

Technical Working Party for Vegetables**TWV/53/3****Fifty-Third Session****Original:** English**Seoul, Republic of Korea, May 20 to 24, 2019****Date:** July 1, 2019

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 by May 14, 2019 (in alphabetical order):

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

[Annexes follow]

ANNEX I

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 and currently the office is running paperless.
3. In 2018, SNPC received 329 applications: agricultural crops (189), ornamentals (43), vegetables (54), fruit crops (28), forest trees (13) and forage crops (2). Comparing to the previous year, the number of applications for vegetables increased almost 70%.
4. Those 54 applications of vegetables were for the following: *Lactuca sativa* (17), *Solanum lycopersicum* (15), *Cucumis melo* (08), *Phaseolus* (5), *Allium cepa* (3); *Capsicum* (3); *Cicer arietinum* (2); *Coriandrum sativum* (1)
5. Applications were filed from nationals of: Brazil (27), Netherlands (19), Switzerland (04), and France, United States of America, Japan and China (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 26 applications of vegetables were for the following: *Lactuca sativa* (7), *Solanum lycopersicum* (07), *Cucumis melo*(06), *Allium cepa* (04) and *Capsicum* (02).
8. Those titles were granted to applicants from: Brazil (11), Netherlands (08), France (06) and United States of America (01)
9. Up to May 9, 2019, SNPC received 60 applications, 04 of them to vegetables; and granted 128 titles, 16 of them to vegetables.

[Annex II follows]

EUROPEAN UNION

1. CPVO statistics and figures

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 – which are 132 more (+3.9 %) than in the previous year. In 2018, the distribution between crop sectors was as follows: agricultural, 1007 applications (28.3%); vegetable, 658 applications (19.4%) relatively similar to last year (18.5%); ornamental, 1562 applications (44%); fruit 327 applications (9.2%). 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 discussing and deciding upon strategic matters of the EU plant variety rights system. The AC members showed their appreciation as regards the international strategy and invited the CPVO to maintain the policy of cooperation. In 2018, the AC agreed with the proposal to take over DUS test reports from a PVP authority from outside the European Union in a situation where DUS testing facilities do exist in the EU (e.g. take-over of *Phalaenopsis* reports), provided the CPVO quality requirements are met. The Office investigates further possibilities of cooperation with other countries.

Seminar on “The benefits of Plant Variety Protection”: The last AC meeting was followed by the enforcement seminar in Sofia (Bulgaria). The seminar 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. It aimed at promoting investments in plant breeding and benefits in protecting new plant varieties at national or EU level. More than 130 participants from the private and the public sectors attended the event.

Cooperation with the European Patent Office (EPO): The CPVO reinforced its cooperation with the EPO and made recently available to EPO a range of application documents and variety descriptions for search on routine basis 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 with pending applications had to be attributed to other EU-based examination offices.

R&D: The CPVO participates in the ‘Invite’ consortium, which submitted a bid in February 2018 to the call SFS-29 under the Horizon 2020 programme financed by the European Commission. The proposal aims at improving variety testing (both DUS and VCU) in the EU with the help of genotyping, modelling and phenotyping tools. Ten species from the agricultural, vegetable and fruit sector will be studied in the project. The R&D proposal was accepted on Dec 10, 2018.

