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| International Union for the Protection of New Varieties of Plants |  |

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| Technical Working Party for Ornamental Plants and Forest Trees  Fifty-First Session Christchurch, New Zealand, February 18 to 22, 2019 | TWO/51/3  Original: English  Date: March 4, 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

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).

Written reports were invited by the Office of the Union in Circular E-18/217 of December 13, 2018. The following reports were received (in alphabetical order):

* Members of the Union: Annexes I to VII: China, European Union, Japan, Netherlands, New Zealand, Republic of Korea and the United Kingdom

[Annexes follow]

CHINA

1. Revision of the national PVP regulation

The national PVP regulation is under significant revision. Protection of PBR under the revised regulation is expected to be strengthened, closer to the 1991 Act. This indicates a big step towards the 1991 act of UPOV. The revision proposals are now open for public comments.

1. Latest statistics for the year of 2018

In 2018, the PVP Office of the SFGA (The State Forestry and Grassland Administration) has granted a total of 405 PBRs, increased by 153% compared to 2017. The Office has received a total of 906 new applications for PBR, increased by 45% compared to 2017.

The details of break down to different crop types are given in table 1 and table 2 below, including statistics of both agriculture and forestry sectors.

Table 1, Statistics of PBR applications and grants in 2018

|  |  |  |  |
| --- | --- | --- | --- |
| Number of PBR applications | | | Number of PBR grants |
| Domestic | Foreign | Sum | Sum |
| 5222 | 538 | 5760 | 2395 |

Table 2, Statistics of PBR grants from in 2018 on different types of plants

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Field crop | Vegetable | Fruit trees | Ornamentals | Timber trees | Bamboo | Woody vines | Others |
| Grants | 1676 | 163 | 185 | 293 | 62 | 2 | 3 | 11 |
| Applications | 3539 | 631 | 263 | 339 | NA | NA | NA | 82 |

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[Annex II follows]

EUROPEAN UNION

Report on activities of the Community Plant Variety Office of the European Union (CPVO)

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.

Despite the higher total number, the number of applications for ornamental crops fell in 2018 to 1561 (-4.2 %). The increase in application numbers was essentially in the agricultural sector. The top two ornamental crops were, as always Roses and Chrysanthemum. These were followed by Phalaenopsis, Calibrachoa and Gerbera which are traditionally amongst the top ten; however, with different ranking.

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 PVP authorities from outside the European Union where DUS testing facilities do exist in the EU (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 to 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 Kindom from the EU, the CPVO had to stop organizing new DUS examinations in examination offices in the United Kingdom; all species entrusted to these offices for testing and pending applications had to be re-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 December 10, 2018.

In October, the Office approved a practical case study on minimum distances between Pelargonium varieties. The project was proposed by CIOPORA; 7 pairs of protected varieties were selected for a side-by-side comparison at the Bundessortemamt, Germany. A discussion with breeders is scheduled for June/July and the outcome of the study is scheduled for October 2019.

Ornamental experts’ meeting: The annual meeting of 2018 was hosted by our Hungarian examination office NEBIH in May in Budapest and gave the possibility to visit parts of the growing trials conducted at the Vácrátót Botanical Garden. The meetings were attended by representatives of the CPVO’s entrusted examination offices, CIOPORA and Plantum. Experts discussed in particular the assessment of uniformity of variegated varieties, the influence of the environment on the expression of characteristics with its impact on the DUS decision and issues of costs in DUS testing.

For up-to-date information on the CPVO’s activities, please visit the CPVO website, read its newsletter and follow and engage with the CPVO on Twitter: @CPVOTweet

[Annex III follows]

JAPAN

1. Number of applications in 2017

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year | Total | (2017/2016) | Ornamentals | (2017/2016) |
| 1978 to 2017 | 32903 | - | 26072 | - |
| 2016  2017 | 977  1019 | (104%) | 775  819 | (106%) |

*Top 5 of application for Ornamentals in 2017*

Chrysanthemum 176, Rosa 93, Petunia and Calibracoa 39 (30; 9), Dianthus 55, Hydrangea 32

2. Number of titles granted in 2017

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year | Total | (2017/2016) | Ornamentals | (2017/2016) |
| 1978 to 2017 | 26382 | - | 20671 | - |
| 2016  2017 | 942  811 | (86%) | 796  663 | (83%) |

*Top 5 of granted for Ornamentals in 2017*

Rosa 114, Chrysanthemum 113, Dianthus 57, Petunia and Calibracoa 37 (30; 7), Anthurium 25

3. National test guidelines harmonized with UPOV TGs in 2017.

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| Genera and Species (4) |
| Pineapple, China Aster, Regal Pelargonium, Salvia |

4. National test guidelines developed for new type or species in 2017.

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| Genera and Species (15) |
| *Alternanthera brasiliana* (L.) Kuntze*,* *Antigonon leptopus* Hook. & Arn., *Arabidopsis halleri* (L) O'Kane & Al-Shehbaz subsp.*gemmifera* (Matsum.) O'Kane & Al-Shehbaz, *Avena strigosa* Schreb., *Dodonaea viscosa* (L.) Jacq., *Ipomoea carnea* Jacq. subsp. *fistulosa* (Mart. ex Choisy) D. F. Austin, *Leucothoe* D.Don, *Panicum miliaceum* L., *Physostegia virginiana* (L.) Benth., *Pilea depressa* (Sw.) Blume, *Polianthes tuberosa* L., *Potentilla sundaica* (Bl.) O. Kuntze var. *robusta* (Franch. & Savat.) Kitag., *Rhodanthe* Lindl., *Syringa* L., *Triticum turgidum* L. subsp. *durum* (Desf.) Husn. |

Web-site: http://www.hinshu2.maff.go.jp/info/sinsakijun/botanical\_taxon\_e.html

5. Other.

✓ Japan continuously offers to other UPOV member examination reports at no charge by the Memorandum of Cooperation (MOC) agreed upon. We have exchanged the MOC documents with 14 members at May 2018.

