leucoptera) coffeella* [RAG]



*Cetonia spp.* damage on fig (Photo: J. Razov)

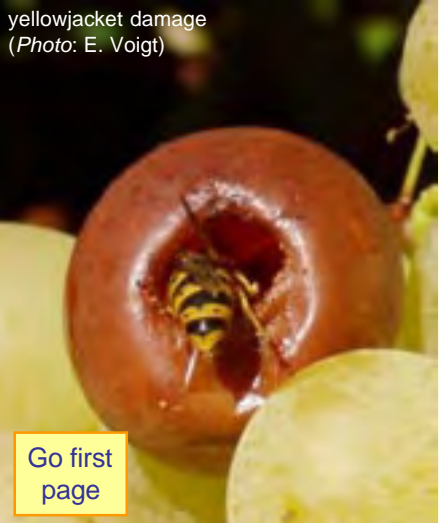




*Abraxas grossulariata* damage  
(Photo: Z.L. Nagy)



yellowjacket damage  
(Photo: E. Voigt)



## various orchard pests (continued):

- Prays citri* [RAG, VARL+]
- Prays oleae* [RAG, VARL+]
- Recurvaria leucatella* [RAG]
- Recurvaria nanella* [RAG]
- Rhagoletis completa* [PALz]
- Spilonota ocellana* [RAG]
- Swammerdamia pyrella* [RAG]
- Tropinota squalida* [VARb3k]
- Xyleborus dispar* [PALX]
- Zeuzera pyrina* [VARb3]

## currant, gooseberry and other berries:

- Abraxas grossulariata* [RAG]
- Rhagoletis batava* [PALz]
- Synanthedon tipuliformis* [RAG, VARs+]
- Synanthedon vespiformis* [RAG, VARL+]

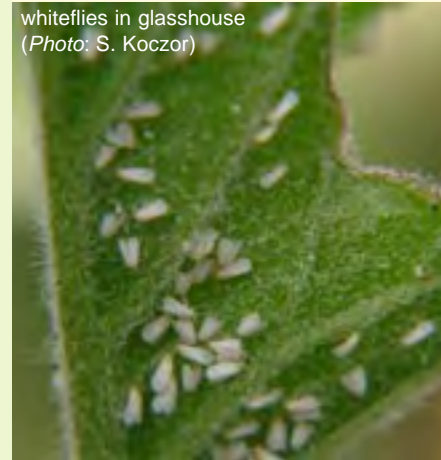
## primary pests of grapes:

- Anomala solida* [VARb3]
- Anomala vitis / dubia* [VARb3]
- Drepanothrips reuteri* [SZz, PALz]  
(fluoresc. yellow coloured sticky sheets)
- Clysia ambiguella* [RAG]
- Lobesia botrana* [RAG]
- Peribatodes rhomboidaria* [RAG, VARL+]
- Scaphoideus titanus* [SZs/10, SZz/10]
- Sparganothis pilleriana* [RAG]
- Theresimima (Ino) ampelophaga* [RAG, VARL+]
- Vespa* spp. (*V. germanica*, *V. vulgaris*, *V. crabro*) [VARL; addition of natural bait liquid (i.e. beer& orange juice mixture) by user necessary]



Damage of *D. gleditchiae*  
(Photo: B. Molnár)

whiteflies in glasshouse  
(Photo: S. Koczor)



(Photo: Z.L. Nag)



lisztes répabarkó  
*B. punctiventris*

## ornamentals:

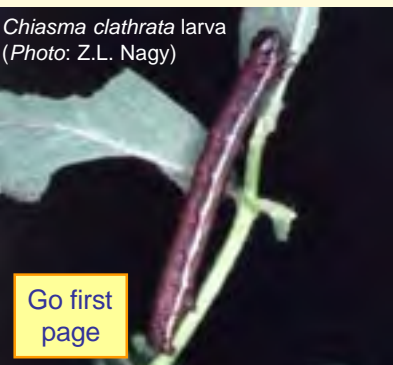
- Cameraria ohridella* [RAG, VARL+]
- Cydalima perspectalis* [VARL]
- Dasineura gleditchiae* [RAG]
- Pexicopia malvella* [RAG]

