

Technical Working Party for Agricultural Crops

TWA/48/3

**Forty-Eighth 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-19/114 of August 6, 2019. The following reports were received (in alphabetical order):
 - Members of the Union: Annexes I to VI: Brazil, Denmark, European Union, Japan, Netherlands and the United Kingdom

[Annexes follow]

BRAZIL

1. The National Plant Variety Protection Service (SNPC) on the Ministry of Agriculture, Livestock and Food Supply (MAPA), is the national authority for the examination of applications and for granting Plant Breeder's Rights in Brazil.
2. Since the end of 2018, the SNPC fully implemented the electronic PVP application system and currently the office is running paperless.
3. In 2018, SNPC received 326 applications: agricultural crops (187), ornamentals (43), vegetables (54), fruit crops (27), forest trees (13) and forage crops (2). Comparing to the previous year, the number of applications for agricultural crops remained stable.
4. Those 187 applications of agricultural crops were for the following: *Glycine max* (L.) Merrill (127); *Triticum aestivum* L. (16); *Solanum tuberosum* L. (09); *Phaseolus vulgaris* L. (07); *Saccharum* spp. (06); *Zea mays* L. (05); *Oryza sativa* L. (04); *Gossypium hirsutum* L. (03); *Avena* spp (02); *Sorghum* spp (02); *Vigna unguiculata* L. (02); *Hordeum vulgare* L. *sensu lato* (01); *Humulus lupulus* L. (01); *Manihot esculenta* Crantz (01); x *Triticosecale* Witt (01).
5. Applications were filed from nationals of: Brazil (134), Argentina (26), United States of America (10), Netherlands (08), Switzerland (06), Germany (02) and Paraguay (01).
6. In 2018, SNPC granted 270 titles: agricultural crops (180), ornamentals (33), vegetables (26), fruit crops (22), forest trees (7) and forage crops (2).
7. Those 180 granted titles of agricultural crops were for the following: *Glycine max* (L.) Merrill (139); *Triticum aestivum* L. (10); *Saccharum* spp. (5); *Gossypium hirsutum* L. (5); *Phaseolus vulgaris* L. (1); *Oryza sativa* L. (6); *Manihot esculenta* Crantz (4); *Solanum tuberosum* L. (4); *Zea mays* L. (2); *Avena* spp (1); *Vigna unguiculata* L. (2); x *Triticosecale* Witt (1).
8. Those titles were granted to applicants from: Brazil (136), Argentina (31); United States of America (8), Netherlands (3), France (1) and United Kingdom (1).
9. From January up to August 7th, 2019, SNPC received 131 applications, 51 of them to agricultural crops; and granted 203 titles, 115 for agricultural crops.

[Annex II follows]

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ANNEX II

DENMARK

The TystofteFoundation applied for extension of the scope of the CPVO entrustment with Rye (*Secale cereale* L.), and we are now in the first year of conducting rye-testing, which is rather challenging and exciting.

We have started using a new 2.5 mio. Euro building with offices, meeting rooms, laboratories and seed storage facilities. Further, we have started using GPS technology in seeding and maintenance of trials.

The TystofteFoundation have joined a research project, INNOVAR, financed by the European Union. The project aims at developing variety testing both for DUS and VCU by using new technologies like DNA-marker analysis, phenotyping by images acquired by Unmanned Aerial Vehicles (drones) and introducing new methods of data-analysis in machine learning. The project is a corporation between 27 partners from European research institutions, Examination Offices and breeding companies and it runs for 4.5 years.

Several TystofteFoundation colleagues have followed the UPOV distance learning courses (DL205, DL 305A and DL305B) and have passed successfully. It is an effective way to lead new colleagues into the "world of variety testing."

The number of applications is on a stable high level in 2019 and as we in 2018 have started DUS in Rye, we notice increasing activities.

The TystofteFoundation have changed DUS-coordinator to Preben Klarskov Hansen as Erik Anders Lawaetz has turned into senior advisor.

The TystofteFoundation have delivered data to TWC for testing for possible exclusions of reference varieties after first year of testing. Denmark have appointed a new representative in TWC: Senior researcher Dr. Luc Janss, from Aarhus University, Department of Molecular Biology and Genetics - Center for Quantitative Genetics and Genomics, is replacing Mr. Kristian Kristensen.

[Annex III follows]

EUROPEAN UNION

Report on activities of the Community Plant Variety Office (CPVO) of the European Union (EU)

Statistics for 2018: In 2018, the CPVO received 3 554 applications for Community plant variety rights – the second highest number in the history of the Office.

With 1561 applications received, it was one of the best years in the agricultural sector. Maize (262), Wheat (152) and Oilseed rape (103) remain the top three species in that sector.

In 2018, the Office granted 2757 titles for Community protection; 26 859 titles were in force at the end of the year.

