

Technical Working Party for Vegetables

TWV/56/3

Fifty-Sixth Session

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REPORTS ON DEVELOPMENTS IN PLANT VARIETY PROTECTION FROM MEMBERS AND OBSERVERS

Document prepared by the Office of the Union

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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-22/007 of January 25, 2022. The following reports were received (in alphabetical order):

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

[Annexes follow]

EUROPEAN UNION

THE COMMUNITY PLANT VARIETY OFFICE OF THE EUROPEAN UNION (CPVO) IN 2021

Statistics

In 2021, the CPVO received 3480 applications for Community plant variety rights, 653 applicants filed applications for CPVRs. In 2021, the distribution between crop sectors was as follows:

- Ornamental, 1445 applications (41.5%)
- Agricultural, 1190 applications (34.2%)
- Vegetable, 578 applications (16.6%), previous year (688 applications, 20.1%)
- Fruit 267 applications (7.7%).

In 2021, the Office granted 2859 titles for Community protection; 29 583 titles were in force by the end of the year. National authorities from all over the world regularly base their decisions on applications for CPVRs on technical examinations carried out on behalf of the CPVO (international cooperation, takeover of reports). In 2021, the CPVO provided 547 technical reports to different countries, the five countries from which most requests emanated were Ecuador, Canada, Switzerland, Russian Federation and Serbia.

Presidency

On 21 August 2021, the mandate of the CPVO President Martin Ekvad ended. Francesco Mattina, former vice-President has been appointed as new President of the CPVO.

Administrative Council (AC)

The CPVO is supervised by an Administrative Council (AC) comprising representatives of the Member States and the European Commission and their alternates. In 2021, the members of the AC took note of the following:

- Proposal for exploring involvement in initiatives under the EU IP action plan for PVR related activities.
- Update of the CPVO International Cooperation Strategy to align it with new policy objectives of the European Union
- Engaging in a written agreement with third country authorities under which the CPVO could both take-over DUS reports and initiate DUS tests for *Eutrema japonicum* and *Podocarpus macrophyllus*.

The AC also adopted the R&D strategy for 2021-2025: objectives of the previous strategy confirmed (promote BMT in DUS testing and variety identification, shared online databases, improvement and harmonization of CPVO technical protocols). In addition, the CPVO aims at getting involved in EU funded R&D projects like Horizon Europe.

Legal developments and Regulations

- By Regulation (EU) 2021/1873 of the European Parliament and of the Council of 20 October 2021, the term of protection of the Community plant variety rights for varieties of the species *Asparagus officinalis* L. and of the species groups flower bulbs, woody small fruits and woody ornamentals has been extended by five years. The duration of the Community plant variety rights will, therefore, be extended from 25 to 30 years.
- A study about "the economic contribution of PVR system in the EU" has been launched in 2021, it involves the CPVO, EUIPO, the European Commission and breeder's associations. The study will also consider the potential for the PVR system to help meet the Commission's Green Deal objectives and the United Nations (UN) Sustainable Development Goals (SDGs).

Invite project

The CPVO participates in the 'Invite' consortium supported by a grant from the call SFS-29 under the Horizon 2020 program 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 (maize, wheat, sunflower, ryegrass, soybean, rapeseed, potato), vegetable (tomato) and fruit (apple) sectors are studied in the project. . In 2021, good progress has been made in the development of new molecular and phenotypic tools, as well as for predictive models and field-testing protocols. CPVO continued to provide support for a good adaption of these tools to DUS-related tasks.

International affairs

The CPVO participated in several IP Key international outreach activities

- IP Key China
 - Awareness raising seminar in November 2021: videos of the activity available on the [IPKey China website](#);
 - Technical training on DUS in November 2021.
- IPKey Latin America: the licensing course was completed under the IPKey Latin America project in 2021 and will be promoted under the new phase of IPKey Latin America in 2022-2023. Moreover, the project concluded the Study on Ecuador, which will be as well presented under the new phase of the project.
- IPKey South East Asia:
 - Webinar series in June 2021 on PVP and UPOV 91, presentations delivered available on the [IPKey SEA website](#);
 - Training to Plant variety protection and intellectual property officials of Thailand in June 2021;
 - Webinar on Plant Variety Protection and UPOV 1991 (January 2022)
 - Workshop on support to beneficiary countries to accession to UPOV 91 (January 2022), presentations available on the [IPKey SEA website](#).

