

Technical Working Party on Automation and Computer Programs TWC/38/11**Thirty-Eighth Session
Alexandria, United States of America, September 21 to 23, 2020****Original:** English
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REPORT

Document prepared by the Office of the Union

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Opening of the session

1. The Technical Working Party on Automation and Computer Programs (TWC) held its thirty-eighth session, hosted by the United States of America and organized by electronic means, from September 21 to 23, 2020. The list of participants is reproduced in Annex I to this report.
2. In the absence of Mr. Christophe Chevalier (France), Chairperson of the TWC, the session was opened by Mr. Nik Hulse (Australia), Chairperson of the Technical Committee, who welcomed the participants and thanked the United States of America for hosting the TWC session.
3. The TWC was welcomed by Ms. Ruihong Guo, Deputy Administrator, AMS, Science & Technology Program, United States Department of Agriculture (USDA) and received a presentation on Plant Variety Protection in the United States of America from Mr. Jeffery Haynes, Commissioner, Plant Variety Protection Office, USDA. A copy of the presentation is provided in Annex II to this report.
4. The TWC was chaired by Ms. Beate Rücker (Germany), Vice-Chairperson of the Technical Committee.

Adoption of the agenda

5. The TWC adopted the agenda as reproduced in document TWC/38/1 Rev..

Short reports on developments in plant variety protection

(a) *Reports on developments in plant variety protection from members and observers*

6. The TWC noted the information on developments in plant variety protection from members and observers provided in document TWC/38/3 Prov. The TWC noted that reports submitted to the Office of the Union after September 14, 2020, until September 23, 2020, would be included in the final version of document TWC/38/3.

(b) *Reports on developments within UPOV*

7. The TWC noted that the presentation from the Office of the Union on latest developments within UPOV would be provided in document TWC/38/2.

Development of TGP and information (INF) documents

8. The TWC considered documents TWP/4/1 and TWC/38/4.

Matters for adoption by the Council in 2020

9. The TWC noted the matters concerning documents TGP/5, TGP/7, TGP/14, TGP/15, UPOV/INF/12, UPOV/INF/16 and UPOV/INF/22 to be proposed for adoption by the Council at its fifty-fourth ordinary session, to be held in Geneva on October 30, 2020, subject to approval by the CAJ, at its seventy-seventh session, to be held in Geneva on October 28, 2020.

Possible future revisions of TGP documents and information documents

10. The TWC noted the matters concerning possible future revision of document TGP/8 and information document UPOV/INF/17, which would be considered under documents TWP/4/10, TWP/4/11 and TWP/4/7, respectively.

New proposals for revisions of TGP documents and information documents

TGP/7: Development of Test Guidelines

Links to relevant TGP documents guidance in Test Guidelines

11. The TWC noted the invitation to the TWPs to propose relevant guidance in TGP documents that could have links displayed in Test Guidelines.

Development of document UPOV/INF/23 “UPOV Code System”

12. The TWC noted that the CAJ, at its seventy-seventh session, to be held in Geneva on October 28, 2020, would consider the adoption of document UPOV/INF/23 “UPOV Code System”.

Program for the development of TGP documents and information documents

13. The TWC noted the program for the development of TGP documents and information documents, as set out in document TWP/4/1 Annexes V and VI, respectively.

TGP/8: Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability

Data processing for the production of variety descriptions for measured quantitative characteristics

14. The TWC considered documents TWP/4/10 and TWC/38/5.

15. The TWC considered the different approaches to convert observations into notes for producing variety descriptions for measured quantitative characteristics, as presented in document TWP/4/10, Annexes III to VII, and information, if any, that could facilitate their application.

16. The TWC agreed that the description of the Italian method provided in document TWP/4/10, Annex VII, should be replaced by the description provided in document TWC/38/5.

17. The TWC agreed that the information provided in document TWP/4/10 did not provide sufficient information to explain the situations when each method would and would not be suitable. The TWC agreed there were complex circumstances influencing the choice of method to be used for converting observations into notes and agreed to propose that the development of guidance be discontinued.

The Combined Over Years Uniformity Criterion (COYU)

18. The TWC considered documents TWP/4/11 and TWC/38/6.

19. The TWC noted the progress on software development for COYU and the timetable for evaluation of the software. The TWC noted that evaluation versions in both “R” and DUSTNT software would be released in November 2020 and agreed to invite members to participate in a test campaign until April 2021. The TWC noted the expression of interest by experts from China, Finland, France and the United Kingdom to review the new COYU software.

20. The TWC considered the proposed draft text for document TGP/8, Sections 9 and 10, as presented in the Annexes to document TWC/38/6. The TWC noted that editorial suggestions provided to the drafter from the United Kingdom had been incorporated in the proposed draft revision for document TGP/8, Section 9 “The Combined Over Years Uniformity Criterion (COYU)” as presented in the Annexes to document TWC/38/6.