Administrative Council (AC): In 2018, the AC continued meeting twice a year. The AC approved the revision of two technical protocols, namely Hemp/Cannabis and Sugarbeet components.

Seminar on “The benefits of Plant Variety Protection”: In 2018, enforcement seminar promoting investments in plant breeding in Sofia (Bulgaria) was prepared in collaboration with the Bulgarian Ministry of Agriculture and Foodstuffs and the Bulgarian Executive Agency for Variety Testing, Field Inspection and Seed Control. More than 130 participants from the private and the public sectors attended the event. In 2020 the CPVO will organise in cooperation with the authorities in Estonia a Seminar related to Farm Saved Seed.

Cooperation with the European Patent Office (EPO): The CPVO made recently available to EPO a range of application documents and variety descriptions for routine searches by EPO examiners in order to ensure that plant related patent applications do not overlap with existing Plant breeders’ rights.

Brexit situation: in view of the forthcoming withdrawal of the United Kingdom from the European Union, the CPVO had to stop organizing new DUS examinations in examination offices in the United Kingdom; all species entrusted to these offices for testing and where there was a pending application have been reattributed to other EU-based examination offices. However it is still possible for the CPVO to take over available DUS reports from United Kingdom examination offices until Brexit becomes reality.

R&D: The CPVO participates in the ‘Invite’ consortium, which submitted a successful bid in 2018 under the Horizon 2020 project financed by the European Commission. The proposal aims at improving variety testing in the EU with the help of molecular techniques and image analysis. A kick off meeting of the project partners took place in Angers (FR) in July 2019.

“DURDUS: Integration of molecular data into DUS testing in Durum wheat”: The project started in 2018 with AGES (AT) as project coordinator and CREA-DC (IT), INIA (ES), GEVES (FR) and NEBIH (HU) as project partners. The objective is to combine genotypic and phenotypic data to optimise the reference collection management by investigating the use of SNP markers of a commercial DNA chip. A first meeting took place in June 2018 in Vienna and in June 2019 the ring trial was visited and discussed close to Milano (IT). The final report is expected for December 2020.

“Developing a strategy to apply SNP molecular markers in the framework of winter oilseed rape (WOSR) DUS testing”: The project started in 2019 and will last 24 months. Project coordinator is GEVES, project partners are Bundessortenamt (DE) and NIAB (GB). This project is a first follow up project (after the identification of a suitable SNP marker set and the adequate bulking sample size) and will focus on 2 main issues: 1. To produce large and consistent molecular data on a wide number of WOSR varieties and reach an optimized SNP set; and 2. To develop a method to use these genetic data by testing existing UPOV model and by developing new ones well-adapted for this species, both from historical field data. The project will work on the two existing methods for DUS on WOSR (COY and COY+GAIA) on their reference collections.

Agricultural experts’ meeting: The agricultural experts meeting (AEM) took place in September 2018 in Milan (Italy). With 41 participants the usually high attendance was even higher than in 2017 and attended by representatives of the CPVO’s entrusted examination offices and ESA. The meeting hosted by the Italian examination office included a technical visit to the DUS testing in Tvazzano in order to discuss DUS questions on maize.

For up-to-date information on the CPVO's activities, please visit the CPVO website, read its newsletter and follow and engage with the CPVO on Twitter: @CPVOTweets

[Annex IV follows]

JAPAN

1. Number of applications in 2018

Year	Number	(2018/2017)	Agricultural crops	(2018/2017)
1978 to 2018	33,786	-	2,455	-
2017	1,019		68	
2018	883	(86.7%)	87	(127.9%)

Top 5 of application for Agricultural crops in 2018

Rice 44, Sorghum 7, Wheat 7, Barley 5, Sweet Potato 5

2. Number of granted in 2018

Year	Number	(2018/2017)	Agricultural crops	(2018/2017)
1978 to 2018	27,140	-	2,081	-
2017	811		40	
2018	758	(93.5%)	44	(110.0%)

Top 5 of granted for Agricultural crops in 2018

Rice 17, Barley 7, Sweet Potato 3, Soya Bean 2, Italian ryegrass 2, Sugarcane 2, Wheat 2, Japanese lawn grass 2

3. National test guidelines harmonized with UPOV TGs in 2018

Genera and Species (3)
Rose of sharon, Lobelia, Petunia

4. National test guidelines developed for new genera and species in 2018

Genera and Species (14)
<i>Callicarpa</i> L., <i>Cuphea ramosissima</i> Pohl ex Koehne, <i>Cynodon</i> Rich., <i>Diervilla</i> Mill., <i>Erianthus arundinaceus</i> (Retz.) Jeswiet, <i>Ficus rubiginosa</i> Desf. ex Vent., <i>Ilex crenata</i> Thunb., <i>Lindernia cleistantha</i> W. R. Barker, <i>Lomandra</i> Labill., <i>Loropetalum chinense</i> (R. Br.) Oliv., <i>Nemophila</i> Nutt., <i>Ribes sanguineum</i> Pursh, <i>Senecio Candidans</i> DC., <i>Trachymene coerulea</i> Graham
Web-site: http://www.hinshu2.maff.go.jp/info/sinsakijun/botanical_taxon_e.html

