

Technical Working Party on Automation and Computer Programs TWC/36/3**Thirty-Sixth Session
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REPORTS ON DEVELOPMENTS IN PLANT VARIETY PROTECTION FROM MEMBERS AND OBSERVERS*Document prepared by the Office of the Union**Disclaimer: this document does not represent UPOV policies or guidance*

1. The Technical Committee (TC), at its forty-seventh session held in Geneva, from April 4 to 6, 2011, agreed to request the Office of the Union to invite experts to submit written reports to the Office of the Union in advance of the Technical Working Party (TWP) sessions in order that a document containing those reports could be prepared by the Office of the Union. The TC noted that TWP experts would be invited to make a brief oral summary of their written report at the session and would also be encouraged to make reports under the agenda item "Experiences with new types and species", as appropriate. The TC also noted that TWP experts would have an opportunity to raise questions concerning matters of interest (see document TC/47/26 "Report on the Conclusions", paragraphs 9 and 10).

2. Written reports were invited by the Office of the Union in Circular E-18/067 of May 30, 2018. The following reports were received (in alphabetical order):

- Members of the Union: Annexes I to VI: European Union, France, Japan, Netherlands, Poland and the United Kingdom

[Annexes follow]

EUROPEAN UNION

CPVO report of activities 2017/2018 to the TWC

Statistics

2017 has been the second highest year in terms of numbers of applications received, 3 422, compared to 3299 in 2016, that are some 4% more applications. In 2017, the distribution between crop sectors was as follows:

agricultural, 818 applications (23.9%); vegetable, 663 applications (+19.4%); ornamental, 1629 applications (+47.6 %); fruit 312 applications (9.1%). The overall number of application is so far the same in 2018, with an increase in the agricultural sector

Close to 20% are applications from Non-EU members.

In 2017, 2865 new titles were granted. In June 2018, close to 26 500 plant varieties were protected under the EU plant variety right (PVR) system. At the end of 2017, the number of botanical taxa in the CPVO registers increased to 2066.

Administrative Council

The AC adopted the Strategic Plan for 2017-2021 which states the following **Mission**: *The CPVO delivers and promotes an efficient intellectual property rights system that supports the creation of new plant varieties for the benefit of the society.*

Brexit

In view of the forthcoming leave of the UK from the EU, the CPVO had to stop organizing new DUS examinations at UK based examination offices. The technical cooperation in DUS testing with UK EOs will come to an end with the date of leave (29/03/2019). All species which had been entrusted to UK offices for testing have been reattributed to EU based EOs or, for species without current applications, will be attributed following a call for tender.

R&D

The CPVO ad hoc working group for the integration of molecular data into DUS testing IMODDUS had its second meeting in January 2017. Beside a new R&D project proposal on Durum wheat, the working group discussed the CPVO Strategy paper for Imoddu which has been endorsed by the AC in 2017. It furthermore received presentations on the handling of big data, new breeding techniques and their relation to DUS and possibilities on the cooperation of laboratories. IMODDUS meets every year alternately with the UPOV-BMT working group.

IT sector

The CPVO reshuffled its online application system at the address ***applyfor.plantvarieties.eu*** and the new version has been released mid-June 2018, with a few additional functionalities.

A signature control system has been put in place recently so that only the persons recorded as authorised to do so can sign the online applications. Some additional controls have been computerized, assisting applicants in filing complete application documents resulting directly in the attribution of an application date without the need for the Office to request additional information.

Applyfor.plantvarieties.eu has been designed to apply for EU plant variety rights, National plant variety rights and National listing procedures in the EU. The project has been developed in cooperation with Naktuinbouw from the Netherlands and Geves from France. This is reason why it is already possible to file applications in these countries. Other EU member states will hopefully rapidly join the project and design their own set of forms in such a way that applications are possible at National level.