21. The TWC agreed that document TGP/8 should include two sections on the COYU criterion: one for the superseded version (moving average); and another for the improved method (splines). The TWC agreed that both sections were required for providing guidance to users of the different versions of the method.

22. The TWC agreed the following amendments to the draft guidance in Annex I to document TWC/38/6:
- Title: to be amended to read: “9. THE COMBINED-OVER-YEARS UNIFORMITY CRITERION (COYU) – SUPERSEDED VERSION (MOVING AVERAGE)”
 - Section 9.1: to amend last paragraph to read: “This section describes the previous version of COYU, which since 2020 has been superseded by an improved method using splines. It is recommended that the improved version be used. Please see TGP/8, section 10 “The Combined-over-years uniformity criterion (COYU) – improved version (splines)”.”
 - To delete superfluous references to COYD throughout the section
23. The TWC agreed the following amendments to the draft guidance in Annex II to document TWC/38/6:
- Title: to be amended to read: “10. THE COMBINED-OVER-YEARS UNIFORMITY CRITERION (COYU) – IMPROVED VERSION (SPLINES)”
 - Section 10.1: to amend last paragraph to read: “This section describes the improved method of COYU using splines, which supersedes the previous version (see TGP/8, section 9 “The Combined-over-years uniformity criterion (COYU) – superseded version (moving average)”. It is recommended that this improved version be used.”
 - Section 10.4.1, third element to read as follows: “Estimation of the relationship between the SD and mean in each year. The method used is based on splines fitted to log SDs of comparable varieties.”
 - To delete superfluous references to COYD throughout the section
 - Paragraph 10.7.2 to read “early acceptance” instead of “early rejection” (see also TWC/35/6 paragraph 23)
 - Paragraph 10.8.4 to clarify paragraph: “...example set out in section **10.11**...” instead of “...example set out in section 10.8...”
 - Annex II, page 13, Fig.3, to read: “Decision after 3rd cycle non uniform $pu_3=0.003$ ” instead of “Decision after 3rd cycle non uniform $pu_3=0.03$ ”
24. The TWC agreed that, once incorporated the amendments above, the draft guidance provided in Annexes I and II to document TWC/38/6 should be proposed to the Technical Committee for inclusion in a future revision of document TGP/8.

Information and databases

(a) *UPOV information databases*

25. The TWC considered document TWP/4/4.

UPOV Code System

UPOV code developments

26. The TWC noted that 208 new UPOV codes had been created in 2019 and a total of 9,049 UPOV codes were included in the GENIE database.

Exceptions to UPOV codes in the “Guide to the UPOV Code System”

27. The TWC noted that the TC, at its fifty-fifth session, had agreed to postpone the amendment to the “Guide to the UPOV Code System” and to explore alternative solutions to enable UPOV Codes to provide useful information on variety groups or types for DUS testing purposes and to invite the Office of the Union to prepare a document with proposals, for consideration at its fifty-sixth session.

28. The TWC noted the developments concerning alternative solutions to enable UPOV Codes to provide useful information on variety groups or types for DUS testing purposes.

UPOV code amendments agreed by the TC at its fifty-fifth session

29. The TWC noted that the TC, at its fifty-fifth session, had agreed to amend the UPOV codes for the genera and species set out in document TWP/4/4, Annex IV.

TWP checking

30. The TWC noted the invitation to check the amendments, new UPOV codes or information, and UPOV codes used in the PLUTO database for the first time, as reproduced in document TWP/4/4, Annex V, and submit comments to the Office of the Union by December 31, 2020.

ISTA Nomenclature Committee

31. The TWC noted that the “ISTA List of Stabilized Plant Names” with relevant UPOV codes had been published in January 2020.

PLUTO database

Program for improvements to the PLUTO database

32. The TWC noted that the TC and the CAJ, at their sessions in 2019, had approved the revision of the “Program for improvements to the PLUTO database” to reflect the change of the acceptable character set to accept accents and special characters in denominations in the PLUTO database (ISO/IEC Standard 8859 1: 1998).

Summary of contributions to the PLUTO database from 2016 to 2019

33. The TWC noted the summary of data contributions from members of the Union to the PLUTO database from 2016 to 2019, as presented in document TWP/4/4, Annex VI.

(b) Variety description databases

34. The TWC considered document TWP/4/2.

35. The TWC noted that members of the Union had been invited to report to the TWPs on work concerning the development of databases containing morphological and/or molecular data.

36. The TWC noted the reports made at the BMT meeting on databases containing morphological and/or molecular data.

37. The TWC noted that a report from the Netherlands on the development of databases for different crops had been made available in document TWC/38/3 “Report on plant variety protection from members and observers.”

