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Mediterranean Fruit and Vegetables Experimental Facility

Management

Frédéric Gauillard, director
Christophe Giraud, deputy director and manager of the Avignon sites
Alain Blanc, manager of the Amarine site

Some numbers

Agents

- 3 engineers
- 1 unit manager
- 16 technicians

Avignon sites (Vaucluse)

- **49 acres of UAA including:**
  7.5 acres of orchards and market gardening
  7.5 acres of field crops
  7.5 acres of herbaceous and flowery diversity
- **28 tunnels** potentially occupying 8000 m²
- **5300 m² of greenhouse** including 1000 m² of S2 containment greenhouse (GMO and quarantine organisms)
- **30 Phytotrons**/growth chambers including 80 m² of C2 chambers
- **Collection of vegetable species**

Amarine site (Gard)

- **79 acres of UAA** including 27 acres of orchads
- **Collection of fruit tree species**
- **17 acres of woods**

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Positioning

The geographical location of the Mediterranean Fruit and Vegetables Experimental Facility (UE A2M) is strategic, in the heart of the production basin for Mediterranean-climate horticultural crops and at the forefront of climate change. In connection with the various links of the regional «horticultural ecosystem», this remarkable experimental facility of the INRAE Provence Alpes-Côte d'Azur center conducts research on the production and quality improvement of Mediterranean fruit and vegetables, and on the adaptation to climate change and reduction of pesticide use.

Objectives

The A2M Experimental Facility conducts multi-site experiments (Saint Maurice and Saint Paul estates in Avignon, Amarine estate in the Gard department) on fruit and vegetable crops, promoting the implementation of agroecological practices and the enhancement of cultivated and associated biodiversity. Its priority objective is to meet the very diverse needs of the Provence-Alpes-Côte d'Azur center research units in terms of support and experimentation, falling within a national and international experimental network for horticulture. The medium-term objective is to acquire an original continuum of experimental infrastructures (from the S2 greenhouse to the connected orchard), making it possible to deal with the challenging research questions associated with climate change and the reduction of agricultural inputs. It forms a support force for experimentation and for the design of sustainable cropping systems.

Photos: ©INRAE Patrice DUVIVIER

(1) Bellegarde Prunus Conservatory, Amarine estate in the Gard department (2) Pepper genetic resources, Garrigues estate in Avignon (3) Tomatoes grown in a tunnel, St Maurice estate in Avignon

Its missions, carried out in consultation with the RU and MRU, consist in:

- Maintaining infrastructures and conducting analytical and systemic experiments combining different scales of study and of control of environmental conditions (potted plants, phytotrons, greenhouses, tunnels, open fields, orchards)
- Maintaining unique collections of Mediterranean fruit and vegetable species, in cooperation with the Vegetable and Prunus Biological Resource Centers
- Evaluating the genetic diversity of vegetable and fruit crops and the adaptability of genotypes to a diversity of environmental conditions, biotic and abiotic stresses, and testing innovative plant material

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- Evaluating the behavior of plant genotypes in different cropping systems (Genetic x Environment and Genetic x Environment x Practices interactions) and developing new multi-service low-input cropping systems
- Building and developing experimental prototypes for high-throughput phenotyping and/or high-instrumentation- or high-imaging-level experiments, to characterize the soil – plant – biotic and abiotic environment continuum ("connected horticultural systems")
- Being a partner in research projects aimed at developing an agro-ecological horticulture, respectful of the environment and resources, and producing quality fruit and vegetables (resistance and resilience to pests and pathogens, adaptation to biotic and abiotic constraints, companion plants, biocontrol solutions exhibiting Plant Resistance Induction, etc.)
- Developing socio-economic partnership to co-construct innovative systems and pool some experimental resources with regional and national partners.

Partnerships

The A2M Experimental Facility is a partner in research projects of the various Provence-Alpes-Côte d'Azur center research units, in particular the Plants and Cropping Systems in Horticulture (PSH) and Genetics and Breeding of Fruit and Vegetables (GAFL) units.
It hosts experiments from other INRAE units and its set-ups are open to external users (public or private, individual or within regional, national or European networks), within the framework of partnerships or provision of services.

Expertise and services

The A2M Experimental Facility provides its expertise and know-how in several fields, in support of the research programs of the Provence-Alpes-Côte d'Azur center:

- Crop management: mainly arboriculture and market gardening
- Maintenance and operation of various experimental infrastructures for growing plants under cover, according to different levels of confinement (tunnels, S1 and S2 greenhouses, growth chambers)
- Production of healthy plant material
- Implantation, maintenance and preservation of genetic resources (CRB Vegetables and *Prunus*) used for national and international research programs
- Implementation and monitoring of trials (factorial or system design)
- Phytosanitary monitoring (Integrated Pest Management).


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The A2M Experimental Facility is committed to a collective Environmental Management System (EMS) with ISO 14001 certification, and aims at achieving ISC (Collective Scientific Facilities) INRAE labelling.