Last but not least, **UPOV** released in 2017 the **UPOV PRISMA** tool, whereby breeders can file applications in any participating UPOV Member State for a range of species. **applyfor.plantvarieties.eu** and **UPOV PRISMA** are now linked: applications for EU or National Plant Variety Protection in EU member states can - in addition to being filed directly to **applyfor.plantvarieties.eu** - also be filed through the UPOV PRISMA application tool. By joining the project, the CPVO and EU member states will be the first partners to join UPOV PRISMA by way of an automatic link: data related to the application can be transferred directly

into the CPVO or into databases in EU Member States who have signed up to **applyfor.plantvarieties.eu**. The link with UPOV PRISMA is currently limited to a few species (Rose, apple, potato, lettuce and soybean) but more species are expected to join that list in the course of 2018.

[Annex II follows]

The activity in the framework of national listing and the activity in the framework of DUS bilateral agreements has slightly increased in 2017.

The plant breeding effort remains important and even in development for some crops regarding the capacity of genetic improvement to contribute to the challenges in the field of protection of environment and health.

GEVES has a new website which can be consulted here www.geves.fr

In total, GEVES studies each year about 1400 new varieties,

- around 100 new candidate varieties, a year, in the fruit sector.
- around 1000 new candidate varieties, a year, in the agricultural sector.
- around 100 new candidate varieties, a year, in the ornamental sector.
- around 230 new candidate varieties, a year, in the vegetables sector.

However, the number of applications for some species decreases in France (for example maize), whereas the number of applications for some other species increases (for example oilseed rape, ornamental and fruit species).

GEVES activity is entrusted by the CPVO. GEVES, as an examination office on behalf of CPVO, receives around 600 requests of results each year including about 60% of take over reports related to field and vegetable crops tested first for national listing. GEVES also sends each year about 500 reports to other examination offices (about 100 examinations and 400 take-overs) and buy about 120 reports from them in the framework of bilateral agreements.

The International System of Cooperation is active and efficient. For more information, the international cooperation service of GEVES can be contacted here: anne-lise.kouditey@geves.fr

GEVES has recently gained experience on DUS tests of new species: *Sesamum indicum*, *Chenopodium quinoa*, *Musa acuminata*, *Vanilla planifolia*, *Allium tuncelianum*, *Genista stenopetala*, *Lathyrus sativus*, *Deutzia* spp., *Lonicera* L. var *Emphyllolallyx* Maxim., *Brassica rapa* subsp. *Nipposinica*.

GEVES has also started the testing of a high number of new ornamental species, this sector becoming prominent for GEVES activities. The main new genus tested are: *coreopsis*, *spirea*, *leucanthemum*, *echinacea*, *salvia*, *euphorbia*, *escallonia*...

In addition to that, the French National Office for PBR (**INOV**) has received 145 applications in 2017 (+50% compared to the previous years), out of which 95% were tested for DUS by GEVES.

GEVES has been highly involved for the last few years in the following topics:

- the **use of molecular markers** in the DUS tests for the management of reference collections, for the identification and characterization of varieties, for checking of hybrid conformity. It is routinely used in maize, barley, sorghum, and fruit species
- **continuous improvement of our methods and protocols**, in line with CPVO TPs and CPVO requirements and UPOV guidance
- **the exchange of data and files via electronic platforms, accessible to other Examination Offices, to the CPVO, to DUS examiners or to applicants**, such as "Sharing the online application of the CPVO", "Exchange electronic documents: B2B platform with the CPVO" and web services from the CPVO Variety Finder
- cooperation between Examination Offices to **share common data bases of phenotypic variety descriptions**.

Concerning the use of molecular techniques in DUS testing, GEVES was pleased to hold the BMT in La Rochelle in 2017. Six presentations have been made by France to present the current development works on this topic:

- The use of molecular markers (SNP) for maize DUS testing in France (2013 to 2016)
- The use of molecular markers (SNP) for maize DUS testing: Development and official applications to assess distinctness of hybrids varieties
- Use of GBS for Lucerne Variety Distinction
- Test of the potential use of SNPs markers on oilseed rape varieties
- An attempt to use molecular markers for winter wheat reference collection management

- The use of molecular distance as a characteristic?" Assessment of the reference variety model based on GEVES SNP maize data

Following the developments in la Rochelle, GEVES will work on the revision of TGP15 and INF17.