(c) Exchange and use of software and equipment

38. The TWC considered document TWP/4/5.

Document UPOV/INF/16 “Exchangeable Software”

39. The TWC noted that the Office of the Union had issued on April 14, 2020, Circular E-20/031 inviting the designated persons of the members of the Union in the TC to provide or update information regarding the use of the software included in document UPOV/INF/16.

40. The TWC noted that no new software had been proposed for inclusion in document UPOV/INF/16 in response to Circular E-20/031.

41. The TWC noted that the TC, at its fifty-sixth session, would be invited to consider whether to include the “Off-type calculation software” in document UPOV/INF/16, as proposed by the TWC at its thirty-seventh session.

Document UPOV/INF/22 “Software and equipment used by members of the Union”

42. The TWC noted that the Council, at its fifty-third ordinary session, held in Geneva, on November 1, 2019, had adopted document UPOV/INF/22/6 “Software and equipment used by members of the Union”.

43. The TWC noted that the Office of the Union had issued on April 14, 2020, Circular E-20/031 inviting the designated persons of members of the Union in the TC to provide or update information in document UPOV/INF/22.

44. The TWC noted that the TC, at its fifty-sixth session, would be invited to consider whether to include any proposed software or equipment in document UPOV/INF/22 or whether to request further guidance from other relevant bodies.

Availability of documents UPOV/INF/16 “Exchangeable software” and UPOV/INF/22 “Software and equipment used by members of the Union” in a searchable form

45. The TWC noted that the information in documents UPOV/INF/16 and UPOV/INF/22 had been made available in a searchable format on the UPOV website.

(d) UPOV PRISMA

46. The TWC considered document TWP/4/3 and noted the developments concerning UPOV PRISMA.

Statistical analysis software “DUS Excel”

47. The TWC considered document TWC/38/9.

48. The TWC received a presentation on “A statistical analysis software DUSCEL 2.0” from an expert from China, a copy of which is provided in document TWC/38/9.

49. The TWC noted the developments on the software and that a user’s manual would be prepared. The TWC agreed that interested experts should contact China for a demonstration session.

50. The TWC noted the offer from China for the future inclusion of software DUSCEL 2.0 in document UPOV/INF/16 “Exchangeable software.”

Tools and methods for DUS examination

Presentation of the PATHOSTAT application

51. The TWC considered document TWC/38/7 and received a presentation on the PATHOSTAT application from an expert from France. A copy of the presentation is provided in document TWC/38/7 along with a user manual for the application.

52. The TWC noted that the application was available for download and agreed to invite participants to contact the expert from France for cooperation and using the application.

Comparison of results obtained for COYD and COYU procedures using different software

53. The TWC considered document TWC/38/8 Rev.

A common data set for comparison of software for COYD and COYU

54. The TWC considered document “A common data set for comparison of software for COYD and COYU”, a copy of which is provided in document TWC/38/8 Rev., Annexes I and III.

55. The TWC thanked the experts from the United Kingdom for providing a common data set to allow comparisons of software for both COYD and COYU, as provided in an Excel file on the TWC/38 website.

56. The TWC agree to invite participants to carry out COYD and COYU tests using the three-years data provided by the United Kingdom with probability levels of 0.01 for COYD and 0.001 for COYU (or 0.003 in case of the new version of COYU).

57. The TWC noted the expressions of interest to participate in the comparison of software by the experts from China, France, Kenya and the United Kingdom. The TWC agreed to invite the expert from France to coordinate the comparison of software and report to the TWC, at its thirty-ninth session.

Result of COYD and COYU calculated using software DUSCEL 2.0

58. The TWC received a presentation from an expert from China on the results of COYU and COYD calculated using the software DUSCEL 2.0 using the common data set provided by the experts from the United Kingdom. A copy of the presentation is provided in document TWC/38/8 Rev., Annexes II and IV.

Phenotyping and image analysis

Toward numerical practices in variety testing: A rationale to select the most promising traits

59. The TWC considered document TWC/38/10 and received a presentation on “Toward numerical practices in variety testing: A rationale to select the most promising traits” from an expert from France.

60. The TWC agreed to invite the experts from France to provide an update on developments in the project reported at the thirty-ninth session of the TWC.

Molecular techniques

61. The TWC considered document TWP/4/7.

Developments at the eighteenth session of the Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular

62. The TWC noted the papers presented at the eighteenth session of the BMT, held in 2019, as set out in document TWP/4/7, paragraph 12.

63. The TWC noted that the BMT would hold its nineteenth session in Alexandria, Virginia, United States of America, jointly with TWC, during the week of September 21, 2020.