Other activities in South East Asia were carried out under the EAPVP Forum umbrella, such as the annual meeting held in September 2021 where the CPVO participated.

- AfriPI: regional seminar on the Arusha Protocol. The activity is currently in a follow-up phase, ARIPO will circulate a survey among its Member States to collect information on short term plans with regard to the ratification of the Protocol.
- OAPI: the Office contributed by electronic means to national seminars for breeders, examiners and seed producers Libreville (Gabon), Brazzaville (Republic of Congo), Niamey (Niger) and N'Djamena (Chad). These seminars were funded by the European Commission.
- CarIPI: several activities have been carried out under the project in the Caribbean that ultimately led to the implementation of a parallel series of activities under a TAIEX project with the Dominican Republic, implementation started in 2022 with a first mission in March 2022 concerning Quality Audit Systems. The focus of the TAIEX project is on capacity building on DUS matters. Under the CarIPI project the following activities were carried out:
 - Webinar on independence in the conduct of DUS examination and managing of conflict of interest (6 April 2021)
 - Webinar on establishing a functional PVR System (23 April 2021)
 - Webinar on regional cooperation in PVR (28 September 2021). In the framework of this activity, we circulated as CPVO, UPOV and CarIPI a policy paper on enhancing regional cooperation in the Caribbean, followed by a survey on the single countries plans and ambitions in PVR matter.
 - Caribbean week of agriculture (October 2021).

FOCUS ON THE VEGETABLE SECTOR

Administrative Council decisions on vegetable TPs

In April 2021, the following technical protocols were adopted by the AC:

- *Lactuca sativa* L. CPVO-TP/013/6-Rev.2
- *Solanum lycopersicum* L. CPVO-TP/044/4-Rev.5
- *Brassica oleracea* L. var. *capitata* L. CPVO/TP-048/3-Rev.2
- *Cucumis melo* L. CPVO/TP-104/2-Rev.2
- *Beta vulgaris* L. ssp. *vulgaris* var. *flavescens* D.C CPVO-TP/106/2
- *Citrullus lanatus* (Thunb.) Matsum. et Nakai CPVO-TP/142/2-Rev
- *Cichorium intybus* L. var. *foliosum* Hegi CPVO-TP/154/1-Rev.2
- *Foeniculum vulgare* Mill. CPVO-TP/183/2
- *Solanum habrochaites* S. Knapp & D.M. Spooner. CPVO-TP/294/1-Rev.5

Statistics

For vegetable applications received in 2021, the CPVO requested 121 technical examinations to be carried out on its behalf and took over 456 technical reports from national authorities, 121 applications were received from non-EU members (Switzerland, Israel, Japan, United States of America, Australia and Republic of Korea). The CPVO received applications for 43 different species. In 2021, the 10 most important species represent about 83 % of all applications (lettuce, tomato, pepper, melon, cucumber, pea, French bean, onion, broad bean, watermelon). The table below shows the number of applications for the 10 most important vegetable species for the last 5 years and since 1995:

Species	2017	2018	2019	2020	2021	Total (1995-2021)
<i>Lactuca sativa</i> L.	183	248	180	230	166	3090
<i>Solanum lycopersicum</i> L.	161	116	150	90	107	1692
<i>Capsicum annuum</i> L.	47	47	61	59	44	738
<i>Cucumis melo</i> L.	46	30	64	47	43	622
<i>Phaseolus vulgaris</i> L.	11	27	12	27	20	567
<i>Pisum sativum</i> L.	16	28	28	27	22	539
<i>Cucumis sativus</i> L.	32	37	21	33	38	506
<i>Brassica oleracea</i> L. convar. <i>botrytis</i> (L.) Alef. var. <i>botrytis</i>	1	7	4	17	5	261
<i>Allium cepa</i> (Cepa group)	8	6	10	17	17	235
<i>Spinacia oleracea</i> L.	23	14	6	15	9	221
Total	528	560	536	562	471	

