

Trapping the Barks Beetles with *kairomones*



Conifers suffer by many bark beetles which lead to their decline and they eventually die out. Symptoms: gallery formations, resin flow, bark discoloration around entry point.

The use of pheromones and kairomones (attractants or repellants) for these pests plays significant role in their early detection and also in their management.

Kairomones when used in combination with pheromones augment significantly their trapping efficacy.



Recommendations

- Recommended trap: multifunnel trap.
- For proper use consult your agronomist.
- Keep unused lures in their original packing in a dry, cool, well ventilated place. Under these conditions it may be stored for 18 months.

Safety precautions

- The product is composed of non toxic materials and is harmless to non target organisms and the environment when used according to instructions.
- Do not dispose the dispenser near combustion sources.
- Do not cut or pierce empty dispensers.
- Wash hand thoroughly after handling the dispenser.
- Collect and dispose of used dispensers according to local legislation.
- Dispose empty dispensers away from children and domestic animals.

H302: Harmful if swallowed.

H315: Causes skin irritation.

H225: Flammable liquid and vapor.

H317: May cause an allergic skin reaction.

H319: Causes serious eye irritation.

H400: Very toxic to aquatic life.

R67: Vapours may cause drowsiness and dizziness

S2: Keep out of the reach of children

S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice

S49: Keep only in the original container



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KaiPin

Kairomone dispenser for
bark beetles

(*Tomicus*, *Ips*, *Dendroctonus*, *Pityogenes*,
Monochamus)



Insect pests of conifer forests

In forest ecosystems fire, pollution and animal grazing constitute the main problems leading to significant degradation. In addition to these, insect pests contribute to their further deterioration.

In the Mediterranean basin the most harmful organisms amongst those dwelling in forest ecosystems belong to the Insect Class. Due to the mild climate many insect pest, mostly coleopteran, periodically develop many generations per year leading to extremely large populations.

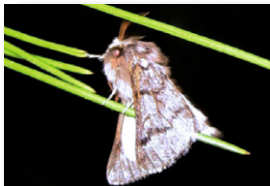


Forest pines and firs especially during long and dry seasons are infested by scores of bark-beetles (Scolytidae) resulting to their death over large areas.

These bark beetles live in and feed on the phloem in the inner layer of bark on trees. They usually inhabit dead, dying, and stressed trees, including fallen trees, cut logs, and slash. They can be found in trees that are already damaged by drought, lightning, human activity, or pest infestation.

Other serious insects pests are the pine processionary moth (*Thaumetopoea pityocampa*) and the pine sawyer (*Monochamus galloprovincialis*).

The pine processionary moth is considered the main defoliator for pine forests in the Mediterranean basin. Their larvae are covered by urticating hair that irritate the skin and mucus membranes, leading to allergic reactions.



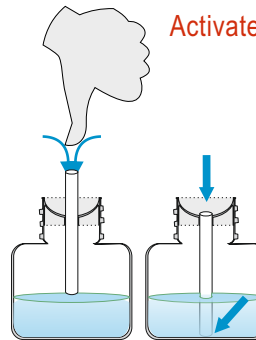
The pine sawyer beetle is a pest of pine trees in Europe and North Africa. It is a vector of the pine wood nematode, *Bursaphelenchus xylophilus*, the causal agent of a lethal wilting disease in susceptible species of pines.

Installing and using traps for bark beetles

The KaiPin dispenser

The KaiPin dispenser contains **volatiles** (kairomones) mimicking the odor of damaged trees. The emitted odors are highly attractive to both male and female beetles. The content of the dispenser dissipates slowly through a ceramic wick and at a constant rate ensuring optimum evaporation rate over a period of 40 days*.

* depending on trap placement and weather conditions



Activate the dispenser

1. Remove the lid *
2. Press firmly on the ceramic wick to ensure that it is fully inserted inside the vial.

* keep the lid and screw it back on the dispenser if you remove it from the trap to stop evaporation of the liquid.

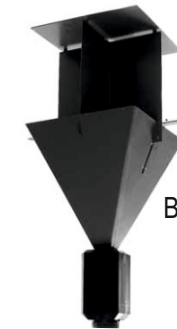
- * Traps should be hanged at head height above ground.
- * Respect 25 m distance between traps.
- * For monitoring purposes place four traps per ha in the case of uniform plantations, more for mass trapping.
- * Install and maintain the traps in place throughout the flight period of the weevils.

Multifunnel trap

Multifunnel traps are the most effective traps used for bark beetles and are widely used.



Other types of traps



Barrier trap



Theysohn trap