64. The TWC noted the draft agenda for the BMT at its nineteenth session, to be held in 2020, as set out in document TWP/4/7, paragraph 14.

Revision of document UPOV/INF/17 “Guidelines for DNA-Profiling: Molecular Marker Selection and Database Construction (‘BMT Guidelines’)”

65. The TWC noted the proposal by the TWV for the BMT to develop guidance in document UPOV/INF/17 on elements to be included in a protocol of a DNA marker assay for a specific characteristic.

66. The TWC noted the changes agreed by the BMT to document UPOV/INF/17, as reproduced in document TWP/4/7, Annex II.

67. The TWC noted that the TC had agreed to invite the European Union, France and the Netherlands to prepare a new draft of document UPOV/INF/17 for consideration of the BMT, at its nineteenth session.

Cooperation between international organizations

Inventory on the use of molecular marker techniques, by crop

68. The TWC noted that the TC, at its fifty-fifth session, had agreed the elements for the inventory on the use of molecular marker techniques, by crop, as set out in document TWP/4/7, paragraph 40.

69. The TWC noted that circular would be issued to request members of the Union to complete a survey as a basis to develop an inventory on the use of molecular marker techniques, by crop, in coordination with the OECD.

Lists of possible joint initiatives with OECD and ISTA in relation to molecular techniques

70. The TWC noted that that the TC, at its fifty-fifth session, had agreed:

- (a) for joint OECD, UPOV, ISTA workshops to be repeated in future, as a possible joint initiative in relation to molecular techniques;
- (b) to propose a joint initiative that each organization inform the others about use of molecular markers in their work; and
- (c) that information from the survey on the techniques could help to clarify techniques that were considered to be biochemical or molecular.

Joint document explaining the principal features of the systems of OECD, UPOV and ISTA

71. The TWC noted that that the TC, at its fifty-fifth session, had agreed that relevant elements from the World Seed Partnership and the FAQ on the use of molecular techniques in the examination of DUS, would be a suitable basis for the Office of the Union to develop a draft of a joint document explaining the principal features of the systems of OECD, UPOV and ISTA, in consultation with OECD.

Session to facilitate cooperation in relation to the use of molecular techniques

72. The TWC noted that the TWPs and BMT, at their sessions in 2019, had formed discussion groups to allow participants to exchange information on their work on biochemical and molecular techniques and explore areas for cooperation.

73. The TWC noted the outcomes of discussions at the TWPs and BMT on facilitating cooperation in relation to the use of molecular techniques, as presented in document TWP/4/7, Annex IV.

International cooperation in examination

74. The TWC considered document TWP/4/9.

Identification of contact persons for international cooperation in DUS examination

75. The TWC noted the list of persons to be contacted for matters concerning international cooperation in DUS examination, provided in document TWP/4/9, Annex I, and on the UPOV website.

76. The TWC noted that UPOV members would be invited to update information on a person(s) to be contacted for matters concerning international cooperation in DUS examination every year when invited to provide information for document TC/[xx]/4 "List of genera and species for which authorities have practical experience in the examination of distinctness, uniformity and stability".

Proposals to overcome technical concerns in relation to cooperation

77. The TWC noted that the TC, at its fifty-fifth session, had considered the outcomes of discussions held at the TWPs and the proposals to address the concerns raised, as set out in document TWP/4/9, Annex II.

78. The TWC noted the synthesis of concerns and proposals by the TWPs, as set out in document TWP/4/9, paragraph 19.

79. The TWC noted that the Office of the Union would prepare a coherent plan for consideration by the TC, at its fifty-sixth session, based on the proposals in document TWP/4/9, paragraph 20, to address the concerns raised by the TWPs and to propose how to assess the impact of the plan.

80. The TWC noted that the TC had agreed that TWP sessions should be used to develop cooperation among members to a greater extent.

Organization of work of the TWC and BMT

81. The TWC considered document TWP/4/12.

82. The TWC considered the draft terms of reference for a possible single body to encompass the work of the TWC and BMT, as set out in document TWP/4/12, paragraph 20.

83. The TWC agreed that the merger of the TWC and BMT would be an opportunity to address the topics of common interest to both groups.
84. The TWC noted the range of elements covered in the draft terms of reference and agreed to caution against the reduction of depth in technical discussions. The TWC agreed that the new body should maintain the level of relevance on discussions to avoid reducing the interest for experts to participate.
85. The TWC agreed that new ways of conducting meetings could be considered to facilitate attendance by experts from different disciplines. This might incorporate the possibility to participate by remote means and creating working groups for specific topics.
86. The TWC agreed to propose a regular review of the creation of a single body to encompass the work of the TWC and BMT to address any issues accruing from the merger.