The vegetable expert meeting

A meeting of vegetable experts was held electronically on 9 and 10 November 2021. The meeting was attended by experts from 11 examinations offices, the European Commission, representatives of EUROSEEDS and ECO-PB. In 2021, the TPs for wild rocket, garden rocket, lettuce and spinach were revised. They all enter into force in 2022. In addition, the group discussed numerous other items on DUS matters:

- the acceptance of final reports based on varieties descriptions with same notes, the conclusions will be presented to the participants of the TWV/56
- the proposal to perform only one single observation for species with multi-annual testing, the conclusions will be presented to the participants of the TWV/56

- the proposal to reduce the number of plants to be observed to assess the ploidy characteristic for watermelon, industrial chicory and radish
- the feedback of the national authorities regarding the use of EU plant passport and phytosanitary certificate
- the characteristic of resistances, regarding the assessment of uniformity and the proposal to add more flexibility in the method to assess those characteristics
- the procurement of the plant material of protected vegetable parent line varieties for the variety collections
- how to report on the absence of similar varieties in the variety description, the conclusions will be presented to the participants of the TWV/56

R&D projects: the group received short updates on the advancement of the CPVO R&D projects of the vegetable sector.

New project – Updating DUS resistance tests according to pests’ evolution: Setting up resistance tests to ToBRFV for tomato and pepper and Improvement of resistance test melon/Aphis gossypii

The project is coordinated by the GEVES (FR) and the partners in the project are the EOs Naktuinbouw (NL), INIA (ES), CREA (IT), the breeding companies BASF, Bayer, Enza Zaden, Gautier Semences, HM Clause, Rijk Zwaan, Sakata, Takii, Vilmorin as well as the Research institution INRAE. The project will focus on the study of two pathogens: *Tobamovirus Tomato brown rugose fruit virus* (ToBRFV) in tomato and pepper and *Aphis gossypii* (Ag) in melon and will aim at i) developing for ToBRFV a system usable for DUS for tomato and pepper by biotest and biomolecular methods, ii) adapting the existing biotest to evaluate the melon resistance to *Aphis gossypii* based on the predominant pathotypes and symptoms observed and to validate the use of a biomolecular method. The project started in February 2022 and is scheduled for 3 years.

Ongoing project - ‘Harmorescoll’

HARMORESCOLL is aimed at setting up, at the European level, a coordinated system to give information to interested parties on access to reference material for performing disease tests for DUS according to CPVO protocols and UPOV Test Guidelines. The reference material is constituted of isolates, controls and differentials. The project covers disease resistances, which are part of the DUS protocols. Previous R&D projects showed that harmonization is one aspect that help to improve the system and efficiency of the DUS testing. The project aims at setting up the system and is based in a collaborative work between examination offices and seed companies with Euroseeds membership. After the end of the project, funding and sustainable maintenance is planned on a self-financing basis. The project is coordinated by GEVES and Naktuinbouw. It started in 2020 and is scheduled for 3 years.

Ongoing project - ‘International validation of a SNP set to determine genetic distances for the management of tomato reference collection’

The project entitled “International validation of a SNP set to determine genetic distances for the management of tomato reference collection” was agreed for co-funding in February 2019. It should last 30 months. The project aims at validating between all examination offices entrusted for tomato (NAKT, GEVES, COBORU, NÉBIH, INIA, DGAV and CREA) a set of markers adapted to the management of the reference collections in the framework of UPOV Model 2 following the “French Bean” approach. If successful, a follow-up project could be built for the characterization of the whole collections. The coordination is ensured by Naktuinbouw. The Beijing Sub-Center for DUS testing (CAAS) in China as well as the Korean Seed & Variety Service from the Republic of Korea and the Center for Seeds and Seedlings, NARO (NCSS) in Japan are involved and will participate in the project on their own funding. Euroseeds is also partner to the project. All European and Asian partners will test the selected SNP markers on a common set of varieties and on a set of varieties from their own country. For the common set, seeds will be sent by each partner to the Naktuinbouw that will then send back DNA extracts to all partners. A specific agreement defining the conditions of access to these materials have been signed by the consortium of partners and consents have been requested to the owners of all the varieties concerned. This last step took more time than expected and an extension of the end of the project is foreseen.

