

# Pheromone Trap : Beet armyworm



PHEROMONE DISPENSER



## M2i technology

- Unique patented process of pheromone micro-encapsulation
- Controlled rate of pheromone release for greater efficiency
- 100% biodegradable
- Easy storage, at room temperature
- Extended shelf life: 2,5 years

## User guide

**M2i recommends:** Exigua Pro Caps® syringe + Funnel trap

**Trap setup:** place the pheromone holder (cage) in the green upper part of the trap. Put a drop of the product into the lower part. Snap upper and lower part together. Empty the remaining content of the syringe into the pheromone holder. The moths are attracted by the sexual pheromone, enter the trap and are caught.

### Characteristics of Exigua Pro Caps®

Type of product	Pheromone dispenser
Use	Monitoring
Active substance	(Z,E)-9,12-tetradecadienyl acetate ; (Z)-9-tetradecyl-1-ol ; (Z)-11-hexadecenyl acetate.
Volume of formulation	0,5 mL
Indicative diffusion span*	2 months
Targeted insect life-stage	Adult (moth)
Estimated radius of diffusion	Moths attracted on a radius of around 5m

\* depending on climatic conditions, for an average temperature of 30°C and without strong winds.

### Monitoring setup

**Detection period:** from sowing to harvest depending on the crop and climatic conditions (adapt and renew the pheromone dispenser according to the recommended diffusion time).

**Trap location:** in the middle of the crop, hung on a pole about 1,5m above the ground; 20cm above the crop in case of small size plants.

**Recommended density:** 2-6 traps/ha



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## Pest monitoring and recommendations

<b>Trap follow-up frequency</b>	Weekly
<b>Recommended intervention</b>	As soon as moths are caught (compile this information with caterpillars/damages observations)
<b>Pest control methods</b>	During the critical season and depending on trapping levels: it is possible to perform an additional insecticide and/or a biocontrol treatment according to the insect life stage. Refer to recommendations of registered products for plant protection ( <a href="http://ephy.anses.fr">ephy.anses.fr</a> ) and/or to your technical advisor.
<b>Possible preventive measures</b>	Remove weeds that could be shelters for <i>S. exigua</i> . Remove infested fruits and/or crop residues. Clean equipment used in infested crops. Select crop varieties less susceptible to beet armyworm. Consider crop rotation. Favor predators, parasitoids and/or release natural enemies.

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## The beet armyworm (*Spodoptera exigua*)

**Pest life-stage:** caterpillar      **Order:** Lepidoptera

The beet armyworm is a cosmopolitan species native from South Asia. Adults are mottled grey/brown (with lightcolored bean-shaped spots on wings). They wingspan is 17-30 mm. They live between 10-20 days. Females lay their eggs in clusters covered with a layer of whitish scales on the lower surface of leaves, on flowers and shoots/branches. They hatch 2-3 days later.

Caterpillars' colour depends on hostplants and climate (yellow to green, then brown-black). They measure 25-38 mm and develop in approximatively 10 days. Caterpillars feed on leaves, fruits, buds or stems, which impacts the growth of the plant and potentially leads to the total destruction of the crop.

When fully grown, caterpillars pupate in the ground, in a chamber constituted of soil particles. Adults emerge 5-10 days later. The pest can be present throughout the year depending on the presence of crops and climatic conditions. It overwinters only in warm locations or in greenhouses, which can lead to its migration. *S. exigua* can spawn 5-6 generations per year depending on the geographical area and weather conditions.

### Recommendations / Security

Keep out of reach of children. Keep away from domestic animals.  
Store away from food and drink. Do not freeze.  
Do not eat, drink or smoke during use.  
Wash hands after use.  
Store in original packaging. Comply with doses, conditions, instructions and precautions for use mentioned in the user's guide.  
Dispose of the empty and clean packaging in the household trash.

### First aid

If eye contact occurs, rinse with water for several minutes.  
In case of skin contact, wash with plenty of water.  
If swallowed, do not induce vomiting, rinse mouth and see a doctor.  
In case of faintness, see a doctor and show him the product label.

Product approved for organic agriculture.

## Host plants

*Spodoptera exigua* is a polyphagous species which can infest more than 170 host plants such as beetroot, asparagus, cabbage, cotton, pepper, tomato, lettuce, alfalfa, eggplant, potato, corn, wheat, petunia, strawberry...

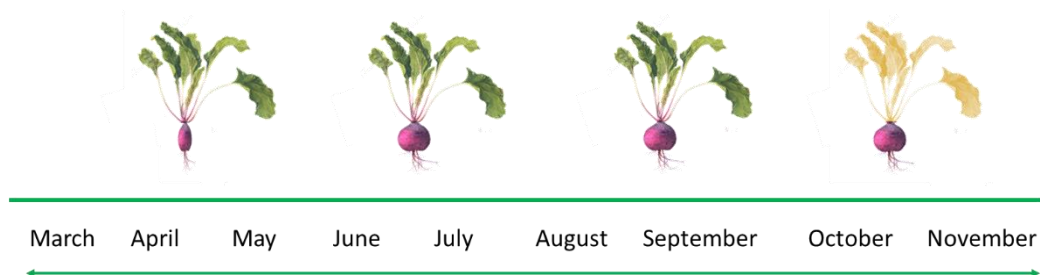
## Detection strategy: pheromone monitoring

Pheromones are substances produced by insects which operate as a signal between individuals of a same species. There are different types of pheromones: alarm, aggregation, sexual... Monitoring with sexual pheromones is based on a lure placed inside a trap which mimics the substance produced by the female. Lure attracts males which are captured. This enables the detection of the pest's onset and the follow-up of its infestation level. Monitoring also helps decision-making (to launch a curative intervention) and/or measuring the efficiency of a treatment.

## Benefits

This method is efficient, selective and harmless for fauna, flora, operators and local residents. It does not generate residues, inputs or resistance mechanisms.

## Detection period for *S. exigua*



Depends on weather conditions and crop environment

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