Date and place of the next session

87. At the invitation of the United States of America, the TWC agreed to hold its thirty-ninth session in Alexandria, Virginia, jointly with the BMT, during the week of September 20, 2021.

Future program

88. The TWC proposed to discuss the following items at its next session:
1. Opening of the Session
 2. Adoption of the agenda
 3. Short reports on developments in plant variety protection:
 - (a) Reports from members and observers (written reports to be prepared by members and observers)
 - (b) Report on developments within UPOV (oral report by the Office of the Union)
 4. Tools and methods for DUS examination (documents invited)
 - (a) Comparison of results obtained for COYD and COYU procedures using different software (document to be prepared by France)
 - (b) Development of software for the improved COYU method (splines) (document to be prepared by the United Kingdom)
 5. Phenotyping and image analysis (documents invited)
 6. Consideration of genotype by environment interaction and its impact in DUS testing (document to be prepared by Finland and Italy and documents invited)
 7. Development of guidance and information materials (documents to be prepared by the Office of the Union)
 8. Exchange and use of software and equipment (documents invited)
 9. Information and databases (documents invited)
 - (a) UPOV information databases (document to be prepared by the Office of the Union)
 - (b) Variety description databases (document to be prepared by the Office of the Union and documents invited)
 - (c) UPOV PRISMA (document to be prepared by the Office of the Union)
 10. Molecular Techniques and bioinformatics (document to be prepared by the Office of the Union and documents invited)
 11. Date and place of the next session
 12. Future program
 13. Adoption of the Report on the session (if time permits)
 14. Closing of the session

89. *The TWC adopted this report at the end of its session.*

[Annexes follow]

LIST OF PARTICIPANTS

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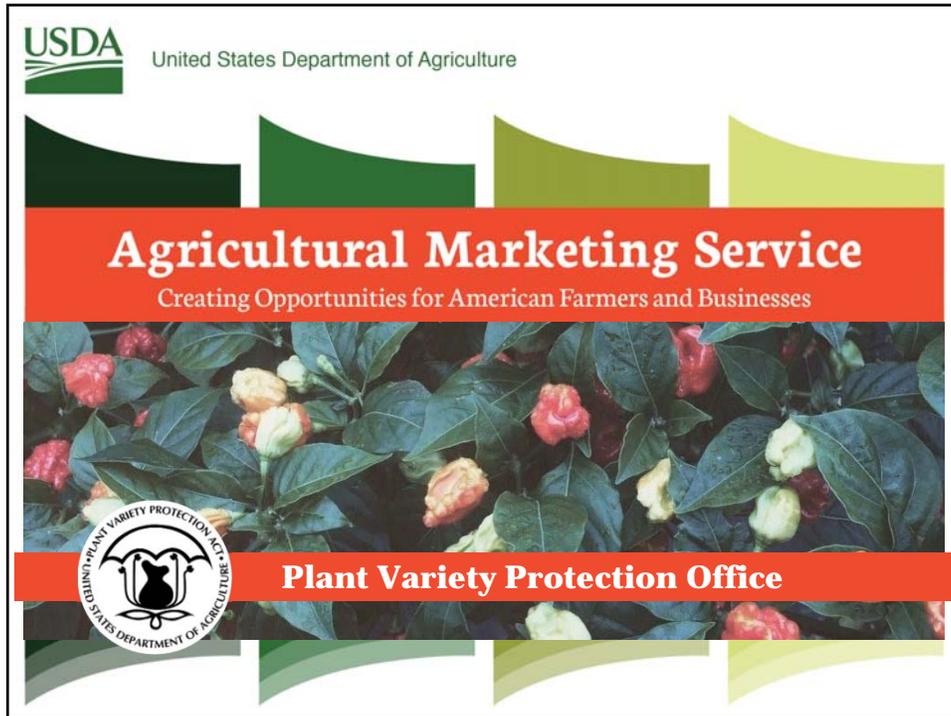
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[Annex II follows]



Plant Variety Protection Office

US Plant Intellectual Property Rights (IPR)

US Dept. of Agriculture Plant Variety Protection Office	US Dept. of Commerce Patent and Trademark Office
<ul style="list-style-type: none">• PVP Certificate<ul style="list-style-type: none">⑩- Seed, Tuber, and Asexually reproduced plants⑩-----• Applications accepted for varieties sold less than one year in the US and four years Internationally• Essentially Derived Varieties (EDV) allowed by law• No annual maintenance fee	<ul style="list-style-type: none">• Plant Patents<ul style="list-style-type: none">⑩- Asexually reproduced plants• Utility Patents<ul style="list-style-type: none">⑩- Genes, traits, methods, plant parts and plants⑩-----• Must be filed within one year of the date of sale or a barring event (such as an offer for sale)• EDVs are not covered by Patent law• Maintenance fees required for Utility Patent

