



TWA/43/27

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# INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

## TECHNICAL WORKING PARTY FOR AGRICULTURAL CROPS

### Forty-Third Session

Mar del Plata, Argentina, November 17 to 21, 2014

### REPORT

*adopted by the Technical Working Party for Agricultural Crops*

*Disclaimer: this document does not represent UPOV policies or guidance*

1. The Technical Working Party for Agricultural Crops (TWA) held its forty-third session in Mar del Plata, Argentina, from November 17 to 21, 2014. The list of participants is provided in Annex I to this report.
2. The TWA was welcomed by Mr. Raimundo Lavignolle, President of the Directorate of the National Seed Institute (INASE). The TWA received a presentation on plant variety protection in Argentina by Mr. Alberto Ballesteros, Examiner for cereal, cotton, rice and forage crops, a copy of which is provided in Annex II to this report.
3. The session was opened by Mrs. Robyn Hierse (South Africa), Chairperson of the TWA, who welcomed the participants, in particular new participants to the TWA, and thanked Argentina for hosting the TWA session.
4. The TWA expressed its condolences for the sad loss of Mr. François Boulineau, France, Chairman of the Technical Working Party for Vegetables (TWV), who had died on December 23, 2013. It was recalled that, in addition to being Chairman of the TWV, Mr. Boulineau had brought great experience and expert knowledge to UPOV's technical work and was a leading expert for a number of important UPOV Test Guidelines.

#### Adoption of the Agenda

5. The TWA adopted the agenda as presented in document TWA/43/1 Rev.

#### Short Reports on Developments in Plant Variety Protection

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

6. The TWA noted the information on developments in plant variety protection from members and observers provided in document TWA/43/25 Prov. The TWA noted that reports submitted to the Office of the Union after November 10, 2014, would be included in the final version of document TWA/43/25.
7. The TWA received a presentation by an expert from Brazil on a project to harmonize example varieties in wheat, soy bean and rice among Argentina, Brazil, Bolivia, Chile, Colombia, Paraguay and Uruguay, a copy of which is provided in document TWA/43/25.

*(b) Reports on developments within UPOV*

8. The TWA received a presentation from the Office of the Union on latest developments within UPOV, a copy of which is provided in document TWA/43/24.

Improving the effectiveness of the Technical Committee, Technical Working Parties and Preparatory Workshops

9. The TWA considered document TWA/43/11.

10. The TWA noted the measures implemented at the TWP sessions in 2013, for improving the effectiveness of the TWPs, as set out in paragraph 10 of document TWA/43/11.

11. The TWA noted the results of the surveys in 2013 presented in document TWA/43/11, paragraphs 11 and 12 and in Annex I.

12. The TWA noted the survey of TWP participants in 2014, as set out in Annex II to document TWA/43/11.

13. The TWA considered the proposals concerning possible means of improving the effectiveness of the TWPs and the Preparatory Workshops, presented in the table in paragraph 26 of document TWA/43/11 and made the following comments:

Proposal		Comment
Technical Working Parties		
General		
(a)	conduct a survey of TWP participants in 2014 in order to identify further areas for improvement and to obtain feedback on the effectiveness of measures already taken	<ul style="list-style-type: none"> <li>second survey would be more effective in gathering views from more participants.</li> <li>separate analysis should be prepared according to the number of sessions a respondent has participated. Respondents may have different views according to experience in UPOV meetings</li> </ul>
(b)	review the TWP invitations in order to ensure that information is disseminated to all appropriate persons	<ul style="list-style-type: none"> <li>list of designated persons for each UPOV member should be made easily available for information</li> <li>host country should be prepared to issue personalized invitation letters for visa purposes, if necessary.</li> </ul>
(c)	in order to encourage greater participation by all participants in the TWP sessions, to request participants at the beginning of the session to introduce themselves and to briefly (in 30 seconds) report the most important issue they faced at that time. Matters of broad interest could then be considered for further discussion at an appropriate time	<ul style="list-style-type: none"> <li>not supported in the format proposed</li> <li>pressing issues should be included in a separate part of the country report.</li> <li>discussions on relevant issues identified should be included in the agenda for upcoming sessions to allow sufficient time for preparation.</li> </ul>
(d)	organize presentations by experts of members of the Union on topical and relevant matters	<ul style="list-style-type: none"> <li>this approach is currently used and should be continued</li> <li>item should be introduced in the agenda for next session</li> <li>discussions should be structured with sharing of information (presentation or document) in advance of the session</li> </ul>
(e)	request hosts to provide: <ul style="list-style-type: none"> <li>name badges for all participants (including local participants),</li> <li>a large poster board with the participant names and photographs and a space for each participant to indicate their area of particular interest (specifically including local participants),</li> <li>a notice board for host announcements (e.g. visits),</li> <li>2 projector screens in large rooms (at opposite ends of room)</li> </ul>	<ul style="list-style-type: none"> <li>name badges are important</li> <li>other items could be used at the discretion of the host but should not be compulsory</li> <li>guidance for hosts should mention that size of table for participants should allow sufficient space to work</li> <li>area of expertise could be included in the list of participants</li> <li>hosts could create mailing lists and social media for sharing information</li> </ul>

Proposal		Comment
	include hyperlinks to locate agenda items in the agenda and program for the week	<ul style="list-style-type: none"> <li>to facilitate localizing documents</li> </ul>
TWP documents		
(f)	provide a summary of the purpose and proposed decisions at the beginning of TWP documents	<ul style="list-style-type: none"> <li>general support for inclusion of executive summary</li> <li>comments by other TWP are useful to summarize discussions</li> </ul>
(g)	post documents sufficiently in advance of the meetings	<ul style="list-style-type: none"> <li>to establish deadlines for posting documents online</li> <li>documents later than certain number of weeks prior to TWP session (e.g. 2 weeks) should be removed from agenda</li> </ul>
(h)	continue to include decision paragraphs in TWP documents	<ul style="list-style-type: none"> <li>general support to keep decision paragraphs</li> </ul>
(i)	minimize the time for presentation of documents, particularly where presented for information only	<ul style="list-style-type: none"> <li>all documents should be allowed sufficient time for presentation even if for information only.</li> <li>documents that inform about work being developed in other TWPs should be presented</li> </ul>
Test guidelines		
(j)	request TWP designated persons to make proposals for new or revised Test Guidelines in advance of the TWP session	<ul style="list-style-type: none"> <li>TWP designated person could be requested to make proposals which should be presented during the TWP session.</li> </ul>
(k)	circulate the proposed schedule of TG to be discussed during the session to TWP participants one week before the TWP session	<ul style="list-style-type: none"> <li>draft program of the week should be circulated before the TWP session</li> </ul>
(l)	improve preparation of Test Guidelines and presentation of Test Guidelines at TWPs by the Leading expert by: <ul style="list-style-type: none"> <li>training (e.g. electronic training workshops, including the use of the Web-based TG template, and guidance on the presentation of Test Guidelines at the sessions),</li> <li>providing UPOV comments in advance</li> </ul>	<ul style="list-style-type: none"> <li>subgroups with small number of interested experts should be balanced with participation of more experienced participants</li> <li>to provide a forum for information for Leading Experts</li> <li>to discuss some Test Guidelines during plenary sessions to create capacity among participants</li> <li>to have two experts for presenting complex Test Guidelines</li> <li>to visit trials on Test Guidelines under discussion and address specific issues in the field, if possible</li> </ul>
TGP documents		
(m)	request participants to provide their comments on TGP documents in advance of the TWP session, according to a specified date	<ul style="list-style-type: none"> <li>proposal not supported</li> <li>feasible only for documents that could be available online 6 weeks before the meeting.</li> <li>should be requested in particular cases only</li> <li>useful for participants who could not attend a session or wish to comment in written.</li> <li>could reduce importance of attendance to meetings</li> <li>it should be avoided that written comments submitted in advance replace discussions during the meeting.</li> </ul>
(n)	organize a separate, annual meeting of a working group to discuss TGP documents in the week before the TC sessions in Geneva. The meetings would be open to all TC and TWP designated persons and consideration would be given to the possibility to view the meeting electronically	<ul style="list-style-type: none"> <li>proposal not supported</li> <li>would not increase attendance</li> <li>discussion on TGP documents requires inputs from crop experts during TWP sessions</li> </ul>
(o)	in conjunction with this approach, to report on significant developments at TWPs, without detailed discussion of individual TGP documents	<ul style="list-style-type: none"> <li>proposal not supported</li> </ul>
	to reduce the amount of time used to discuss TGP documents	<ul style="list-style-type: none"> <li>to allow time for discussion on technical matters relating to implementing the PVP system</li> </ul>
Technical visit		
(p)	conduct a survey of TWP participants of their requirements for technical visits	<ul style="list-style-type: none"> <li>survey should seek preferences or interests from experts for technical visit.</li> <li>outcomes of survey should not become a requirement for hosts of Technical Working Parties</li> </ul>

Proposal		Comment
Preparatory Workshops		
(a)	if the length of time spent on TGP and information documents is reduced, to hold the preparatory workshops on Monday in order to encourage all TWP participants to attend the Preparatory Workshop	<ul style="list-style-type: none"> <li>• approach not supported</li> <li>• would reduce time of discussions during TWP session</li> <li>• to review the purpose of the preparatory workshop for training on UPOV system.</li> <li>• could be used to introduce particular topics to be further discussed during the session</li> </ul>
(b)	to use more, shorter presentations and use experts from members of the Union as presenters	<ul style="list-style-type: none"> <li>• general support for using shorter presentations and more practical exercises</li> <li>• to revise the content of the preparatory workshop</li> <li>• could include or detail specific topics from online distance training courses DL-205 and DL-305</li> </ul>
(c)	to continually renew exercises for existing topics	<ul style="list-style-type: none"> <li>• general support for renewing exercises</li> </ul>
(d)	to organize small groups of participants with different levels of experience for the group exercises	<ul style="list-style-type: none"> <li>• useful to have to have a more experienced participant in the groups</li> </ul>

### TGP Documents

14. The TWA considered the TGP documents below on the basis of documents TWA/43/3 and TWA/43/3 Add.

#### *Matters for adoption by the Council in 2014*

15. The TWA noted the revisions to documents TGP/0, TGP/2, TGP/5, TGP/7 and TGP/8 which had been adopted by the Council at its forty-eighth ordinary session, as set out in paragraphs 5 to 21 of document TWA/43/3.