Finalized project in 2021 - 'Setting up of a database with the descriptions and photos of melon varieties of common knowledge. Setting up of a management system of this database that can be used as a blueprint of comparable future databases'

This project had been approved in December 2017 and was supposed to have a duration of 2 years starting as from mid-2018. The coordinator requested a delay of one year (without additional financing) postponing the end of the project to March 2021. The project was coordinated by Naktuinbouw (NL), with as project partners: GEVES (FR), INIA/OEUV (ES), UKSUP (SK) and DGAV (PT). The final report was received at the end of May 2021 in respect of the contractual terms of the grant agreement. The objective was to set up a common database containing variety descriptions and photos stored of varieties of common knowledge within all of the CPVO's entrusted examination offices for melon. As the data were not harmonized between examination offices, the database will not directly be used to select the reference varieties to compare to the candidates but will facilitate the identification of the available reference materials and their maintainers. The database is now operational and was used by all partners for the first time this year, it will be maintained by the community of partners which may extend to CREA in the future (discussions ongoing)

All reports of finalized R&D projects are published on the CPVO web site: <https://cpvo.europa.eu/en/about-us/what-we-do/research-and-development>

[Annex II follows]

GEVES is the Examination Office of France, in charge of DUS and VCUS evaluation of new plant varieties, and in charge of quality testing of seeds.

GEVES website 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/>

You can subscribe to our NEWSLETTER available both in French and in English to receive the latest information on GEVES's expert activities in plants and seeds, at national and international levels. Please subscribe here : <https://www.geves.fr/newsletter-en/>

The activity in the framework of national listing, PBR, and the activity in the framework of DUS bilateral agreements has slightly decreased in 2021.

Main activity remains on agricultural species, but during the last past 4 years, GEVES has significantly developed its activity on ornamental species.

In total in 2021, GEVES tested more than 1800 new cultivars for DUS:

- around 1300 new varieties and parental components in the agricultural sector.
Main species tested are maize, wheat, barley, oilseed rape, sunflower, soybean.
- around 250 new candidate varieties in the vegetable sector.
Main species are tomato, melon, lettuce.
- around 190 new candidate varieties in the ornamental sector.
Main species are Hydrangea, Lavandula, Chrysanthemum, Salvia.
- around 60 new candidate varieties in the fruit sector.
Main species tested are apple, pear, peach, cherry, apricot, Japanese plum, vine.

Additional figures can be found on the annual report available on our website.

The International System of Cooperation for DUS is active and efficient. For more information, the international cooperation service of GEVES can be contacted here: Camille.zitter@geves.fr

In 2021, the international cooperation service of GEVES received more than 1000 applications, mainly from the EU but also from all over the world. 70% of the requests are take-over requests and the DUS reports are then sent according to UPOV document TGP/5.

In addition to that, the French National Office for PBR (INOV) has received 96 applications in 2021, out of which 95% were tested for DUS by GEVES. INOV is involved in UPOV PRISMA for all genera and species.

Regarding the use of molecular markers, GEVES is using in 2021 in routine molecular markers for the management of reference collection according to UPOV guidance, for maize, sorghum, spring barley. Projects are being currently led on Oilseed rape and Tomato. For more information on BMT, please contact: GEVES BIOGEVES rene.mathis@geves.fr.

Regarding the use of disease resistance characteristics, GEVES uses in routine genetic disease resistance characteristics, processed mainly in bio assays and for some specific case with molecular markers, 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 this kind of characteristics, GEVES is very deeply involved in applied research projects for the set-up of protocols or their updates (20 cases since 2019) and for the management at EU level of collections of control strains and control seed samples for bio-assays (HarmoresColl, ToBRAG, Actifol, ...). For more information, please contact: GEVES SNES valerie.grimault@geves.fr.