Plant Variety Protection Office

US Plant Variety Protection Office

- Administers the Plant Variety Protection Act
- User Fee Funded
- Located at the USDA Headquarters (South Building) in Washington, DC
- 9 staff members



www.ams.usda.gov/PVPO



Agricultural Marketing Service

Plant Variety Protection (PVP)

- The 2018 Farm Bill amendment to the PVP Act to include asexually reproduced varieties has been fully implemented
- US now grants PVP to sexually and tuber propagated, and asexually reproduced plant varieties
- Germplasm deposits are required for all applications, with a delay for asexually reproduced varieties till 2023



Plant Variety Protection Office

Asexually Reproduced Plant Applications

- The program started accepting asexually reproduced plant applications on January 6, 2002
- Application forms follow the UPOV Test Guidelines
- PVPO has developed 32 asexually reproduced crop forms so far following the UPOV Test Guidelines
- Additional crop forms will be developed as they are requested

Asexually Reproduced Plant Applications

- **Hemp** variety 'HURV2019CKH'
- **Blackberry** varieties 'Aketzali' and 'Amelali'
- **Raspberry** variety 'Frida'
- **Calibrachoa** variety 'SAKCAL115'
- **Nightshade** variety 'Hervit 153'
- **Orange** variety 'M 4'
- **Grapevine** variety 'C3335'
- **Apple** variety 'BPN02'
- **Magnolia** variety 'Xiaoxuan'

Asexually Reproduced Plant Site Examination

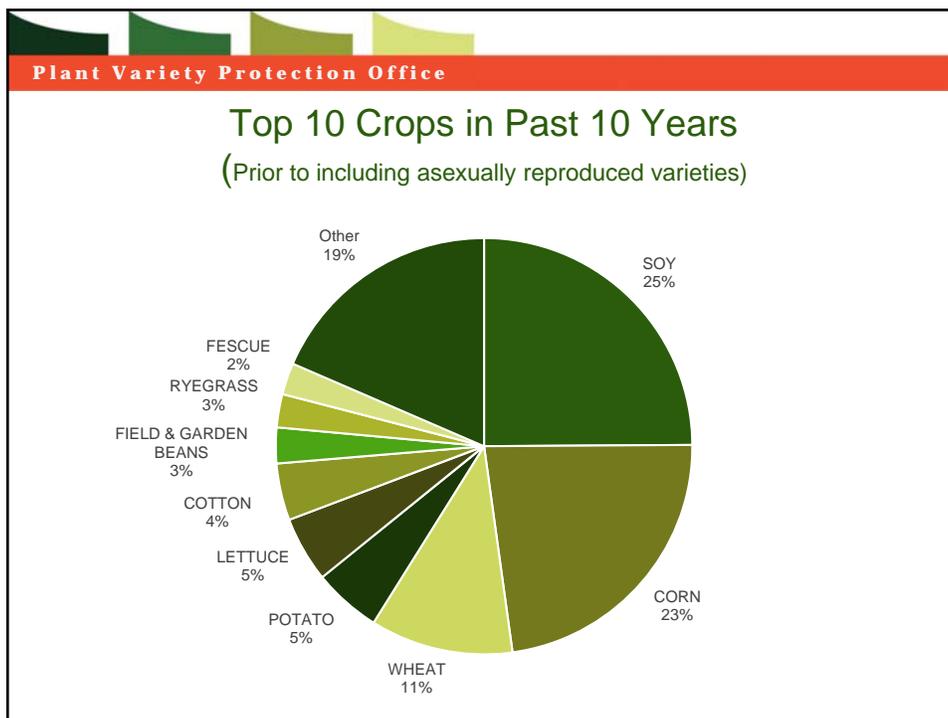
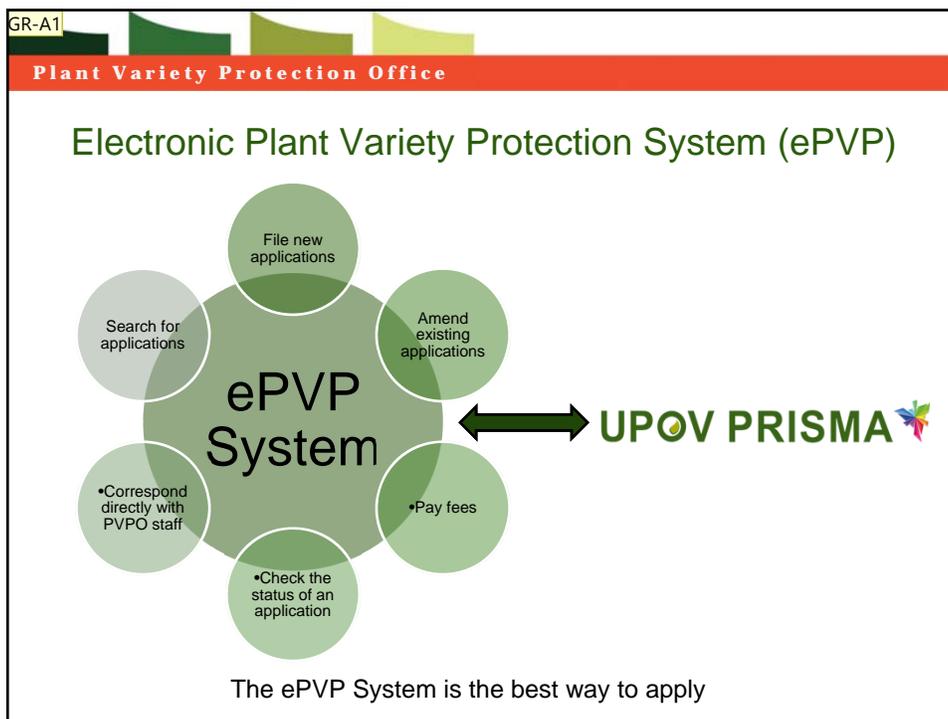
- A pilot project at conceptualization stage
- Goal:
 - Augment the current US breeder-run testing system by conducting an independent onsite trial examination of certain asexually reproduced plants
- Objectives:
 - Voluntary participation
 - Develop and introduce a DUS report that accords with UPOV
 - Achieve acceptance of US DUS reports by major UPOV countries