#### *Future revision of TGP documents*

16. The TWA noted that the proposals for future revisions of TGP documents would be dealt with under separate documents.

#### *Program for the development of TGP documents*

17. The TWA noted the program for the development of TGP documents, as set out in the Annex II to document TWA/43/3.

#### *Revision of TGP documents: TGP/7: Development of Test Guidelines*

##### *(i) Revision of document TGP/7: Plant Material Submitted for Examination*

18. The TWA considered document TWA/43/12.

19. The TWA received a presentation by an expert from France on problems experienced with regard to plant material submitted for examination and how they had addressed those problems. A copy of the presentation is provided in document TWA/43/12 Add.

20. The TWA noted that the Community Plant Variety Office of the European Union (CPVO) was conducting a study in collaboration with some examination offices and ESA to assess the possible effects of endophyte infection in ryegrass and tall fescue on the expression of DUS characteristics.

21. The TWA noted the experience of Australia with plant material of sugar cane submitted for examination and the effect of different methods of propagation (cuttings and tissue culture) in the expression of some DUS characteristics, for example culm: zig-zag and bud: shape. The TWA noted that the problem had been addressed by using comparison varieties propagated by the same method for the assessment of those characteristics.

22. The TWA noted there were many factors that could affect plant material submitted for examination and agreed that documents TG/1/3 and TGP/9 provided a good basis for authorities to prevent and address most of the problems.

23. The TWA agreed that there would be no need to develop further guidance on plant material submitted for examination and agreed with the TWO and TWF that authorities in charge of receiving plant material for examination should provide guidance on the requirements of material submitted, for example with regard to quality and age.

(ii) *Revision of document TGP/7: Coverage of the Test Guidelines*

24. The TWA considered document TWA/43/13 and agreed that Approach 3 "Specify existing type of propagation and anticipate future developments" was the most appropriate guidance for Test Guidelines that were developed on the basis of varieties with certain type or types of propagation when varieties may be developed in the future with other types of propagation.

25. The TWA agreed that the new proposed paragraph in Approach 3 with guidance on procedures in case varieties are developed in the future with other types of propagation would become repetitive if Test Guidelines were developed on the basis of varieties with more than one type of propagation and agreed that ASW 8 should be amended to read as follows:

"ASW 8 (TG Template: Chapter 4.2) – Uniformity assessment

(a) *"Cross-pollinated varieties*

(i) *"Test Guidelines covering only cross-pollinated varieties*

"The assessment of uniformity should be according to the recommendations for cross-pollinated varieties in the General Introduction."

[...]

(c) *Uniformity assessment by off-types (all characteristics observed on the same sample size)*

~~(i) Test Guidelines covering only varieties with uniformity assessed by off types~~

~~"For the assessment of uniformity, a population standard of { x }% and an acceptance probability of at least { y } % should be applied. In the case of a sample size of { a } plants, [{ b } off-types are] / [1 off-type is] allowed."~~

~~(ii) Test Guidelines covering varieties with uniformity assessed by off-types and other types of varieties~~

~~"For the assessment of uniformity of [self-pollinated] [vegetatively propagated] [seed-propagated] varieties, a population standard of { x }% and an acceptance probability of at least { y } % should be applied. In the case of a sample size of { a } plants, [{ b } off-types are] / [1 off-type is] allowed."~~

26. The TWA agreed that the new proposed paragraph in Approach 3 with guidance on procedures in case varieties are developed in the future with other types of propagation should be presented separately as a new standard wording in the TG template to read as follows:

"These Test Guidelines have been developed for the examination of [type or types of propagation] varieties. For varieties with other types of propagation the recommendations in the General Introduction and document TGP/13 "Guidance for new types and species", Section 4.5: "Testing Uniformity" should be followed."

(iii) *Revision of document TGP/7: Drafter's Kit for Test Guidelines*

27. The TWA considered document TWA/43/14 and noted the plans for a revision of document TGP/7 and the TG Drafter's webpage for consistency with the introduction of the web-based TG Template in 2014, as set out in paragraphs 6 to 8 of document TWA/43/14.

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

- (i) *Revision of document TGP/8: Part I: DUS Trial Design and Data Analysis, New Section: Minimizing the Variation due to Different Observers*

28. The TWA considered document TWA/43/15.

29. The TWA noted that an expert from New Zealand had made a presentation at the forty-fifth session of the TWF on the previous work done on harmonized variety descriptions for apple for an agreed set of varieties, as presented in TWF/45/28 "Harmonized example varieties for Apple: historical data and possible new developments".

30. The TWA considered the draft guidance in the Annex to document TWA/43/15, for inclusion in a future revision of document TGP/8, on minimizing the variation due to different observers, including guidance on PQ and QN/MG characteristics, in conjunction with the points raised by the expert from Australia in paragraph 21 of document TWA/43/15.

31. The TWA agreed that the draft guidance in the Annex to document TWO/47/15 should continue to be developed and agreed that the document should focus on variation between observers within the same location and not on minimizing observer variation between authorities.

32. The TWA noted the importance of the quality of the Test Guidelines for providing clear guidance for DUS examiners and for ensuring consistency of observations, and the importance of the continuous training of examiners. The TWA agreed to take up the general recommendation that if possible one observer should be used per trial to avoid variation in observations.

33. The TWA agreed that QN/MG characteristics could be dealt with in a similar way to QN/MS and noted that the possible effect of random within-plot variation should also be considered. The TWA agreed that differences between observers on PQ characteristics could be tested using non-parametric methods, such as frequency of deviations.

34. The TWA agreed that the scale of notes used in the example should be reduced to 5 notes.

- (ii) *Revision of document TGP/8: Part II: Selected Techniques Used in DUS Examination, Section 3: Method of Calculation of COYU*

35. The TWA considered document TWA/43/16 and noted the developments concerning the method of calculation of COYU, including the development of a demonstration module in DUST and the practical exercise that would be conducted using real data to compare decisions made using the current and the proposed improved method.

- (iii) *Revision of document TGP/8: Part II: Selected Techniques used in DUS Examination, New Section: Examining DUS in Bulk Samples*

36. The TWA considered document TWA/43/17 and the example of a bulk characteristic from the Netherlands.

37. The TWA agreed with the TWO that the usual approach was to confirm uniformity prior to the establishment of stability and that care would be needed on the examination of stability allowing for the establishment of uniformity of a variety for a given characteristic.

38. The TWA agreed that the example was not supported by sufficient data and agreed with the TWC that the routine measurement of this characteristic in the Netherlands would allow sufficient data set to be generated for further consideration and that the Netherlands should be invited to provide further information.

39. The TWA noted that the states of expression had a fixed scale of values and a remark on variation due to environmental influence. The TWA agreed that the determination of states of expression should be based on existing variation between varieties and considering environmental influence.

(iv) *Revision of document TGP/8: Part II: Selected Techniques Used in DUS Examination, New Section: Data Processing for the Assessment of Distinctness and for Producing Variety Descriptions*

40. The TWA considered document TWA/43/18.

41. The TWA noted that an expert from New Zealand had made a presentation at the forty-fifth session of the TWF, on the project for “apple reference varieties”, as reproduced in Annex II to document TWA/43/18.

42. The TWA received a presentation by an expert from Germany as presented in Annex III to document TWA/43/18 on “Different forms that variety descriptions could take and the relevance of scale levels” and agreed that it should be used as introduction for future guidance to be developed on this matter.

43. The TWA noted the guidance for variety description in Italy, as presented in Annex IV to document TWA/43/18.

44. The TWA noted that the results of the practical exercise with a common data set had been presented to the TWC at its thirty-second session and noted that an expert from France had been requested to compare the results of the practical exercise to identify differences in the results obtained, for further understanding of the different methodologies.

(v) *Revision of document TGP/8: Part II: Selected Techniques Used in DUS Examination, New Section: Guidance on Blind Randomized Trials*

45. The TWA considered document TWA/43/19.

46. The TWA noted that blind randomized trials were used: in Brazil to confirm, in some cases, the assessment of distinctness under a breeder-based testing system for agricultural crops and vegetables; in the United Kingdom, for assessment of distinctness; and in France, for the assessment of disease resistance characteristics that are not tested by the authority.

47. The TWA agreed that the guidance to be developed should explain the importance of sample size and how to minimize biases in the methodology.

48. The TWA noted the proposal from the expert from France to prepare a new draft for consideration by the TC and the TWPs at their sessions in 2015.

(vi) *Revision of document TGP/8: Part II: Selected Techniques Used in DUS Examination, New Section: Examining Characteristics using Image Analysis*

49. The TWA considered document TWA/43/20 and agreed on the importance of precise definition of characteristics to be assessed using image analysis.

50. The TWA noted the use of image analysis: in Australia, for measurement of leaf length and width in ornamental plants; in Denmark, for measurement of petals, cotyledons and siliques in oilseed rape and length of ears and awns in barley; in the United Kingdom, for measurement of petals, cotyledons and siliques in oilseed rape, and various characteristics in sugar beet and field beans; and in France for the assessment of cotyledons in oilseed rape.