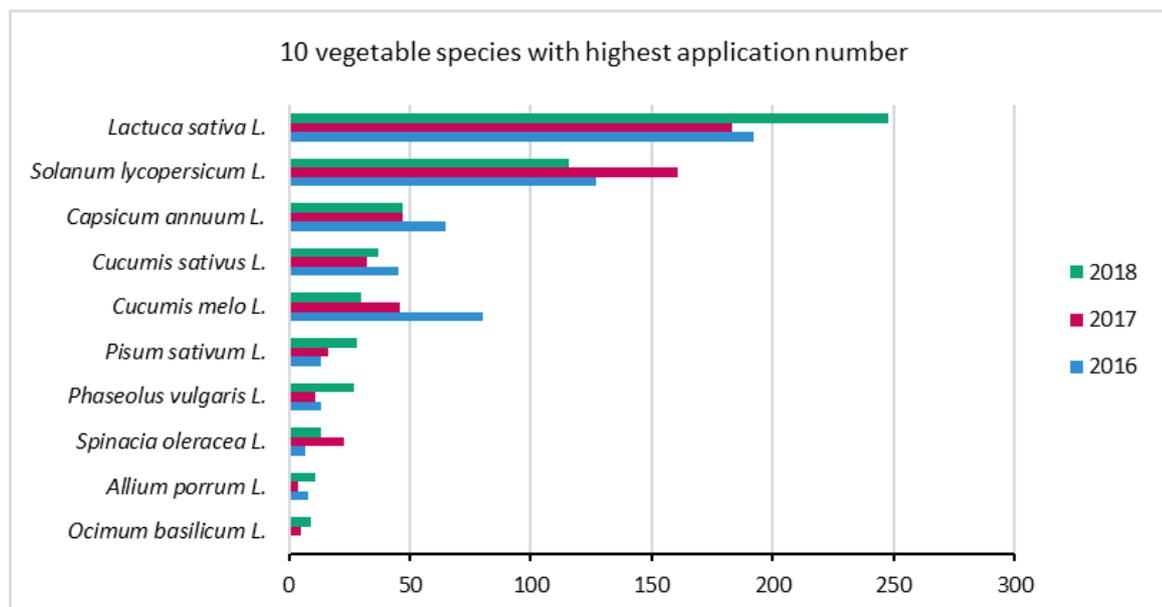
2. Vegetable sector

Administrative Council decisions on vegetable Technical Protocols (TPs)

CPVO-TPs: In 2018, the Administrative Council adopted in March 2019 three revised CPVO-TPs of the vegetable species *Lactuca sativa* L. (CPVO/TP-013/6-Rev), *Cichorium intybus* L. var. *foliosum* Hegi (CPVO/TP-154/1-Rev) and *Cucumis sativus* L. (CPVO/TP-061/2-Rev.2).

Statistics

In the vegetable sector, in 2018, more than 80% of the applications were take-overs and 84 applications were received from non-EU member (China, Israel, Japan, Switzerland and the United States of America). The 10 most important species represent about 86 % of all applications.



The vegetable expert meeting

The annual meeting of 2018 was hosted by CPVO in December. The meeting was attended by representatives of the CPVO's entrusted examination offices, representatives of ECO-PB, ESA and the Commission. The group discussed items on DUS matters, particularly the observation of the characteristics during multi-annual testing. Following the Agricultural Expert meeting, the group was also invited to reflect on i) the possibility to include a paragraph concerning re-submission of a new seed sample after the first year of testing into the vegetable TPs (as it was done for the triticale) and ii) how to deal with situations where the two growing cycles had not been carried out in two subsequent cycles (with a gap in-between). Finally, short up-dates on the need to find EO entrusted for mushrooms species and the use and revision of the common names in the marketing directives were addressed.

R&D projects

An update on the advancement of the Harmores 3 project was presented to the VEM18 group. The results of the final meeting (May 2019) would help to reach a conclusion on the use of an additional biomolecular method of observation for inclusion in both tomato and tomato rootstock protocol. The group received also a short update on the Melon database project by Naktuinbouw and a presentation by GEVES on a potential new R&D project entitled "Harmorescoll".

In addition to the R&D projects presented at the VEM18, the final proposal to work on the creation of a joint EU database with DNA data of tomato has been revised in the course of 2018 and the project has been validated beginning of 2019. This project is entitled: "Development and validation of a harmonized SNP set for the genetic distinctness testing of tomato varieties of common knowledge". The coordinators are Naktuinbouw (NL), GEVES (FR) from EU and the DUS testing center of the Ministry of Agriculture in China. The project will be launched in 2019.

[Annex III 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.

Concerning the vegetables, with a mean at 220 applications for registration at the French Catalogue, the figure is more stable since those last 5 years than previously.

The main species studying are lettuce, tomato and melon. Others important vegetables studying are carrot, chicory, cauliflower, cucumber/gherkin, squash, strawberry, bean, ... About 35 different species of vegetables are studying every year at the GEVES.

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.*

In 2018, an important return of interest to the Leguminous species had been observed: for example, a significant quantity of chick pea and bean studies have been done by GEVES for registration. Some new vegetable species (or the new “use” of species) have to be study: Cucumis rootstock, carrot use as “service plant”, forage swede...

(= service plants are cultivated plant species grown in the same agricultural parcel as cash crops, offering various ecosystem services. Their cultivation is not aimed at obtaining a directly marketable or consumable agricultural product (grain, root, forage...). Instead they help to support the biological processes of soil and plants, in the short, medium or long-term. There are many uses for these plants: capacity to capture soil nitrogen and return it to the next crop, used as disease control, used as weed control, to prevent the soil erosion...°).

