Pheromone trap:
Pine processionary moth

M2i technology

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

User guide

M2i recommends: Pine T Pro Caps® syringe + Funnel trap

Trap setup: place the pheromone holder (cage) in the upper part of the trap. Put a drop of the product into the lower part. Snap the upper part of the trap into place. 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 Pine T Pro Caps®

Type of product	Pheromone dispenser
Use	Monitoring
Active substance	(Z)-13-hexadecen-11-yn-1-yl-acetate
Volume of formulation	1 mL
Indicative diffusion*	4 months
Targeted insect life-stage	Adult (moth)
Estimated radius of diffusion	Moths attracted on a radius of 5m

*for an average temperature of 30°C and in the absence of strong winds

Monitoring setup

Detection period: from June to September (adapt and renew the pheromone dispenser according to the recommended diffusion time).

Trap location: hung on the tree's canopy (if possible >10m high). Use a weighted string to set up the trap.

Recommended density: 4-5 traps/forest plot (1 in each side and 1 in the middle); 1 trap/tree for isolated pines

Pest monitoring and recommendations

Trap follow-up frequency	Weekly
Recommended intervention threshold	50 moths/trap/week
Pest control methods	During the critical season and depending on trapping levels: it is possible to perform an additional biocontrol treatment according to the insect life stage. Refer to recommendations of registered products for plant protection (ephy.anses.fr) and/or to your technical advisor.
Possible preventive measures	Avoid monoculture in recently-planted plots. Favor the introduction of predators (birdhouses).

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Pheromone trap: Pine processionary moth


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The Pine processionary moth (*Thaumetopoea pityocampa*)

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

The pine processionary moth is a nocturnal moth native to the Mediterranean basin. For several years, it has been spreading to the Northern parts of Europe, boosted by climate change causing mild temperatures. Adults are hairy grey-brown and their wingspan is 30 to 42 mm. They live around 24h. Females lay eggs in batches on shoots or needles. Eggs hatch after 30 to 45 days.

Caterpillars are green at first (stage 1) and become brown with orange spots, covered with urticating hair. They measure up to 40 mm in length and can develop in 4 to 8 months. Caterpillars feed on needles inducing defoliation, growth reduction and weakening of attacked pines. They live in colonies and spin a nest where they stay during the day, in the tree's canopy. They go out of the nest in single file to feed.

At the end of their development, caterpillars quit the nest in procession to bury in the floor. They go into diapause on chrysalis form. Some of them don't metamorphose the following season and can stay some years in the floor.

Recommandations / 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 mentionned 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

The caterpillars of this lepidoptera have a preference for Austrian pines but also attack others species as Maritime pines, Scotch pines, Aleppo pines or cedar trees.

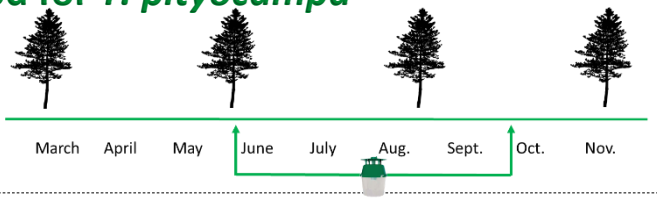
Detection strategy: pheromone monitoring

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 *T. pityocampa*



Indicative period for European countries

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