

Technical Working Party for Vegetables

TWV/58/2

**Fifty-Eighth Session
Virtual meeting, April 22 to 25, 2024****Original:** English
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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-24/021 of February 29, 2024. The following reports were received (in alphabetical order):

- Members of the Union: Annexes I to VI: European Union, France, Japan, Netherlands (Kingdom of the), South Africa and the United Kingdom

[Annexes follow]

EUROPEAN UNION

CPVO STATISTICS AND ACTIVITIES

Statistics

Community Plant Variety Protection Office of the European Union (CPVO) applications decreased slightly in 2023, with 2866 applications in total (previous year: 3196, -10.3%).

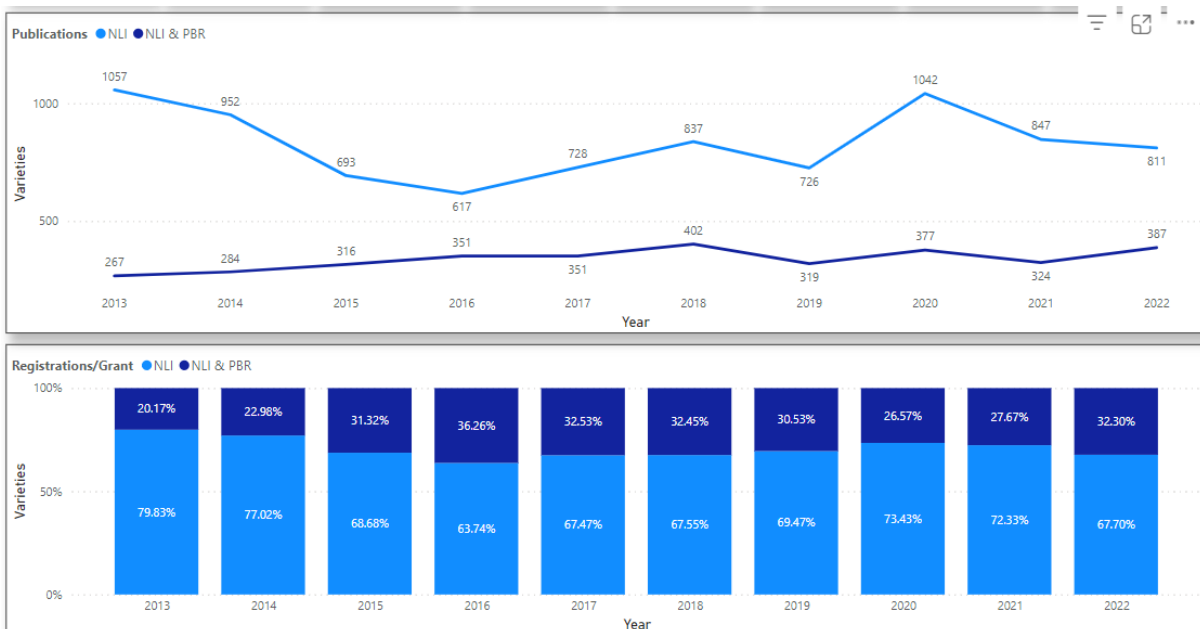
The distribution between crop sectors was as follows:

- Ornamental, 1088 applications (38%), previous year (1267 applications, 40%),
- Agricultural, 841 applications (29.5%), previous year (1003 applications, 31%),
- **Vegetable, 670 applications (23%),** previous year (664 applications, 21%),
- Fruit 267 applications (9.5%), previous year (262 applications, 8%),

Reasons for the decrease in number of applications are found in the ornamental (-31% over 4 years) and agricultural (-29% in the past 2 years) sectors.

In 2023, the Office granted 2719 titles for Community protection; 30 939 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 2023, the CPVO provided 1266 technical reports to 38 countries (550 in 2022), the five countries from which most requests emanated were United Kingdom, Kenya, Australia, Brazil, and Türkiye.