## Greenhouse cultures:

- Cacoecimorpha pronubana* [RAG]
- Frankliniella occidentalis*  
& *Trialeurodes vaporariorum*  
(same trap; yellow/blue coloured sticky sheets) [SZINb/10]
- Thrips tabaci* [SZz/10, PALz]  
(fluoresc. yellow coloured sticky sheets)

## vegetable crops and cereals:

- Agriotes* spp. wireworm bait trap [WW]
- Agriotes brevis* [Yf]
- Agriotes lineatus* [Yf]
- Agriotes litiginosus* [Yf]
- Agriotes obscurus* [Yf]
- Agriotes obscurus* & *A. lineatus*  
trap w. combined bait [Yf]
- Agriotes proximus* [Yf]
- Agriotes rufipalpis* [Yf]
- Agriotes sordidus* [Yf]
- Agriotes sputator* [Yf]
- Agriotes ustulatus* [VARb3]
- Agrotis exclamationis* [RAG, VARL+]
- Agrotis ipsilon* [VARL+]
- Agrotis segetum* [RAG, VARL+]



## vegetable crops and cereals (continued):

- Amathes c-nigrum* [RAG, VARL+]
- Aphelia paleana* [RAG]
- Autographa gamma* [RAG, VARL+]
- Bothynoderes* (*Cleonus*)  
*punctiventris* [TAL]
- Ceutorhynchus assimilis*,
- C. quadridens*, *C. napi* [KLP+]
- Conorrhynchus* (*Cleonus*) *mendicus* [TAL]
- Cnephasia pumicana* [RAG]
- Cydia nigricana* [RAG]
- Delia radicum* [KLP+]
- Diabrotica barberi* [KLP+]
- Diabrotica speciosa* [KLP+]
- Diabrotica v. virgifera* males  
only [KLPfero+, PAL]
- Diabrotica v. virgifera* females mainly  
[KLPflor+, PALs]
- Discestra trifolii* [RAG]
- Etiella zinckenella* [RAG]
- Evergestis extimalis* [VARL+]
- Helicoverpa armigera* [RAG, VARL+]
- Homoeosoma nebulellum* [RAG]
- Mamestra brassicae* [VARL+]
- Mamestra oleracea* [RAG, VARL+]
- Mamestra suasa* [RAG]
- Meligethes aeneus* [VARb3z+]
- Mythimna unipuncta* [VARL+]
- Ostrinia nubilalis* BISEX [VARL+]
- Phyllotreta* spp. [KLP+]
- Phthorimaea operculellum* [RAG]
- Plutella maculipennis* [RAG]
- Scrobipalpa ocellatella* [RAG]
- Spodoptera exigua* [VARL+]
- Spodoptera littoralis* [VARL+]
- Strauzia longipennis* [PALz]
- Tuta absoluta* [RAG]

## alfalfa:

- Chiasma clathrata* [RAG]
- Plagionotus floralis* [VARb3z]
- Tephрина arenacearia* [RAG]



*Ephestia  
kuehniella*  
catch in  
storehouse



winter moth  
(Photo: G. Szócs)

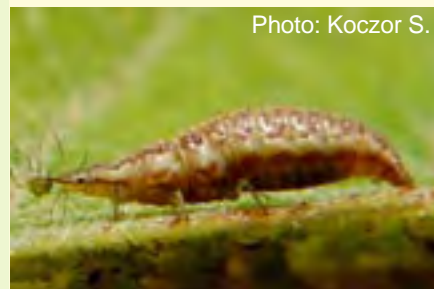


Photo: Koczor S.

## stored products:

- Ephestia* (*Anagasta*) *kuehniella*  
[VARL, RAG]; same bait attracts  
also *P. interpunctella*
- Nemapogon granellus* [RAG]
- Plodia interpunctella* [VARL, RAG];  
same bait attracts also *A. kuehniella*
- Sitotroga cerealella* [RAG, VARL+]