✓ Japan launched MAFF electronic application system (national electronic application system) on March 26, 2018, to improve convenience for applicants. This system allows users with user ID and password provided by the PVPO to send application form by electric system. Users are requested to send a Request Form by postal mail to PVPO for obtaining user ID and password in advance. The accepting language is Japanese only. Paper application is acceptable also. We started the MAFF electronic application system for improving effective PVP proceedings in Japan.

More information is provided on MAFF’s website,”http://www.hinshu2.maff.go.jp/” (Explanation is available only in Japanese)

✓ For encouraging PBR holder to apply overseas applications for registered varieties in Japan, PVP office is supporting PBR holders including setting up the manual for applying overseas and the consultation desk with some financial support for them.

✓ Since establishment of the East Asia Plant Variety Protection Forum in 2008, Japan continuously support its activities to facilitate the improvement of the implementation and the harmonization of the plant variety protection system based on the UPOV system in the Asian region. On the 11th session of EAPVPF, held on August 1st, 2018, in the Republic of the Philippines “10-year Strategic Plan” was adopted.

✓ Joint activity of Naktuinbouw and NCSS for DUS test based on their Memorandum of Understanding

Naktuinbouw and NCSS have established Calibration Manual for DUS test. Calibration Manuals, which include many photographs explaining how to observe and measure characteristics of varieties will be easy-to-understand reference material for users. This joint activity will result in 11 calibration manuals.

Four manuals for Rose (cut-flower type), Carnation, Lettuce and Watermelon were completed and now available on NCSS website as well as Naktuinbouw website.

[Annex IV follows]

NETHERLANDS

Naktuinbouw Variety Testing Developments

From the beginning of 2017 it has been the intention to integrate the 3 DUS teams Ornamentals, Vegetables and Agricultural crops into one large DUS team. This will enhance cross-over of employees between the different sectors. The new structure came into force at the beginning of 2018. During 2017, the group of employees who are involved in a wide range of resistance tests was enlarged and restructured. Resistance is an increasing discussion topic related to DUS, even in Ornamentals.

Close cooperation with the Naktuinbouw Research and Development team is evolving on the use of DNA techniques in the management of variety collections and in description of characteristics as an alternative for morphological observations. In 2017, Naktuinbouw invested in many activities concerning methodology research, especially in the use of DNA in DUS examination.

Members of the DUS teams were involved in the Training Course DNA Techniques and Variety Identification, which was organized twice in 2017. This Course was developed by the Research and Development team. A wide variety of persons with a background in variety testing (UPOV), certification (OECD) or seed testing (ISTA) participated.

Spring 2017 the first True Potato Seed variety was granted Plant Breeders’ Right in the Netherlands.

For the major crops for listing and/or Plant Breeders’ Rights, Naktuinbouw has developed calibration books. The calibration book serves as a very practical manual that gives an illustrated explanation of each crop characteristic mentioned in these guidelines/protocols. Calibration books are now freely available on the Naktuinbouw website.

Naktuinbouw has been assigned by the CPVO (Community Plant Variety Office) to carry out DUS tests for 130 extra crops for Plant Breeders' Rights applications in the European Union. This is due to the Brexit, as a result of which the CPVO will no longer accept DUS reports from the United Kingdom which are issued after March 29, 2019. The CPVO redistributed the crops that were only tested in the United Kingdom.

The Administrative Council of the CPVO has entrusted Naktuinbouw for the examination of Chrysanthemum.

Number of applications received

In 2017, 1850 applications were received for testing for the first year for National listing, and for National or European Plant Breeders’ Rights (in brackets the difference in numbers with 2016):

Ornamentals 862 (+5)

Agriculture 154 (+18)

Vegetables 834 (+5)  
Total 1850 (+28)

A forecast for 2018 is not yet possible, but in the first quarter 505 applications were received, which is 54 more than in the same quarter of 2017.

Activities for UPOV

* In July 2017 Naktuinbouw hosted the UPOV Technical Working Party for Vegetables, in Leiden and Roelofarendsveen.
* In October 2017 Mr. Henk de Greef was appointed as chairperson of the Technical Working Party for Ornamental Plants and Forest Trees.

International cooperation

* 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 this has resulted in publication of Calibration Manuals for Lettuce, Rose, Carnation and Watermelon on their respective websites. For 2018, Eggplant and Anthurium are scheduled.
* Colleagues from Ghana, United Republic of Tanzania and Argentina did an internship at Naktuinbouw, respectively with focus on administration around PVP, DUS testing of potato and DUS examination vegetables and ornamentals.
* In 2017 several activities where 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 let them see how an UPOV 91 PVP system works. There will be close collaboration with other UPOV EA and the United Kingdom examination offices in the training of Myanmar experts.