Thanks to the Variety Finder, the CPVO Office is in a position to produce new statistics. The graph below shows that in the last ten years between 20 to 36% of the vegetables varieties newly listed in the EU Common Catalogue are protected by Community Plant Variety Rights.



More statistics are available on the CPVO website: [Statistics | CPVO \(europa.eu\)](https://cpvo.europa.eu)

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 2023, the members of the AC adopted the following:

- AC agreement for cooperation with Japan (MAFF) for the take-over of DUS reports of *Podocarpus macrophyllus* (Thunb.) Sweet, *Camellia sinensis* (L.) Kuntze, and several species of Mushrooms (*Flammulina velutipes* (Fr.) Sing, *Grifola frondosa* (Fr.) S. F. Gray, *Hypsizygus marmoreus* (Peck) Bigelow, *Lentinula edodes* (Berk.) Pegler, *Pleurotus eryngii* (DC.) Quél.).
- AC agreement for cooperation with Australia (Plant Breeder's Rights Office) for the take-over of DUS reports of a variety of *Musa acuminata* Colla – GM variety, 'QCAV4' resistant to Panama disease TR4.
- Agreement to set-up a working group to review of the CPVO Policy on Plant material submitted for DUS testing. The CPVO policy on the status of plant material used for DUS testing purposes was discussed within the CPVO meeting with examination offices in 2023 and should be approved by the AC in spring 2024.
- Creation of a denominations working group to address the need for inclusion of plant genetic resources in the CPVO's analysis of denomination proposals.
- Agreement on proposal to European Commission regarding the fee regulation: increase or new fees for examinations, appeals, nullities, objections and fee group merger (adopted; OJ L 147, 7.6.2023, p. 65–67)
- In the course of 2023, the following technical protocols were adopted by the AC:

kangaroo paw	<i>Anigozanthos</i> Labill.; <i>Macropidia fuliginosa</i> (Hook.) Druce	CPVO-TP/175/1
walnut	<i>Juglans regia</i> L.	CPVO/TP-125/1
anthurium	<i>Anthurium</i> Schott	CPVO/TP-086/1
potato	<i>Solanum tuberosum</i> L.	CPVO/TP-023/4
peach, nectarine	<i>Prunus persica</i> (L.) Batsch	CPVO/TP-053/2-Rev
berberis	<i>Berberis</i> L.; excluding <i>Berberis aquifolium</i> Pursh, <i>Berberis bealei</i> Fortune, <i>Berberis japonica</i> (Thunb.) Spreng., <i>Berberis napaulensis</i> (DC.) Spreng., <i>Berberis oiwakensis</i> (Hayata) Laferr., <i>Berberis pumila</i> Greene, <i>Berberis repens</i> Lindl., and hybrids between these species and other <i>Berberis</i> species	CPVO-TP/068/1
garlic	<i>Allium sativum</i> L.	CPVO/TP-162/2
kohlrabi	<i>Brassica oleracea</i> L. var. <i>gongylodes</i> L. (<i>Brassica oleracea</i> Kohlrabi Group)	CPVO/TP-065/2
leaf chicory	<i>Cichorium intybus</i> L. var. <i>foliosum</i> Hegi	CPVO/TP-154/2-Rev
apricot	<i>Prunus armeniaca</i> L., <i>Armeniaca vulgaris</i> Lam.	CPVO/TP-070/3

VEGETABLE SECTOR

Statistics

The table hereunder shows the 10 most important vegetable crops over the last 5 years.

species	2019	2020	2021	2022	2023	Total 1995-2023
Lettuce	180	230	166	160	163	3413
Tomato	149	90	108	141	152	1985
Pepper	61	59	44	71	55	864
Pea	28	27	22	35	28	602
Melon	64	47	43	40	25	687
Cucumber	21	33	38	32	21	559
Spinach	6	15	9	14	18	253
French Bean	12	27	20	22	12	601