GEVES uses in routine genetic disease resistance characteristics, processed in bio tests, for DUS results. It provides also services, facilities, protocols, identified standards and strains for such activities to Examination Offices and seed companies, in the world. For more information, please contact: GEVES SNES valerie.grimault@geves.fr.

Christophe Chevalier, staff of GEVES, is nominated as Chairperson of the UPOV TWC from 2018.

News about IT Events

We developed in 2010-2011 a technical website "GEMMA" to share DUS data between different couple Specie/Country.

This development was made in the framework of CPVO R&D project "CPV8648" (Management of peach three reference collections). This project involved 4 countries: Spain, Hungary, Italy and France.

In 2017, a new CPVO R&D project "Potato III" (Management of Potato reference collections) have been include in GEMMA website. This project involves 9 countries: Germany, Slovakia, the Netherlands, Austria, Ireland, the United Kingdom, Spain, Poland and Czech Republic.

In 2018, a new CPVO R&D project "Melon database" (Setting up of a database with descriptions and photos of melon varieties of common knowledge) should be include in GEMMA website. This project involves 5 countries: Netherlands, Slovakia, Spain, Portugal and France.

[Annex III follows]

JAPAN

1. Number of applications in 2017

Year	Number	(2017/2016)
1978 to 2017	32903	-
2016	977	
2017	1019	(104%)

2. Number of granted in 2017

Year	Number	(2017/2016)
1978 to 2017	26382	-
2016	942	
2017	811	(86%)

3. National test guidelines had harmonized with UPOV TGs in 2017.

Genera and Species (4)
Pineapple, China Aster, Pelargonium, Salvia

4. National test guidelines had developed for new type of species in 2017.

Genera and Species (15)
<i>Alternanthera brasiliana</i> (L.) Kuntze, <i>Antigonon leptopus</i> Hook. & Arn., <i>Arabidopsis halleri</i> (L) O'Kane & Al-Shehbaz subsp. <i>gemmifera</i> (Matsum.) O'Kane & Al-Shehbaz, <i>Avena strigosa</i> Schreb., <i>Dodonaea viscosa</i> (L.) Jacq., <i>Ipomoea carnea</i> Jacq. subsp. <i>fistulosa</i> (Mart. ex Choisy) D. F. Austin, <i>Leucothoe</i> D. Don, <i>Panicum miliaceum</i> L., <i>Physostegia virginiana</i> (L.) Benth., <i>Pilea depressa</i> (Sw.) Blume, <i>Polianthes tuberosa</i> L., <i>Potentilla sundaica</i> (Bl.) O. Kuntze var. <i>robusta</i> (Franch. & Savat.) Kitag., <i>Rhodanthe</i> Lindl., <i>Syringa</i> L., <i>Triticum turgidum</i> L. subsp. <i>durum</i> (Desf.) Husn.

Web-site: http://www.hinshu2.maff.go.jp/info/sinsakijun/botanical_taxon_e.html

5. Other.

- ✓ Japan continuously offers to other UPOV members examination reports at no charge by the Memorandum of Cooperation (MOC) agreed upon. We have exchanged the MOC documents with 14 member states at May 2018.
- ✓ Japan had launched MAFF electric application system (national electric application system) in March 26th, 2018 to improve convenience for applicants. This system allows users who have user ID and password provided by the PVPO to send application form by electric system. Users are requested to send a Request Form by postal mail to PVPO for obtaining user ID and password in advance. The accepting language is Japanese only. Paper application is acceptable also. We started the MAFF electric application system for improving effective PVP proceedings in Japan. More information is provided MAFF's website, "<http://www.hinshu2.maff.go.jp/>" (Explanation is available only in Japanese)
- ✓ For encouraging PBR holder to apply overseas applications for registered varieties in Japan, PVP office is supporting PBR holders including setting up the manual for applying overseas and the consultation desk with some financial support for them.
- ✓ Since establishment of the East Asia Plant Variety Protection Forum in 2008, Japan continuously support its activities to facilitate the improvement of the implementation and the harmonization of the plant variety protection system based on the UPOV system in the Asian region.

