

Technical Working Party for Fruit Crops**TWF/50/3****Fiftieth 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-19/047 of April 11, 2019. The following reports were received (in alphabetical order):
 - Members of the Union: Annexes I to X: Bosnia and Herzegovina, Brazil, European Union, France, Germany, Japan, Morocco, Netherlands, New Zealand and Republic of Korea

[Annexes follow]

BOSNIA AND HERZEGOVINA

Report for fruit and grape varieties

Now we have a national variety list for fruit and vine.

New varieties are registered on the basis of DUS tests and enrollment solutions from the surrounding countries (Croatia, Serbia, Montenegro and other).

Bosnia and Herzegovina does not have the conditions to perform a DUS test but the Administration of Bosnia and Herzegovina for Plant Health Protection requires DUS reports for new varieties.

For the adoption of the necessary legal regulations it is necessary to obtain the consent of the entity ministries of agriculture and Brčko Distrik Bosnia and Herzegovina, but we do not have it today.

The Administration of Bosnia and Herzegovina for Plant Health Protection will continue to work on bringing legal regulations and publishing them in the Official Gazette

[Annex II follows]

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. In 2018, SNPC received 331 applications: agricultural crops (188), ornamentals (43), vegetables (57), fruit crops (28), forest trees (13) and forage crops (02).
3. Those 28 applications of fruit crops were for the following: *Acca sellowiana* (Berg) Burret (01), *Citrus* L. (oranges) (01), *Citrus* L. (mandarins) (3), *Fragaria* L. (03), *Malus domestica* Borkh. (03), *Olea europaea* L. (01), *Prunus persica* (L.) Batsch (03), *Psidium guajava* L. (03), *Pyrus communis* L. (01), *Rubus* subg. *Eubatus* sect. *Moriferi et Ursini* (02), *Vitis* L. (07).
4. Applications of fruit crops were filed from nationals of: South Africa (03), Australia (01), Brazil (13), Spain (04), United States of America (05), France (02).
5. Twenty-two (22) titles of fruit crops were granted in 2018 to the following species: *Citrus* L. (oranges) (1), *Citrus* L. (mandarins) (03), *Fragaria* L. (01), *Malus domestica* Borkh. (02), *Prunus persica* (L.) Batsch (01), *Psidium* L. (01), *Rubus idaeus* L. (04), *Vitis* L. (09).
6. Those titles were granted to applicants from: South Africa (03), Australia (04), Brazil (04), Chile (01), Italy (01), Spain (01), United States of America (05), United Kingdom (02), Netherlands (01), Israel (02).
7. Up to May 24, 2019, SNPC received 76 applications, 14 of them to fruit crops; and granted 141 titles, 25 of them to fruit crops.

[Annex III follows]

EUROPEAN UNION

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 327 applications received, it was the best year in the fruit sector. Although the top three species in the history of the CPVO remained peach, strawberry and apple, the highest number of applications received in 2018 was for grapevine (50) followed by olives (39) and blueberries (38).

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

Provision of reports to other PVP authorities: The number of reports provided to other PVR authorities in the fruit sector almost doubled in 2018 (225 reports provided) comparing to data for 2016 (117 reports provided); the number confirms a big international interest in fruit varieties.

Administrative Council (AC): In 2018, the AC continued meeting twice a year. The AC members showed their appreciation as regards the international strategy and invited the CPVO to maintain the policy of cooperation. Following the AC approval, the CPVO took over DUS reports for varieties of *Mangifera indica* from Israel and organised testing of *Carica papaya* varieties in Mexico.

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.

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 EU, 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.

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. Apple is one of the model species for the project. A kick off meeting of the project partners will take place in Angers (FR) in July 2019.

“Ring test for strawberries”: The project started in 2016 with participation of breeders’ representative: CIOPORA, examination offices: Bundessortenamt (DE), COBORU (PL), DGAV (PT), OEVV (ES), and coordination by the CPVO. The group met at each testing site in order to observe 8 varieties selected for the project and to discuss the strawberry DUS testing matters. The outcome was presented at the TWF last year and the revision of the strawberry TG using the experience gained in the project was triggered. The final meeting of the project partners is scheduled in September 2019.

