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E

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REPORTS ON DEVELOPMENTS IN PLANT VARIETY PROTECTION FROM MEMBERS AND OBSERVERS

Document prepared by the Office of the Union

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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-19/084 of July 18, 2019. The following reports were received by (in alphabetical order):

- Members of the Union: Annexes I to IV: China, Japan, Netherlands and the United Kingdom

[Annexes follow]

ANNEX I

CHINA

The Chinese government attaches great importance to the protection of intellectual property rights and continuously optimizes the environment for intellectual property protection. The implementation of the new plant variety protection system in China has achieved remarkable results in the past 20 years.

1. The General introduction on PVP in MARA

The first, it is to amend and improve laws and regulations related to the protection of new plant varieties. The new seeds law has been enforced from 2016. This seeds law is included in the protection of new varieties of plant, and improves the legal status of plant variety protection, and increases the punishment for counterfeiting and infringement on breeder's rights. At the same time, it strengthens breeders' confidence to plant variety protection. The second, all charges for variety protection have been cancelled since April 2017. The third, the list of protection of new varieties on agricultural plant has been expanded. On February,2019, the Ministry of Agriculture and Rural Affairs (short for MARA) issued the 11th batch list of plant varieties protection. The total list has 191 plant genera or species. The fourth, the DUS testing institutions for new varieties of agricultural plant have been expanded. The government invests expansion and construction 1 Headquarter and14 test sub-centers, and 13 new test sub-centers. At present, 27 test sub-centers and 3 test stations have been built, and there is about 300 test examiners. The fifth, the diversified DUS testing techniques and methods are used in DUS testing. More than 250 DUS test guidelines and 16 DNA fingerprinting technical standards have been issued. In the DUS testing procedure, DNA molecular markers are used to assist in screening similar varieties. It improves the quality of the testing. The sixth, the awareness of breeders on protection of new varieties of plant and their enthusiasm of applying for breeder's rights has increased. In 2018, there were 4,854 applications and 1990 cases granted. In the end of July 2019, there were 3,642 applications and 1,488 cases granted, with a total of 29,229 applications and a total granted of 12,574. The seventh, it is to accelerate the investment and construction of informatization for the protection of new varieties of agricultural plant. It integrates and improves information resources of the protection of new varieties of plants. At present, there are four main management systems, including online application, examination and DUS testing, and the Seed industry big data platform. The level of informatization and automation, and the quality and efficiency of examining and testing are improved. The detail situation is reported as follows.

2. The situation of informatization of protection of new varieties of agricultural plants

Firstly, integrating information resources of protection of new varieties of agricultural plants.
According to overall requirements for information management of the government system, information resources are integrated for protection of new varieties of agricultural plants. Firstly, the original independent website of protection of new variety of agricultural plants was transferred to the MARA Information Network as part of the seed industry big data platform, and was transferred to in the website of Development Center of Science and Technology, MARA as two sub-columns of plant variety protection and DUS test. Through the above-mentioned websites, the public can inquiry about the plant variety protection information, such as application, grant, publication, variety affairs, protection list, and propagation material requirements. Secondly, the funding of informatization for plant variety protection comes from the budget of the government. The informatization project of protection of new varieties of plants must be applied and reviewed according to requirements, and the maintenance of the old system should be managed in a centralized manner.

Secondly, developing online electronic application and examination system for plant varieties protection
In order to meet the needs of informatization and improve work efficiency, the online electronic application system has been developed since 2017, and officially used on January 1, 2019. The application and examination of plant varieties rights are handled on online. Up to now, because electronic signatures and electronic seal is not implemented, according to the requirements of regulations of the protection of new varieties of plants paperless office is not fully realized. Both the documents of application and examination need to be submitted as paper documents, downloaded, printed, signed or stamped from the Internet and delivered.

