

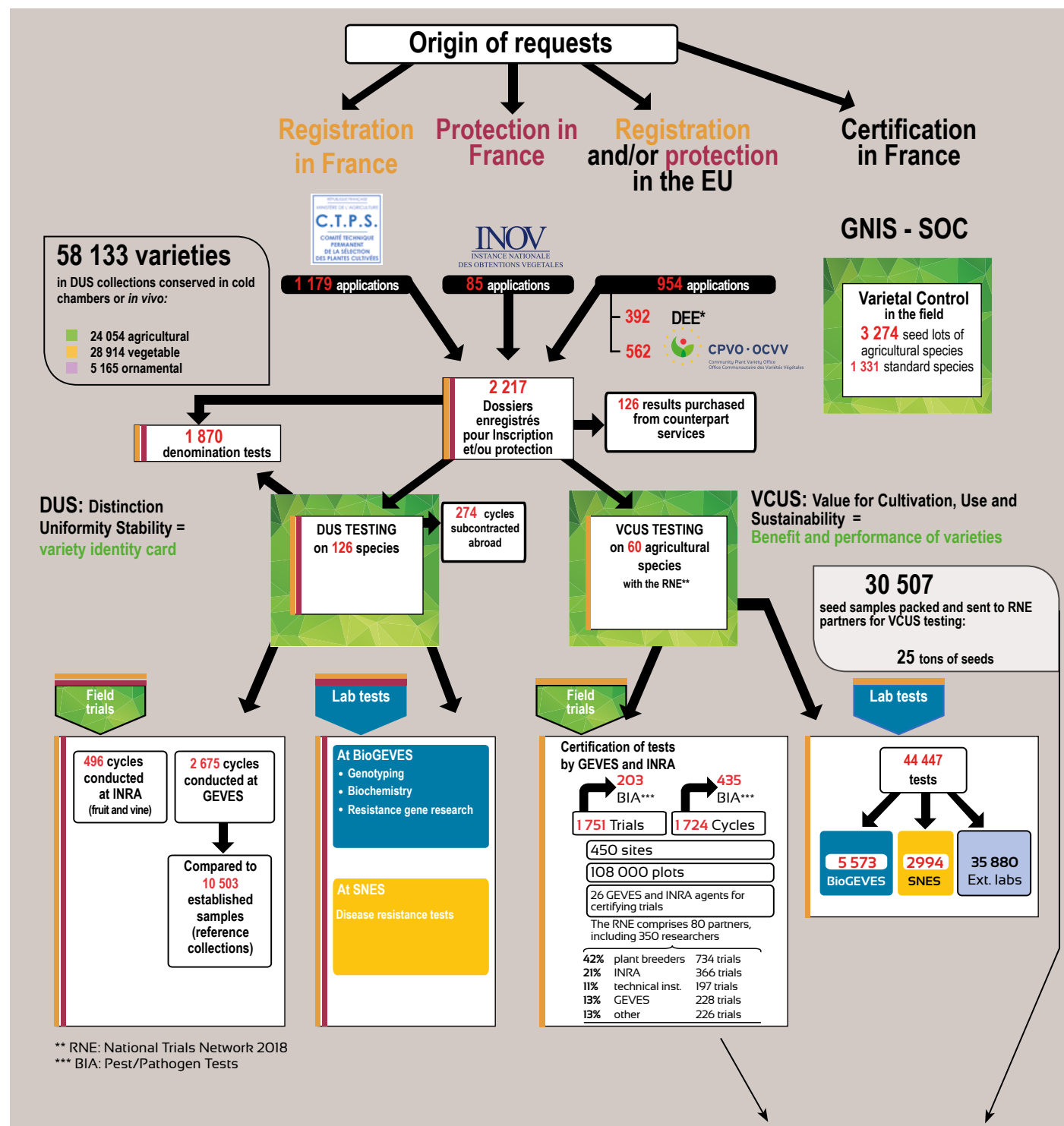


# Plant variety evaluation & characterisation

- 2018 highlights and figures
- Registration in the French Catalogue
- Plant variety protection in France and Europe
- Conservation of Plant Genetic Resources
- 2019 projects and perspectives



# Key Figures 2018

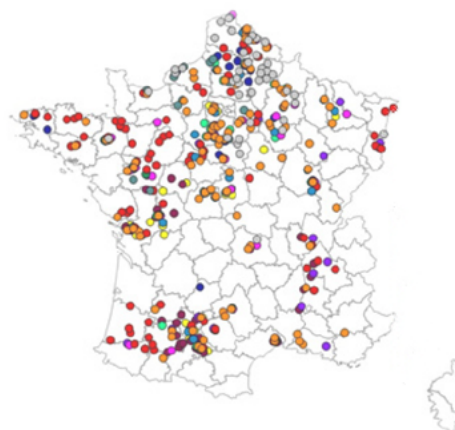


## \*Application for Foreign Study

GEVES cooperates with official foreign bodies for DUS tests necessary for registration and/or protection.