Regarding DUS methodology for organic varieties as defined in a recent EU Regulation with a certain level of diversity, a 7-year experiment will be engaged from July 2022 to evaluate a possible need of specific methodologies for evaluation of distinctness and uniformity.

In addition, regarding new production ways for vegetables species (indoor, vertical, hydroponic, ...) or specific traits dedicated for industry (color from red beetroot, ...), GEVES set up new protocols if required in order to validate distinctness for this kind of varieties.

[Annex III follows]

JAPAN

1. Number of applications in 2021

Year	Number	(2021/2020)	Vegetables and Mushrooms	(2021/2020)
1978 to 2021	35932	-	V: 1964 M: 654	-
2020	713		V: 49 M: 14	
2021	776	(108.8%)	V: 53 M: 16	(109.5%)

Top 5 of application for Vegetables and Mushrooms in 2021

Tomato 11, Lettuce 10, Shiitake 10, Pepper 7, Radish 4 Total: 69

2. Number of granted in 2021

Year	Number	(2021/2020)	Vegetables and Mushrooms	(2021/2020)
1978 to 2021	28823	-	V: 1578 M: 543	-
2020	502		V: 25 M: 28	
2021	588	(117.1%)	V: 35 M: 18	(100.0%)

3. National test guidelines harmonized with UPOV TGs in 2022.

Genera and Species (5)
Groundnut, Dieffenbachia, Radish, Tomato, Everlasting Daisy

4. National test guidelines developed for new type of species in 2022.

Genera and Species (7)
<i>Bauera rubioides</i> Andrews, <i>Berzelia</i> , <i>Boneset</i> , <i>Juniperus conferta</i> Parl., <i>Ligustrum sinense</i> Lour., <i>Pecteilis radiata</i> (Spreng.) Raf., <i>Strobilanthes anisophylla</i> (Wall. ex Hook.) T. Anderson

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

5. Other.

- ✓ Regarding vegetative propagation plants, almost 400 plant species and genera were designated whose protected varieties were required the authorization of PBR holders on the propagation including the utilization of farm saved seed, even under the old Act.
Furthermore, to enable PBR holders to exercise their rights effectively and refrain from the unintended outflow of their protected varieties overseas, Japan PVP and Seed Act was amended in December 2020 and took into effect on April 1, 2022. Under the amended PVP and Seed Act, any acts in respect of the propagating material of all protected varieties (including use of farm saved seeds) shall require the authorization of right holders.
It resulted on the gradual increase of the number of applications for vegetable, such as tomato.
- ✓ Japan continuously provides other UPOV members with examination reports under the Memorandum of Cooperation (MOC). We have agreed the MOC with 15 members at April 2022.
For example, MAFF and NCSS carrying out DUS examination for *Eutrema japonicum* (Miq.) Koidz. (syn. *Wasabia japonica* (Miq.) Matsum.) on behalf of CPVO.

- ✓ 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. These cooperation activities are conducted under the 10-Year Strategic Plan of the Forum which has common direction to join UPOV member. Especially, Japan, Viet Nam and UPOV are working together on the pilot project to develop a single online application Platform "e-PVP Asia" for submitting one application data to multiple PVP Offices. "e- PVP Asia" includes the function to facilitate cooperation in examination among participating countries, that applicant can select country where DUS test would be done, and the report of the DUS test would be transferred to other countries. It is planned to launch "e-PVP Asia" at the end of 2022.
- ✓ Since 2016, based on the Memorandum of Understanding, Center for Seeds and Seedlings, NARO (NCSS) and Naktuinbouw have established Calibration Manuals for DUS technical harmonization. "Calibration manual for tulip" was finalized in 2022, and it will be published through both of websites. With addition of this, a total of 10 Calibration Manuals will be available for third country.

