

Acumiprotect

Sharp-dentated bark beetle *Ips acuminatus*

The sharp-dentated bark beetle, *Ips acuminatus* Gyllenhall (Coleoptera: Scolytidae), is a very important pest of *Pinus sylvestris* woods around Europe and some areas of Asia. It may also attack other species such as *P. uncinata*, *P. nigra* and *Picea abies*.



Ips acuminatus
Coleoptera:
Scolytidae

The adults hibernate in galleries under the bark and branches of dead pines or at the end of branches of living pines. In spring, when the weather becomes warm, males fly out the trees and move to living pines to feed and mate. The male is the one that first penetrates the tree, building a chamber where it mates several incoming females (up to 12). After mating, fertilized females leave the nuptial chamber and build new galleries where they lay the eggs (between 40 and 60 eggs).

Hatching occurs a few days after the lay. Larvae construct galleries perpendicular to the egg gallery. Larval development last 30-50 days. Pupation takes place in a chamber bored at the end of the larval gallery. After 10-20 days adults emerge and will remain under the bark until they reach sexual maturity. Once they are mature they leave the bark through a hole and move to another host to start a new generation. This species may have two generations per year depending on the weather conditions.

I. acuminatus colonizes preferably parts of the trunk and branches with thin bark. The damage is initially made by the adults when constructing the egg-laying subcortical galleries and subsequently the larvae when feed on the phloem. When living trees are attacked they shortly die due to the sap flow interruption. To identify this species it may be helpful to detect dead pines circles or with red-coloured needles



CONTROL MANAGEMENT

In order to avoid the attacks it is highly recommended to establish preventive measures. It is suggested not to chop *P. sylvestris* pines during the period of colonization and reproduction of this species (April-August depending on the area). In addition, the remains of woods with more than 0.4 cm of diameter should be removed or debarked before the adults emergence. In case there are foci of damaged trees, the affected material should be cut and removed. For the management of this species, chemical treatment is not efficient so mass trapping is the measure recommended.



FORMULATION

Dispensers

The product ACUMIPROTECT is a dispenser of pheromone vapors. The active substance used in the product is a blend comprising three components: ipsenol, ipsdienol and (S)-(+)-cis-verbenol. This blend has been described as the aggregation

pheromone of *I. acuminatus*.

The lifetime of the dispenser depends on the temperature, ventilation and relative humidity. In regular weather conditions the dispenser lasts 60 days. It may be reduced at high temperatures and/or strong winds.

APPLICATION

- Each ACUMIPROTECT should be placed inside a Theysohn trap at the top of the device.
 - Traps should be located in the forest hung from a convenient support 2 m high.
 - It is recommended to place some traps for monitoring in forest clearings (3-4 per clearing) close to sensitive zones or with damage in the previous year. These traps will be placed linearly with a distance of 500 m between each other.
 - Traps should never be situated beside or under the pine trees.
 - Traps should be installed before the emergence of the adults.
 - It is recommended to examine traps regularly in order to check the population level in the area.
 - In the areas where the population trapped is high, mass trapping will be applied, increasing the number of traps in these locations. In this case, the distance between traps could be reduced to 100 m.
 - Dispensers should be replaced every 60 days, so three dispensers per trap will be needed for the whole season.
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HANDLING AND STORAGE

The product ACUMIPROTECT is supplied in parcels with the convenient number of units. The material of the packaging is impermeable to the vapors of the product. It is recommended to keep the product in its original packaging, unopened in the freezer until ready to use. Under these conditions the product can be stored for at least two years.

Avoid cutting, perforating and opening the dispensers.

With the usual handling of the product, there is no risk of toxicity on people, animals or plants. The product is a dispenser located inside a trap and emits to the air vapors of the active substance at a low controlled rate. Therefore, risk of water and soil pollution are also discarded.

It is recommended to use gloves in the handling of the dispensers.

The dispensers and their packaging have to be managed according to current legislation for residues disposal.



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