In 2018, GEVES:

- provided results to more than 30 official bodies in Europe and internationally (UPOV Convention)
- conducted 70 DUS tests for 6 European Examination Offices



# Highlights 2018

The year 2018 will be remembered as a year marked by exceptional summer drought, especially in the north-east of France and even more markedly in northern Europe. But thanks to the technical expertise of GEVES's teams and network partners, we were able to conduct variety testing in relatively correct conditions and produce high-quality testing reports for our clients: CTPS, INOV, CPVO, other examination offices (bilateral agreements), SOC. We were able to provide decisions in time on the varieties which were entrusted to us for evaluation.

Quantitatively, overall activity has remained stable or slightly increased, but with the same basic trends as in previous years, namely a good performance of winter species (cereals, oilseed rape) and beet, a continued decline in maize and an increase in the diversity of species studied. There is a significant drop in requests for studies from other offices (EU or non-EU) that we will try to understand and analyse in the coming year.

## Our biggest challenge this year has been dealing with the consequences of Brexit.

- At the request of the DGAL, we have set up an adapted procedure for registration in the French Catalogue of varieties registered in the UK only, and therefore would no longer be marketable in the EU after Brexit.

Files submitted by the applicants were examined by committees for each species group. In some cases the take-over of DUS reports was possible, which meant that the registration orders were published on time (early 2019). This exceptional procedure enabled the registration of more than 80 varieties on the French Catalogue.

- The DUS examinations that had previously been assigned to the United Kingdom were assigned to other examination offices (NAKT, BSA and UKSUP) with the consent of the applicants.

- GEVES prepared to take over the evaluations of several ornamental species as early as 2019, and "natural season" chrysanthemums in 2020. We have therefore reorganised and strengthened the team responsible for these studies, in order to complete our expertise, write protocols and obtain reference collections, and to be ready as soon as examination requests were received. This project also includes new facilities in Anjouère, Cavaillon and Brion, including a new greenhouse that will open at the end of 2019 in Brion.

The "ornamental" activity of GEVES is expected to double between 2018 and 2020, reaching a level comparable to our activity for vegetable species.

**The teams remained strongly committed to moving forward with the SPAD plan's priority actions**, often as part of methodological research projects supported by CASDAR funds, or by the Ministry of Agriculture (DGAL), and through coordinating with all actors in the continuum of variety evaluation.

Several field crop sections have continued and in some instances finalised work to redesign their networks or evaluation criteria (maize, sunflower, wheat, oilseed rape), in order to better meet user expectations, both in terms of varietal choice and information available. The intersection commissions for service plants and organic farming continue to grow and structure their actions.

**With the planned development of certain VATE networks**, we are working to broaden our partnerships by increasing participation from cooperatives and distributors. Data valorisation is an important objective, and GEVES has collaborated with the UFS and Arvalis to launch a project to create a common Internet tool with information and comparison of maize varieties for farmers.

**The National Coordination Structure (NCS) for Plant Genetic Resources Conservation** has launched two calls for applications, thanks to the renewed support fund from the Ministry of Agriculture, as well as additional funding this year from the GNIS Support Fund.

In November, the first conference for actors involved in the conservation of PGR highlighted the work already carried out by the NCS and the related CTPS section in less than 3 years of existence.

**In DUS**, the SEV teams are actively involved in international working groups (UPOV, CPVO) which develop and revise testing protocols for the different species. This is important to present our views on DUS testing and to promote GEVES's expertise internationally. A threshold of genetic distance to avoid having to compare the closeness of maize varieties in the field has been proposed to UPOV, and SNP markers are now routinely used for sorghum DUS.

A renewal audit of our accreditation conducted in the spring demonstrated that we are fully in line with CPVO requirements and allows us to continue our work for this organisation for the next three years. An additional audit is planned for 2019 for new ornamental species. For vegetable species, our work in close collaboration with the UFS allows us to consolidate our databases on resistance of major species to notifiable.