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
- - contributions to the development of melon and tomato variety databases at EU level
- - Harmorescoll project: an EU project for harmonized collections of reference isolates, controls and differentials to facilitate disease resistance testing, involving different partners (seed compagnies & EO), is submitted to the CPVO.
- - onion/shallot; under the guidance of the European commission, FR & NL have to proposed new studies, using molecular technologies and biochemistry, to find a decision rule in the following years.

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. On vegetables, some molecular markers can be used on cauliflower (to determine the male sterility) and on tomato (ToMV & TSWV resistance).

GEVES is working on the revision of UPOV document INF17 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 will give a common presentation during the TWV.

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.

[Annex IV follows]

JAPAN

1. Number of applications in 2018

Year	Number	(2018/2017)	Vegetables and Mushrooms	(2018/2017)
1978 to 2018	33786	-	V:1864* M:605	-
2017	1019		V:62* M: 7	
2018	883	(86.7%)	V:57* M:18	(108.7%)

*The number of strawberries is transferred to TWF short report

Top 5 of application for Vegetables and Mushrooms in 2018

Tomato 13, Lettuce 11, Shiitake 9, Broad bean 3, Enokitake 3, Bunasimeji 3 Total:42

2. Number of granted in 2018

Year	Number	(2018/2017)	Vegetables and Mushrooms	(2018/2017)
1978 to 2018	27140	-	V:1546* M:492	-
2017	811		V:44* M:11	
2018	758	(93.5%)	V:61* M:11	(130.9%)

*The number of strawberries is transferred to TWF short report

Top 5 of granted for Vegetables and Mushrooms in 2018

Lettuce 17, Tomato 12, Shiitake 8, Welsh Onion 7, Cucumber 6 Total:50

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)
<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 cleistandra</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

✓ 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) in March 26th, 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. We started the more information is available at MAFF's website. "http://www.hinshu2.maff.go.jp"

- ✓ To encourage PBR holder to apply international applications on new varieties protected in Japan, Japan's PVPs supports PBR holders by providing manual for applying overseas and help on desk.
- ✓ Since establishment of the East Asia Plant Variety Protection Forum in 2008, Japan continuously support Forum member's activities and will enhance support to establish effective PVP system consistent with the UPOV Convention by strengthening national PVP system and by contributing to facilitate harmonization of application and examination procedures and to enhance efficient PVP cooperation under the 10-Year Strategic Plan of the Forum.
- ✓ Two of delegates from Naktuinbouw, the Netherlands had visited NCSS and MAFF to exchange information and discussion for DUS technical harmonization between Netherlands and Japan in July 9 to 13, 2018. NCSS and Naktuinbouw had discussion to establish "Calibration Manual for eggplant" which is now available for third country through both of websites.

[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 for a limited number of crops to use the UPOV PRISMA module for applications for PVP in UPOV member states. Until now 9 online applications have been received through UPOV PRISMA

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. The 1st World Seed Partnership (WSP) (OECD, UPOV, ISTA, ISF and WFO) meeting was organized by the Department of Agricultural Research (DAR) and Naktuinbouw in Myanmar.

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 VI follows]

UNITED KINGDOM

Vegetable DUS in the United Kingdom is conducted at SASA (formerly Science and Advice for Scottish Agriculture but now simply "SASA") in Edinburgh.

During 2018 the number of new Vegetable DUS applications received at SASA again fell sharply due to the continued uncertainty surrounding the United Kingdom's exit from the European Union in 2019. This situation has continued past the original March 29th departure date and until the United Kingdom either reaches an agreement with the European Union or leaves with "no deal" or in the end remains in the European Union, the future of vegetable DUS at SASA and in the United Kingdom will continue to be in doubt.

However, SASA Variety Testing staff continue to be fully committed to working with our international colleagues in Europe and within UPOV and we continue to be involved in CPVO projects such as Harmores which looks to harmonise disease resistance tests across Europe as well as developing shared resources in this area.

SASA Variety Testing staff have continued to use the constantly evolving and improving UPOV web based template for the drafting of new guidelines for vegetable species and once again would like to express our thanks to the UPOV office for all of their hard work in creating this facility.

The United Kingdom continues to support the UPOV online courses with a number of technical staff at SASA recently completing courses DL205 and DL305.

Tom Christie, Head of Variety Testing, SASA.

10 May 2019

[End of Annex VI and of document]