Thirdly, new informatization project of DUS test Headquarter being tested
In 2016, the project of DUS test Headquarter in MARA was approved. The total investment is about 30 million yuan, including more than 6 million yuan for plant variety testing information data service platform. Now, the

platform is basically completed and is being tested. The user of platform is people who test and examine of plant varieties. The operation is performed through the authority management login platform. This platform aims at plant variety testing collaborative processing, test data collecting and screening, test information sharing and service precision. It is mainly composed of shared service platform, including DUS test management of headquarter, sub-centers and stations. There are 26 modules, which are DUS testing management, propagation material management, common knowledge varieties database, a transfer system of test information data, and so on. The platform should share information ,improve efficiency and quality in the DUS test. Main modules are following:

Module 1 Test Management of DUS test in Headquarter: It Implements DUS test task assignment, test data analysis, test data query, test report management, and documents management.

Module 2 Test management of Sub-centers and stations: It establishes collaborative management system among test sub-centers and stations business, which realizes test task acception, test data query collection, test data management and analysis, DUS judgments ,test report preparation and review, test problem feedback to Headquarter, and other functions to improve the testing efficiency.

Module 3 Propagation material management: In accordance with the regulations of protection of new varieties of plants, the applicant must submit a standard propagation material sample of candidate variety to the examination and approval authority for testing and storage. The Seed Storage Center of New Variety Collection of Agricultural Plants has preserved more than 40,000 seed samples of varieties from 1999. Designing the module, the module is fully considered the differential management of sexual and vegetative propagation materials. It realizes the functions of propagation materials management, such as receiving, detecting, storage, early warning, deposit standard management etc.

Modules 4 Varieties database of common knowledge: The different crop is built sub-database in order to improve system security and operational efficiency. The similar variety screening is mainly based on varieties database of common knowledge, including characteristics database, image database and DNA fingerprint database (if has). This module supports secondary screening, background filtering, and multi-tasking filtering, and setting user filtering scope and permissions as needed.

3. The plan of informatization of protection of varieties of agricultural plants in future
10-year plan of informatization is formulated on the development of plant variety protection

On April 23,2019, it is the 20th anniversary of China's joining UPOV. Comparing with developed countries, the overall level of informatization is relatively low in the respect of protection of new varieties of plants in China. For example, the information sharing of plant variety protection is not good well, some of these systems have low efficiency, the website is lack of English information, the exchange of information is not timely with UPOV on plant varieties protection, and so on. Therefore, on the one hand, it is necessary that optimize current information system of plant variety protection to improve operational efficiency. On the other hand, in recently, Development Center for Science and Technology, MARA formulates a plan of informatization development on the protection of new varieties of agricultural plants in next ten years. According to the plan, China will learn and apply the latest information technology through international exchange and cooperation. The informatization level of protection of varieties of plants may reach the international advanced level until China joining UPOV 30th anniversary.

[Annex II follows]

ANNEX II

JAPAN

1. Number of applications in 2018

Year	Number	(2018/2017)
1978 to 2018	33,786	-
2017 2018	1,019 883	 (86.7%)

2. Number of granted in 2018

Year	Number	(2018/2017)
1978 to 2018	27,140	-
2017 2018	811 758	 (93.5%)

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 type of species in 2018

Genera and Species (14)
Callicarpa L., *Cuphea ramosissima* Pohl ex Koehne, *Cynodon* Rich., *Diervilla* Mill., *Erianthus arundinaceus* (Retz.) Jeswiet, *Ficus rubiginosa* Desf. ex Vent., *Ilex crenata* Thunb., *Lindernia cleistandra* W. R. Barker, *Lomandora* Labill., *Loropetalum chinense* (R. Br.) Oliv., *Nemophila* Nutt., *Ribes sanguineum* Pursh, *Senecio Candidans* DC., *Trachymene coerulea* 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 in April 2019.

✓ Japan launched MAFF electric application system (national electric application system) on March 26th, 2018 for convenience of applicants and for improving effective PVP proceedings in Japan. This system allows users 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 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 III 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 characterics 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 reponsible 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 where 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 IV follows]

ANNEX IV

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 IV and of document]