Cauliflower	4	17	5	9	5	275
Onion	10	17	17	6	4	245
Total per year	683	688	578	664	670	12378

The vegetable expert meeting (VEM)

The CPVO held its annual meeting with EU vegetable experts on 15 and 16 November 2023 in Brussels (European Commission, DG Sante). More than 20 vegetable experts from our network of examination offices and representatives of Euroseeds attended the meeting. The experts made progress in discussions on various subject matters:

- The CPVO is working towards clarifying characteristics from the CPVO technical protocols that may only be observed once, enhancing the efficiency of DUS examination.
- Our commitment has been reinforced towards adopting IBEB's recommendations, particularly concerning the integration of Bremia resistance characteristics into our examination protocols.
- Discussions are underway to clarify expectations from breeders in seed germination rates of samples delivered for DUS testing
- Possible improvement of processes for the management of reference collections in the network of EU Examination Offices.
- The group was updated about the latest results of ongoing R&D projects currently co-funded by the CPVO, and was informed by Wageningen University on progress made in image analysis in the INVITE project for the purpose to assist examiners and improve observations in DUS tests.

Ongoing R&D projects

“Updating DUS resistance tests according to pests’ evolution:

- *Setting up resistance tests to ToBRFV for tomato and pepper*
- *Improvement of resistance test melon/Aphis gossypii” (ongoing)*

The project is coordinated by GEVES (FR) and includes 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 institute: INRAE.

The project is divided in two separate parts, one dedicated to the development of a publicly accessible system usable for the assessment of the tolerance to ToBRFV in tomato and pepper, and the other focusing on the evaluation of melon resistance to Aphis gossypii with the double aim of adapting the current biotest to the predominant pathotypes and to validate the use of a biomolecular method.

The project started in 2022 with a duration of 36 months (+18 months), the results are expected in July 2026.

“Harmorescoll” (ongoing)

Harmorescoll aims at setting up, at the European level, a coordinated system to give information to interested parties on access to reference material (isolates, controls and differentials) for performing disease tests for DUS purposes according to the CPVO protocols and UPOV guidelines.

Collaboration amongst EOs and seed companies affiliated with Euroseeds is key in this project. Ultimately, the system should be maintained on a self-financing basis.

From 2020 to 2023, progress was made in the definition of the work model, the structure of the website and database and the inventory, description, and validation criteria of the reference material.

The project is coordinated by GEVES and Naktuinbouw. It started in 2020 and, after two extensions requested to complete the validation of the reference materials and to update the website, should be finalised in June 2024.

“International validation of a SNP set to determine genetic distances for the management of tomato reference collection.” (completed, report available online: <https://cpvo.europa.eu/en/about-us/what-we-do/research-and-development>)

The project aims at defining a set of markers adapted to the management of the reference collections. It is coordinated by Naktuinbouw (NL) and involves Euroseeds and all Examination Offices entrusted for tomato (NAKT (NL), GEVES (FR), COBORU (PL), NÉBIH (HUN), INIA-OEVV (SP), DGAV (PT) and CREA (IT)). 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 also involved and participate in the project on their own funding.

All European and Asian partners tested the selected SNP markers on a common set of varieties and on a set of varieties from their own country. DNA extracts from the common set were prepared by Naktuinbouw and sent to the partners for evaluation in the framework of their own procedures. Genotyping results were analyzed for the selection of about 300 SNPs producing consistent genotypes by all partners for each variety.

A specific agreement defining the conditions of access to the material have been signed by the consortium of partners and consents have been requested from the owners of all the varieties concerned. The project started in December 2019 and ended in 2023.

A follow-up project could be built for complete characterization of the collection and application following UPOV model combining molecular and phenotypic data (French bean approach).

All reports of finalized R&D projects are published on the CPVO website:
<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 DUS activity, either in the framework of national listing , or PBR, or in the framework of international cooperation for DUS testing, has slightly decreased in 2023 compared to previous years.