PVP Development Program

This is a new 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 2017 many projects were carried out. Some highlights:

* UPOV Seminar United Republic of Tanzania

27 participants attended a 3 days seminar organised to strengthen the effective implementation of the plant variety protection system in the United Republic of Tanzania.

* Sponsoring 5 candidates to the 2017 PVP course   
  During the 2017 annual international PVP course the participation of 5 candidates was sponsored from the PVP Development budget: one participant from India, two from Cuba, one from Viet Nam and one from Indonesia.
* EAPVP forum activity training watermelon in Viet Nam   
  From 24 April to 27 April the Quang Ngai (Central Viet Nam) DUS station was visited by a Naktuinbouw expert where a training on DUS test of watermelon was given.
* China request for DUS training   
  On request of the Chinese DUS authorities, two training session were organised in conjunction with a meeting on the possible benefits of China becoming a UPOV member under the 1991 Convention.
* Mexico; promotion of the 1991 Act of the UPOV Convention   
  On invitation of the Agri attaché the Mexican authorities were visited by Naktuinbouw. A great interest for membership to the 1991 Act of the UPOV Convention was encountered. A follow-up (extra) activity in the Netherlands was planned. A Mexican delegation visited the Netherlands to study the effects of membership to the 1991 Act of the UPOV Convention in the Netherlands.
* Indonesia Shallots   
  From 25 September to 29 September two Indonesian government officials visited for 2 weeks Naktuinbouw in the Netherlands. This training focussed on two main subjects: Importance and benefits of being an UPOV member. Furthermore, practical training on true seed shallots and seed potatoes was given, in order to try to speed up the introduction of new varieties and the production of high quality seed/tubers.

[Annex V follows]

NEW ZEALAND

The number of applications for ornamental varieties (27) accepted in 2018 continues to decrease in comparison with 42 applications accepted in 2017. This continues the steady decline in application numbers (79) experienced since 2013. The question that this prompts is when this decline will level off or the reverse? Roses remain the most important genus followed by *Lavandula* and New Zealand native species. Applications for popular woody garden plants (such as *Camellia*, *Rhododendron, Hydrangea*) were formally regular, however now these have decreased and other woody genera (such as *Magnolia, Nandina*) are more frequent. Low numbers of applications for varieties of herbaceous perennials remain consistent (*Petunia*, *Dianthus*).

The first application has been made by a NZ breeder for a variety of *Delphinium.* Applications for varieties in this genus were previously made only from foreign breeders. The existing test guideline requires revision and testing is expected to begin in the 2019/20 growing season.

The first application for a variety of *Zamioculcas zamiifolia* has been made by a breeder from the Republic of Korea*.* The genus is beginning to be used as an indoor plant and is almost unknown nationally. The variety has been tested and granted rights in the Republic of Korea and the Test Report has been taken over from the Korea Seed and Variety Service.

A programme to provide technical guidance documents on the website was started several years ago. Three revised documents and have been updated in the last year.

Use of foreign test reports for DUS testing in New Zealand <https://www.iponz.govt.nz/about-ip/pvr/technical-guidance/current/use-of-foreign-test-reports-for-dus-testing-in-new-zealand/>

Availability and supply of plant material for PVR purposes <https://www.iponz.govt.nz/about-ip/pvr/technical-guidance/current/availability-and-supply-of-plant-material/>

In addition, the following new document has been added

Variety testing in New Zealand <https://www.iponz.govt.nz/about-ip/pvr/technical-guidance/current/variety-testing-in-new-zealand/>

The New Zealand government has commenced a review of the Plant Variety Rights Act 1987. Public consultation has commenced, with the release of an Issues Paper in September 2018. The review will be completed within approximately three years.

[Annex VI follows]

REPUBLIC OF KOREA

1. Plant Breeder's Right

The total number of application has reached 10,274 and 7,450 varieties are under the protection as of 31st December, 2018.

Last year we received 713 applications, among them, 348 varieties were ornamental plants such as rose (60), chrysanthemum (39), hydrangea (26), echeveria (22), gerbera (14), anthurium (14) coreopsis (13), lily (11), etc.

1. International Cooperation

KSVS (Korea Seed & Variety Service) provided PVP training course for the 13 participants from 6 countries including Ghana, Sudan, Guatemala, Philippines, Peru and Republic of Moldova for 3 weeks from May 13rd to June 2nd in 2018. Since 2007, 161 trainees have participated across 31 countries.

1. Establishing International Seed and Life Education Center (ISLEC, tentative)

The Republic of Korea decided to establish international seed and life education center located in Kimcheon-si. This organization would support capacity of human resources and delivering knowledge to the doorsteps of seed industry. ISLEC will start July in 2019. More than 20 customized courses will be open for internal/external/international applicants.

1. Hosting 53rd Technical Working party in Vegetables

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

1. 373 national test guidelines have been published by KSVS

So far, national test guidelines of 373 species have been published by KSVS. Some of these guidelines have not been published in other countries. If needed, please request a copy of our test guidelines. The list of national test guidelines follows.