[Annex IV follows]

NETHERLANDS

Naktuinbouw Variety Testing developments

- As from April 2021 the DUS team 4 junior DUS examiners joined the team to replace colleagues who retired or changed jobs. The DUS team now consists of 40 employees, including 2 managers and 4 in disease resistance. The Department of Variety Testing includes also a support team, a trial management team and a project team. In total there are 70 employees.
- The Variety Testing Department yearly offers a number of courses around Plant Breeders' Rights and/or Listing. Last year almost all courses have been provided as online-sessions (Zoom/Teams).
- During the COVID-19 crisis, the daily business of the employees of the Variety Testing department has not been disturbed. They succeeded to do the DUS work at the normal quality level and are also flexible in the contacts with the applicants.
- Applicants more and more use the online systems of UPOV and CPVO for filing their applications for listing and/or Plant Breeders' Rights. Nowadays it is possible to apply for Plant Breeders' Rights for all species through UPOV PRISMA as well as for Listing in the Netherlands. In 2021 35,2% of the National applications were filed by electronic means of the CPVO system, mainly due to a reduced application fee (in 2020 34%). Up to now we received a limited number of online applications through UPOV PRISMA.

Number of applications received

In 2021, 2655 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 split in this table.

2021	NL listing	NL PBR	EU PBR	TOTAL
<i>Agriculture</i>	230	95	103	
<i>Vegetable</i>	662	529	74	
<i>Ornamental (incl. trees)</i>		213	749	
TOTAL	892	837	926	2655

DUS projects

- Digitisation
 - Naktuinbouw continues to work on the expansion of the Naktuinbouw Academy: a digital training platform.
 - Databases: Naktuinbouw develops SNP-databases in French bean, rose, lettuce, onion, hemp, tomato and perennial ryegrass. Some databases are developed nationally, others in international projects (e.g. IMODDUS). The projects are funded by amongst others the Dutch board for plant varieties and CPVO.

EU projects: Database Melon, Harmorescoll and INVITE + Hemp

- An EU database for melon varieties is developed by cooperation between France, Spain, Portugal, Slovakia and the Netherlands. The development is funded by CPVO. In 2021 the project has been finished and continuation in cooperation is agreed.
- Harmorescoll: in this project the reference material for obligatory disease resistance tests will be harmonized.
- The EU project INVITE on the improvement on DUS and VCU. Naktuinbouw is one of the partners in this program.
- Starting a project on setting up resistance tests to ToBRFV for tomato and pepper and improvement of resistance test melon/*Aphis gossypii*

- International projects
 - Calibration manuals. Naktuinbouw cooperates since 2016 with NCSS Japan on the harmonisation of Dutch Calibration Books and Japanese Testing Manuals.
- Other projects
 - Study on minimum distances in tulip 2021-2023.
 - Studies on DUS and VCU testing in True Potato Seeds
 - Automatic morphological descriptions of ornamental crops through machine learning.
<https://www.wur.nl/nl/Onderzoek-Resultaten/Onderzoeksinstituten/plant-research/biometris/show-biometris/MODOMA-Deep-Learning-in-sierteelt.htm>

International cooperation

- In 2021 online activities were carried out with Egypt, APSA, Mexico and Ethiopia.
- In cooperation with CPVO, Naktuinbouw joined the IPKey-project China. Training was organised digitally with direct translation.
- In 2021 a 4-year project is started by the Wageningen university on the Nigerian Seed sector. The Nigerian government and Naktuinbouw are involved on the topics of Plant Breeders rights and variety registration.

PVP Development Program (Toolbox)

- This is a tool to help countries to develop, improve and implement their Plant Breeders' Rights system. The first 5 years period has been finalized successfully. The Dutch Ministry has made another 5 years of funds available (2022-2027) for the implementation of this program.

More info: PVP Development Program - PVP Toolbox | Naktuinbouw or contact: PVPToolbox@naktuinbouw.nl

Plant Breeders Rights for Food security and Economic Development training course.

- In 2021, the course was presented in an online format. In 2022, the course will also be held online from Oct 3 – Dec 2.