Main activity remains on agricultural species. Detailed figures can be found on the annual report available on our website.

In total in 2023, GEVES carried out more than 3300 DUS cycles, mainly in its premises.

Crop sector	Number of DUS cycles in 2023	Main species tested
Agricultural	2330	Maize, wheat, oilseed rape, barley, sunflower, sorghum
Vegetable	435	Lettuce, tomato, melon, cauliflower, pepper, squash
Fruit	320	Peach, vine, apple, sweet cherry, apricot, Japanese plum, pear
Ornamental	230	Hydrangea, Chrysanthemum, Buddleia, Nerium, Lavandula, Salvia

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

In 2023, the international cooperation service of GEVES received more than 1100 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 TGP5, Section 6 "UPOV Report on Technical Examination and UPOV Variety Description".

In addition to that, the French National Office for PBR (INOV) has received 110 applications in 2023, out of which 95% were tested for DUS by GEVES.

INOV is involved in UPOV PRISMA for all genera and species. Contact INOV : inov@geves.fr

Regarding the use of molecular markers, GEVES is using in 2023 in routine molecular markers for the management of reference collection according to UPOV guidance model "Combining Phenotypic and Molecular Distances in the Management of Variety Collections", for maize, sorghum, spring barley.

Projects are being currently led on Oilseed rape and Hydrangea.

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 in bio assays, 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 sophie.perrot@geves.fr

JAPAN

1. Number of applications in 2023

Year	Total number	(2023/2022)	Vegetables and Mushrooms	(2023/2022)
1978 to 2023	37206	-	Vegetables 2475 Mushrooms 688	-
2022	683		Vegetables 71 Mushrooms 13	
2023	591	(87%)	Vegetables 60 Mushrooms 21	(96%)

Top 5 of application for Vegetables and Mushrooms in 2023

Shiitake 12, Lettuce 12, Eggplant 6, Bunashimeji 6, Tomato 4, Total: 81

2. Number of granted in 2023

Year	Number	(2023/2022)	Vegetables and Mushrooms	(2023/2022)
1978 to 2022	29992	-	Vegetables 1960 Mushrooms 591	-
2022	672		Vegetables 33 Mushrooms 30	
2023	497	(74%)	Vegetables 25 Mushrooms 18	(76%)

3. National test guidelines harmonized with UPOV TGs in 2023

Common name of plants (6)
Kiwifruit, Japanese tea, Hemp, Timothy grass, Peach, Rye

4. National test guidelines developed for new type of species in 2023

Genera or Species (4)
<i>Aloe L.</i> , <i>Corchorus olitorius L.</i> , <i>Nephrolepis exaltata (L.) Schott</i> , <i>Pinellia ternata (Thunb.) Makino</i>

Web-site: https://www.maff.go.jp/j/shokusan/hinshu/info/sinsa_kijun_jp.html

5. Other

- ✓ Japan continuously provides other UPOV members with examination reports under the Memorandum of Cooperation (MOC). Japan had provided 47 DUS examination reports in total to other countries in 2023.
MAFF and United States Department of Agriculture (USDA) had signed MOC for cooperation in DUS examination in 2023. It could be used for other DUS result to own DUS examination.
In addition, MAFF and CPVO had also signed MOC for cooperation in DUS examination for Japanese tea, Mushrooms and Podocarpus. It could be used Japan's DUS result for DUS examination in CPVR.
- ✓ 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 lettuce ver.2" was finalized in 2023, and it will be published through both of websites. With revision of this, a total of 10 Calibration Manuals will be available for third country.