“Harmonisation in apple DUS testing”: The aim of the project is harmonisation of the DUS testing of apple varieties by exchanging fruit samples, observing them and discussing the observations made by different examiners. The project partners (CIOPORA – breeders’ organisation, Bundessortenamt – DE, COBORU – PL, GEVES – FR, NEHIB – HU, UKZUZ – CZ and CPVO) met on 19 September 2018 in Brno (CZ). The group will repeat the exercise in Bundessortenamt (DE) in September 2019.

Court cases: CPVO’s decisions can be appealed before various instances. A majority of cases emanates from the fruit sector and in particular applications for apple varieties.

Fruit experts’ meeting: In the course of 2018, two meetings were organized – in February (in Paris) and in September (in Brno – CZ); the meeting hosted by the Czech examination office included a technical visit to the apple DUS testing in Lysice and visit to variety collections for other fruit crops. The meetings were attended by representatives of the CPVO’s entrusted examination offices and CIOPORA.

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]

GEVES new website was launched in 2017 and can be consulted here www.geves.fr
Description files can be found on the website for the varieties listed on the French catalogue.
<https://www.geves.fr/catalogue-france/>

The activity in the framework of national listing and the activity in the framework of DUS bilateral agreements has slightly increased in 2018.

In total, GEVES studies each year more than 1400 new varieties,

- around 1000 new candidate varieties, a year, in the agricultural sector.
Main species tested are maize, wheat, barley, oilseed rape, sunflower, soybean.
- around 250 new candidate varieties, a year, in the vegetable sector.
Main species are tomato, melon, lettuce.
- around 100 new candidate varieties, a year, in the fruit sector.
Main species tested are apple, pear, peach, cherry, apricot, Japanese plum, vine.
- around 90 new candidate varieties, a year, in the ornamental sector.
Main species are Hydrangea, Lavandula.

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: Camille.zitter@geves.fr (new!)

In addition to that, the French National Office for PBR (INOV) has received 85 applications in 2018, out of which 95% were tested for DUS by GEVES.

INOV is involved in UPOV PRISMA for all genera and species.

In 2018 and 2019, GEVES has significantly developed its activity on ornamental species.

The volume of activity for ornamental DUS testing will double in 2019.

New ornamental genera have been added into the scope of GEVES : Coreopsis, Salvia, Penstemon, Spirea, Hibiscus, Leucanthemum, Echinacea, Escallonia, Astrantia, Ipomea, Iberis, Scabiosa, ...

GEVES is also developing expertise on Chrysanthemum natural season.

“New” species are also being DUS tested by GEVES and expertise has been developed on Chia (*Salvia hispanica*) and Populus L.

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
- use and development of disease resistance characteristics, processed in bio tests, for DUS results, mainly for vegetable DUS testing

Regarding the use of molecular markers, GEVES is using in 2019 in routine molecular markers for the management of reference collection according to UPOV guidance, for maize, sorghum, spring barley.

A project is being currently led on Oilseed rape.

GEVES is working on the revision of UPOV document INF/17 and TGP/15.

GEVES presented the revision of the example of parent lines in maize included in TGP/15. An additional threshold has now been implemented in France in the model used for parent lines in maize. The revision of the example included in document TGP/15 will be presented by GEVES during the 2019 BMT.

For more information, please contact: GEVES BIOGEVES rene.mathis@geves.fr.

Regarding the use of disease resistance characteristics, GEVES, together with Naktuinbouw gave a common presentation during the TWV (see TWV/53/14 "Report").

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, all over the world. For more information, please contact: GEVES SNES valerie.grimault@geves.fr.

