RÉPUBLIQUE FRANÇAISE

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INRAE

UR1052

Fruit and Vegetable Genetics and Breeding research unit

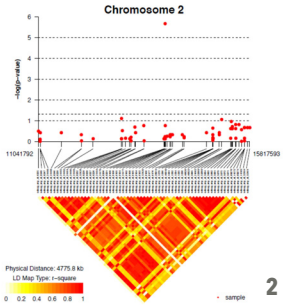
Missions et objectives

The mission of the GAFL research unit is to contribute to agroecological horticulture, which is both respectful to the environment and produces quality fruits and vegetables, by using genetics.
The objectives are to:

- Reduce pesticide use by promoting the use of genetic resistance;
- Support adaptation to climate change by developing appropriate varieties;
- Conserve genetic diversity and promote its use;
- Meet consumer expectations and fuel genetic progress through new varieties.

The GAFL Unit hosts the INRAE Centre for Vegetable Germplasm for aubergine, pepper, tomato, melon and lettuce, and has more than 10,000 patrimonial accessions and scientific genetic resources (recombinant lines, mutagenized populations, etc.). The unit also houses rich collections of fruit species from the *Prunus* genus (apricot, almond, peach and their rootstocks).


1



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Photos: ©INRAE

(1) Peach selfing (2) Genome wide association study in tomato (3) Melon hybridization

Research

Research objectives

- Characterize the genetic diversity of the species studied and the molecular evolution of loci of agronomic interest;
- Decipher the genetic and molecular basis of resistance to pests and diseases and propose sustainable management of resistance;
- Characterize the resilience of plants under conditions of low phytosanitary inputs;
- Dissect the genetic and molecular basis of the components of fruit quality in stressful environments;
- Create genitors adapted to the horticulture of the future.

Platforms and other installations

- 3,373 m² of laboratories including a cell biology laboratory (305 m²), a physical and biochemical analysis laboratory (884 m²), and a regional molecular biology platform common to several units of the INRAE Provence-Alpes-Côte d´Azur center, whose surface recently increased from 681 m² to 1657 m².

The GAFL uses the experimental facilities of the Avignon Mediterranean Horticulture Experimental Unit (AHM):

- 200 m² of growth chambers;
- 7,910 m² of plastic/insect-proof tunnels;
- 4,730 m² of greenhouses;
- 40 ha of fields.

Part of the infrastructure is approved for the cultivation of GM plants as well as for biological tests with quarantine pests. The research work of the unit is part of the research center «Integrated Horticultural Production (PHI)» from the INRAE Provence-Alpes-Côte d´Azur center. Given the research objectives of the unit, close interactions are developed with partners in the fruit and vegetable sector.

Management

Catherine Dogimont, director
Bénédicte Quilot-Turion, deputy director
Sébastien Le Pioufle, deputy director
Secretaries and reception:
Evelyne Joubert-Mazellier, 04 32 72 27 10
Astrid Bourret, 04 32 72 27 00
Philippe Marchand, 04 32 72 27 20

Research themes

- Genetic diversity of fruit and vegetable species
- Sustainable resistance of plants to pests and diseases
- Fruit quality and production regularity in stressful environments

In brief

- 10 researchers / 10 engineers
- 33 administrative and technical staff
- 10 PhD students and 3 Postdoctoral workers
- 2 apprenticeships and 13 Master students in 2021
- 10 contract workers (technician and engineer)

Centre
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