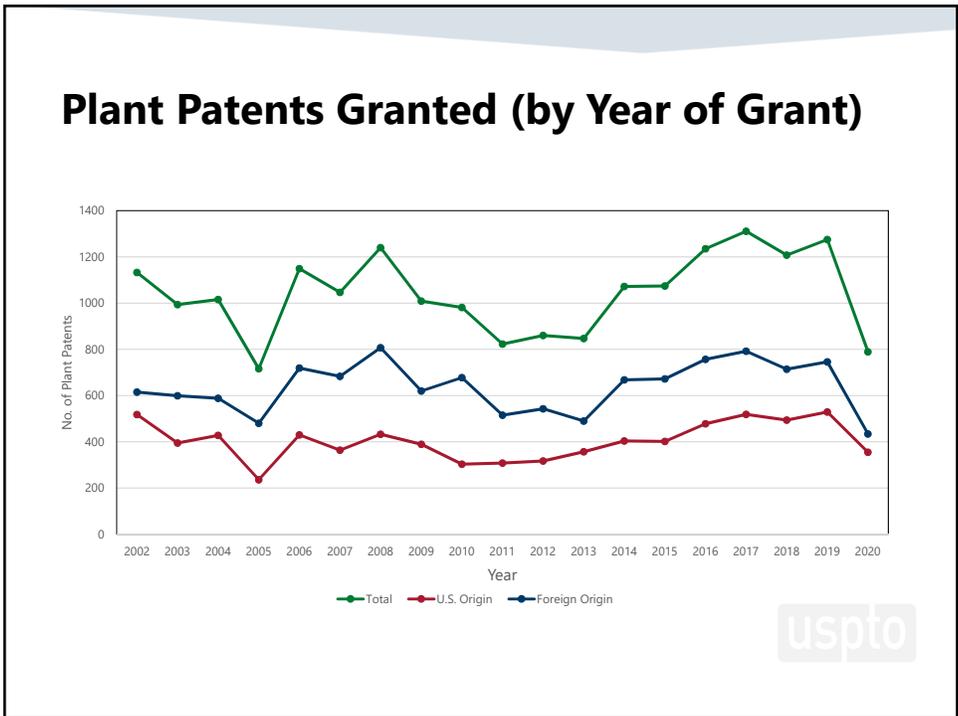
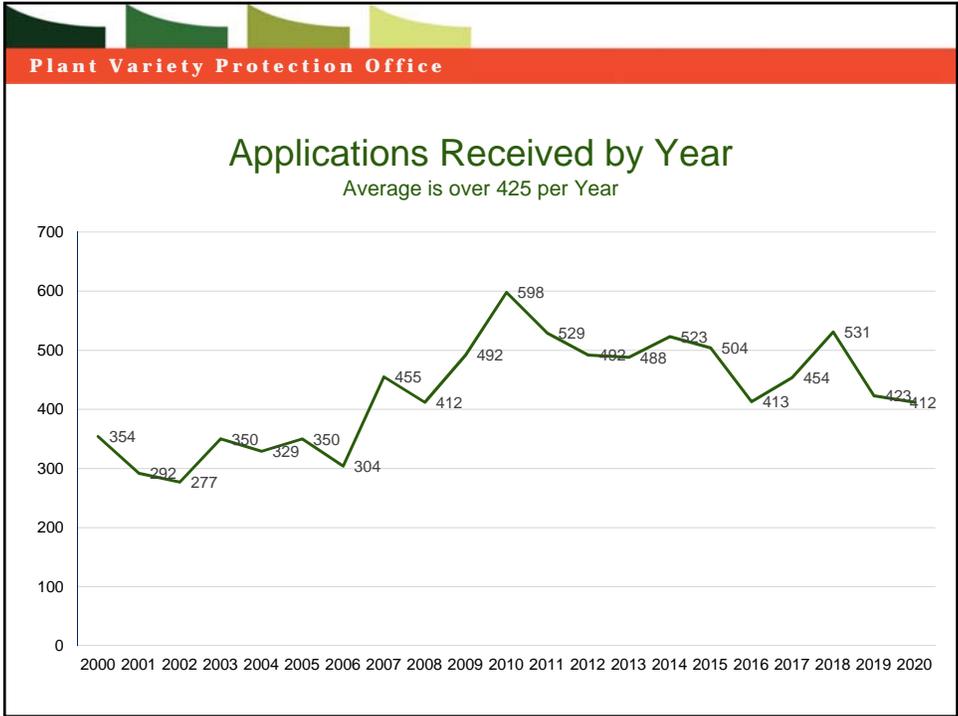
DUS Reports from Other Member States