In 2019 in the Fruit sector, we have under examination :

- 94 varieties of Peach
- 63 varieties of Apple
- 60 varieties of Apricot
- 29 varieties of Sweet Cherry
- 20 varieties of Japanese Plum and interspecific hybrids
- 8 varieties of Pear and interspecific hybrids
- 7 varieties of Lonicera
- 5 varieties of Prunus rootstocks
- 4 varieties of Malus rootstocks
- 1 variety of Vanilla

[Annex V follows]

TWF/50/3

ANNEX V

GERMANY

In 2019 the Bundessortenamt started examinations of 55 new varieties of fruit species, resulting in a total of 159 candidate varieties in 11 species, currently under test at the testing station Wurzen of the Bundessortenamt. The most important crops among these are raspberry (46 candidate varieties), apple (44), and strawberry (30).

[Annex VI follows]

JAPAN

1. Number of applications in 2018

Year	Number	(2018/2017)	Fruits	(2018/2017)
1978 to 2018	33,786	-	2,060	-
2017	1,019		61	
2018	883	(86.7%)	49	(80.3%)

Top 5 of application for Fruits in 2018

Strawberry 11, Blueberry 6, Peach 6, Apple 5, Citrus 5.

2. Number of granted in 2018

Year	Number	(2018/2017)	Fruits	(2018/2017)
1978 to 2018	27,140	-	1,728	-
2017	811		53	
2018	758	(93.5%)	54	(101.9%)

Top 5 of granted for Fruits in 2018

Apple 19, Strawberry 11, Blueberry 7, Citrus 5, Peach 4

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 April 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 VII follows]

MOROCCO

1. Since 2002, date of implementation of the law 9/94 on plant variety protection, 934 applications were submitted, 450 varieties are protected and 358 varieties are still under examination. The remaining 126 varieties correspond to withdrawn or abandoned applications or varieties whose protection has expired.

Species	Number of applications	Number of protected varieties	Numbers of Varieties under examination	- Request withdrawn or rejected - Abandoned protection - Expired protection
Fruit trees	297	169	113	- Expired protection for 5 varieties - Protection abandonment for 4 varieties - 2 requests withdrawn - 4 rejected applications
Field crops	109	69	08	- Expired protection for 28 varieties - Lapse of protection for 4 varieties
Potato	66	31	06	- Expired protection for 19 varieties - Abandon de protection for 2 varieties - 8 rejected applications (incomplete file)
Vine	59	24	22	- 1 request withdrawn - 12 rejected applications (incomplete file)
Vegetables species	154	61	63	- 20 requests withdrawn - Protection abandonment for 9 varieties - 1 rejected application (heterogeneous variety after DUS examination).
Strawberries	114	60	51	-Protection abandonment for 2 varieties -1 request withdrawn
Blueberries	68	17	51	-
Raspberries	48	19	28	-Protection abandonment for 1 varieties
Blackberries	16	-	16	-
Rosebush	03	-	-	- 1 request withdrawn - Protection abandonment for 2 varieties
Total	934	450	358	126

2. The 169 varieties of protected fruit trees are distributed among species as follows:

Species	Number of application
Peach tree	47
Nectarine tree	38
Citrus	24
Apple tree	14
Date palm	12
Apricot tree	07
Almond	07
Olive tree	06
Plum tree	04
Pear tree	03
Cherry tree	03
Pomegranate tree	03
Avocado	01

3. The term of protection of citrus and olive varieties in Morocco was extended to 30 years and date of implementation was 20 December 2018.

It should also be noted that the term of protection for citrus and olive varieties for which plant variety certificates granted are valid on 20 December 2018 is extended for a period of five years from the expiry date indicated on the certificates.

[Annex VIII 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			Total
	Listing	Plant Breeders Rights		
		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 IPKey-projects like IPKey – 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 (Brazil, Argentina, Mexico) to the United States of America and Canada to experience what it means to become UPOV member under the '91 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 IX follows]

NEW ZEALAND

The number of applications for fruit varieties in 2018/19 is similar to 2017/18, following on from the consistent upward trend over the last six years. Application numbers are routinely in the 40 – 45 range per annum. Varieties are concentrated in relatively few genera; apples, blueberry, kiwifruit and *Rubus*. The varieties being protected are primarily from genera with significant fresh fruit exports. Applications for other fruit species occur at a relatively lower frequency, earlier this year an application for persimmon was accepted, the first since 1996.