The continuation of the project for the use of SNP markers on oilseed rape, conducted in collaboration with our German BSA colleagues, was submitted for funding to the CPVO.

Experimentation on heterogeneous material (European framework) entered its third year, and a meeting was organised by the CPVO as part of its annual examination offices meeting to take stock of the work carried out in the other EU countries.

**For VCUS**, testing outlines are continuously discussed within the CTPS sections, and regularly revised.

Our objective is always to optimise this testing system, to bring it closer to user needs and

to produce reliable data which can be used by research institutes and consolidated with their own data in order to achieve a targeted recommendation.

Three research projects which are important for developments in variety testing and supported by the SPAD plan (Donobt, Optirés, and Caravaggio, see the research chapter) are experiencing good momentum. These three projects, once completed, may have significant consequences for the valorisation of applicant data, for the validation of tests carried out in low potential or heterogeneous soils, and for understanding environments and Genotype x Environment interactions.

The European Rustwatch project on wheat yellow rust, started in 2018; GEVES is in charge of managing a European network of 55 test sites in 20 countries, aiming to better characterise the races used and subsequently better qualify the resistance of new varieties.

A method for characterising resistance to wheat bunt has been developed as part of the Carie Abblé project, and will be proposed to the CTPS section for cereals.

A CEPP action sheet for disease-resistant sugar beet varieties has been filed and published, and the CEPP lists of resistant varieties of wheat or potato have been updated by the relevant CTPS sections.

In 2018, we also worked on drafting new agreements with the SOC which foresees a strong increase in requests for sunflower and soya VC (Varietal Control). To meet this demand, the Montpellier unit has been reorganised to accommodate part of this increase as of 2019.

A new EU organic regulation was also published on 30 May 2018, which introduces new concepts in seed regulation, such as heterogeneous organic material and the concept of organic varieties adapted to organic farming. The GEVES teams and CISAB have started to work on this text in order to help the Ministry to be proactive in drafting the planned delegated acts.

Another important event was the judgment of the European Court of Justice of 25 July, which states that only mutagenesis techniques used traditionally and whose safety has been proven for a long time and developed before the adoption of the Directive 2001/18, are excluded from its scope of application, which amounts to ruling on all NBTs.





## Projects & Perspectives 2019

The SPAD plan remains our major strategic focus, setting out the SEV's priorities for 2018 and the years to come. This evolving framework is at the centre of our main mission of plant variety evaluation for registration and protection.

Most of the orientations and actions described in this plan have been implemented in previous years and will continue in 2019; this year, we want to "fill" some gaps with the following steps:

- initiate work on using molecular markers of resistance genes in VCUS testing: for this purpose, a project on cereals will be proposed through the CASDAR "Seeds and plant breeding" call for projects.
- continue the typology work initiated within the scientific committee of the CTPS in order to better inform users and the general public on the modes of breeding and production of plant varieties.
- enhance our communication skills through staff trainings, the GEVES website, all traditional and modern communication channels, as well as direct contact at events such as "Les Culturelles".

In 2019, there will be several major developments in the VCUS evaluation networks:

- the new sunflower technical regulation is designed to simplify registration in France while seeking to maximise the informational efficiency of tests.
- there will now be three sets of tests for soft winter wheat, which will better match the structuring of the seed and consulting markets, expand the Catalogue to very early or very late groups, and open up participation in testing to new actors.

2019 will serve as a test year for including applicant data for new maize varieties.

As the current mandates of the CTPS members come to an end, its different structures will have to be renewed before the end of 2019.

The first DUS evaluations of the new ornamental species will be conducted. GEVES is awaiting entrustment by the CPVO to be able to start testing chrysanthemums in 2020 in brand new facilities. As such, the "ornamental" team of GEVES will be reinforced.

A new preparation chain for VCUS test kits will be built at the Magneraud station, in order to respond to specific requests from experimenters, particularly in terms of seed quantity or phytosanitary treatment. This chain should make it possible to further reduce the amount of seed required from applicants.

A project will be set up to reduce the use of phytosanitary products at GEVES's experimental units, in consultation with INRA and within the framework of the discussions INRA has conducted on this topic. The first step requires identifying current practices, setting priorities and building a medium-term work schedule.

The use of glyphosate will be halted at the end of 2020.

The teams will continue to participate in numerous research projects, including the European INVITE project, which will be launched in the summer of 2019. This project includes our main research themes (genotyping, phenotyping, interoperability of data) and gives a European anchor to our work.