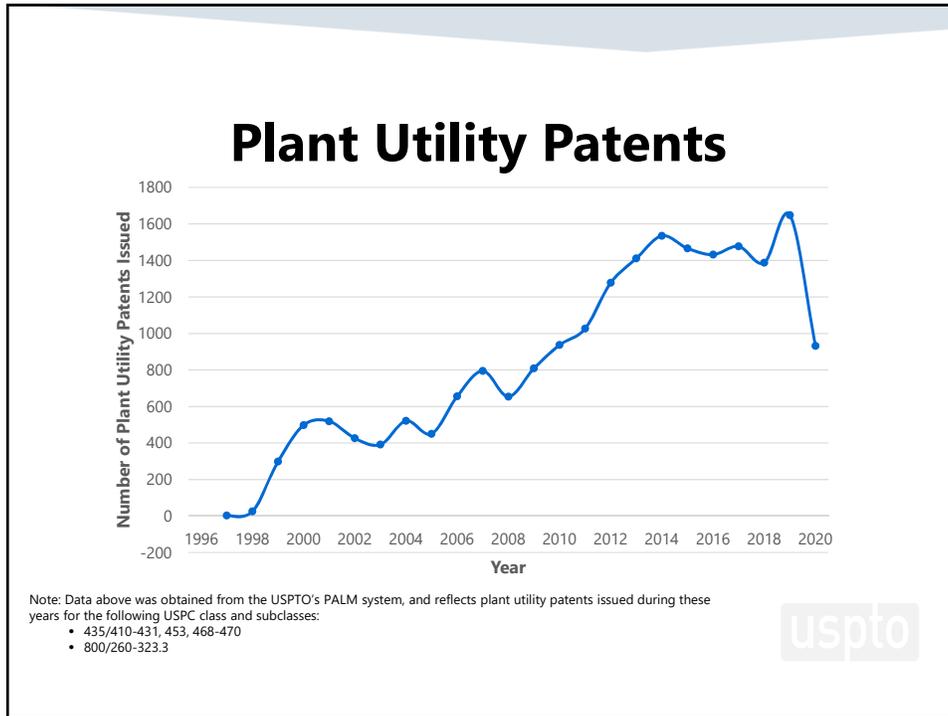
- DUS reports have been accepted for Lettuce, Pepper, Apple, Basil, Kale, and Chickpea varieties
- The DUS report replaces the requirement of submitting a complete Exhibit C form during the application process
- This can eliminate the need to perform additional grow-out trials; applicants should check with the PVPO early to ensure the report is acceptable
- The remainder of the application requirements is basic information about the owner, agent, variety and breeding history

Lettuce Project

- The PVPO and Naktuinbouw of The Netherlands collaborated to create a hybrid form to be used for lettuce EU applications targeted for US plant protection
- The two authorities reviewed the additional characteristics required by the US form and eliminated many to streamline the process
- The new hybrid form was tested on new varieties in 2019 with great success
- The Lettuce Project was completed and implemented in February of this year
- Applicants of lettuce varieties enjoy a reduction in the number of DUS trials required by Naktuinbouw and a reduction in expenses







Agricultural Marketing Service

Creating Opportunities for American Farmers and Businesses





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