Galloprotect 2D

Pine sawyer *Monochamus galloprovincialis*

The pine sawyer, *Monochamus galloprovincialis* (Coleoptera: Cerambycidae), is a secondary insect that colonizes newly dead or dying pine trees all over Europe. It has also been found in the Caucasus, Siberia, Mongolia, China and North Africa. All pine tree species are susceptible of being settled by this species but also the genera *Abies, Picea* and *Larix*.



Monochamus galloprovincialis
Coleoptera: Cerambycidae

The importance of *M. galloprovincialis* is based on the transmission of *Bursaphelenchus xylophilus*, a lethal pathogen responsible of pine trees wilt disease. Adults of this coleoptera emerge in late May and can remain until October feeding on the bark of young twigs of healthy trees. Reproduction and larvae development take place in decaying, recently dead, dying, cut or half-burnt trees. There is usually one generation per year, but it can take two in colder areas. Nematodes enter the body of the adult insect, mainly in the trachea. When *M. galloprovincialis* feeds on the twigs of healthy pine trees, the nematode leaves the vector body and penetrates the tree through the bites, infecting it. Nematodes can also infect newly dead pine trees when the vector oviposits on them.









CONTROL MANAGEMENT

The fight against *M. galloprovincialis* is quite necessary, not for the direct damage but for the spread of the pinewood nematode. The control techniques of the insect are based on preventive management headed to avoid the cerambycid dispersal from the currently affected areas. In order to prevent the spread of the insect, it is recommended a correct planning of silvicultural treatments, like not leaving a large amount of dead wood in the forest. Registered and authorized phytosanitary products can be punctually used, although their utilization has to be considered as last option for the high environmental impact involved. For the reduction of the insect population, it has been extended the use of pheromones and kairomones of *M. galloprovincialis.*

FORMULATION

Dispensers

The product GALLOPROTECT 2D consists of two vapor dispensers composed of an aggregation pheromone and some kairomonal substances (2-undecyloxy-1-ethanol, ipsenol and 2-methyl-3-buten-2-ol). Furthermore, the product can be complemented by the emission of the pine terpene compound alpha-pinene (GALLOPROTECT PLUS). The emission rate of the components from the dispenser GALLOPROTECT 2D is, in normal conditions, different for each substance, but the field life of the whole mixture is around 45-50 days. The efficiency of the whole dispenser depends on temperature, ventilation and relative humidity.



APPLICATION

- For the application of monitoring it is necessary to follow the guidelines established by the vegetable sanitary authorities.
- Each dispenser comprising GALLOPROTECT 2D has to be placed in different places of the same trap. The type of devide recommended is a multi-funnel trap or an interception one, locating pheromone and kairomone dispensers as far as possible

between each other.

- In case an alpha-pinene dispenser (GALLOPROTECT PLUS) is used, it should be situated in the centre of the trap. This dispenser can be used in case the insect population is quite high.
- Traps should be disposed in the forest, hanging from a suitable support or by ropes, about 2 m above ground. Distance between traps should be 100 to 150 m, placing them in open areas. Periodic counts of the traps are highly recommended.
- Monitoring application does not exempt from a continuous, proper and careful silvicultural management.



HANDLING AND STORAGE

GALLOPROTECT 2D is packed in a single package. The material of the packaging is impermeable to vapors of different products. It is recommended to keep the product in its original packaging, unopened, preferably in the freezer until ready to use. Under these conditions the product can be stored for a period of one year from the date of manufacture.

Avoid cutting, perforating and opening the dispensers.

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





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