The list of national test guidelines published by KSVS

|  |  |  |
| --- | --- | --- |
| No. | Botanical name | Common name in english |
| 1 | *Oryza sativa* L. | Rice |
| 2 | *Hordeum vulgare* L. | Barley |
| 3 | *Triticum aestivum* L. | Wheat |
| 4 | *Glycine max* (L.) Merrill | Soybean |
| 5 | *Zea mays* L. | Maize |
| 6 | *Solanum tuberosum* L. | Potato |
| 7 | *Raphanus sativus* L. | Radish |
| 8 | *Brassica campestris* L. spp. *pekinensis* (Lour.) Rupr. | Chinese cabbage |
| 9 | *Brassica oleracea* L. var. *capitata* | Cabbage |
| 10 | *Citrullus vulgaris* Schrad. | Watermelon |
| 11 | *Cucurbita* pepo L. | Vegetavle marrow, Squash |
| 12 | *Cucumis sativus* L. | Cucumber |
| 13 | *Cucumis melo* L. var. *makuwa* Makino | Oriental melon |
| 14 | *Capsicum annuum* L. | Sweet pepper, Hot pepper, Paprika, Chili |
| 15 | *Lycopersicum esculentum* MilL. | Tomato |
| 16 | *Allium fistulosum* L. | Welsh Onion |
| 17 | *Allium cepa* L. var. *cepa*, *Allium cepa* L. var. *aggregatum* | Onion, Shallot |
| 18 | *Daucus carota* L. | Carrot |
| 19 | *Lactuca sativa* L. | Lettuce |
| 20 | *Spinacia oleracea* L. | Spinach |
| 21 | *Malus domestica* Borkh. | Apple |
| 22 | *Pyrus pyrifolia* Nakai | Pear |
| 23 | *Prunus persica* (L.) Batsch. | Peach |
| 24 | *Gymnocalycium mihanovichii* Br. & R. | Ruby ball, Moon cactus |
| 25 | *Lolium* spp. | Ryegrass |
| 26 | *Festuca elatior* var. *arundianacea* (Schreb.) Wimm. | Tall fescue |
| 27 | *Trifolium pratense* L. | Red clover |
| 28 | *Avena sativa* L. | Oats |
| 29 | *Ipomoea batatas* (L.) Lam. | Sweet Potato |
| 30 | *Sesamum indicum* L. | Sesame |
| 31 | *Perilla frutescens* Brit. var. *japonica* Hara | Perilla |
| 32 | *Arachis hypogaea* L. | Groundnut(Peanut) |
| 33 | *Brassica napus* L. | Rape |
| 34 | *Angelica gigas* Nakai | Korean angelica |
| 35 | *Astragalus membranaceus* Bunge | - |
| 36 | *Panax ginseng* C. A. Meyer | Ginseng |
| 37 | *Cucumis melo* L. var. *reticulatus* Naud. | Melon |
| 38 | *Brassica oleracea* L. var. *italica* Plen. | Broccoli |
| 39 | *Brassica oleracea* L. var. *botrytis* (L.) Alef. | Cauliflower |
| 40 | *Vitis* spp. | Grapevine |
| 41 | *Citrus junos* Sieb. ex Tanaka | Yuzu |
| 42 | *Forsythia* spp. | Forsythia |
| 43 | *Hibiscus* spp. | Rose-of-Sharon |
| 44 | *Lycoris* spp. | Lycoris |
| 45 | *Ajuga multiflora* Bunge | Ajuga |
| 46 | *Eustoma grandiflorum* Shinn | Lisianthus |
| 47 | *Petunia hybrida* Hort. | Petunia |
| 48 | *Godetia grandiflora* Lindl. | Godetia |
| 49 | *Impatiens* spp. | Impatiens |
| 50 | *Cyclamen persicum* Mill. | Cyclamen |
| 51 | *Antirrhinum majus* L. | Snapdragon |
| 52 | *Viola tricolor* L. var. *hortensis* DC. | Pansy |
| 53 | *Bellis perennis* L. | Lawndaisy |
| 54 | *Alstroemeria* spp. | Alstroemeria |
| 55 | *Hyacinthus* spp. | Hyacinth |
| 56 | Pleurotus spp. | Oyster mushroom |
| 57 | *Dactylis glomerata* L. | Orchardgrass |
| 58 | *Cassia tora* L. | Sickle senna |
| 59 | *Lycium chinense* Mill. | Chinese desert-thorn |
| 60 | *Angelica dahurica*(Fisch.) Benth. et Hooker f. | Dahurian angelica |
| 61 | *Platycodon grandiflorum* (Jacq) A. DC | Balloon-flower |
| 62 | *Dioscorea batatas* Decne | Yam |
| 63 | *Liriope platyphylla* Wang et Tang | Big blue lilyturf |
| 64 | *Bupleurum falcatum* L. | - |
| 65 | *Peucedanum japonicum* Thunb. | - |
| 66 | *Rehmannia glutinosa* (Gaertner) Liboschitz | Adhesive rehmannia |
| 67 | *Ligusticum chuanxiong* Hort. | - |
| 68 | *Dendranthema* spp. | Chrysanthemum |
| 69 | *Gladiolus gandavensis* Van Houtte | Gladiolus |
| 70 | *Calendula officinalis* L. | Pot marigold |
| 71 | *Dendrobium* spp. | Dendrobium |
| 72 | *Celosia* spp. | Celosia |
| 73 | *Zinnia* spp. | Zinnia |
| 74 | *Lilium* spp. | Lily |
| 75 | *Matthiola incana* R. Br. | Stock |
| 76 | *Ageratum houstonianum* Mill. | Ageratum |
| 77 | *Iris* spp. | Iris |
| 78 | *Hemerocallis* spp. | Day lily |
| 79 | *Rosa* spp. | Rose |
| 80 | *Tulipa gesneriana* L. | Tulip |
| 81 | *Euphorbia pulcherrima* Willd. ex Klot. | Poinsettia |
| 82 | *Neofinettia falcata* Hu., *Aerides japonicum* Lindemb. et Reichb. | Sickle neofinetia |
| 83 | *Tropaeolum majus* L. | Nasturtium |
| 84 | *Secale cereale* L. | Rye |
| 85 | *Vigna angularis* (Willd.) Ohwi ＆ Ohashi | Adzuki bean |
| 86 | *Vigna radiata* (L.) Wilczek | Mungbean |
| 87 | *Pisum sativum* L. | Pea |
| 88 | *Solanum melognena* L. | Egg plant |