[Annex IV follows]

NETHERLANDS

Naktuinbouw Variety Testing Developments

From the beginning of 2017 it has been the intention to integrate the 3 DUS teams Ornamentals, Vegetables and Agricultural crops into one large DUS team. This will enhance cross-over of employees between the different sectors. The new structure came into force at the beginning of 2018. During 2017, the group of employees who are involved in a wide range of resistance tests was enlarged and restructured. Resistance is an increasing discussion topic related to DUS, even in Ornamentals.

Close cooperation with the Naktuinbouw Research and Development team is evolving on the use of DNA techniques in the management of variety collections and in description of characteristics as an alternative for morphological observations. In 2017, Naktuinbouw invested in many activities concerning methodology Research, especially in the use of DNA in DUS examination.

Members of the DUS teams were involved in the Training Course DNA Techniques and Variety Identification, which was organized twice in 2017. This Course was developed by the Research and Development team. A wide variety of persons with a background in variety testing (UPOV), certification (OECD) or seed testing (ISTA) participated.

Spring 2017 the first True Potato Seed variety was granted Plant Breeders' Right in the Netherlands.

For the major crops for listing and/or Plant Breeders' Rights, Naktuinbouw has developed calibration books. The calibration book serves as a very practical manual that gives an illustrated explanation of each crop characteristic mentioned in these guidelines/protocols. Calibration books are now freely available on the Naktuinbouw website.

Naktuinbouw has been assigned by the CPVO (Community Plant Variety Office) to carry out DUS tests for 130 extra crops for Plant Breeders' Rights applications in the EU. This is due to the Brexit, as a result of which the CPVO will no longer accept DUS reports from the United Kingdom which are to be issued after March 29 2019. The CPVO redistributed the crops that were only tested in the United Kingdom. The Administrative Council of the CPVO has entrusted Naktuinbouw for the examination of Chrysanthemum.

Number of applications received

In 2017, 1850 applications were received for testing for the first year for National listing, and for National or European Plant Breeders' Rights (in brackets the difference in numbers with 2016):

Ornamentals	862 (+5)
Agriculture	154 (+18)
Vegetables	834 (+5)
Total	1850 (+28)

A forecast for 2018 is not yet possible, but in the first quarter 505 applications were received, which is 54 more than in the same quarter of 2017.

Activities for UPOV

- In July 2017 Naktuinbouw hosted the UPOV Technical Working Party for Vegetables, in Leiden and Roelofarendsveen.
- In October 2017 Mr. Henk de Greef was appointed as chairperson of the Technical Working Party for Ornamentals.

International cooperation

- Naktuinbouw cooperates since 2016 with NCSS Japan on the harmonisation of Dutch Calibration Books and Japanese Testing Manuals in a 5 years working plan. In 2018 this has resulted in publication of Calibration Manuals for Lettuce, Rose, Carnation and Watermelon on their respective websites. For 2018, Eggplant and Anthurium are scheduled.
- Colleagues from Ghana, United Republic of Tanzania and Argentina did an internship at Naktuinbouw, respectively with focus on administration around PVP, DUS testing of potato and DUS examination vegetables and ornamentals.

- In 2017 several activities were organised by Naktuinbouw Variety Testing Department and the Department of Agricultural Research (DAR) of Myanmar in the framework of a three years project "Strengthening Myanmar Seed Sector". In 2018 Naktuinbouw received a delegation of Myanmar experts with the aim to let them see how an UPOV 91 PVP system works. There will be close collaboration with other UPOV EA and the United Kingdom examination offices in the training of Myanmar experts.

PVP Development Program

This is a new tool to help countries to develop their Plant Breeders' Rights system. The Dutch Ministry makes funds available for the implementation of this program. Naktuinbouw is charged to manage the program where they cooperate with the Dutch Agricultural Counsellors and their staff. They can propose projects aimed at the creation or development of a Plant Breeders' Right system in the territory they work for.