5. Other reports

- ✓ Japan continuously provides other UPOV members with examination reports at no charge under the Memorandum of Cooperation (MOC). We have agreed the MOC with 15 members at July 2019.
- ✓ Japan launched MAFF electronic application system (national electronic application system) on March 26, 2018, for convenience of applicants and for improving effective PVP proceedings in Japan. This system allows users to send application form by electronic system. Users are requested to send a Request Form by postal mail to PVPO for obtaining user ID and password in advance. The system accepts Japanese language only. The PVPO accepts paper application. More information is available at MAFF's website. "http://www.hinshu2.maff.go.jp/"

- ✓ Since establishment of the East Asia Plant Variety Protection Forum in 2008, Japan has continuously supported Forum member's activities. We will enhance support to establish effective PVP system consistent with the UPOV Convention, by strengthening national PVP system and by facilitating harmonization of application/examination procedures to enhance efficient PVP cooperation under the 10-Year Strategic Plan of the Forum.

[Annex V follows]

NETHERLANDS

Naktuinbouw Variety Testing developments

At the beginning of 2018 the 3 DUS teams Ornamentals, Vegetables and Agricultural crops integrated into one large DUS team. Many of the team members now work in Vegetables as well as Ornamentals. In 2019 the team was enlarged with 4 more and now consists of 39 employees, 2 of them are managers.

A Training Course on DNA Techniques which was developed in 2017 by the Research and Development team for external use, was in 2018 adapted to the needs of the DUS team in an internal course. The focus is on the interest and the use at present and in future of those techniques in DUS testing. In return a condensed DUS course was developed and offered to the R&D team. The mutual conclusion was that both teams have a lot more in common than realized in the daily routine: searching for distinctness and similarity; collecting data; building and managing databases, etc..

The Variety Testing Department yearly offers a number of courses around Plant Breeders' Rights and/or Listing. Firstly the department cooperates with the Centre for Development Innovation Wageningen in the 2 weeks international course about Plant breeders' rights for food security and economic development. Short 1 or 2 day introduction courses in Dutch are offered on Plant Breeders' rights and Listing. But also a very practical training on the description of vegetable varieties, with focus on the TQ characteristics is available.

The information about and forms for application for PBR and Listing is transferred from the Naktuinbouw website to the Raad voor plantenrassen' (Board for Plant Varieties) website, as the Board is the official Body responsible for Granting PBR and Listing in the Netherlands.

Applicants may nowadays also make use of the online E-filing service of CPVO which enables users to apply for a Community plant variety right, Dutch PVP or Listing online, for the most important vegetable, agricultural and ornamental crops. 100 online applications have been received through "applyforplantvarieties.eu" (the shared CPVO online system).

It is also possible to use the UPOV PRISMA module for PVP applications. Until now 9 online applications have been received through UPOV PRISMA for Netherlands.

European regulations for environment and hygiene demand action for Naktuinbouw as well as for the applicants. In 2020 it will be forbidden to use thiram treated seeds. Thiram is a fungicide. Another European regulation considers drain water from greenhouses to be polluted. It may not be brought in the environment without cleaning it. Naktuinbouw on one hand invests in cleaning systems, on the other hand has done investments in the greenhouses to be able to perform the trials on substrate. Before starting with substrate, for each crop the influence on the growing and morphology of the plants and varieties is thoroughly studied.

Number of applications received

In 2018, 2766 applications were received for testing for the first year for National listing, and for National or European Plant Breeders' Rights. Applications of the same variety for Listing as well PBR, in vegetables and in agricultural crops are splitted in this table.

	2018			
	Listing	Plant Breeders Rights		Total
		National	CPVO	
Ornamental		189	728	917
Agriculture	329	82	43	454
Vegetable	788	518	69	1375
Forestry			20	20
				2766

DUS projects

- Minimum variety distances in Tulip

Due to commotion in the Tulip sector the question has been raised if the used variety distance is sufficient. With this project clarity has been given about the current variety distance. More research is needed for further guidance to observe/determine distinctness.

- Database Melon

A database for melon varieties is developed by cooperation between France, Spain, Portugal, Slovakia and the Netherlands. The development is funded by CPVO.

- Database development Lettuce

All new applications in lettuce will be tested, besides the bio-tests, with a marker for LMV resistance. The aim is to get more experienced with this marker and to replace the bio-test in the near future (TGP/15). With the collected DNA also the development of a new DNA-database for lettuce is started. The DNA of varieties of common knowledge (included in the DUS-trials) will also be included in this database.