| 89 | *Brassica rapa* L. ssp. *chinensis* Jusl. | Pakchoi |
| 90 | *Lagenaria siceraria* Standley | Gourd |
| 91 | *Kalanchoe* spp. | Kalanchoe |
| 92 | *Cattleya* Lindl. | Cattleya |
| 93 | *Oncidium* spp. | Oncidium |
| 94 | *Hosta* spp. | Plantain lily |
| 95 | *Paeonia lactiflora* | Chinese peony |
| 96 | Chamaecereus silvestrii | Peanut cactus |
| 97 | *Campanula* spp. | Bellflower |
| 98 | *Pelargonium* spp. | Geranium |
| 99 | *Actinidia* spp. | Actinidia |
| 100 | *Calanthe* spp. | Calanthe |
| 101 | *Phaseolus vulgaris* L. | French bean |
| 102 | *Coix lacryma-jobi* L. | Job's-tear |
| 103 | *Brassica juncea* (L.)Czern. | India mustard |
| 104 | *Brassica oleracea* L. var. *gongylodes* L. | Kohlrabi |
| 105 | *Brassica rapa* L. var. *rapa* | Turnip |
| 106 | *Chrysanthemum coronarium* L. | Garland chrysanthemum |
| 107 | *Zantedeschia* spp. | Calla |
| 108 | *Ornithogalum* spp. | Chincherinchee |
| 109 | *Anthurium* spp. | Anthurium |
| 110 | *Hippeastrum hybridum* Hort. | Amaryllis |
| 111 | *Rhododendron* spp. | Rhododendron |
| 112 | *Hydrangea macrophylla* Ser. | Hydrangea |
| 113 | *Dianthus* spp. | Carnation |
| 114 | *Gerbera* spp. | Gerbera |
| 115 | *Gypsophila* spp. | Gypsophila |
| 116 | *Limonium* spp. | Statice |
| 117 | *Phalaenopsis* spp. | Phalaenopsis |
| 118 | *Gentiana* L. | Gentian |
| 119 | *Freesia hybrida* L.H. Bailey | Freesia |
| 120 | *Cymbidium* spp. | Cymbidium |
| 121 | *Camellia* spp. | Camellia |
| 122 | *Schizandra chinensis* Baillon | Schizandra |
| 123 | *Angelica acutiloba* Kitagawa | Angelica |
| 124 | *Ganoderma* spp. | Reishi mushroom |
| 125 | *Angelica koreana* Max. (*Ostericum koreanum* Max.) | Osterici koreani |
| 126 | *Phellinus* spp. | Phellinus heartrot |
| 127 | *Fagopyrum* spp. | Buckwheat |
| 128 | *Codonopsis pilosula* (Franch.) Nannf. | Pilosula asiabell/Tangshen |
| 129 | *Anemarrhena asphodeloides* Bunge | Anemarrhena rhizome |
| 130 | *Cliviaminiata* Regel. | Kaffir lily |
| 131 | *Aquilegia* spp. | Columbine |
| 132 | *Clematis* spp. | Clematis |
| 133 | *Cordyceps* spp. | Insects-born fungus |
| 134 | x *Triticosecale* Wittmack | Triticale |
| 135 | *Medicago sativa* L. | Alfafa, Lucerne |
| 136 | *Diospyros kaki* L. | Persimmon |
| 137 | *Delphinium* spp. | Delphinium |
| 138 | *Phlox* spp. | Phlox |
| 139 | *Anemone* spp. | Anemone |
| 140 | *Ficus elastica* Roxb. | Indian rubberplant |
| 141 | *Dracaena* spp. | Dracaena |
| 142 | *Ficus benjamina* | Weeping fig |
| 143 | *Nicotiana tabacum* L. | Tabacco |
| 144 | *Allium tuberosum* Rottl. ex Spreng. | Chinese chives |
| 145 | *Brassica oleracea* L. var. *acephala* (DC.) Alef. | Kale |
| 146 | *Cichorium intybus* L. | Chicory |
| 147 | *Prunus mume* Sieb. et Zucc. | Mume, Japanese apricot |
| 148 | *Begonia* x *hiemalis* Fotsch | Elatior begonia |
| 149 | *Begonia* x *tuberhybrida* Voss | Tuberous begonia |
| 150 | *Begonia* spp. | Foliage begonia |
| 151 | *Cichorium endivia* L. | Endive |
| 152 | *Saxifraga fortunei* | Saxifraga |
| 153 | *Beta vulgaris* L. var. *cicla* L.(Ulrich) | Leaf beet, Swiss chard |
| 154 | *Apium graveolens* L. | Celery |
| 155 | *Petroselinum crispum* Nym. ex Hill | Parsley |
| 156 | *Prunus salicina* Lindl. | Japanese plum |
| 157 | *Prunus armeniaca* L. | Apricot |
| 158 | *Flammulina velutipes* (Curtis) Singer | Winter mushroom |
| 159 | *Gaura* spp. | Gaura |
| 160 | *Cucurbita moschata* Duch. | Butternut |
| 161 | *Cucurbita maxima* Duch. | Pumpkin |
| 162 | *Setaria italica* (L.) Beauv. | Foxtail millet |
| 163 | *Sorghum bicolor* L. | Sorghum |
| 164 | *Pentas* Benth. | Pentas |
| 165 | *Fragaria* L. | Strawberry |
| 166 | *Argyranthemum frutescens* (L.) Sch. Bip. | Marguerite |
| 167 | *Brugmansia* spp. | Angel's trumpet |
| 168 | *Calibrachoa* spp. | Calibrachoa |
| 169 | *Calluna vulgaris* (L.) Hull | Scots heather |
| 170 | *Coreopsis* spp. | Tickseed |
| 171 | *Diascia* spp. | Diascia |
| 172 | *Hedera* spp. | Ivy |
| 173 | *Hypericum* spp. | St. Johnswort |
| 174 | *Lavandula* spp. | Lavender |
| 175 | *Matricaria* *recutita* | Camomile |
| 176 | *Muehlenbeckia* spp. | Mattress vine |
| 177 | *Nelumbo* spp. | Lotus |
| 178 | *Nymphaea* spp. | Water lily |
| 179 | *Ocimum* spp. | Basil |
| 180 | *Osteospermum* spp. | Daisybush |
| 181 | *Primula polyantha* | Elatior hybrid primroses |