51. The TWA noted the proposal from the expert from the European Union to prepare a new draft for New Section “Examining Characteristics Using Image Analysis” for inclusion in document TGP/8 for consideration by the TC and the TWPs at their sessions in 2015.

(vii) *Revision of document TGP/8: Part II: New Section: Statistical Methods for Visually Observed Characteristics*

52. The TWA considered document TWA/43/21.

53. The TWA noted the developments concerning a possible New Section: “Statistical Methods for Visually Observed Characteristics” to be introduced in document TGP/8: Part II: Techniques Used in DUS Examination, in a future revision of document TGP/8.

54. The TWA noted the comparison of results of the COYD method for ordinal characteristics and  $\chi^2$ -test on distinctness decisions made using meadow fescue growth habit data from Finland. The TWA agreed to request the TWC to clarify whether the COYD method for ordinal characteristics was recommended for any ordinal data or other conditions should also be considered when selecting the appropriate analysis method.

*Revision of TGP/9: Examining Distinctness*

- (i) *Revision of document TGP/9: Section 1.6: Schematic Overview of TGP Documents Concerning Distinctness*

55. The TWA considered document TWA/43/22 and the revision of the flow diagram in TGP/9, Section 1.6 “Schematic overview of TGP documents concerning distinctness”, as set out in Annexes I and II to document TWA/43/22.

56. The TWA noted that reference to document TGP/3 “Elaborating the notion of varieties of common knowledge” had not been included in the new schematic in Annex II of document TWA/43/22 and agreed that it should be consistent between the two schematics.

- (ii) *Revision of document TGP/9: Section 2.5: Photographs*

57. The TWA considered document TWA/43/22 and agreed with the proposed guidance on photographs for inclusion in document TGP/9, Section 2.5 “Photographs”, as follows:

“2.5.3 The suitability of photographs for the identification of similar varieties is strongly influenced by the quality of the photographs taken by the authority for the varieties in the reference collection and the photograph of the candidate variety provided by the applicant with the Technical Questionnaire. Comprehensive guidance for taking suitable photographs is provided in TGP/7, GN 35 (new). The guidance was developed in particular for the applicants to provide suitable photographs of the candidate variety. The same instructions are important and useful for the authorities to take photographs of the varieties in the variety collection under standardized conditions.”

- (iii) *Revision of document TGP/9: Sections 4.3.2 and 4.3.4 Method of Observation (Single Measurement – MG)*

58. The TWA considered document TWA/43/22 and the proposed example of a single record for a group of plants (MG) taken on plant parts for inclusion in a future revision of document TGP/9, Subsections 4.3.2 “Single record for a group of plants or part of plants (G)” and 4.3.4 “Schematic summary”, as set out in paragraphs 16 and 17 of document TWA/43/22.

59. The TWA agreed with the comment made by the TWO, TWF and TWV that the example of a single record for a group of plants (MG) taken on plant parts for inclusion in a future revision of document TGP/9, Section 4.3.2 “Single record for a group of plants or parts of plants (G)” and Section 4.3.4 “Schematic Summary” should read as follows:

“Example (MG)

“Measurement (MG): “Leaf blade: width” in Hosta (vegetatively propagated): a representative measurement in the plot.”

*Revision of document TGP/14: Section 2.4: Apex/Tip Characteristics*

60. The TWA considered document TWA/43/23 and the proposal to develop an explanation on the inclusion of a state of expression based on a differentiated tip in shape of apex characteristics.

61. The TWA agreed with the TWO, TWF and TWV that document TGP/14, section 2.4 should be amended to read as follows:



"2.4.1 The apex of an organ or plant part is the end furthest from the point of attachment. In some cases, the distal extremity of the apex may be differentiated into a "TIP".

"2.4.2 In considering the approach to describe the apex, the size of the organ and the number of apex shapes should be taken into account. Apex characteristics can be described in simple terms and if a differentiated tip is present it could be further described as a separate characteristic. Generally, it is not necessary to separate the apex shape characteristic.

"2.4.3 In cases where it is appropriate to separate into differentiated tip and apex characteristics, the shape of the apex is taken as the general shape, excluding any differentiated tip. For example: [...]"

62. The TWA agreed with the TWO, TWF and TWV that the approach in document TGP/14 for shape of apex and tip characteristics was most suitable for leaves or larger structures and should be used in particular cases only.

#### Variety denominations

63. The TWA considered document TWA/43/4.

64. The TWA noted the plans to revise document UPOV/INF/12.

65. The TWA noted the report concerning the possible development of a UPOV similarity search tool for variety denomination purposes and that the first meeting of the working group had taken place in September, 2014. The TWA agreed that a UPOV similarity search tool for variety denomination purposes could minimize the risk of differences in the decisions on the suitability of denominations.

66. The TWA noted the developments concerning potential areas for cooperation between the International Commission for the Nomenclature of Cultivated Plants of the International Union for Biological Sciences (IUBS Commission), the International Society for Horticultural Science Commission for Nomenclature and Cultivar Registration (ISHS Commission) and UPOV, as set out in document TWA/43/4.

#### Uniformity assessment

67. The TWA considered document TWA/43/9, including Annexes I to IV, as a basis to develop guidance in document TGP/10.

68. The TWA noted that the TWC had been invited to provide an analysis of the consequences of the different approaches presented in the Annexes of document TWA/43/9 and, in particular, whether approach 2 in Situations A and B was appropriate.

69. The TWA agreed with the TWV on the importance of assessing uniformity in each independent growing cycle and was not in favor of combining results from 2 cycles.

70. The TWA agreed that an introduction paragraph should be added to Situation B to explain that years could be replaced by locations of DUS testing trials only when specific requirements are fulfilled such as no significant genotype x location interaction for any of the characteristics used in DUS examination.

71. The TWA agreed with the TWC that the guidance provided in document TGP/10 "Examining Uniformity", Section 6 "Combining all observations on a variety" was sufficient to address situation C "More than one sample or subsample for a characteristic in the same growing trial", Annex III to document TWA/43/9.

72. The TWA agreed with the TWC that guidance in Situation D should read as follows:

"SITUATION D: ASSESSING SUB-SAMPLES WITHIN A SINGLE TEST/TRIAL

**"Approach: Use of sub-sample as a first step of assessment**

"A variety is considered uniform if the number of off-types does not exceed a predefined lower limit in the sub-sample.

"A variety is considered non-uniform if the number of off-types exceeds a predefined upper limit in the sub-sample.

"If the number of off-types is between the predefined lower and upper limits the whole sample is assessed. The lower and upper limits have to be chosen considering comparable type I and type II errors in the sub-sample and the whole sample.

"Example:

"In a sample size of 100 plants, the acceptable number of off-types is 3 (based on a population standard of 1% and an acceptance probability of at least 95%).

"In a subsample of 20 plants used in the context of the sample size of 100 plants above:

"A variety is considered uniform if no off-types are observed in the sub-sample.

"A variety is considered non-uniform if the number of off-types in the sub-sample exceeds 3.

"If the number of off-types is 1 to 3, the whole sample of 100 plants is assessed.

"Annex V to document TWC/32/9 provides a full description of the statistical basis for this approach."

### Experiences with new types and species

73. The TWA received a presentation by electronic means by an expert from New Zealand on experiences with fungal endophytes from the genus *Neotyphodium*. The presentation is included as an annex to document TWA/43/25 "Reports on Developments in Plant Variety Protection from Members and Observers".

74. The TWA noted the different situations with regard to the possibility to protect varieties of fungal endophytes among UPOV members.

75. The TWA agreed to request an expert from the CPVO to make a presentation on the results of a study to assess the possible effects of endophyte infection in ryegrass and tall fescue on the expression of DUS characteristics in 2016.

76. The TWA received a presentation by an expert from Argentina on experiences with *Cyamopsis tetragonoloba*. The presentation is included as an annex to document TWA/43/25 "Reports on Developments in Plant Variety Protection from Members and Observers".

### Discussion on draft Test Guidelines

*Adlay* (Coix ma-yuen Roman.)

77. The subgroup discussed document TG/COIX(proj.4), presented by Mr. Yoshiaki Takamatsu (Japan), and agreed the following:

Cover page	to check coverage of Test Guidelines (does it also cover COIXX_LAC?)
Char. 1	to read "Seedling: anthocyanin coloration"
Char. 2	to check whether to add example varieties for states 1 and 3 to check scale and whether to have notes 1 to 5; if scale 1, 2, 3 is maintained, to change illustrations
Char. 6	to be deleted
Char. 7	to add illustration which part of the plant is to be observed
Char. 9	to read "Inflorescence: number of bracts"
Char. 12	to check whether to use inflorescence or infructescence (throughout the document)
Char. 14	to be deleted
Char. 15	to have states "low" to "high"

Char. 17	to check whether to have states ordered as follows: white, light brown, dark brown, purple, grey, black" to check whether example varieties for states "white" and "grey" are available
Char. 18	to check whether secondary color is applicable, if not to delete char.
Char. 19	to have notes 1, 2, 3
Char. 20	to correct spelling to "grain"
Ad. 4	to read "To be observed at the middle of the longest culm on the broadest part of the leaf blade."
Ad. 8	to add explanation that to be observed on the longest bract of the inflorescence
Ad. 15	to present illustration in a grid according to TGP/14
Ad. 23	to read "To be observed by reaction to solution of 3% Potassium Iodide and 0.1% Iodine. Glutinous type endosperm is stained to reddish purple, non-glutinous type endosperm is stained to dark blue purple."