- SNP database Onion

In 2014 a project started in which a number of onion and shallot varieties were analyzed using 93 SNP markers in order to confirm the morphological types used to group the variety collection. The markers confirmed the distinct morphological types. However, this analysis was quite general and the wish was to be able to analyze within the groups the distinctness between varieties. This will be subject in a follow up, while the search for the best distinctive SNP's continues.

International cooperation

Around 25 projects were carried out with focus on PVP development. In 2018 there was focus on countries in central and eastern Europe as well as to some middle Eastern and Asiatic countries like Myanmar. In cooperation with CPVO, Naktuinbouw also joined IP Key projects like IP Key – China.

- 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, Eggplant and Anthurium were discussed. In 2019 Gerbera and tomato are planned, in 2020 tulip.
- Colleagues from Myanmar and from Turkey did an internship at Naktuinbouw. And colleagues from Guatemala, Jordan, Indonesia and Malaysia attended the Plant Breeder's Rights' training course organized in Wageningen.
- In 2018 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 show them how a UPOV 91 PVP system works. A World Seed Partnership (WSP) (OECD, UPOV, ISTA, ISF and WFO) event was organized in Myanmar by the Department of Agricultural Research (DAR), and the Department of Agriculture (DOA) Myanmar Ministry of Agriculture, Livestock and Irrigation (MoALI) and Naktuinbouw.

PVP Development Program (Toolbox)

This is a 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 2018 15 projects were carried out. Some highlights:

- China: International training on cooperation in improving PVP system (3 days)

From 8 to 10 January, 2018, the State Forestry Administration, China, organized a seminar on PVP in China. A seminar attended by 120 interested participants.

- Study trip to Canada sponsoring a delegation of 3/4 (days)

This was a study visit for policy makers of South and central American countries (Argentina, Brazil, Mexico) to the United States of America and Canada to experience what it means to become UPOV member under the 1991 Act of the UPOV Convention. The trip gave the policy makers an overview of items to be dealt with in upgrading their legislation to UPOV91, including how to organise necessary societal support.

- Follow up Oxfam Novib /Plantum

Oxfam Novib, nonprofit organization against poverty and Plantum, the Dutch association for the plant reproduction material sector are working together in this program to increase clarity and, if possible, reach mutual agreement on the scope of the 'private and non-commercial use' exemption as included in the UPOV 1991 Convention (Article 15.1.i) amongst key stakeholders, building upon the stakeholder consultations held in 2017 and 2018.

- Turkey Further improvement UPOV PVP and market access

Two Dutch experts together with Turkish experts compared both systems and discussed the quality of the administrative and technical procedures to study the possibilities of taking over reports from the local authorities.

- Belarus study visit to the NL

A delegation from Belarus visited the NL to exchange knowledge and experiences. During the visit also a discussion on the Belarus seed law took place. The main breeders in Belarus are public institutions. Belarus is in the process of introducing a royalty system to make investments in new varieties more attractive, also for foreign companies.

Naktuinbouw, May 2019

[Annex VI follows]

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 Service Delivery 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.uk website where all Government departments now have their web site details. www.gov.uk

The United Kingdom is testing a wide range of crops. Across all the United Kingdom trial stations, over 1000 candidate varieties were under test for Listing and/or PVR in 2019, including over 300 winter oilseed rape, over 300 cereals, 220 herbage and fodder, over 100 sugar beet and the remainder potatoes, field beans, vegetables, ornamentals and fodder kale. Applications in the agricultural sector for the coming season remain stable.

United Kingdom DUS testing complies with CPVO's quality requirements. 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.

R&D: The United Kingdom is involved in two major European Union funded research projects from the call SFS-29 under the Horizon 2020 programme financed by the European Commission. AFBI is coordinating the 'InnoVar' consortium with APHA as a partner while BioSS, NIAB and SASA are participating in the 'Invite' consortium. Both projects will run separately but will share knowledge, data and results where possible. A kick-off meeting for 'Invite' took place July 2019 in Angers, France with representatives attending from 'InnoVar'. The proposal aims at improving variety testing (both DUS and VCU) in the European Union with the help of genotyping, modelling and phenotyping tools.

NIAB is assisting in the CPVO co-funded research project "Developing a strategy to apply SNP molecular markers in the framework of winter oilseed rape DUS testing" continuing from the success of the project "Test of the Potential Use of SNP markers on Oilseed Rape Varieties".

NIAB have recently celebrated their centenary with a visit from their Patron, Her Majesty Queen Elizabeth II, to the site of the new facilities in Impington, Cambridge. These purpose built facilities now house the DUS Testing, Seed Certification and Seed Testing Groups.

[End of Annex VI and of document]