| 182 | *Rhododendron simsii* Planch. | Pot Azalea |
| 183 | *Streptocarpus* spp. | Cape primrose |
| 184 | *Sutera* spp. | Sutera |
| 185 | *Tagetes* spp. | Marygold |
| 186 | *Alocasia* spp. | Alocasia |
| 187 | *Caladium* spp. | Caladium |
| 188 | *Calathea* spp. | Calathea |
| 189 | *Epipremnum* spp. | Epipremnum |
| 190 | *Euphorbia fulgens* | Scarlet-plume |
| 191 | *Euphorbia milii* | Crown of thorns |
| 192 | *Fittonia albivenis* | Fittonia |
| 193 | *Guzmania* spp. | Guzmania |
| 194 | *Opuntia* spp. | Opuntia |
| 195 | *Philodendron* spp. | Philodendron |
| 196 | *Schlumbergera truncata* | Crab cactus |
| 197 | *Spathiphyllum* spp. | Spathiphyllum |
| 198 | *Anigozanthos* Labill. | Kangaroo paw |
| 199 | *Belamcanda* spp. | Leopard lily |
| 200 | *Caryopteris* spp*.* | Caryopteris |
| 201 | *Catharanthus roseus* (L.) G. Don | Madagascar periwinkle |
| 202 | *Dahlia* spp*.* | Dahlia |
| 203 | *Epidendrum* spp*.* | Star orchid |
| 204 | *Iris ensata* | Japanese iris |
| 205 | *Lobelia* spp*.* | Lobelia |
| 206 | *Portulaca oleracea* L. | Purslane |
| 207 | *Torenia* spp*.* | Torenia |
| 208 | *Hypsizigus marmoreus* | Beech mushroom |
| 209 | *Agrocybe* spp. | Agrocybe |
| 210 | *Pholiota* spp. | Pholiota |
| 211 | *Grifola frondosa* | Dancing mushroom |
| 212 | *Bougainvillea* spp*.* | Bougainvillea |
| 213 | *Bouvardia* spp*.* | Bouvardia |
| 214 | *Crossandra* spp*.* | Crossandra |
| 215 | *Exacum* spp*.* | Exacum |
| 216 | *Fuchsia* spp*.* | Fuchsia |
| 217 | *Xerochrysum bracteatum* | Strawflower |
| 218 | *Lantana* spp*.* | Lantana |
| 219 | *Miltonia* spp*.* | Miltonia |
| 220 | *Odontoglossum* spp*.* | Odontoglossum |
| 221 | *Zygopetalum* spp*.* | Zygopetalum |
| 222 | *Astilbe* spp*.* | Astilbe |
| 223 | *Callistephus chinensis* | Chinese Aster |
| 224 | *Codiaeum* spp*.* | Croton |
| 225 | *Cosmos bipinnatus* | Cosmos |
| 226 | *Cupressus* spp*.* | Cupressus |
| 227 | *Oxalis* spp. | Oxalis |
| 228 | *Peperomia* spp. | Peperomia |
| 229 | *Saintpaulia ionantha* | African violet |
| 230 | *Tillandsia* spp*.* | Tillandsia |
| 231 | *Veronica* spp. | Veronica |
| 232 | *Chlorophytum* spp. | Chlorophytum |
| 233 | *Nertera granadensis* | Bead plant |
| 234 | *Cuphea hyssopifolia* | Cuphea |
| 235 | *Fatsia* spp. | Fatsia |
| 236 | *Mandevilla* spp. | Mandevilla |
| 237 | *Nemesia* spp. | Nemesia |
| 238 | *Neoregelia* spp. | Neoregelia |
| 239 | *Plectranthus scutellarioides* | Coleus |
| 240 | *Verbena* spp. | Verbena |
| 241 | *Yucca elephantipes* | Yucca |
| 242 | *Agapanthus* spp. | Agapanthus |
| 243 | *Angelonia* spp. | Angelonia |
| 244 | *Canna* spp. | Canna |
| 245 | *Curcuma* spp. | Curcuma |
| 246 | *Gloriosa* spp. | Gloriosa |
| 247 | *Gloxinia sylvatica* | Bolivian sunset |
| 248 | *Helleborus* spp. | Helleborus |
| 249 | *Lathyrus odoratus* | Sweet pea |
| 250 | *Ranunculus* spp. | Ranunculus |
| 251 | *Euphorbia hypericifolia* | Chickenweed |
| 252 | *Phyla nodiflora* | Capeweed |
| 253 | *Pulsatilla* spp. | Pasque flower |
| 254 | *Schefflera elegantissima* | false aralia |
| 255 | *Allium porrum* L. | Leek |
| 256 | *Allium sativum* L. | Garlic |
| 257 | *Angelica keiskei* | Angelica, Ashitava |
| 258 | *Beta vulgaris* L. | Beet root |
| 259 | *Zingiber officinale* Rosc. | Ginger |
| 260 | *Camellia sinensis* (L.) O. Kuntze | Tea |
| 261 | *Hippophae rhamnoides* L. | Common sea buckthorn |
| 262 | *Eryngium* spp. | Eryngo |
| 263 | *Parthenocissus* spp. | Parthenocissus |
| 264 | *Syngonanthus chrysanthus* | Syngonanthus |
| 265 | *Panicum miliaceum* L. | Common millet |
| 266 | *Vigna unguiculata* (L.) Walp subsp. *sesquipedalis* (L.) Verdc. | Asparagus bean |
| 267 | *Vicia faba* L. | Broad bean |
| 268 | *Morus* spp. | Mulberry |
| 269 | *Linum usitatissimum* L. | Flax, Linseed |
| 270 | *Asplenium* spp. | Asplenium |
| 271 | *Euonymus japonicus* | Evergreen euonymus |
| 272 | *Narcissus* spp. | Narcissus |
| 273 | *Pyrrosia* spp. | Felt fern |
| 274 | *Vaccinium corymbosum* L., *Vaccinium angustifolium* Aiton, *Vaccinium ashei* Reade | Blueberry |
| 275 | *Eriobotrya japonica* (Thunb.) Lindl. | Loquat |
| 276 | *Malpighia Emarginata* DC. | Acerola, Babados cherry |
| 277 | *Asparagus officinalis* L. | Asparagus |
| 278 | *Hibiscus rosa-sinensis* | Chinese hibiscus |
| 279 | *Viburnum tinus* | Laurustinus |
| 280 | *Hoya carnosa* | Waxplant |