## forestry:

- Aegeria apiformis* [VARL+]
- Agrotis crassa* [RAG]
- Aleimna loeflingiana* [RAG]
- Alsophila quadripunct.* [RAG,  
VARL+]
- Colotois pennaria* [RAG, VARL]
- Diurnea phryganella* [RAG]
- Erannis aurantiaria* [RAG, VARL+]
- Erannis leucophaearia* [RAG,  
VARL+]
- Erannis marginaria* [RAG, VARL+]
- Evetria buoliana* [RAG]
- Evetria duplana* [RAG]
- Lymantria dispar* [RAG, VARs+]
- Operophtera brumata* [RAG,  
VARL]
- Orthosia cruda* [RAG, VARL+]
- Orthosia gothica* [RAG]
- Orthosia incerta* [RAG]
- Orthosia munda* [RAG]
- Orthosia stabilis* [RAG, VARL+]
- Panolis flammea* [RAG]
- Paranthrene tabaniformis* [RAG,  
VARL+]
- Petrova resinella* [RAG]
- Tortricodes tortricella* [RAG]
- Tortrix viridana* [RAG]

## attractants for beneficial insects:

- Chrysoperla carnea* species  
group [CHRegg]

## LIST OF PESTS BY PLANT CULTURES (page 4 out of 4)

After the species names abbreviations give recommended trap designs which were optimized for capture of the given species. **RAG** = sticky delta trap (with changeable sticky sheets); **PAL**, **PALs**, **PALz**, **PALf** = sticky cloak trap; **VARL**, **VARb3**, **VARs** = funnel traps (non-sticky; high catching capacity; in selected pests suitable for control through mass trapping); **KLP** = "hat" trap; **Yf** = click beetle trap (plastic trap body product of **RO-SA Micromecanica**, Italy); **TAL** = pitfall trap (for crawling insects); **SZs**, **SZz**, **SZINb** = coloured sticky sheets (no pheromone). You can view colour slides of our trap designs at our website <[www.julia-nki.hu/traps](http://www.julia-nki.hu/traps)>. A "+" sign after trap codes (i.e. VARs+; KLP+, etc.) indicates that for the given species captures are higher when captured insects are killed in the catch container.

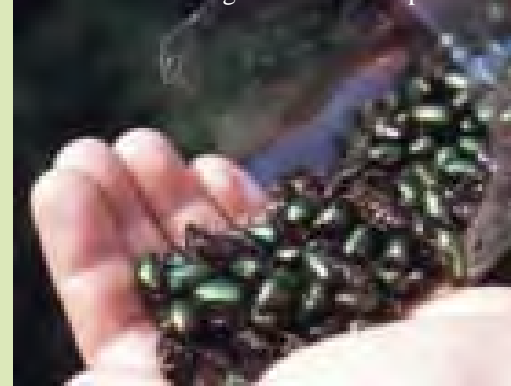
*Peribatodes rhomboidaria* (Photo: L.Z. Nagy)



### To order / to inquire:

Plant Protection Institute, MTA ATK.  
(Júlia Jósvai, Sándor Koczor, Miklós Tóth)  
Budapest, Pf. 102, H-1525, HUNGARY;  
phone: +36 (1) 391-8637;  
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fax: +36 (1) 391-8655;  
e-mail: [csalomon.orders@agrar.mta.hu](mailto:csalomon.orders@agrar.mta.hu)

*Anomala vitis* caught in VARb3 trap



Please ask for a **price quote** for your actual order! Pheromone baits are prepared **fresh**, on order. **Minimal order** is 2 traps per species, unless otherwise indicated (package containing 2 traps, 2 baits and all accessories necessary for operation for about 4-6 weeks in the field, plus detailed advisory material on assemblage & use of traps and specific information concerning the target species in English or Hungarian). Baits only (without traps) can also be ordered. We do not recommend replacing baits in sticky delta (RAG) or sticky cloak (PAL, PALs, PALz) traps (which had already been operated in the field) for fear of cross-contamination with pheromone traces. In case of non-sticky trap designs be sure to use only baits of the same species when replacing baits!

# Trap designs available (page 1 out of 7)

Pictures of our trap designs can be viewed also at <[www.csalomontraps.com](http://www.csalomontraps.com)>



RAG

**sticky delta trap (RAG):** It catches the approaching insects on changeable sticky sheets. In the field it can be operated during 1 flight period (for 4 - 6 weeks) with the accessories included. This design is recommended for early detection. It is highly sensitive and detects the very first pest specimens appearing. Maintenance: change of sticky sheet each 7-10 days (may become necessary more often in case of high insect catches).