The National Coordination Structure will continue its work on orphan species, diversifying funding sources, managing calls for projects, and animating the CTPS PGR section. This year, one person will temporarily strengthen the team to collect indicators for the CGRFA Global Action Plan and the implementation of the ITPGRFA.

The GEVES team in the north of France, based in Mons en Chaussée will reach its full size, with 3 staff hosted in the INRA experimental unit. The team manager is the new technical secretary of the beet and industrial chicory section. The team will be in charge of conducting CTPS trials at the station and approving network trials over a wider geographical area.

## National coordination of plant genetic resources conservation of cultivated species and their crop wild relatives

In 2018 both the National Coordination Structure and the CTPS Section for Plant Genetic Resources (PGR) Conservation continued to build on its positive momentum. In particular, the first conference for stakeholders involved in PGR conservation took place on 29 November in Paris.

### CTPS PGR Section

The CTPS PGR Section and the four working groups of the Section met regularly in 2018 and made significant progress.

The first version of the glossary, establishing a common vocabulary, was posted online in September 2018 on the GEVES website. It will be updated as and when the terms are validated by the Section.

The technical regulation on the official recognition of managers of plant genetic resources collections was approved by order of 28 March and published in the official journal on 12 April 2018. It allows managers to file an application for official recognition, either individually or on behalf of a conservation network. There are two application periods: in spring and autumn. The relevant documents are available on the GEVES website.

### Management of orphan species and endangered collections

The GeLenHa study made it possible to draw up an inventory of the actors and collections of pea, lentil, and bean PGR, and to propose conservation schemes best adapted to the three species. The three groups of species are in a variety of situations. For beans, the creation of a public-private cooperation network for resource management has been noted and is being formalised through the approval of a charter and the drafting of rules of procedure. For the other two groups of species, the number of stakeholders is not sufficient, various solutions are under study.

In the case of onion plant genetic resources, the approach was inspired by what was accomplished in the GeLenHa study. This led to a rapid agreement in principle on the creation of a public-private cooperation network for the management of this collection.

### Support funds for resources maintained in situ and in collections

Following the call for applications in support of collections launched in February 2018, 8 projects were selected, after significant work in accompanying the applicants, for a grant of just over 115 000 €. The projects financed mainly concern actions to safeguard and characterise collections. A new call for applications was launched in September 2018. It is funded by both the Ministry of Agriculture and Food for an amount of 300 000 € and by a GNIS support fund from the interprofessional seed and plant sector for an amount of 170 625 €. 28 projects were submitted to this call for projects, representing a funding request of over 730,000 €.

### Inventory of stakeholders and collections

The first conference for stakeholders involved in PGR conservation and valorisation took place on 29 November 2018 at FIAP Jean Monnet in Paris. On 29 November 2018, over a hundred people came together to discuss issues related to the management and promotion of PGRs, to meet with other stakeholders, and to learn about the national and international legislative and regulatory framework. A diversity of stakeholders were present with regard to the type of structures represented, the species conserved, and the activities developed. Elements reported during the day and the satisfaction survey will be used to set up practical workshops for collection managers in 2019 adapted to their concrete needs.

### Representing France at EU Level

The ECPGR steering committee took place on 15-17 May in Thessaloniki, Greece. At this meeting, the objectives and operations of the ECPGR and the budget required for phase X (2019-2023) were validated. Two new species groups were set up in 2018 for maize and berries. Similarly, the creation of an EU PGR evaluation network in public-private partnership (VAS) has been endorsed. It aims to prioritise the resources of the European AEGIS collection (<http://www.ecpgr.cgiar.org/resources/european-evaluation-network/>). This collection, launched in 2009, is struggling to take shape with regard to the number of stakeholders (countries and associate members) and the size of collections. At a meeting organised in December in Madrid, various participants including France helped to remove implementation barriers and challenges, and to propose solutions.





# Registration in the French Catalogue

In 2018, more than 400 varieties of over 60 agricultural, vegetable, fruit, wine and forest species were registered in the French Official Catalogue, after establishing:

- their identity card (DUS)
- and verifying their use value (VCUS) for agricultural species and vines, through trials conducted by GEVES and its partners.

**New uses and cropping systems** are taken into account when examining varieties: experimentation for organic farming, crop association, varieties providing eco-systemic services, varieties recognised for their heritage value, varieties of agricultural species used as vegetables (e.g. rutabaga, soya, potato ...).