| 281 | *Malus* Mill. | Apple Rootstocks |
| 282 | *Citrus* L. - Group 1 | Satsuma mandarin |
| 283 | *Ficus carica* L. | Fig |
| 284 | *Agaricus* L. | Button mushroom |
| 285 | *Vicia villosa* Roth. | Vetch(Hairy vetch) |
| 286 | *Pyrus communis* L. | European pear |
| 287 | *Prunus avium* L. | Sweet cherry |
| 288 | *Brachyscome* Cass. | Brachyscome |
| 289 | *Chamelaucium* Desf. | Waxflower |
| 290 | *Passiflora* spp. | Passion flower |
| 291 | *Pyracantha* spp. | Pyracanth |
| 292 | *Zamioculcas zamiifolia* | ZZ plant |
| 293 | *Hibiscus cannabinus* | Kenaf |
| 294 | *Aralia cordata* Thunb. | Araliaceae |
| 295 | *Prunus humilis* | Chinese dwarf cherry |
| 296 | *Phlox paniculata* L. | Perennial phlox |
| 297 | *Ipomoea nil* | Morning glory |
| 298 | *Momordica charantia* L. | Bitter gourd |
| 299 | *Cryptotaenia japonica* Hassk | Japanese cryptotaenia |
| 300 | *Psidium guajava* L. | Guava |
| 301 | *Rubus idaeus* L. | Raspberry |
| 302 | *Pyrus* L. | Pear rootstocks |
| 303 | *Ribes nigrum* L. | Black currant |
| 304 | *Punica granatum* | Pomegranate |
| 305 | *Trifolium repens* L. | White clover |
| 306 | *Miscanthus* spp. | Miscanthus |
| 307 | *Breynia disticha* | Breynia |
| 308 | *Primula malacoides* | Fairy primrose |
| 309 | *Paphiopedilum* | Lady's-slipper |
| 310 | *Aglaonema* spp. | Chinese evergreen |
| 311 | *Echeveria* spp. | Echeveria |
| 312 | *Lactuca indica* L. | Indian lettuce |
| 313 | *Stevia rebaudiana* | Stevia |
| 314 | *Tricholoma giganteum.* | Giant mushroom |
| 315 | *Boronia* spp. | Boronia |
| 316 | *Crassula ovata* | Jade plant |
| 317 | *Hebe* spp. | Hebe |
| 318 | *Ardisia* spp. | Ardisia |
| 319 | *Citrus L.* - Group 4 | Grapefruit |
| 320 | *Citrus L.* - Group 3 | Limes |
| 321 | *Citrus L.* - Group 2 | Sweet orange |
| 322 | *Citrus L.* - Group 5 | Trifoliate orange |
| 323 | *Prunus* L. | Prunus rootstocks |
| 324 | *Solanum nigrum* | Black nightshade |
| 325 | *Mangifera indica* L. | Mango |
| 326 | *Cynara cardumculus* L. | Artichoke, Cardoon |
| 327 | *Annona cherimola* Mill. | Cherimoya |
| 328 | *Coffea arabica,* C. *canephora* L., Pierre ex A. Froehner | Coffee |
| 329 | *Rebutia* spp. | Rebutia |
| 330 | *Delosperma* N.E.Br. | Delosperma |
| 331 | *Lithospermum erythrorhizon* Siebold et Zuc. | Redroot gromwell |
| 332 | *Echinochloa* spp. | Barnyardgrass |
| 333 | *Viola* spp. | Viola |
| 334 | *Scabiosa* spp. | Scabiosa |
| 335 | *Fortunella* Swingle | Kumquat |
| 336 | *Musa acuminata* Colla; *Musa* × *paradisiaca* L. | Banana |
| 337 | *Brassica oleracea* L. var. *gemmifera* DC. | Brussels sprouts |
| 338 | *Cucurbita maxima Duch. x Cucurbita moschata Duch.* | Cucurbita maxima x Cucurbita moschata |
| 339 | *Aronia Medik.* | Aronia |
| 340 | *Rubus subgenus Eubatus sect. Moriferi & Ursini* | Blackberry |
| 341 | *Salvia miltiorrhiza* | Redroot sage |
| 342 | *Boehmeria nivea* | Chinese silkplant |
| 343 | *Camelina sativa* | German sesame |
| 344 | *Pennisetum* spp. | Foxtail fountain grass |
| 345 | *Achillea* spp. | Yarrow |
| 346 | *Aster* spp. | Aster |
| 347 | *Sarcococca* spp. | Sweetbox |
| 348 | *Aloe* spp. | Aloe |
| 349 | *Magnolia* spp*.* | Magnolia |
| 350 | *Trachelospermum* spp. | Asiatic jasmine |
| 351 | *Craspedia* spp. | Craspedia |
| 352 | *Olea europaea* L. | Olive |
| 353 | *Litchi chinensis* Sonn. | Litchi |
| 354 | *Hylocereus undatus* (Haw.) Britton & Rose | Dragon Fruit |
| 355 | *Persea americana* Mill. | Avocado |
| 356 | *Ribes uva-crispa* L. | Gooseberry |
| 357 | *Syzygium samarangense* Merr. & L.M.Perry | Java apple |
| 358 | *Silene* spp. | Silene |
| 359 | *Sedum* spp*.* | Stonecrop |
| 360 | *Achyranthes* spp. | Achyranthes root |
| 361 | *Stokesia laevis* (Hill) Greene | Stokesia |
| 362 | *Ficus natalensis* Hochst. subsp. *leprieurii* C.C.Berg | Natal fig. |
| 363 | *Schefflera* spp. | Umbrella tree |
| 364 | *Dimocarpus longan* L., *Euphoria longan* Lour. | Longan |
| 365 | *Lonicera caerulea* L. | Blue honeysuckle |
| 366 | *Mesembryanthemum crystallinum* L. | Crystal iceplant |
| 367 | *Ricinus communis* L. | Castor bean |
| 368 | *Astrophytum* spp. | Astrophytum |
| 369 | *Carica papaya* L. | Papaya |
| 370 | *Senna* spp. | Senna |
| 371 | *Eleusine coracana*(L.) Gaertn. | Finger millet |
| 372 | *Oxypetalum coeruleum* (D. Don) Decne | Oxypetalum |
| 373 | *Helenium* spp. | Helenium |