RAG



PAL

**sticky "cloak" trap (PAL, PALs, PALz, PALf, PALx):** It catches the approaching insects on its sticky surface. In the field it can be operated during 1 flight period (for 4 - 6 weeks) with the accessories included. This design is recommended for trapping pests which are reluctant to enter the sticky delta trap design, i.e. the **western corn rootworm (*Diabrotica v. virgifera*)**, the **cherry fruit fly (*Rhagoletis cerasi*)**, etc. Maintenance: change of sticky sheet may become necessary if many insects are caught.

Go first page



PALX

The CSALOMON® PALX trap catches *Xyleborus dispar* on its outside sticky surface



PALz

By applying CSALOMON® PALz traps we can detect the occurrence and monitor the flight of *Rhagoletis cerasi*!



PALs

The PALs trap without bait is suitable for the detection of several small greenhouse pests. Insects are attracted to the bright yellow colour



PALf

The white PALf trap can be used for monitoring *Hoplocampa* spp. (no chemical bait added).

Next page

VARL



Foto: M. Tóth

**funnel trap (VARL):** Insects approaching fall through a funnel into a catch container. In the field it can be operated during 1 flight period (for 4-6 weeks) with the accessories included. The useful life of the trap can be prolonged to even a full season by regular exchange of the bait to a new one. However, the trap can be used to catch **ONLY the SAME SPECIES** as before! This design is recommended for catching large amounts of insects. It is especially suitable for catching larger moths (*Noctuidae*, *Cossidae*, etc.) In contrast to sticky designs, it does not lose efficiency when applied in dusty areas (mills, stores). Maintenance: replacing the bait each 4-6 weeks. The trap has high catching

capacity; its efficiency is retained even when catching very large numbers of insects. In some pests catch efficiency can be significantly increased if insects caught are killed in the catch container. In selected cases it can be used for population control through mass trapping.

VARb3



**modified funnel trap (VARb3, VARb3k):** Insects approaching fall through a funnel into a catch container. In the field it can be operated during 1 flight period (for 4-6 weeks) with the accessories included. The useful life of the trap can be prolonged to even a full season by regular exchange of the bait to a new one. However, the trap can be used to catch **ONLY the SAME SPECIES** as before! This design is recommended for catching large amounts of insects. It is especially suitable for catching pests which are not so good fliers, i.e. the *scarabs Anomala vitis*, *A. dubia*, and *Epicometis (Tropinota) hirta* [VARb3k], the *goat moth (Cossus cossus)* and *several click beetles (Agriotes spp.)*. In contrast to sticky designs, it does not lose efficiency even when very large numbers are caught. Maintenance: replacing the bait each 4-6 weeks. The trap has high catching capacity; its efficiency is retained even when catching very large numbers of insects. In some pests catch efficiency can be significantly increased if insects caught are killed in the catch container. In selected cases it can be used for population control through mass trapping. **VARb3 variations by different colours** can be used for pests with colour preference (coded by first letter of colours in Hungarian: VARb3k = blue, VARb3z = fluoresc. yellow, VARb3 f= white, VARb3s = yellow; pls refer to our list of products for optimal trap for give pest).



VARb3k

VARb3z

VARb3f

VARb3s

VARb3

## Trap designs (page 3 out of 7)

### modified funnel trap (VARs+):



Insects attracted to the bait will move upwards and get into the upper catch container, or they fall through a funnel into the lower catch container. In the field it can be operated during 1 flight period (for 4-6 weeks) with the accessories included. The useful life of the trap can be prolonged to even a full season by regular exchange of the bait to a new one. However, the trap can be used to catch ONLY the SAME SPECIES as before! This design can be recommended for catching large amounts of insects. This trap design has been optimized for pests which cannot be trapped efficiently with the more conventional funnel designs. It is especially suitable for catching the **corn rootworm (*Diabrotica v. virgifera*)**, **clearwing moths (*Synanthedon myopaeformis*, *S. tipuliformis*)**, and the **gipsy moth (*Lymantria dispar*)**. In contrast to sticky designs, it does not lose efficiency even when very large numbers are caught. Maintenance: replacing the bait each 4-6 weeks. The trap has high catching capacity; its efficiency is retained even when catching very large numbers of insects. For acceptable efficiency it is necessary to kill the insects caught in both the upper AND lower catch containers!