The reorganisation of fruit crop examination continues with additional genera being allocated to the new fruit examiner role established in 2018. There is recognition that the examination resource for fruit species continues to be inadequate and this will need to be resolved in the longer term.

The more regular use of foreign test reports for fruit species is now in place following a project to assess the suitability for certain variety types in apple, raspberry, strawberry and mandarin. Particular consideration was given to the common knowledge varieties considered in the overseas testing. New Zealand has breeding in apple and raspberry however this activity is restricted to certain variety groups and candidate varieties from other groupings were identified as having limited number of New Zealand common knowledge varieties. A second key component of this project was the increasing knowledge of how the range of expression for certain fruit characterises varies between environments. This knowledge provides the basis for examining the consistency of a variety descriptions drafted in another state, with respect to what may be expressed in New Zealand.

New Zealand's strict biosecurity requirements continue to provide difficulties and delays for the importation of plant material for foreign bred varieties. The increasing length of the provisional protection period is now a routine factor for owners and their agents with respect to management of the variety. This also has consequences for the availability of plant material and the efficiency and timeliness of DUS testing.

NZ provides test reports under the UPOV Convention for fruit varieties to any other UPOV member on request. Test reports have been supplied to Australia for kiwifruit, apple and Asian pear.

The testing of blackberry and raspberry varieties which potentially fruit in the summer and the autumn has provided difficulties in the cultural management of the growing trial. The plant management practice which promotes one fruiting period tends to impact negatively on the other fruiting period. The result can be that characteristic expression during one fruiting may be less reliable than the other. In order to determine the best plant management practice which provides consistent and reliable character expression in both fruiting periods, several plant management approaches will be tried out in winter 2019. This type of variety is also in blueberry, however the plant management practices to date have been observed to have less impact on the fruiting periods. This may change, breeders inform us that plant management is taking on a bigger role in blueberry production and selection is now occurring for varieties which can have significantly enhanced autumn fruiting by heavy summer pruning.

[Annex X follows]

REPUBLIC OF KOREA

1. Plant Breeder's Right

The total number of applications had been reached 10,506, and 7,731 varieties were registered for PVP by April 30, 2019. Last year 713 varieties had been applied, among them 64 varieties were fruit crops such as peach (20), grape (8), apple (7), blueberry (6), mandarin (5), persimmon (5), etc.

2. Hosting 53rd Technical Working party for Vegetables

The 53rd TWV was hosted by KSVS (Korea Seed and Variety Service) in Seoul from May 19th to 24th in 2019.

3. Establishing "International Seed Training Center"

The Republic of Korea decided to establish International Seed Training Center located in Kimcheon-si. This center would support capacity of human resources and delivering knowledge to the doorsteps of seed industry. ISLEC will be started July in 2019. More than 20 customized courses will be open for internal, external, international applicants.

4. The activity of National Forest Seed & Variety Center

National Forest Seed & Variety Center (NFSVC) is affiliated with the Korea Forest Service (KFS) and is in charge of plant variety protection, creating and managing seed orchard, and managing forest genetic resources.

As of March 2019, 422 varieties were applied, and 183 of them were granted. Among 422 varieties, 107 kinds of fruit tree were applied, and 42 of them were granted. Forty-eight of new varieties were applied last year, and fruit trees were a Silkworm thorn (*Cudrania tricuspidata*), Pear (*Pyrus pyrifolia*), Persimmons (*Diospyros kaki*), and Hardy kiwi (*Actinidia arguta*).

To operate an efficient plant variety protection system, 18 national test guidelines were created last year with crops with high potential for development.

[End of Annex X and of document]