*Adzuki/Red bean (Vigna angularis (Willd.) Ohwi & H. Ohashi)*

78. The subgroup discussed document TG/ADZUK(proj.3), presented by Mr. Masayuki Uchida (Japan), and agreed the following:

1.	to remove synonym
Char. 1	to add (+) and explanation: "Dwarf type shows a bushy and erect growth habit. Climbing type has rapidly elongating internodes that shows a climbing growth habit."
Char. 2	to be indicated as QN to have the following states, notes and example varieties: absent or weak (1) (Erimo-shozu); medium (2) (Buchishoryu-kei No.1, Kuro-shozu); strong (3)
Char. 12	to add (+) and explanation: "Observations should be made on the main stem."
Char. 13	to have the following states, notes and example varieties: to have states: very few (1); few (2) (Akane-dainagon); medium (3) (Erimo-shozu); many (4) (Beninanbu, Buchishoryu-kei No.1); very many (5) (Odate No. 2)
Char. 14	to have states of expression from "low" to "high"
Char. 15	to have the following order of states of expression: yellowish white, green, light red, medium red, dark red, yellowish brown, medium brown, black
Chars. 16, 17	to be indicated PQ
Ad. 5	to read "The time of flowering is when 50% of the plants have at least one flower open."
Ad. 10	to read "The time of maturity is when 80% of pods on the plants are ripe."
Ad. 14	to add following illustration of low and high ratio



1  
low




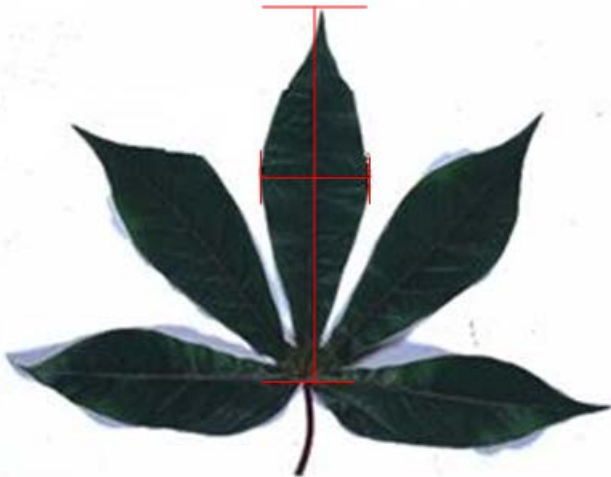

3  
high

Ad. 15	to read "The main color is the color with the largest surface area. In cases where the areas of the main and secondary color are too similar to reliably decide which color has the largest area, the darkest color is considered to be the main color."
Ad. 17	to correct spelling of state (2) to blotched
Ad. 18	to read: "Seeds should be sampled from healthy plants at full maturity. Seed weight should be measured at 15% moisture content. Moisture content could be adjusted using the following formula: A = seed moisture content B = seed weight $B \times (100 - A) / (100 - 15)$ "
TQ.5.1(1)	state 2 to read "climbing"
TQ 5.6 (18)	to read "Seed: 100 seed weight"
TQ 6	to add as example "Time of maturity", "medium", "early"

*Cassava (Manihot esculenta Crantz.)*

79. The subgroup discussed document TG/CASSAV(proj.5) (rev.), presented by Mr. Fabrício Santana Santos (Brazil) and Mr. Simeon Kibet Kogo (Kenya). The following list presents the comments made by the TWV at its forty-eighth session held in Paestum, Italy, from June 23 to 27, 2014. Additional comments considered at the TWA as well as the comments of the TWA on the TWV comments are added and highlighted in grey and in italics.

1.	second sentence to read "In the case of ornamental varieties, in particular, it may be necessary to use additional characteristics or additional states of expression to those included in the Table of Characteristics in order to examine Distinctness, Uniformity and Stability."
5.3 (b)	to read "Leaf: shape of central lobe"
Table of Chars.	spelling of example varieties not in capitals (only first letters)
Char. 3	to add (*)
Char. 4	to be moved after Char. 10
Char. 9	to include state "white"
Char. 12	to read "Stipule: division" state 2 to read "divided"
Char. 13	to be deleted
Char. 14	state 2 to read "yellowish" instead of "cream"
Char. 15	to read: "Stem: color of bark"
Char. 16	state 1 to read "yellowish" instead of "cream" to have order of states orange, purple, brown
Char. 17	to read "Stem: alignment"
Char. 20	to read: "Stem: color of end branches" to add (b) to add (+) and explanation: "To be observed on upper third of central part of plant." to replace current illustration with new one: 
Char. 21	state 1 to read "absent or short"

Char. 23	to delete (+) state "rough" to have note 2
Chars. 24, 25	state 1 to read "yellowish" instead of "cream"
Char. 27	to be deleted
Char. 28	to have notes 1, 3, 5
Ad. 2	to delete photos and add explanation: "Observations should be made on the upper and lower sides of the apical leaves."
Ad. 3	to put the base upside down (i.e. to reverse pictures)
Ad. 7, 8	to replace current photos with one single new photo: 
Ad. 11	to have only one illustration with arrows indicating where to observe 
Ad. 12	to have illustrations of entire and divided stipule only
Ad. 14, 15, 16	to keep only the first illustration to move number 16 to become visible (black font against black background)
Ad. 18, 19	to read "The characteristic should be observed at the middle third of the plant. The distance between leaf scars should be observed between two scars in the same alignment." arrows should show exactly the position of the scars
Ad. 21	to delete column for state 2 state 1 to read "absent or short"
Ad. 22, 24, 25	to move reference to website to chapter 9 to obtain clearance to use photograph or to provide another illustration
Ad. 27	to delete first sentence to delete last sentence to indicate example varieties to determine content
Ad. 28	to read "When removed by hand from the middle third of freshly harvested root tube Weak adherence = without any breakage of cortex Medium adherence = minimal breakage of cortex Strong adherence = a lot of breakage of cortex"
TQ 5	to update according to grouping characteristics
TQ 9.3	to be added

*Castor Bean (Ricinus communis L.)*

80. The subgroup discussed document TG/RICIN(proj.1), presented by Mrs. Robyn Hierse (South Africa), and agreed the following:

2.3	to read "500 seeds"
4.2	to indicate to which type of variety each paragraph refers to.
Table of Chars.	General: to add explanation on time of assessment to add example varieties
Chars. 1	to be indicated as MS/MG
Char. 2	to be indicated as MS/MG to have notes 1 to 5
Char. 6	to check whether to include new characteristic after Char. 6 "Plant: main stem length" with explanation that length of the main stem should be assessed from ground level to beginning of inflorescence
Char. 9	to be indicated as MS/VG
Char. 12	to have notes 1, 3, 5, 7 to be indicated as QN to be indicated as MG/MS to check whether number of lobes is stable within a plant (range of number)
Char. 13	to check whether to add (+) and illustrations to check whether 9 notes are necessary or whether to have 5 notes to check whether there is a correlation between size of leaf and depth of sinus
Char. 14	to check whether to add (+) and illustrations
Char. 15	to check whether to add (+) and illustrations to check whether 9 notes are observable
Char. 16	to check whether to add (+) and illustrations
Char. 18	to check whether to add (+) and explanations
Char. 19	to add to grouping characteristics to add explanation that impossible to be observed when strong anthocyanin coloration present to check whether to add characteristic on presence of waxiness on upper side of leaf blade to check whether to combine Chars. 19, 20 and 22
Char. 21	to check whether to include new Char. "Leaf blade: intensity of anthocyanin coloration of veins"
Char. 22	to be moved after Char. 20 to check whether to add (+) illustration
Char. 23	to check whether states of expression to read "in foliage", "level with foliage" and "above foliage"
Char. 24	to add (+) illustration
Char. 25	to check whether to include characteristic: "Inflorescence: position of male flowers" with states "at base", "between female flowers" to check whether to read "Inflorescence: presence of male flowers" and states of expression to read "absent or very few", "medium", "high"
Char. 27	to check whether to replace with "Inflorescence: color of stigma before pollinizing" with states "greenish", "yellowish", "orange", "pink", "reddish"
Char. 28	to check whether to add (+) and explanation to check whether 9 notes are observable to check whether to read "lax" (sparse)
Char. 29	to have notes 1, 2, 3 to add (+) and illustration
Char. 30	to have notes 1 to 5
Char. 31	to check whether correlates with stigma color

Char. 32	to check whether to add new characteristic: "Fruit: density of spines" with notes 1 to 3 (QN VG) to check whether to read "Fruit: length of spines"
Char. 33	to check order of characteristics (chronological or botanical)
8.1 (d)	to check whether observations on fruits should be made at earlier stage
Ad. 31	to use color definition according to TGP/14
TQ 4.2	to check whether to add 4.2.2 "other"
TQ 9.3	to check whether necessary

*Elytrigia* (*Elytrigia elongata* (Host) Nevski)

81. The subgroup discussed document TG/ELYTR(proj.4), presented by Mr. Alberto Ballesteros (Argentina), and agreed the following:

2.3	to read "The minimum quantity of plant material, to be supplied by the applicant, should be:  200 g of seed, for seed-propagated varieties."
3.4.3	to be deleted
4.2.2	to delete "of seed-propagated varieties"
Char. 1	to add state "intermediate"
Char. 2	to check whether to be indicated as VG
Char. 3	to correct spelling of "glaucosity" to be indicated as QN to have states absent or weak (1), medium (2), strong (3) to be indicated as VG to check example varieties
Char. 4	to read "Plant: development of rhizomes"
Char. 5	to read "grey green" to read "Leaf: intensity of green color"
Char. 6	to read "Leaf blade: glaucosity" to be indicated as QN to have states absent or weak (1), medium (2), strong (3) to check example varieties
Char. 7, 8	to check whether to be indicated as VG
Char. 9	to be indicated as QN to have states sparse (1), medium (2), dense (3) to check example varieties
Char. 10	to be indicated as VG
Char. 11	to add (b) to be indicated as VG
Char. 12	to read "brown yellow" (no hyphen)
8.1(a)	to check whether to delete "... in the first growing cycle"
Ad. 1	to check whether to delete "... To be observed in first and second year" to correct states of expression and notes according to Char. 1 (see TGP/14)
TQ 5	to add TQ characteristics
TQ 6	to provide example