KLP



**"hat" trap (KLP):** The insects attracted crawl up along the vertical plate and get into the catch container. In the field it can be operated during 1 flight period (for 4-6 weeks) with the accessories included. The useful life of the trap can be prolonged to even a full season by regular exchange of the bait to a new one. However, the trap can be used to catch ONLY the SAME SPECIES as before! This design is especially suitable for the **western corn rootworm (*Diabrotica v. virgifera*)**. (**KLPfero+**: with pheromone bait; **KLPflor+**: with floral bait), **cabbage seed weevil (*Ceutorhynchus assimilis*)**, **cabbage stem weevil (*C. qudridens*)**, **rape stem weevil (*C. napi*)**, or for **flea beetles (*Phyllotreta* spp.)**. In contrast to sticky designs, it does not lose efficiency even when very large numbers are caught. For acceptable efficiency it is necessary to kill insects caught in the catch container.

### pitfall trap (TAL):

Insects crawling into the trap fall down into the catch container. In the field it can be operated during 1 flight period (for 4-6 weeks) with the accessories included. This design is recommended for catching insects which predominantly crawl on the soil, i.e. the sugar-beet weevil ***Bothynoderes***



***punctiventris***. Maintenance: replacing the bait each 4-6 weeks. The trap has high catching capacity; its efficiency is retained even when catching very large numbers of insects. In selected cases it can be used for population control

through mass trapping.

## Trap designs (page 4 out of 7)

Yf

**Click beetle trap [Yf (= YATLORf )]:** The plastic trap is the product of RO-SA Micromecanica s.a.s. Italy. We supply the trap with species selective pheromone bait. The trap is capable of catching both flying and crawling beetles. In the field it can be operated during 1 flight period (for 4-6 weeks) with the accessories included. The useful life of the trap can be prolonged to even a full season by regular exchange of the bait to a new one. However, the trap can be used to catch ONLY the SAME SPECIES as before! This design is especially suitable for catching *Agriotes* spp.

### yellow/blue combined sticky trap (SZINb):

Insects are attracted to the bright colour; it contains no pheromone. It catches the approaching insects on its sticky surface. In the field it can be operated during 1 flight period (for 4 - 6 weeks) with the accessories included. This design is recommended for trapping pests for which no pheromonal lure is available, especially in greenhouses. It proved to be excellent for catching the *whitefly* (*Trialeurodes vaporariorum*; on the yellow part) and the *western flower thrips* (*Frankliniella occidentalis*; on the blue part). Maintenance: change of sticky sheet may become necessary if many insects are caught.

SZINb

SZs

### yellow (SZs) and fluorescent yellow (SZz) sticky trap:





Insects are attracted to the bright colour; it contains no pheromone. It catches the approaching insects on its sticky surface. In the field it can be operated during 1 flight period (for 4 - 6 weeks) with the accessories included. This design is recommended for trapping pests for which no pheromonal lure is available, especially in greenhouses. The SZs trap proved to be excellent for catching among others the *whitefly* (*Trialeurodes vaporariorum*). The SZz trap catches best for example the *grape thrips* (*Drepanothrips reuteri*) or the *onion thrips* (*Thrips tabaci*). Maintenance: change of sticky sheet may become necessary if many insects are caught.