[Annex VII follows]

UNITED KINGDOM

Report on the activity of the United Kingdom Plant Varieties and Seeds Office in Cambridge and the regional examination centres of NIAB, SASA and AFBI. The Plant Varieties and Seeds Office is part of the Science Directorate of the Animal and Plant Health Agency (APHA), an executive agency of the Department for Environment, Food and Rural Affairs (Defra). Contact details and phone numbers are available on Gov.uk website where all Government departments now have their website details.

Across all the United Kingdom trial stations, nearly 1500 candidate varieties were under test for Listing and/or PVR in the past year, including 302 winter oilseed rape, 297 cereals, 239 herbage and fodder, >350 ornamentals and the remainder potatoes, field beans, sugar beet, vegetables and kale. Applications in the agricultural sector for the coming season remain stable.

The ornamental trials consist of 150 Chrysanthemum varieties and 200 applications in a wide range herbaceous and woody species, with Clematis, Dahlia, Campanula, Hebe and Heuchera in significant numbers.

United Kingdom DUS testing complies with CPVO’s quality requirements with APHA and its TQB’s NIAB, SASA and AFBI achieving Entrustment from CPVO for designated species in October 2016 for the third audit running from 2010.

NIAB is pleased to have partnered with GEVES for the delivery of CPVO/APHA funded project ‘Test of the potential use of SNP markers on Oilseed Rape Varieties’. This was a pilot study with a positive outcome, the final report will be published by the CPVO and will be available on their website in due course.

[End of Annex VII and of document]