*Quinoa* (*Chenopodium quinoa Willd.*)

82. The subgroup discussed document TG/CHENO(proj.1), presented by Mr. Erik Lawaetz and Ms. Maria Boye Simonsen (Denmark), and agreed the following:

General	to check consistency of actual time of observations and growth stages used in TG, to adapt names of chars. accordingly to replace "seed head" by "panicle" throughout
Alternative Names	to delete English common names "Goosefoot" and "Pigweed" to check whether to delete current German common names and to add "Quinoa"
4.1.1	to delete ASW option on hybrids
4.1.4	to read "Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 40 plants or parts taken from each of 40 plants and any other observations made on all plants in the test, disregarding any off-type plants."
4.2.2, 4.2.3	to be deleted
4.2.4	to check whether to read "For the assessment of uniformity, a population standard of 5% and an acceptance probability of at least 95 % should be applied. In the case of a sample size of 160 plants, 13 off-types are allowed."
Char. 1	to read "Foliage: main color" to replace state 5 "other" by "red"
Char. 2	"Foliage: intensity of main color"
Char. 3	state 1 to read "absent or weak" to add (+) and explanation
Char. 4	to add (+) and explanation on which leaves to be observed to have notes 3, 5, 7
Char. 5	to be indicated as QL to add (+) and illustrations
Char. 6	to add (+) and illustrations state 1 to read "absent or weak"
Char. 7	to read "Leaf: pigmentation" to delete "other" to add states "orange" and "purple" to add (+) and explanation that difference between foliage color and leaf pigmentation and does the char. does not apply to red leaves
Char. 8	to have states absent or very weak (1), weak (3), medium (5), strong (7)
Char. 10	to read "Inflorescence: color" to delete state "other" to add states "orange" and "yellow"
Char. 11	to read "Plant: height" to check whether to be deleted
Char. 12	to read "Stem: base color" to replace state "other" with "purple"
Char. 13	to read "Stem: pigmentation" to delete state "other" to add (+) and explanation where to be observed
Char. 15	to read "Stem: branching" to have states absent or very weak (1), medium (3), very strong (5)
Char. 16	to read "Plant: height at maturity" to check correlation with Char. 11
Char. 18	to read "Panicle: density" state 7 to read "dense"
Char. 19	to add as grouping characteristic to Chapter 5.3 to replace state "other" by "yellow"



Char. 21	to delete state "other" to be indicated as PQ order of colors according to TGP/14 to check time of observation of char. and states of expression
8.1 (a)	to be checked
Ad. 9	to read "Time of flowering is when 50% of plants have open flowers on the top third of the inflorescence."
TQ 5.3	to check whether to add Char. 19 as grouping characteristic

*Sorghum* (*Sorghum bicolor xdrummondii*) (*Revision*)

83. The subgroup discussed document TG/122/4(proj.3), presented by Mr. Luis Salaices (Spain), and agreed the following:

Name box	to have UPOV Codes: SRGHM_BIC; SRGHM_DRU
Alternative names box	to have one row per species and to add synonyms to the main botanical names to delete in French "Sorgho du Soudan"
1.	to read "These Test Guidelines apply to all varieties of <i>Sorghum bicolor</i> and <i>Sorghum xdrummondii</i> (Steud.) Miklsp. & Chase <i>Sacharatum sudanensis</i> ."
4.1	to use standard wording in paragraphs 4.1.1 and 4.1.4
5.3	to add Chars. 10, 13, 25, 36
Char. 3	to be indicated as MS/MG/VG to have states absent or very few (1), few (2), medium (3), many (4), very many (5) to add (+) and explanation that the minimum height necessary to be counted as tiller should be one third of the height of the plant."
Char. 4	to add (a)
Char. 11	to have notes 1 to 5
Char. 13	to be indicated as QN to add (*)
Char. 14	to read "Glume: color <u>at end of flowering</u> "
Char. 17	state 2 to read "greyish pink" growth stage to be indicated as 69-75
Char. 18	to add (+) and explanation that the plant length should be observed from ground level to the top of the panicle to have the following states of expression: dwarf (1), dwarf to extremely short (2), extremely short (3), extremely short to very short (4), very short (5), very short to short (6), short (7), short to medium (8), medium (9), medium to tall (10), tall (11), tall to very tall (12), very tall (13), very tall to extremely tall (14), extremely tall (15), extremely tall to giant (16), giant (17)
Char. 19	growth stage to be indicated as 69-85 to be indicated as MS only
Char. 22	to add (*)

Char. 26	to be indicated as QN
Char. 27	state 3 to read "medium yellow"
Char. 29	to check whether to add example varieties to states 10 and 11
Char. 33	to have notes 1, 2, 3
Char. 34	to have notes 1 to 5 to add (*)
Char. 35	to read "Grain: color of vitreous of endosperm to add (*)
Char. 36	to add (*)
Ad. 13	to replace "kraft bags" by "selfing bags"
Ads. 22, 23	to be combined and to read "The neck is between flag leaf and first ramification of the panicle. The assessment of panicle length should be made without the neck."
Ad. 36	to read "Photoperiod insensitive varieties are not dependent on the length of daylight for floral development. Photoperiod sensitive varieties will not initiate floral development until the photoperiod is less than approximately 12 hours."
9.	to add literature on photosensitivity
TQ. 1	to delete "Sorghum sudanense" to replace "Sorghum bicolor x Sorghum sudanense" by "Sorghum xdrummondii"
TQ. 5	to add Chars. 10, 13, 25, 36

*Urochloa (Brachiaria)*

84. The subgroup discussed document TG/UROCH(proj.8), presented by Mr. Fabrício Santana Santos (Brazil), and agreed the following:

Alternative names box	to delete French common name "signal" to delete repeated "palisade grass"
1	to delete all synonyms
4.1.1	to include standard wording on the use of the parent formula for the assessment of distinctness of hybrids (ASW 7(B))  "To assess distinctness of hybrids, the parent lines and the formula may be used according to the following recommendations:  "(i) description of parent lines according to the Test Guidelines;  "(ii) check of the originality of the parent lines in comparison with the variety collection, based on the characteristics in Chapter 7, in order to identify similar parent lines;  "(iii) check of the originality of the hybrid formula in relation to the hybrids in the variety collection, taking into account the most similar lines; and  "(iv) assessment of the distinctness at the hybrid level for varieties with a similar formula."
4.2.4	to delete last sentence
4.3.2	to delete "... or plant stock..."
Table of Chars.	General: to delete all indications of "type of plot: B"
Char. 2	to delete (a) (the characteristic is to be observed at "beginning of flowering" and not at "full flowering")
Char. 3, 14, 15, 16, 19, 20	to add (a)
Chars. 4, 5, 7, 9, 10, 12, 13	to add (a) and (b)
Char. 6	to read "Flag leaf: curvature of blade"
Char. 7	to be moved after Char. 13

Char. 9	to be indicated as QN to be moved after Char. 6 to read: "Flag leaf: width of blade" and to have states narrow (1), medium (2), broad (3)
Char. 13	to correct spelling of example variety "Basilisk"
Chars. 14, 15, 16	to check whether to add (+) and illustration on the assessment of the characteristics
Char. 17	to read "Inflorescence: shape of rachis in cross section"
Char. 20	to add (+) and explanation on how to assess the characteristic
8.1 (a)	to read "Observations should be made when 50% of all plants have at least one flower open."
8.1 (b)	to read "Observations on culms and fully developed leaves should be made on the penultimate leaf of the main culm."
8.1 (c)	to improve explanation
Ad. 2	to read "The height of the plant should be measured in the center of the plant, from the third fully developed leaf to the level ground, excluding inflorescences."
Ads. 9, 17	to include source of illustrations
TQ 1.5.2	delete repeated mention to "palisade grass" in 1.5.2

*Wheat (Triticum aestivum L. emend. Fiori et Paol.) (Revision)*

85. The subgroup discussed document TG/3/12(proj.3), presented by Mrs. Virginie Bertoux (France), and agreed the following:

4.2.7	to read "For the assessment of uniformity of single hybrids,..."
Table of Chars.	to use regional set of example varieties provided by Leading Expert. Other regional sets of example varieties could be added at a later stage
Char. 1	to have states white (1), reddish (2), purple (3), bluish (4)
Char. 2	to be deleted
Char. 3	to add explanation that it is not possible to be observed for purple seeds
Char. 7	to indicate growth stages as 49 to 60 to have notes 1 to 5 to add explanation that best time to observe the characteristic should be chosen depending on the location
Char. 9	to be deleted
Char. 16	to delete state "thick 3"
Char. 17	to be moved after Char. 23
Char. 18	state 1 to read "very lax" state 3 to read "lax"
Char. 22	to check whether to add explanation that white varieties can be slightly colored due to environmental influence
Char. 23	to be deleted
Char. 29	state 1 to read "very small" state 5 to read "very large" to check whether to remove (*)
Char. 30	to check whether to add (*)
Char. 31	to check whether to keep characteristic; if so, to add example varieties and explanation
Ad. 1	to read "This characteristic can be observed on dry seeds or by using NaOH solution (seeds soaked during 10 minutes at 60°C or 60 minutes at room temperature in a 5M NaOH solution).
Ad. 6	to check whether pictures are from relevant stage of development
Ad. 18	to delete photos

Ad. 21	to use drawings from previous draft (proj.) and improve wording of explanation to improve drawings (e.g. state 9 awn to be longer than ear", difference between states 3 and 5
Ad. 31	to add illustrations to indicate exact part of plants to be observed
Annex	to add to introduction that any alternative method may be used if it has been validated and gives the same results to provide new example varieties last band 20 last sentence to read "For characteristic 28, band 13 is always associated with band 16 and band 14 with band 15 while band 20 remains alone." to improve formatting and present data in a table

### Molecular Techniques

86. The TWA considered document TWA/43/2.

87. The TWA noted the report on developments concerning the:

(a) use of biochemical and molecular markers in the examination of Distinctness, Uniformity and Stability (DUS);

(b) Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT); and

(c) presentation of information on the situation in UPOV with regard to the use of molecular techniques to a wider audience, including breeders and the public in general.