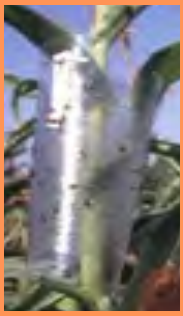


SZz

Next page

Go first page

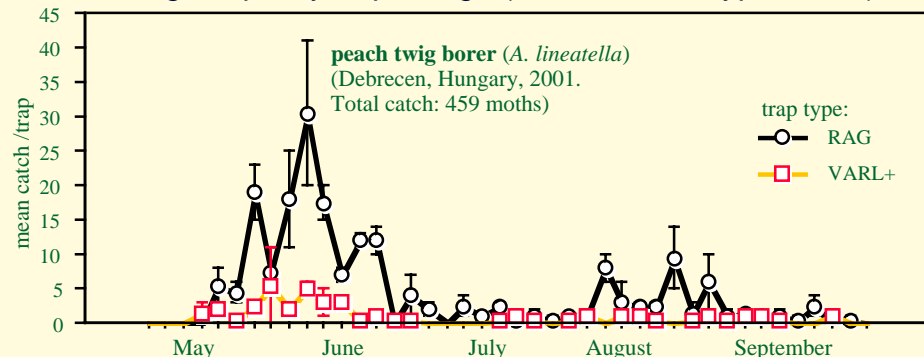
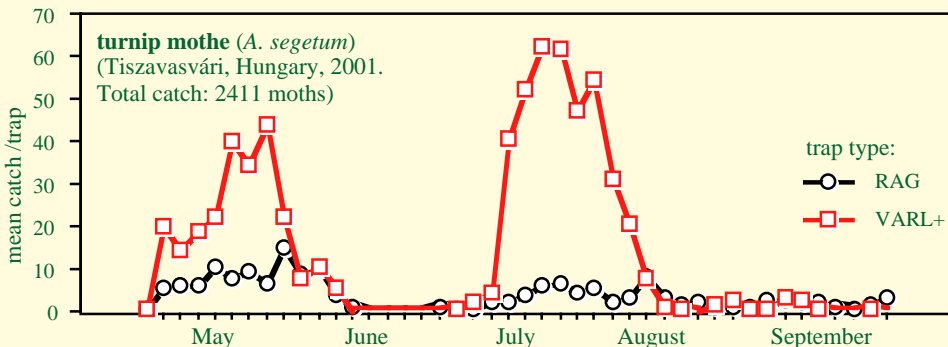
	Codes	Design	Period of field use	Maintenance	To be used optimally for
	RAG	sticky delta trap	one flight period (4-6 weeks)	change of sticky inserts (7-10 days)	most sensitive detection, qualitative monitoring and forecast
	TAL	pitfall trap	one flight period (4-6 weeks)	removal of catch each 5-7 days	detection, quantitative monitoring, for catching very large numbers
	VARL, VARb3, VARs	funnel trap types	2-3 flight periods (one year)	change of bait each 4-6 weeks	detection, quantitative monitoring, mass trapping (selected pests)
	KLP	non-sticky "hat" design	2-3 flight periods (one year)	change of bait each 4-6 weeks	detection, quantitative monitoring, for catching very large numbers



	Codes	Design	Period of field use	Maintenance	To be used optimally for
	Yf	both crawl-in & fly-in design	2-3 flight periods (one year)	change of bait each 4-6 weeks	detection, quantitative monitoring, for catching very large numbers
	PAL, PALs, PALz etc.	sticky cloak trap	one flight period (4-6 weeks)	no maintenance necessary	detection, monitoring of selected pests i.e. Diabrotica, flies, etc.
	SZINb	coloured sticky sheet (no bait)	one flight period (4-6 weeks)	no maintenance necessary	detection, monitoring, in pests without known pheromone
	SZs, SZz	coloured sticky sheet (no bait)	one flight period (4-6 weeks)	no maintenance necessary	detection, monitoring, in pests without known pheromone

## Which of the trap types should I use?

In moth pests the most frequently used trap design is the **RAG** (sticky delta), however, in case of larger species its catch capacity is very limited (because of the limited sticky surface area). In case of such pest species we can use **RAG** traps if our principal aim is the detection of occurrence only. If we are interested in monitoring the population changes throughout the flight (flight dynamics, mass outbreaks, any other quantitative aspects, etc.), it is more advisable to use a high capacity trap design (i.e. the funnel type **VARL**).

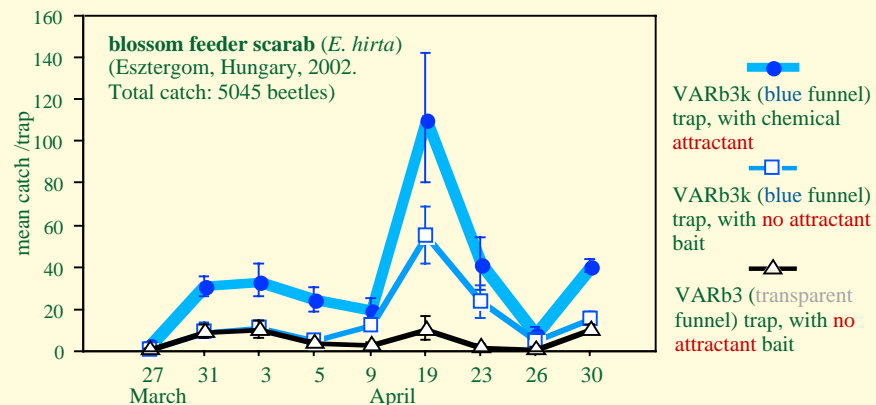


Attention! In case of funnel traps for pests where a "+" sign follows the trap code (i.e. **VARL+**), catch levels can be increased if insects caught are killed in the catch container.

