

SAFECROP

Centre for research and development of crop protection
with low environment and consumer health impact





Mission

The SafeCrop Centre is dedicated to innovative research on **plant protection** using **sustainable, low environmental impact methods**, in order to **reduce chemical inputs** in **agriculture**.

It focuses on the constraints that hamper the large scale application of low impact technologies.

It is a bridge between scientific research and the user, translating research results into products, processes and services.

The SafeCrop Centre backs innovative projects from an idea to a successful application for farms. Its research will fill knowledge gaps and foster new innovative ideas.

A network of six partners, which promotes collaboration among internationally renowned research institutions, the SafeCrop Centre creates **synergism in knowledge building**.

Converging sciences

Research activities at the SafeCrop Centre are based on joint goals and the **integration among several sciences**: biology, biotechnology, information technology, sociology, economy, psychology, engineering and agronomy.

Education and Training

The Centre promotes high level instruction and training of young researchers in an international and collaborative mode of research.

SafeCrop hosts and organises **meetings** and **congresses** of professional associations, promotes **workshop** of scientists and **technical meetings** among technician, farmers, researchers and private companies to **implement** the networking among the different players involved in the agricultural production chain.

Service on demand

The Safecrop Centre provides services to customers, be it private companies or public institutions, in particular in:

- Biocontrol agent and pheromones identification and characterization
- Efficacy trials against pests
- Molecular marker development
- Side effect evaluation, risk assessment and management, ecotoxicology
- Socio-economical analyses, market evaluation
- Computer science applications for agriculture.



Research

Current activities deal with grapevine, apple, strawberry, small fruits and horticultural crops.

Pathogen Control Research Unit - Dr. Yigal Elad

Long-term objective: to reduce chemical fungicide input on crops, implementing the use of microorganisms, their metabolites or analogous and/or their integration:

- Selection and identification of field-condition-effective BCAs
- Characterizing the spectrum of activity of BCAs and their modes of action
- Production scale-up and formulation of potential BCAs
- Evaluation of activity, consistency, survival, diffusion and constraints of BCAs applied under commercial production conditions
- Integration of BCAs with other environmentally friendly methods.

Insect Control Research Unit - Dr. Sylvie Derridj

Long-term objective: to develop new effective and environmentally friendly control and/or monitoring techniques to replace traditional insecticides by exploiting the natural insect population regulatory control factors:

- Identification and biological activity of insect semiochemicals, plant volatiles and metabolites involved in host plant selection and oviposition sites selection by the insects
- Study on the detection mechanisms used by the insects to recognise pheromones and gustatory signals involved in feeding and reproductive behaviour
- Identification of parasitoids, developing mass rearing and release techniques
- Development of biological products against insect pests
- Investigation of the impact of abiotic environmental factors on survival and performance of bio-insecticides
- Integration of chemical and biological control measures commonly used in Integrated Pest Management.

Risk assessment, molecular tools and side effects of non chemical control methods Research Unit - Dr. Ilaria Pertot

Objectives: to supply molecular tools and furnish the know-how to evaluate long term ecological and economical impacts of BCAs, in particular to describe the fate of the BCAs in the agricultural ecosystems and to ascertain the lack of environmental and health risk in the use of BCAs:

- Development of markers to trace BCAs
- Monitoring Spread and colonisation of BCA at non target sites
- Understanding plant-pathogen-BCA interactions in field and studying environmental effects on BCAs
- Chemical characterisation and identification at the molecular level of modes of action of bioactive metabolites
- Risk assessment of non chemical fungicides and insecticides
- Side effects evaluation of BCAs, insect behaviour regulators and bioactive metabolites on non-target organisms and beneficials
- Evaluation of the effects of BCAs on processed agricultural products
- Risk evaluation of forced pathogen evolution towards avoiding BCA-effect.

Integrated research

The activity of the three Research Units is integrated by:

- Socio-economical evaluations
- Implementation of tools for communication and dissemination in agriculture
- Market analyses
- Information technologies/computer systems applied to agriculture
- Statistics
- Ecotoxicology.



Partners



Swedish University of Agricultural Sciences - **Sweden**

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Federal Biological Research Centre for Agriculture and Forestry - **Germany**

Institute for Biological Control
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Institut National de Recherche Agronomique - **France**

Unité 1272 UPMC, INRA, INA-PG
Physiologie de l'Insecte-Signalisation et Communication
Route de St Cyr, 78 026 Versailles Cedex
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Swiss Federal Institute of Technology Zurich - **Switzerland**

Institute of Integrative Biology:
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