88. The TWA received a presentation by an expert from the United Kingdom by electronic means on "a European Potato database as a centralized collection of varieties of common knowledge", a copy of which is provided as an Addendum to document TWA/43/2 "Molecular techniques".

89. The TWA noted the information presented by the expert from the United Kingdom by electronic means and the investigations on the use of molecular data for the management of variety collections.

### Information and databases

#### *(a) UPOV information databases*

90. The TWA considered document TWA/43/5.

91. The TWA noted the plan to provide information for type of crop for each UPOV code in the GENIE database, as set out in paragraph 8 of document TWA/43/5.

92. The TWA to check the amendments to UPOV codes, the new UPOV codes or new information added for existing UPOV codes, which are provided in Annex III to this document, and to submit the comments to the Office of the Union by January 31, 2015.

93. The TWA noted the developments concerning the program for improvements to the Plant Variety Database, as reported in paragraphs 17 to 34 of document TWA/43/5.

#### *(b) Variety description databases*

94. The TWA considered document TWA/43/6.

95. The TWA noted the developments on variety description databases, as set out in document TWA/43/6, and the proposal of the expert from Australia, not to develop a database for the TWO.

96. The TWA noted the matters raised by the ISF in relation to variety descriptions.

97. The TWA noted the conclusion of the CAJ on matters concerning variety descriptions, as set out in paragraph 29 of document TWA/43/6.

(c) *Exchangeable software*

98. The TWA considered document TWA/43/7.

99. The TWA noted that document UPOV/INF/22 “Software and equipment used by members of the Union” had been adopted by the Council at its forty-eighth ordinary session, to be held in Geneva on October 16, 2014, as set out in paragraph 5 of document TWA/43/7.

100. The TWA noted that a circular would be issued to the designated persons of the members of the Union in the TC, inviting them to provide information regarding non-customized software and equipment used by members of the Union, as appropriate

101. The TWA noted that a revision of document UPOV/INF/16/3 concerning the inclusion of the SIVAVE software had been presented for adoption by the Council at its forty-eighth ordinary session, to be held on October 16, 2014.

102. The TWA noted that the TWC had agreed that the discussions on the inclusion of the SISNAVA software in document UPOV/INF/16 should be continued subject to the conclusion on discussions on the variation of variety descriptions over years in different locations by the TWC.

103. The TWA noted that the TC and CAJ had agreed with the proposed revision of document UPOV/INF/16 concerning the inclusion of information on the use of software by members of the Union.

104. The TWA noted that an expert from France had made a presentation on the AIM software at the thirty-second session of the TWC, based on the English translation of the software.

105. The TWA noted that the explanation of the software “Information System (IS) used for Test and Protection of Plant Varieties in the Russian Federation” is provided in the Annex of document TWA/43/7.

(d) *Electronic application systems*

106. The TWA considered document TWA/43/8.

107. The TWA noted the developments concerning the development of a prototype electronic form as set out in document TWA/43/8 and the results of the survey of members of the Union on their use of databases for plant variety protection purposes and also on their use of electronic application systems, as presented in Annex II to document TWA/43/8.

Recommendations on draft Test Guidelines

(a) *Test Guidelines to be put forward for adoption by the Technical Committee*

108. The TWA agreed that the following draft Test Guidelines should be submitted to the TC for adoption at its fifty-first session, to be held in Geneva in March 2015, on the basis of the following documents and the comments in this report:

Subject	Basic Documents (2014)
Adlay ( <i>Coix ma-yuen</i> Roman.)	TG/COIX(proj.4)
* Adzuki/Red Bean ( <i>Vigna angularis</i> )	TG/ADZUK(proj.3)
*Cassava ( <i>Manihot esculenta</i> Crantz.)	TG/CASSAV(proj.5) (rev.)
*Sorghum ( <i>Sorghum bicolor</i> and <i>S. xdrummondii</i> ) (Revision)	TG/122/4(proj.3)
*Urochloa ( <i>Brachiaria</i> )	TG/UROCH(proj.8)

(b) *Test Guidelines to be discussed at the forty-fourth session*

109. The TWA agreed to discuss the following draft Test Guidelines at its forty-fourth session:

Subject
Castor Bean ( <i>Ricinus comunis</i> L.)
Cotton ( <i>Gossypium</i> L.)
*Elytrigia ( <i>Elytrigia elongata</i> (Host) Nevski), ( <i>Agropyron elongatum</i> (Host) P. Beauv.)
Field Bean ( <i>Vicia faba</i> L. var. minor)
Finger millet ( <i>Eleusine coracana</i> (L.) Gaertn.)
Oats ( <i>Avena sativa</i> L. & <i>Avena nuda</i> L.)
Quinoa ( <i>Chenopodium quinoa</i> Willd.)
Red Clover ( <i>Trifolium pratense</i> L.)
*Scorpion Weed ( <i>Phacelia tanacetifolia</i> Benth.)
Soya Bean ( <i>Glycine max</i> (L.) Merrill)
*Wheat ( <i>Triticum aestivum</i> L. emend. Fiori et Paol.) (Revision)

110. The TWA expressed its interest to revise the Test Guidelines for Ginseng (*Panax ginseng* C.A. Mey.) (document TG/224/1) and Barley (*Hordeum vulgare* L. sensu lato) (document TG/19/7) in 2016.

#### Guidance for drafters of Test Guidelines

111. The TWA considered document TWA/43/10.

112. The TWA noted the features of Version 1 of the web-based TG Template, as set out in paragraph 10 of document TWA/43/10.

113. The TWA noted the requirement for Leading and Interested Experts to use the web-based TG Template for the preparation of draft Test Guidelines discussed during the forty-third session of the TWA.

114. The TWA noted the exclusive use of the web-based TG Template for the development of all Test Guidelines from 2015.

115. The TWA received a demonstration of the web-based TG Template by the Office of the Union and noted the main features of the system for Leading and Interest experts. The TWA agreed that the comments and suggestions by the Leading Experts that used the web-based TG Template should be sent to the UPOV Office for improving the system.

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\*  
Indicates possible final Test Guidelines

#### Date and place of the next session

116. At the invitation of Japan, the TWA agreed to hold its forty-fourth session in Obihiro, Japan, from July 6 to 10, 2015, with the preparatory workshop on July 5, 2015.

#### Future program

117. The TWA 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
  - (b) Reports on developments within UPOV (oral report by the Office of the Union)
4. Molecular Techniques (document to be prepared by the Office of the Union)
5. TGP documents
6. Variety denominations (document to be prepared by the Office of the Union)
7. Information and databases
  - (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) Exchangeable software (documents to be prepared by the Office of the Union)
  - (d) Electronic application systems (document to be prepared by the Office of the Union)
8. Uniformity assessment
9. Matters to be resolved concerning Test Guidelines adopted by the Technical Committee (if appropriate)
10. Discussion on draft Test Guidelines (Subgroups)
11. Recommendations on draft Test Guidelines
12. Guidance for drafters of Test Guidelines
13. Date and place of the next session
14. Future program
15. Report on the session (if time permits)
16. Closing of the session

#### Visit

118. On November 19, 2014, the TWA visited the agricultural experimental station of the National Institute of Agricultural Technology (INTA) in Balcarce, where it was welcomed by Mr. Carlos Mezzadra, Director of the testing station, and Mr. Pablo Abbate, Agronomic Engineer, who gave a presentation on the wheat breeding program of INTA. A copy of the presentation is provided in Annex III to this report. The TWA also visited a seed processing facility for maize, wheat, sunflower and soya bean seeds of the Nidera Seeds Company. The TWA was welcomed by Mr. Sergio Suarez, Head of Production Unit, and Mr. Marcelo Rizzo, Research Expert, wheat program. The TWA visited the facilities for seed processing of maize seeds and the growing trials for the wheat breeding program.

#### Medal

119. The TWA thanked Mrs. Robyn Hierse and took note that she was awarded a UPOV bronze medal in recognition of her chairmanship of the TWA from 2012 to 2014.