However, the **VARL+** funnel trap types do not perform better than the sticky **RAG** type with all and any pests! In case of many microlepidoptera, for example, the funnel types are not sensitive enough, and thus cannot be recommended for use.

**Without field testing it is impossible to foretell whether a given trap type is suitable for a given pest species or not.** The trap types suggested for use with each pest in our List of Products have been exhaustively tested and optimized for the species in question.

**For best performance we recommend to use baits of a pest species EXCLUSIVELY in the trap type(s) recommended for that species in our List of Products!**



For best performance the shape of the trap should be optimized and also the presence of visual cue(s) (colour) may be required, which will enhance the activity of the chemical bait.



KLPfero+

**"KLPfero+"**

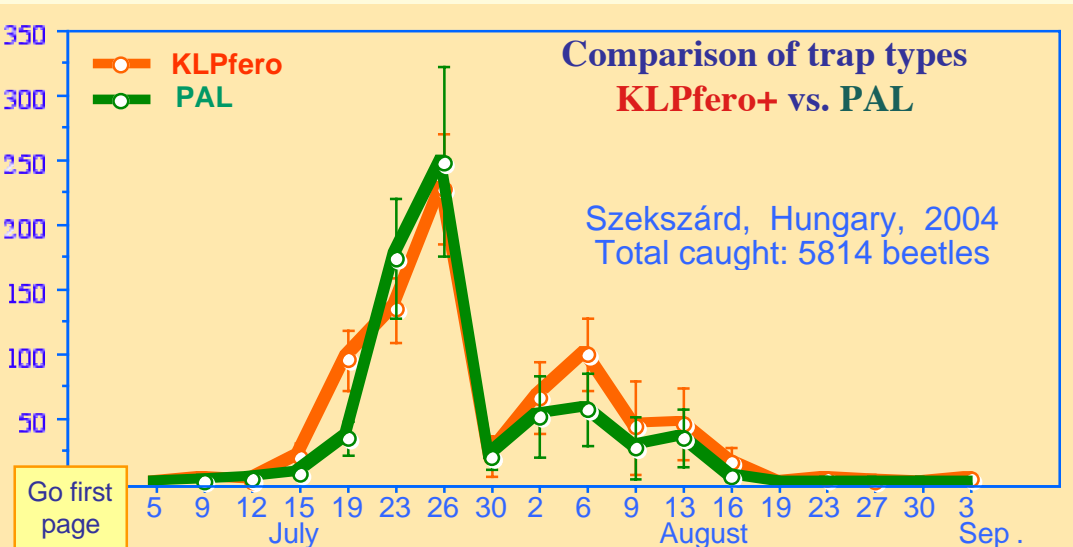
- it is highly **sensitive** for detection of occurrence and monitoring;
- it is baited with the synthetic **sex pheromone**;
- it catches only **male** insects;
- it has **high catch capacity** (5-6000 beetles);
- it is highly **selective**;
- simple design, easy-to-use, **no more sticky fingers!**

**"PAL"**

- it is highly **sensitive** for detection of occurrence and monitoring;
- it is baited with the synthetic **sex pheromone**;
- it catches only **male** insects;
- sticky sheet is transparent;
- it has a catch capacity of 3-400 beetles;
- simple design.



PAL



Go first page

Next page

"The EU-research project DIABROTICA (QLK5-CT-1999-01110) recommends to use PAL traps baited with pheromone as the standard detection tool for *Diabrotica v. virgifera* in Europe."