In 2017 many projects were carried out. Some highlights:

- UPOV Seminar in the United Republic of Tanzania
27 participants attended a 3 days seminar organised to strengthen the effective implementation of the plant variety protection system in the United Republic of Tanzania.
- Sponsoring 5 candidates to the 2017 PVP course
During the 2017 annual international PVP course the participation of 5 candidates was sponsored from the PVP Development budget: one participant from India, two from Cuba, one from Viet Nam and one from Indonesia.
- EAPVP forum activity training watermelon in Viet Nam
From 24 April to 27 April The Quang Ngai (Central Viet Nam) DUS station was visited by a Naktuinbouw expert where a training on DUS test of watermelon was given.
- China request for DUS training
On request of the Chinese DUS authorities, two training sessions were organised in conjunction with a meeting on the possible benefits of China becoming a UPOV member under the 1991 Convention.
- Mexico; promotion of the 1991 Act of the UPOV Convention
On invitation of the Agri attaché the Mexican authorities were visited by Naktuinbouw. A great interest for membership to the 1991 Act of the UPOV Convention was encountered. A follow-up (extra) activity in the Netherlands was planned. A Mexican delegation visited the Netherlands to study the effects of membership to the 1991 Act of the UPOV Convention in the Netherlands.
- Indonesia Shallots
From 25 September to 29 September two Indonesian government officials visited for 2 weeks Naktuinbouw in The Netherlands. This training focussed on two main subjects: Importance and benefits of being an UPOV member. Furthermore, practical training on true seed shallots and seed potatoes was given, in order to try to speed up the introduction of new varieties and the production of high quality seed/tubers.

[Annex V follows]

1. COBORU – Research Centre for Cultivar Testing, Poland

Since January 2011 COBORU is organized as an executive agency supervised by the Ministry of Agriculture and Rural Development. Through the network of 50 experimental stations and substations COBORU performs tasks in relation to national listing, post registration and plant breeder's rights.

COBORU has a long tradition in variety testing – in 2016 celebrated the 65th anniversary of testing stations activity and the 50th anniversary of the Research Centre for Cultivar Testing in Słupia Wielka.

2. Plant Breeder's right

Plant Variety protection Law - The Law of June 26, 2003 on the Legal Protection of Plant Varieties

