VARROAFORM is an innovation project 80% co-financed by the European Agricultural Fund for Rural Development (EAFRD) of the European Union and 20% by the Ministry of Agriculture, Fisheries and Food, within the framework of the National Rural Development Program 2014-2020. The General Directorate of Rural Development, Innovation and Agrifood Training (GDRDIAT) is the authority in charge of the application of these aids. Total project budget: €395,920.30. Total grant: €379,920.30.

Varroaform

GRUPO OPERATIVO SUPRAAUTONÓMICO

VARROAFORM aim is to develop a controlled-release formulation as an alternative to conventional treatments in apiculture for the control and prevention of varroatosis in domestic bee (*Apis mellifera*) based on natural ingredients and incorporated into biodegradable systems/supports.

STARTING POINT

VARROATOSIS

Caused by the mite *Varroa destructor*, is the main disease affecting bees. It weakens grievously their immune system, causing the weakness of the beehive, deformities, reduction of the population, etc. Its incidence varies according to the management of the beekeeper, the reserves of honey and pollen and the effectiveness of the treatments.

CURRENT TREATMENTS

Currently, only 14 sanitary treatments are authorized in Spain, which are not effective in some cases, besides further problems such as: toxicity in bees, residues in beehive products, inadequate dosage, appearance of resistances, etc.

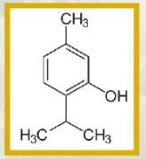
V. destructor in data

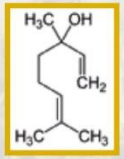
- Presence in **94,5%** of apiaries (official data)
- Population losses up to **19,2%** (occasionally up to **70-100%**)
- Production of **45%** less honey, occasionally **100%**
- Sanitary treatments represent **15-26%** of total costs
- Economic losses equivalent to **128%** of the usual annual profit

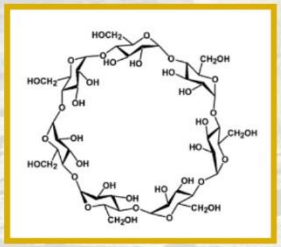
HOW?

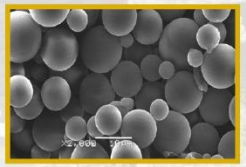
ACTIVE SUBSTANCES

In addition to the authorized and compatible with organic production (thymol), adjuvant solutions based on substances of natural origin (carvacrol, menthol, linalool or eucalyptol) are developed.









SUPPORT

The active substances are incorporated into suitable vehicles for their application (protection against oxidation, photodegradation, hydrolysis, volatilization) and that allows these substances to be released at effective doses during the duration of the cycle (28-30 days): gels, microcapsules and cyclodextrin complexes.

VARROAFORM SOLUTION

1. Increased effectiveness (acaricidal activity)
2. Reduction of the frequency of administration
3. Continuous release throughout the Varroa life cycle (30 days)
4. Not toxic for bees
5. Low cost
6. No residues generation in honey or other beehive products (wax, propolis)
7. Suitable for ecological apiculture
8. Easy handling, application and dosage

The Galician Enterprise-University Foundation (FEUGA) is responsible of the content of this infographic.