More information: <https://www.naktuinbouw.com/bulb/training-course/plant-breeders%E2%80%99-rights-food-security-and-economic-development> or contact: l.pinan.gonzalez@naktuinbouw.nl

[Annex V follows]

POLAND

In the Centre Research for Cultivar Testing (COBORU) there is a stable annual number of applications for the national listing for all vegetables crops.

At the end of 2021 year, in the national list varieties there were almost 800 varieties (were over 620 national varieties and over 160 foreign varieties) and in national variety protection were over 200 varieties of near 50 vegetables crops.

The COBORU received 102 new applications of vegetable crops for the DUS test on the season vegetation of 2022. Those 102 applications of vegetables were for the following crops: tomato (23), onion (12), pepper (12), white cabbage (8), pumpkin (8), cucumber (5), watermelon (5), Chinese cabbage (3), sweet corn (4), narrow-leaved lupine (3).

Applications were filed by applicants from: Netherlands (30), Poland (29), Italy (23), Republic of Korea (15), Denmark (2), Germany (2), United States of America (1).

About 35 different species of vegetables are tested each year at the COBORU of which main species tested are tomato, carrot, cucumber/gherkin, onion, pepper, pea, white cabbage, beetroot, broad bean, dwarf and climbing French bean, lettuce.

COBORU is entrusted by the CPVO for various vegetable crops and carried out DUS tests for Czech Republic, Estonia, Denmark, Hungary, Latvia, Lithuania, Netherlands, Slovakia, Slovenia, Romania. In addition to that, the Research Centre have provided of 18 DUS reports of vegetables varieties to interested Authorities.

Since 2022 we will start tests with new crop for us, newly Tomato rootstock.

Laboratory characteristics of DUS tests, such as disease resistance tests are done in cooperate with NEBIH in Hungary and GEVES in France.

COBORU's DUS Experts and Examiners participate in the Technical Working Party for vegetable meetings.

New issue arising for DUS examination in COBORU is the laboratory modernization will the aim of DNA profiling action establishment, which will be helpful for searching similar varieties.

[Annex VI follows]

SPAIN

INIA is the Spanish National Institute for Agricultural and Food Research and Technology. INIA is the accredited center in charge of DUS test for agricultural and plant vegetable species in Spain. In 2021, INIA was integrated into CSIC, which is the Spanish National Research Council. It's a State Agency under the Ministry of Science and Innovation of Spain. This reorganisation would not affect the development of the daily technical work.

INIA-CSIC continues working in close collaboration with the Spanish Office of Plant Varieties (OEVV - Ministry of Agriculture, Fisheries and Food of Spain), which is the National Authority for the registration of varieties.

The Technical Directorate of Plant Varieties Evaluation and Laboratories of INIA-CSIC is composed of the Seeds and Nursery Plants Testing Station and three Plant Variety Evaluation Centers located in Madrid, Seville and Valencia respectively. These Examination Centers are accredited by the Community Plant Variety Office (CPVO).

The plant variety evaluation Center of Valencia, is specialized in vegetable crops. In 2021, the Valencia Center, in collaboration with the laboratories of the Testing Station, has carried out the following activities:

- DUS trials in chard, artichoke, celery, broccoli, onion, chinese cabbage, cauliflower, lettuce, melon, cucumber, parsley, pepper, tomato rootstock, leek, watermelon, turnip, endive and tomato. In this regard, the Center has received 220 new applications for vegetable crops to be included in the RVC, RVP and the Communitarian Plant Variety Office (CPVO). The tomato is the species for which more applications have been submitted (35%).
- Trials with vegetatively propagated varieties (in pepper and leek).
- The DUS trials have been supported by 765 resistance tests and 486 biomolecular tests conducted by the laboratories of the Testing Station.
- 13 trials on several species for new maintainer of varieties in the RCV.
- 498 reports have been issued for the RVC and RVP register, the CPVO register and for registers in other countries.