Number of titles in force at the end of 2017

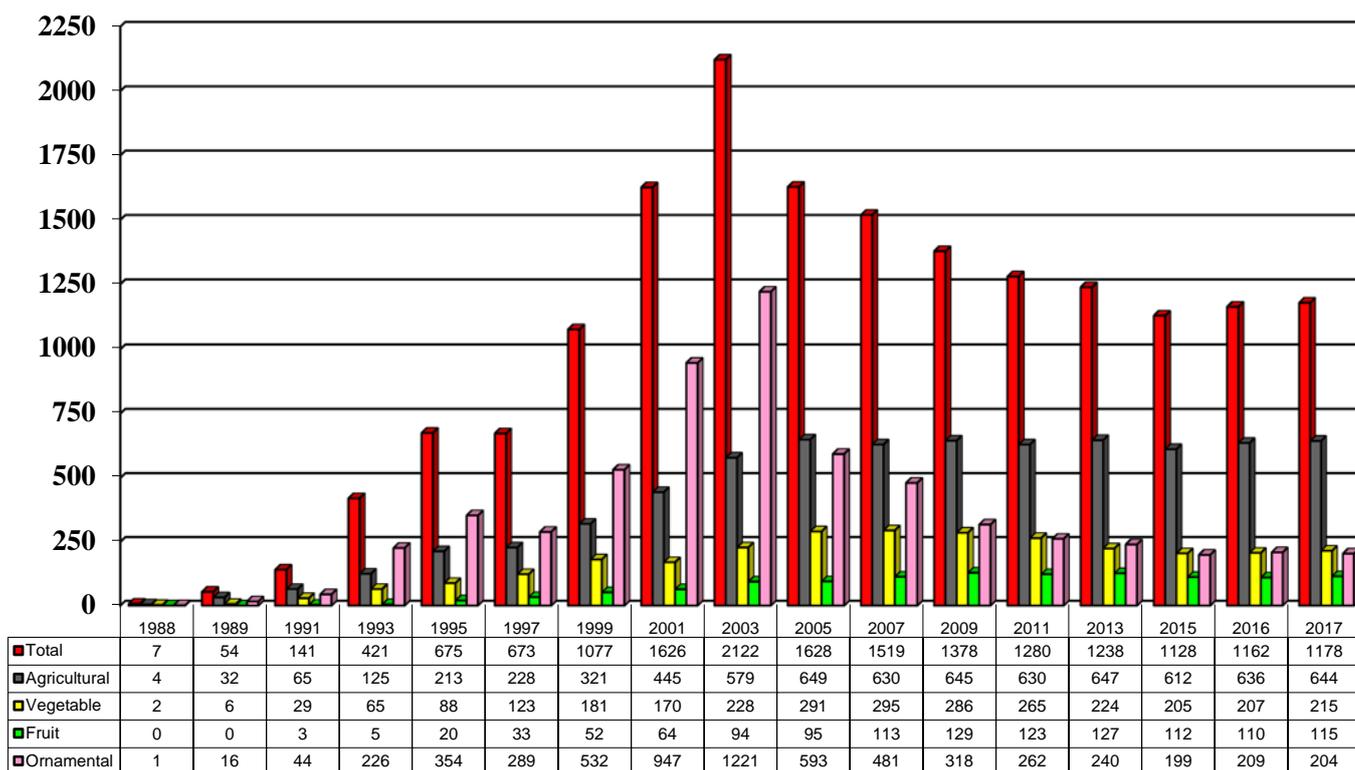
Agricultural plants – 644 varieties

Vegetable plants – 215 varieties

Fruit plants – 115 varieties

Ornamental plants – 204 varieties

Total – 1 178 varieties

Number of titles in force 1988-2017

3. New species in DUS tests in 2018

Triticum sphaerococcum Percival, *Triticum persicum* Vavilov, *Triticum polonicum* L. and *Fagus sylvatica* L.

4. Audit by CPVO

COBORU is entrusted by the Community Plant Variety Office (CPVO) of the European Union for 177 taxa.

5. Recent projects

RING – TEST for strawberry

RING – TEST for triticale

6. Integrated web-based IT system

- Electronic Field Book for DUS Trials – store every aspect of DUS trials in one central database; it is accessible from remote locations through the web application;
- new data logger platform – the new Java application for mobile devices with Android system was introduced two years ago; it imports the trial definition from the central database and then exports all observations and measurements into this database
- integration with seed storage – each seed sample could be easily located in the long-term seed storage and then assigned to the particular trial through web application;
- database of variety descriptions – all variety descriptions are stored in the central database; to simplify finding similar varieties some search tools were developed
- integrated on-line statistics are accessible without exporting data to other programs

[Annex VI follows]

ANNEX VI

UNITED KINGDOM

Report on the activity of the United Kingdom Plant Varieties and Seeds Office in Cambridge and the regional examination centres of NIAB, SASA and AFBI.

The Plant Varieties and Seeds Office is part of the Science Directorate of the Animal and Plant Health Agency (APHA), an executive agency of the Department for Environment, Food and Rural Affairs (Defra). Contact details and phone numbers are available on Gov. United Kingdom website where all Government departments now have their web site details.

Across all the United Kingdom trial stations, nearly 1500 candidate varieties were under test for Listing and/or PVR in 2017/18, including 302 winter oilseed rape, 297 cereals, 239 herbage and fodder, >400 ornamentals and the remainder potatoes, field beans, sugar beet, vegetables and kale.

United Kingdom DUS testing complies with CPVO's quality requirements and thus can be used by applicants in any subsequent application for European Union PVR. APHA and its TQB's NIAB, SASA and AFBI achieved its Entrustment from CPVO for designated species in October 2016 for the third audit running from 2010.

NIAB is pleased to have partnered with GEVES for the delivery of CPVO/APHA funded project 'Test of the potential use of SNP markers on Oilseed Rape Varieties'. This was a pilot study with a positive outcome with the following key findings:

- A set of SNPs were identified that appear useful within the subset of varieties in the pilot study.
- Bulking the samples before extracting DNA gave a similar result to the individuals included in the bulk sample
- DNA extracted from the leaves compared to DNA extracted from seeds gave the same answer. Seeds are the preferred option for this investigation stage as the DNA extraction process is quicker.

The final report will be published by the CPVO and will be available on their website in due course. Discussions are underway regarding a follow on project.

[End of Annex VI and of document]