# KLPflor+

# Diabrotica traps (page 2 out of 3)

## "KLPflor+":

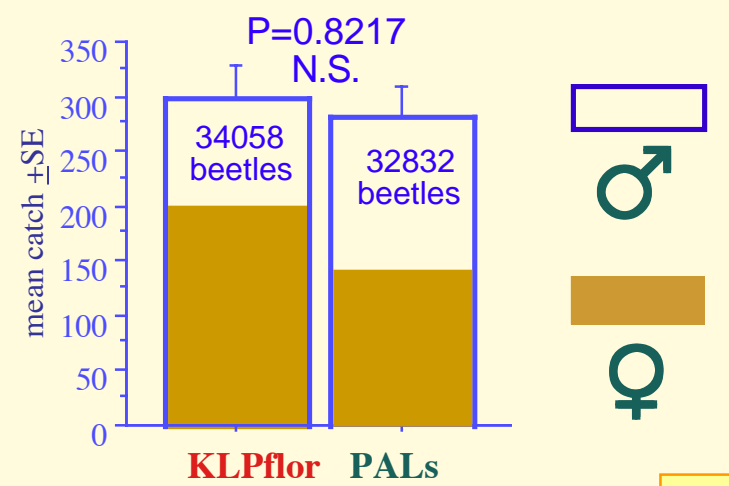
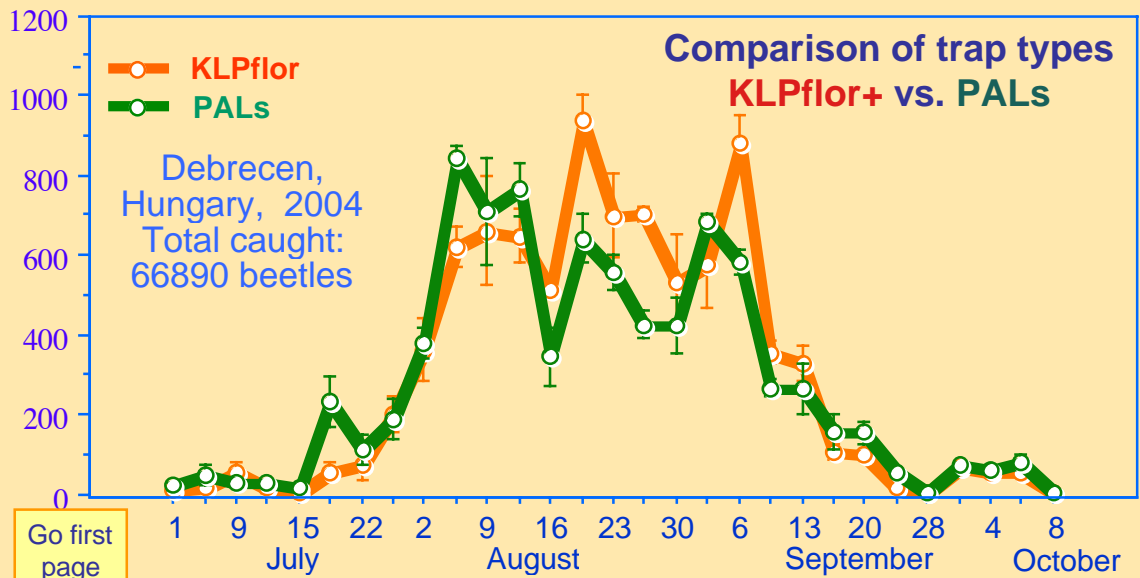
- it is of the same design as "KLPfero", but:
- it is baited with the **floral** lure;
- it catches mainly **females** – to a lesser extent also males);
- especially suitable for detecting the occurrence of females);
- it is highly **selective**).

## "PALs":

- it is of similar design as the "PAL", but the sticky sheet is **yellow**;
- it attracts by the synergistic combination of **chemical** (floral bait) and **visual** (yellow) stimuli;
- it catches **females** and also males;
- its use is recommended in areas where populations of *Diabrotica* have already been established.



PALs



Go first page

Next page



Characteristics of Diabrotica traps

Trap type	KLPfero+	KLPflor+	PAL	PALs
<b>Bait</b>	pheromone	floral	pheromone	floral
<b>Sex caught</b>	only males	both sexes	only males	both sexes
<b>Sex ratio</b>	>99% males	mainly females	>99% males	more females
<b>Selectivity</b>	highly selective	highly selective	many non-target	many non-target
<b>Catch capacity</b>	< 5-6000	< 5-6000	< 4-500	< 4-500
<b>Design</b>	simple	simple	simple	simple
<b>Maintenance</b>	easy, clean	easy, clean	sticky	sticky
<b>Glue</b>	without glue	without glue	with glue	with glue
<b>For detection</b>	highly sensitive	sensitive	highly sensitive	sensitive
<b>For monitoring</b>	reliable	reliable	reliable	reliable



**To order / to inquire:**

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