Research Activities

- Update on ongoing projects
- New projects

Update on ongoing projects

GEVES's scientific policy, which guides methodological research programs in support of GEVES's activities and missions, was reviewed in 2018. Research at GEVES for the 2018-2022 period will focus on the evaluation of variety performance, variety description and characterisation, and seed quality analysis. The aim is to characterise seeds and varieties more accurately and quickly, and to take account of new aspects for their evaluation. This research will draw on expertise in pathology, phenotyping, molecular biology, and data processing.

Two European projects related to variety testing were accepted or began in 2018,. GEVES is involved as a partner or workpackage/task leader.

- The European **H2020 RustWatch** program "A European early warning system for wheat rust diseases" aims to provide an early warning system and better control of rust races in Europe.
- The **H2020 INVITE** project "Innovations in plant Variety in Europe to foster the introduction of new varieties of improved biotic and abiotic conditions and more sustainable crop management practices" aims to improve the efficiency of variety testing (DUS, VCU) and the availability of information for stakeholders on variety performance under a range of production conditions.

In 2018

51 research projects & actions ongoing

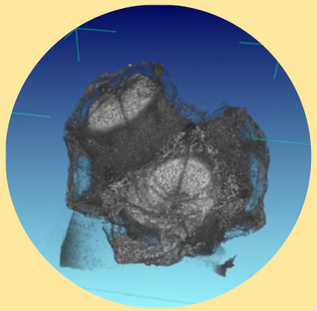
15 new multi-partner research projects accepted

Summary of ongoing projects

VARIETIES

- **NIRS**: Near-InfraRed Spectroscopy
- **HERBE BOOK**: Improve the calculation of comparisons between varieties of forage and turf.
- **CARAVAGE**: Better characterise varieties in order to predict their performances in a wide range of environments.
- **OPTIRES**: Optimise variety trial networks using in particular methods which control spatial heterogeneity in trials.
- **VAR-ECOPHYTO**: VARiety data in support of the ECOPHYTO plan.
- Participation in **GIS GC HP2E,** and development of methods taking into account Genotype x Environment interactions.
- **ECOVAB**: Evaluate the Behaviour of Varieties in Organic Agriculture: build today the tools for tomorrow.
- **N-BT**: Methods for estimating indicators of nitrogen recovery efficiency by new varieties of soft wheat.
- **JNorge**: New resistances/tolerances to Barley Yellow Dwarf.
- **Harmores 3**: Harmonisation of resistance tests to diseases for DUS testing -3.
- **FSOV Germination sur pied**: Phenotyping and genotyping characterisation of resistance to sprouting and Hagberg falling number in soft wheat and triticale.
- **Persimil**: Genetic improvement of parsley for resistance to downy mildew (*Plasmopara petroselini*) in field production and under shelter.
- **Pathostat-Veg**: Integration of statistics as a decision aid for the analysis of resistance tests to pests and pathogens of vegetable species.
- Research on identifying pest and pathogen races, conducted in the framework of ISF and in collaboration with UFS.
- Development of a nematode resistance test for pepper varieties in DUS testing.
- Improving and developing a method for extracting nematode cysts.
- **Microdochium**: Better understand the occurrence and epidemiology of this pathogen, and the behaviour of soft wheat varieties in response to it.
- **Carie ABBLE**: Development of early varietal resistance test for common bunt for the registration of soft wheat varieties in organic farming.
- **AMS Orobanche Chanvre**: Development of a laboratory resistance test soon available.

SEEDS



- **ASEEDS**: Alternative solutions to protect and stimulate seeds.
- **AKER**: Phenotyping of beet seeds.
- **PeaMUST**: MUlti-STress adaptation and biological regulations for yield improvement and stability of protein peas.
- **Dityluz**: Acquisition of methodological tools for the detection and qualification of the stem nematode, *Ditylenchus dipsaci*, on lucerne seeds. Development of a viability test and adaptation of sampling.
- **Euphresco Acidovorax citrulli**
- Research carried out within the framework of ISTA, ISHI, IIRB and in collaboration with UFS or ANSES.
- Development of a new pathosystem for loose smut of barley in response to sector needs.
- Development of a phenotyping method for estimating thousand seed weight.

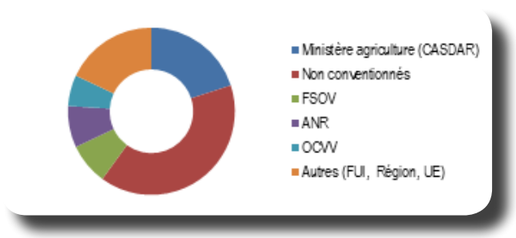
New research projects accepted in 2018

One-fifth of GEVES's research programs receive grants from the Ministry of Agriculture, mainly through the CASDAR call for projects "Seeds and plant breeding" .

A third of the programs are not subject to a convention and are funded by GEVES.

8% of the projects are financed by the FSOV (Fund for Plant Breeding Support), by the National Agency for Research - notably through their "Investments for the Future" programme, and by the CPVO (Community Plant Variety Office).

The rest of the projects are funded by Ecophyto, the European Union, or the FUI (Fond Unique Interministériel).



Research Theme	Funding body	Program
Variety performance	• **CASDAR Semences**	• **Optiplasm**: Optimisation of the official test for oilseed rape varieties against cruciferous hernia. • **Hybrides orge**: Introduction of new varietal references for testing: How can we take into account the specificities of CMS hybrid barley varieties in the official test for agricultural and technological performance? • **Nutrifolium**: NIRS evaluation of the nutritive value of cloverleaf varieties for registration. • **Ortobox**: Characterise sunflower varieties with regard to *orobanche cumana*: construction of a toolbox for the CTPS. • **Precocité soja**: Improve the classification of earliness in soybean varieties for registration. • **Atipical**: Update and maintain knowledge and biological and molecular resources on leaf diseases in oilseed rape.
	• **CASDAR Technological Research**	• **Literal**: LITE phenotyping system to Record, Analyze and Lay out.
Seed quality	• **FSOV**	• **Fus'Eye**: New spectral in-field phenotyping tool to quantify Fusarium head blight on cereals. • **Prosit**: Qualification of proteins of interest in the brewing quality of barley. • **Resistamicro**: Understand and control Microdochium infections to improve wheat resistance to "Microdochiosis".
	• **FSRSO**	• **Qualilev**: Improve the germinative quality and emergence speed of sunflower seeds in unfavourable conditions.
	• **Euphresco**	• **Euphresco PospiTest**: Test performance studies of detection tests of Pospiviroids on Solanaceae.
Plant characterisation	• **CASDAR Seeds**	• **Resilens**: Collection and characterisation of lentil genetic resources. • **Idevol**: Technological development for the identification of potato varieties using microsatellite markers for plant certification.
Variety performance & characterisation	• **EU: H2020**	• **INVITE**: INnovations in plant VarIety Testing in Europe to foster the introduction of new varieties better adapted to varying biotic and abiotic conditions and to more sustainable crop management practices.