The Center has participated in different international meetings and working expert's groups of CPVO, UPOV, ISTA and ISF, and has a continuous communication with other examination offices, for the exchange of descriptions and information on varieties of the reference collection. Also, the Center has attended the National Commission for the Protection of Plant Varieties.

Moreover, the Center has taken part in several CPVO projects and training courses:

- International harmonisation and validation of a SNP set for the management of tomato reference collection (IMODDUS).
- Setting up an EU system for harmonized collections of reference isolates, controls and differentials to facilitate disease resistance testing (HARMORESCOLL).
- The setting up of a database with descriptions and photos of melon varieties of common knowledge (MELON DATABASE)
- IP Key China activities for 2021: Plant Variety Rights online technical training for Chinese experts: DUS test - Melon

Apart from the Valencia Center, the Plant Variety Evaluation Center of Madrid is specialised in semi-extensive vegetable crops; zucchini, bean, eggplant and garlic, among others, and during 2021 this Center has carried out numerous DUS tests and technical reports.

[Annex VII follows]

UNITED KINGDOM

Report on the activity of the United Kingdom (UK) Plant Varieties and Seeds Office and the DUS examination centres of NIAB, SASA and AFBI. The Plant Varieties and Seeds Office is part of the Animal and Plant Health Agency (APHA), an executive agency of the Department for Environment, Food and Rural Affairs (Defra) and its remit is to coordinate the delivery of variety registration and Plant Breeders Rights (PBR) in the United Kingdom. Contact details are available on the Gov.UK website [UK Variety Listing and PBR](#).

In 2021 the United Kingdom received some 1400 applications covering Plant Breeders rights and National Listing. The applications were made up of 400 agricultural, 300 fruit, 525 ornamental and 175 vegetables. Around 500 of these applications required DUS testing in the United Kingdom with the remainder having DUS reports purchased from other countries.

As of January 2021, the United Kingdom is now processing all National List and PBR applications through UPOV PRISMA. Since its implementation, the UK has benefitted from UPOV PRISMA to process applications and has been working constructively with the UPOV PRISMA team to make further improvements. The United Kingdom are grateful to the UPOV PRISMA team for providing training workshops.

To demonstrate experience and competence in performing DUS testing at its 3 DUS test centres, the United Kingdom has implemented a DUS Quality System based on internationally harmonised criteria.

Vegetable DUS in the United Kingdom is conducted at SASA, Edinburgh (formerly Science and Advice for Scottish Agriculture but now simply "SASA"). <https://www.sasa.gov.uk/>. Following an upturn in vegetable applications, SASA will be conducting DUS trials for several vegetable crop species during the 2022 growing season, including the following, *Allium cepa* L., *Allium porrum* L., *Apium graveolens* L. var. *rapaceum*, *Brassica oleracea* L. var. *italica*, *Brassica oleracea* L. var. *gemmifera*, *Brassica napus* L. var. *napobrassica*, *Brassica napus* L. subsp. *napus* var. *pabularia* (DC.) Alef., *Brassica rapa* L., *Beta vulgaris* L. var. *conditiva* Alef., *Daucus carota* L., *Pisum sativum* L. and *Raphanus sativus* L.

An industry stakeholder event was organised early March 2022 in conjunction with Defra, APHA, UK DUS examination centres and the British Society for Plant Breeders (BSPB). This well-attended and well-received webinar provided guidance and information on applying for Variety Listing and Plant Breeders' Rights in the United Kingdom as well as an opportunity to engage, collaborate and receive feedback from national and international stakeholders.

On the international front, SASA Variety Testing staff continue to be fully committed to working with our colleagues in Europe and within UPOV and we continue to be involved in CPVO projects such as 'Harmorescoll' which aims to facilitate access to reference material for performing disease resistance tests within DUS examinations.

The United Kingdom continues to support the UPOV online courses with technical and administrative staff throughout the United Kingdom taking advantage of the distance learning opportunities through DL205 and DL305. Colleagues across the United Kingdom have also benefitted from attending the two UPOV seminars arranged in 2021 and the UPOV Technical Working Parties Preparatory Webinars.

[End of Annex VII and of document]