NETHERLANDS (KINGDOM OF THE)

Naktuinbouw Variety Testing developments

- There are some fundamental changes in the management of the DUS team of the variety department: Raoul Haegens is the new head of the Variety Department (to replace Bert Scholte who retired). Armanda Boere is the new Unit manager (to replace Raoul Haegens). Marco Hoffman is the new Technical Liaison Officer (TLO).
- As from January 1, 2024, Naktuinbouw works within the new organizational structure (so called TON2024). One of the fundamental changes is that the teams become more self-organizing.
- The DUS team now consists of 40 employees, including one unit manager, three cultivation managers and 4 employees specialized in disease resistance. The Unit Variety Testing includes also a support team, a trial management team and a project team. In total there are 70 employees and supplemented with temporary (circa 18) staff in summer.
- In 2024 facilities for resistance testing will be expanded and a new drying and storage room will be built for onions.
- The Variety Testing Unit yearly offers a number of courses on Plant Breeders' Rights and/or Listing. During the COVID epidemic almost all courses have been provided as online-sessions (Zoom/Teams). In 2023 many courses could be organised again in person.
- 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 in the Netherlands for Plant Breeders' Rights as well as for Listing for all species using UPOV Prisma .

Number of applications received

In 2023, 2601 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 as PBR, in vegetables and in agricultural crops are split in this table.

2023	NL listing	NL PBR	EU PBR	TOTAL
Agriculture	242	54	24	320
Vegetable	817	596	74	1487
Ornamental (incl. trees)		206	588	794
TOTAL	1059	856	686	2601

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, Hemp and Tomato. 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: Harmorescoll, INVITE and IPKey and twinning project Ukraine

- Harmorescoll: in this project the reference material for obligatory disease resistance tests will be harmonized. 2024 will be the final year of the project.
- The EU project INVITE on the improvement on DUS and VCU. Naktuinbouw is one of the partners in this program. 2024 is the last year of this project.
- Naktuinbouw continues to support IPKey projects.
- CPVO funds a project to develop a disease resistance test for ToBRFV in tomato and for Aphis gossypii in cucumber.

Other projects

Methodology projects that are funded by the Board for plant varieties in the Netherlands are e.g.

- the SNP-development for some morphological characteristics in tomato,
- development of a SNP set in courgette,
- development of a disease resistance test for CABYV in cucumber,
- protocol verification and future protocol revision for seed shallot varieties,
- bolting in celery and celeriac.

International cooperation 2024

- Since 2022, a holistic project has been started in the Philippines with the funds provided by RVO. The project aims to share knowledge and provide trainings for the development of the Philippines National Seed Technology Park (NSTP) project. The project will continue till July 2024.
- Since 2021, Naktuinbouw has participated in the Collaborative Seed Program in Nigeria. One of the project's goals is to set up a PVP system in the country.
- In 2023, received a delegation from Morocco regarding knowledge exchange for DUS trials of fibre-cannabis.
- Naktuinbouw collaborated with TAEIX on three occasions. We received a delegation from Colombia for a DUS training on Cannabis, a delegation from Serbia for an exchange on conservation varieties, and a visit to Japan for an exchange of knowledge on molecular techniques for infringements of plant breeder rights is under planning.
- In 2024 a project with Suriname will be funded by the Makandra Program.

PVP Development Program (Toolbox)

- This tool helps countries develop, improve, and implement their Plant Breeders' Rights system. In 2023, different PVP projects were carried out in 11 countries, and thirteen projects were granted in 2024: Armenia, Azerbaijan, Dominican Republic, Ghana, Japan, Kazakhstan, Kenya, Morocco, Türkiye and Western Balkans.
- More info: PVP Development Program – PVP Toolbox | Naktuinbouw or contact: PVPToolbox@naktuinbouw.nl

Plant Breeders Rights training course.

- The course was presented online in 2022. In 2023, 14 participants from 8 different countries attended. Participants rated this course 9.6 out of 10.
- In 2024, the training course on Plant Breeders Rights is entirely presented as an e-learning. The study load is around 80 hrs, depending on prior knowledge. Participants can register and start at any time throughout the year.
- More information: <https://www.naktuinbouw.com/knowledge-education/training-courses/plant-breeders-rights-for-food-security-and-economic-development> or contact I.pinan.gonzalez@naktuinbouw.nl

[Annex V follows]

SOUTH AFRICA

The South African PBR Office, residing under the Ministry of Agriculture, Land Reform and Rural Development (DALRRD), is the national authority receiving and examining Plant Breeders' Rights applications, and the granting of Plant Breeders' Rights.