120. The TWA adopted this report at the end of the session.

[Annexes follow]

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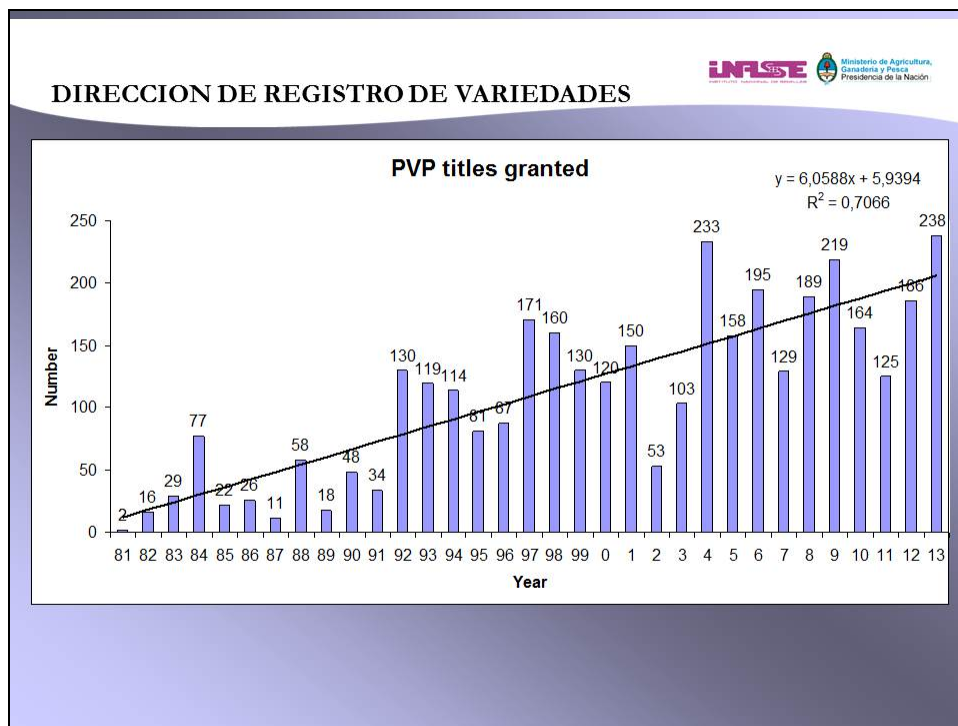
### UNITED KINGDOM

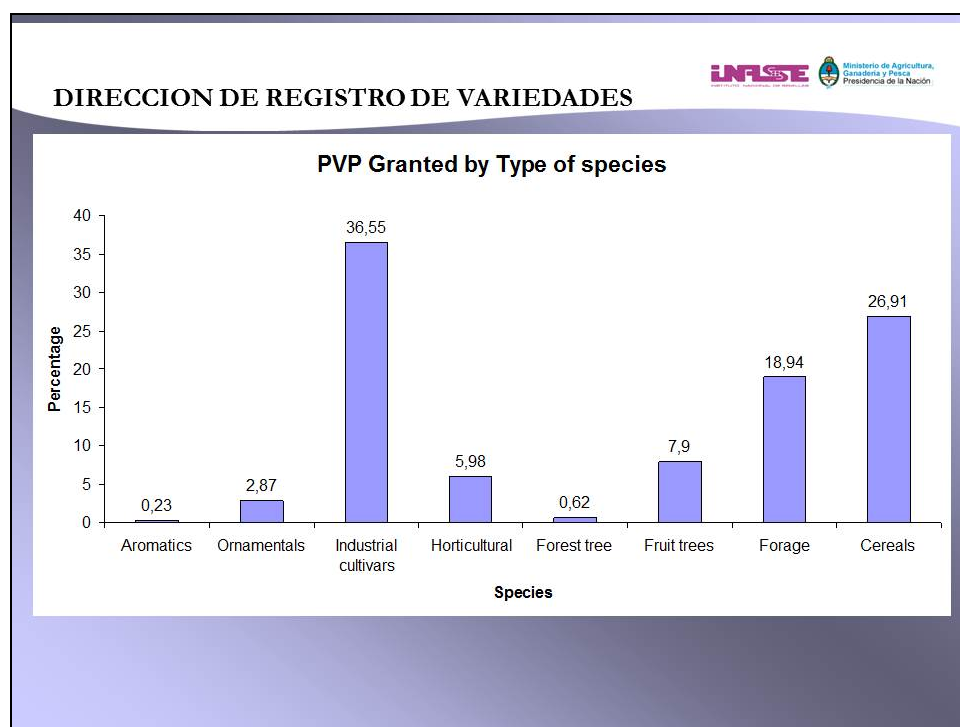
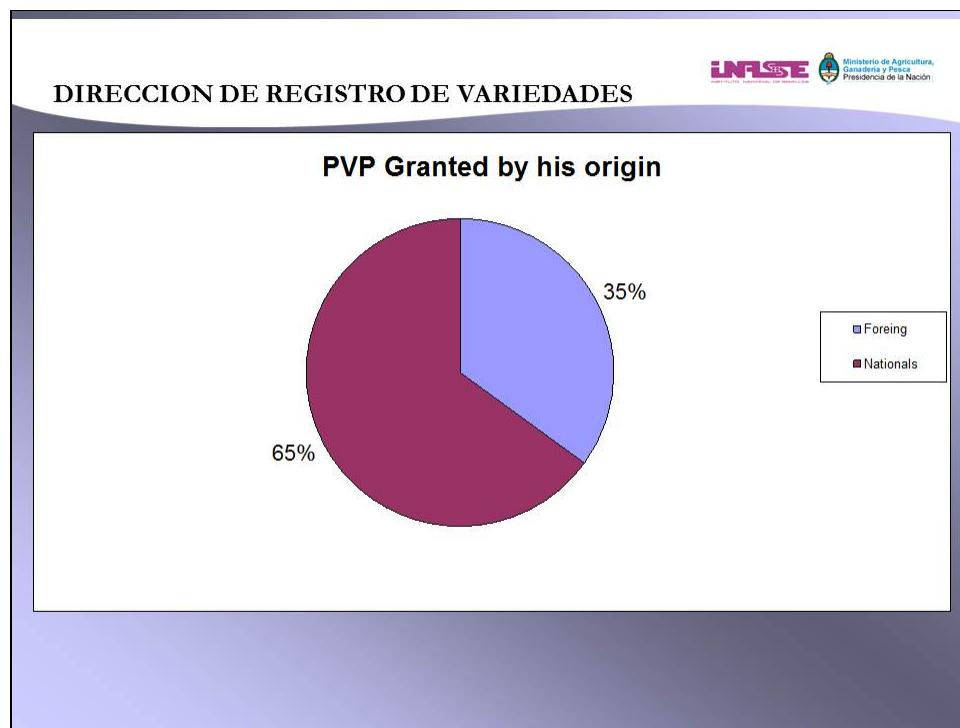


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[Annex II follows]

## PLANT VARIETY PROTECTION IN ARGENTINA





[Annex III follows]

**Visita al Campo Experimental**  
***Visit to Experimental Field***

**Grupo Trigo Balcarce**  
***Wheat Group Balcarce***

**INTA Balcarce, Bs. As., Argentina**  
**Balcarce, nov-2014**

**Profesionales:**

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**Dra., Ing. Agr. Ana Pontaroli**  
**Dr., Lic. Biol. Máximo Lorenzo**  
**Ing. Agr. Bárbara Carpanetto**

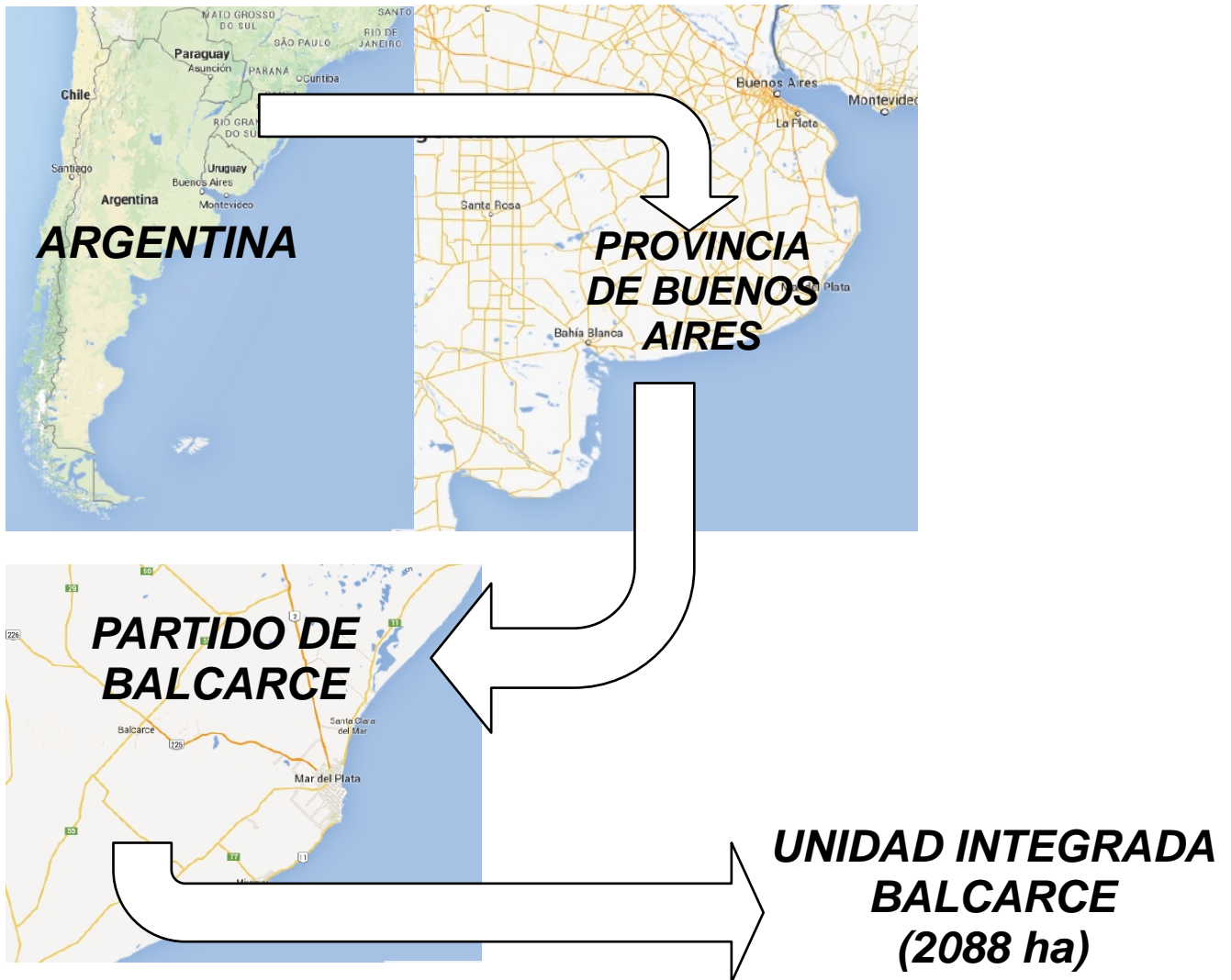
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**Sra. Mara Castaño**  
**Sr. Juan Toledo**  
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**¿Dónde estamos?**  
**Where are we?**