In addition, the CTPS supports market access (= registration in the Catalogue) for seeds and seedlings of **environmentally responsible varieties** (varieties that consume fewer phytosanitary products). New resistance tests are developed annually and integrated into experimental protocols and decision rules. Methodological research conducted by all variety testing partners is fundamental to improve our understanding of varieties and develop variety testing in response to emerging diseases. These new environmentally responsible varieties allow users (i.e. farmers) to use fewer chemicals and enter the CEPP scheme (Plant Protection Product Saving Certificate).

In addition to biotic stresses (diseases, insects, pests ...), new varieties are facing crop conditions modified by **climate change**. CTPS has extended its expertise by taking into account the behaviour of varieties under water stress (e.g. on sugar beet and sorghum), and changing harvest conditions (e.g. drier harvests for maize) in the evaluation of variety earliness.

**Evaluation methods are constantly evolving.** The main current reflections concern: pooling experimental resources throughout the sector (notion of varietal evaluation continuum) and using data provided by the applicant (vegetables, maize), integrating the notion of genetic progress in the decision rules concerning varieties studied or already registered in the French Catalogue (beet, fodder, maize) and integrating molecular biology tools in DUS and VCUS tests (calculation of genetic distance or detection of sequences of interest).

To help develop these methods, research support is invaluable. The CASDAR call for projects "Seeds and Plant Selection", for which the CTPS Scientific Committee proposes a list of eligible projects, supported 9 projects for more than €1,137,000 in 2018. Other projects related to the CTPS are funded by other windows: FSOV, OCVV, FranceAgriMer, AFB, etc.

The CTPS actively contributes to the **SPAD** (Seeds and Plants for Sustainable Agriculture) plan, relying in particular on the work of GEVES.

The **composition of the CTPS** (Plenary Committee, Scientific Committee and Sections) will be renewed at the beginning of November 2019, for a 5-year term. There are already some imperatives emerging for the next term of office: reaffirming the advisory role of the CTPS Scientific Committee, pursuing transparency and communication efforts, supporting the agroecological transition through varieties, seeds and seedlings, and creating more scope for diversity of uses and cultivation methods.



## INOV: Plant Variety Protection in France



In 2018, **98 new applications for protection** were filed with INOV, returning to a normal average (after an exceptional year in 2017 with 158 applications). Applications spanned all crop sectors; in addition to the agricultural sector, which is still very present, there is a balance between the vegetable, ornamental and fruit sectors.

Compared to previous years, fruit applications have fallen sharply compared to ornamentals which are increasing steadily, and vegetables which are rising sharply.

**The fees for plant variety protection in France have been updated and the system has been simplified.** This revision has been approved by the Ministry of Agriculture and Food as well as the Ministry of Public Action and Accounts, and has been published in the Official Journal. Information on fees is available on the GEVES website.

2018 was rich in communication. Throughout the year, INOV responded to various requests:

- Bilateral relationship with clients, breeding associations and researchers (ESCP Europe),
- Participation in seminars, conferences for future breeders, researchers, organisations with research and innovation activities
- Meetings / visits (INPI Nantes, SICASOV ...).

Internationally, INOV continues to participate in the official bodies of UPOV (administrative and legal committee, advisory committee, council) as well as in various working groups where it can bring forward the difficulties and concerns of French breeders.



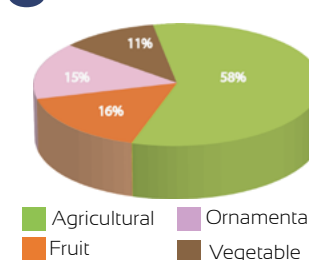
All costs related to plant variety protection, maintenance, and defence are eligible for **research tax credits**.

### INOV Official Gazette

This monthly publication is published online around the 15th of every month. The gazette provides information on proposed and accepted denominations, new protection applications, terminated plant variety rights, and changes of applicant/right holders.

This gazette is freely accessible to all, and it is possible to sign up for an e-alert each month when the gazette is published.

**98** PVR applications



INOV is located in the headquarters of GEVES:  
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For more information or to apply for a French protection title:  
[www.geves.fr/qui-sommes-nous/inov/](http://www.geves.fr/qui-sommes-nous/inov/)

A special registration procedure has been put in place due to the circumstances of Brexit, so that seed users in France or the EU will not abruptly lose access to varieties that are registered exclusively in the UK catalogue: **80** agricultural and vegetable varieties have been registered in the French Catalogue.