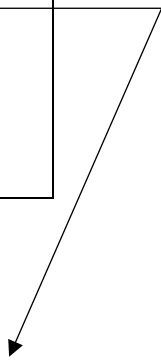
Statistics

With reference to Applications and valid Plant Breeders' Rights for 2023 the following is reported:

- No additional taxon protected has been declared in terms of the Plant Breeders' Rights Act during 2023.
- 323 PBR applications were received of which 57% [185] were for Agricultural crops, 9% [28] for Ornamental crops, 25% [82] for Fruit crops and 9% [28] for Vegetable crops.
- As of December 2023, a TOTAL of 3809 varieties had valid plant breeder's rights in South Africa, of which 20% [804] were for Ornamental crops, 40% [1500] for Agricultural crops, 32% [1205] for Fruit crops and 8% [300] for Vegetable crops. The top three crops for agricultural crops are:

AGRIC CROPS	
1. <i>Zea mays</i> L.	[727]
2. <i>Glycine max.</i> (L.) Merrill.	[175 GMO + 14 CONV]
3. <i>Triticum</i> L.	[118]

White CONV	102
White open pollinated	4
White GMO	232
Yellow CONV	122
Yellow GMO	254
Sweetcorn	13



Applications for Agricultural crops as well as the grants were for the United States of America, Brazil, Argentina and South Africa.

The top three Vegetable crops were:	
1. <i>Solanum lycopersicum</i> L.	[69]
2. <i>Phaseolus vulgaris</i> L.	[34]
3. <i>Ipomoea batatas</i> (L.) Lam.	[31]

[Annex VI follows]

UNITED KINGDOM

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 2023 the United Kingdom received approximately 1249 applications covering Plant Breeders rights and National Listing. The applications were made up of 532 agricultural, 94 ornamental, 41 fruit, and 581 vegetables. Of these 443 were DUS report purchases, with almost all of the remainder being for DUS testing in the United Kingdom, although there was also a very small number of EU CPVO commissioned DUS tests for species that the United Kingdom does not currently have capacity for testing.

The United Kingdom is now processing all National List and PBR applications through UPOV PRISMA. Since its implementation, the United Kingdom has benefitted from UPOV PRISMA to process applications and continues to work constructively with the UPOV PRISMA team to make further improvements.

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. To date successful audits have been performed at SASA and NIAB.

Vegetable DUS testing in the United Kingdom is currently conducted at SASA, Edinburgh (formerly Science and Advice for Scottish Agriculture but now simply "SASA"). <https://www.sasa.gov.uk/>. SASA will be conducting DUS trials on *Pisum sativum* L. during the 2024 growing season.

The United Kingdom authorities are working together to develop a United Kingdom Plant Variety and Seeds (PVS) Strategy spanning Plant Variety Rights, plant variety registration, setting standards for marketing and certification of seed and other plant propagating material. This will be the first strategy in the PVS area and developing it is an opportunity to engage with industry and other stakeholders to set out a shared vision, priorities, and actions to achieve these. The strategy will aim to enable a thriving and dynamic plant breeding sector capable of meeting the challenges and opportunities of a changing world. To uphold proportionate quality and marketing standards for seed and other propagating material to ensure a well-functioning internal market. To maintain and enhance the United Kingdom's global reputation in plant breeding and marketing standards to ensure that the United Kingdom is perceived as an attractive and stable option to develop and bring to market new plant varieties.

On the international front, SASA Variety Testing staff continue to be committed to working with our colleagues in Europe and within UPOV and have continue to be a signatory to 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 UPOV Technical Working Parties Preparatory Webinars.

[End of Annex VI and of document]