**Latitudes / Latitudes**



**Suelos / Soils**

- **Alto contenido de materia orgánica: 7 a 4%. / High organic mater contain: 7 to 4%**
- **Deficiencia natural de fósforo (P): 2-4 ppm. / Natural phosphorus deficiency: 2-4 ppm.**

- Limitaciones de profundidad por horizonte calcáreo “tosca”.  
*Limitations in depth for calcareous layer (hardpan of calcium carbonate).*
- Distribución de los suelos/ *Soils distribution:*
  - 30% agrícola sin limitaciones. *30% agricultural without limitations*
  - 30% agrícola con limitaciones. *30% agricultural with limitations*
  - 40% ganaderos (no aptos para agricultura). *40% no-agricultural soils.*
  - Principal limitación: TOSCA. *Main limitation: calcareous layer “TOSCA”*

## Clima / Climate

### Temperatura / Temperature:

Media anual / *Annual mean*: 14°C

Mes más frío/ *Coldest month*: 8 °C

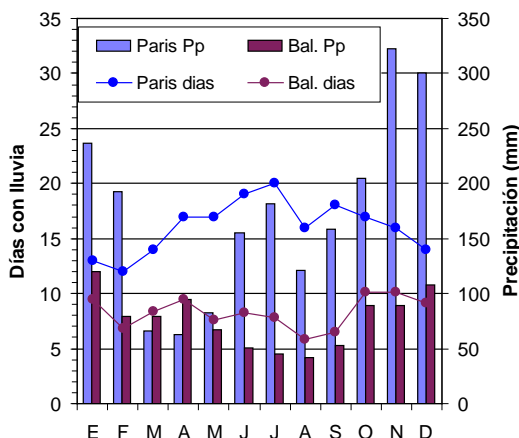
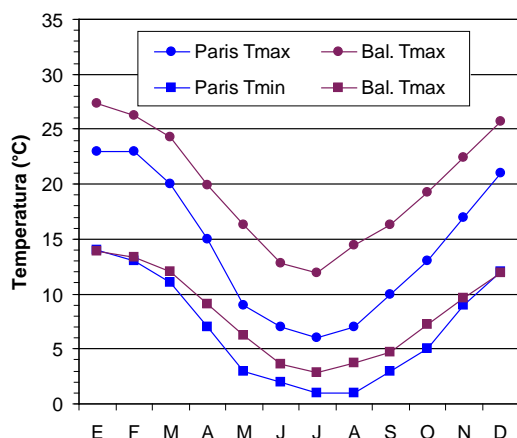
Mes más cálido/ *Warmest month*: 21°C

Lluvias: 950 mm anuales / *Rain: 950 mm/ annuals.*

Estación con menos lluvias: invierno / *Station with minus rains: winter*

Estación más seca: verano / *Dryest station: summer.*

Período con Heladas: desde 10-abril hasta 1-nov / *Frost period: from 10-apr to 1-nov.*



Balcarce, Bs. As., Argentina. 38°N, 58°W, 130 m. vs. Paris, Francia. 48°N, 2°E, 96 m.  
(meses transformados al hemisferio sur)

## Típico cultivo de trigo de Balcarce / *Typical wheat crop in Balcarce*

Siembra: jun. (dic.) a ago. (feb.) / *Sowing: jun. (dec.) to ago. (feb.)*

Fecha de floración optima: 20-oct. (abr.) a 1-nov. (may.). / *Date of optimal flowering: 20-oct. (apr.) to 1-nov. (may.).*

Cosecha: 20-dic. (jun.) a 10-ene. (jul.) / *Harvest: 20-dec (jun.) to 10-jan. (jul.)*

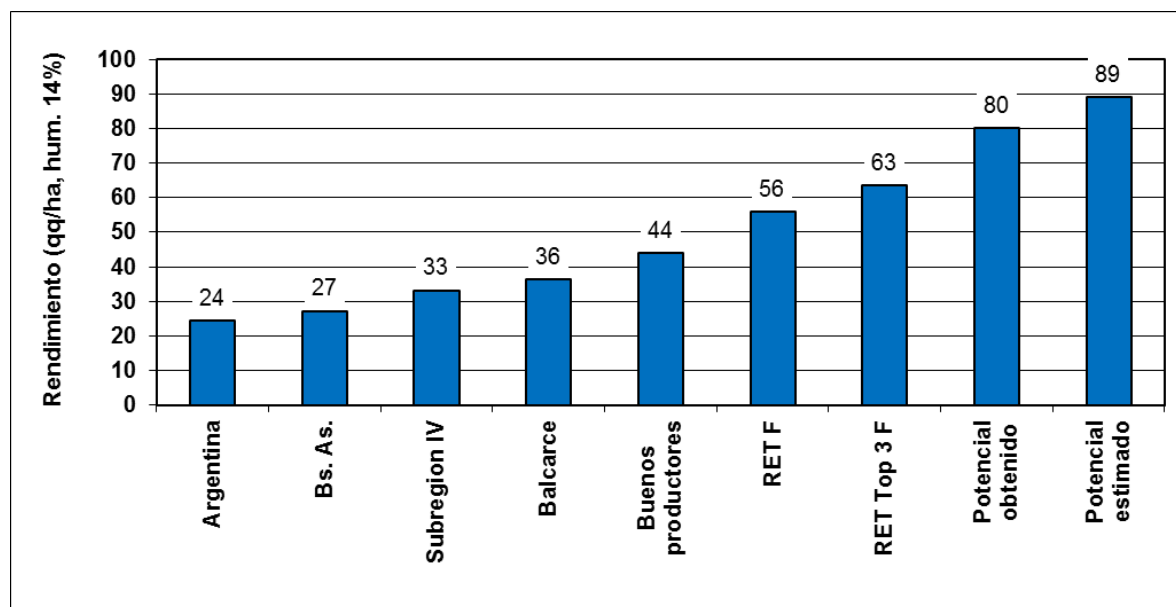
Cultivares: trigo pan, duro, aristado, primaveral. / *Cultivar: bread wheat, hard, awned, spring.*

**Fertilization (kg/ha): 20-25 P, 50-100 N, 0-25 S, 0 K. / Fertilization rate (kg/ha): 20-25 P, 50-100 N, 0-25 S, 0 K.**

**Herbicida: una aplicación. / Herbicide: one application.**

**Fungicida: una aplicación. / Fungicide: one application.**

**Principales parámetros de calidad comercial: peso hectolítrico y proteína. / Main commercial quality parameters: weight test (hectolytric weight) and protein.**



**Niveles de rendimiento de trigo (promedio de 5 años) / Wheat yield leves (mean of 5 years)**

## **¿Qué es la Unidad Integrada Balcarce? / What is the Balcarce Integrated Unit?**

**Es la integración de dos instituciones: / It is the integration of two institutions:**

**EEA INTA Balcarce**

**(Estación Experimenta Agropecuaria Balcarce del Instituto Nacional de Tecnología Agropecuaria)  
(Balcarce Agricultural Experiment Station, National Institute of Agricultural Technology.)**

**Facultad de Ciencias Agrarias Universidad (FCA), Nacional de Mar del Plata.**

**Faculty of Agricultural Sciences (FCA), University Nacional of Mar del Plata (= silver sea)**

## **Recursos humanos / Human resources**

**INTA:**

**98 Profesionales/ professionals,  
(79% con postgrado / with postgraduate.)**

**130 Auxiliares/ auxiliaries.**

**228 Total / total.**



**FCA:**

174 Docentes/ *teachers*,  
38 Auxiliares/ *auxiliaries*.  
212 Total/ *total*.

**Total/ total**

206 Profesionales/ *professionals*.  
234 Auxiliares/ *auxiliaries*.  
440 Total/ *total*.

Alumnos y Pasantes: 750/año / *Students and Interns: 750/year*.

## **Objetivos del Grupo Trigo / *Wheat Group goals***

- 1) Investigar: generación de nuevos conocimientos en ecofisiología, manejo, modelado y mejoramiento genético de trigo y otros cereales de invierno.  
*Research: generating new knowledge in ecophysiology, management, modeling and breeding of wheat and other winter grains.*
- 2) Mejoramiento genético: realizar Mejoramiento genético de trigo para obtener nuevos cultivares comerciales de trigo pan.  
*Breeding: Breeding wheat to relase new commercial bread wheat cultivars.*
- 3) Experimentar: Realizar experimentación “de rutinaria” o “adaptativa” en trigo, p.ej. evaluar cultivares comerciales (RET Trigo).  
*Experimentation: Perform testing “of routine” or “adaptive” in wheat cultivars e.g. evaluate commercial cultivars (RET).*
- 4) Formar : profesionales, alumnos y auxiliares.  
*Mentoring: professionals, students and assistants.*

## **Campo Experimental / *Experimental field***

**Superficie promedio: / *Mean area:***

6 ha evaluación *cultivares sin riego*. / 6 ha testing *cultivars without irrigation*.  
1 ha evaluación bajo riego./ 1 ha irrigated testing.  
4 ha material de cría./ 4 ha breeding nurseries.  
1 ha vivero de verano bajo riego./ 1 ha summer nursery irrigate.  
12 ha totales./ 12 hs totals.

**Cantidad de parcelas aproximada: / *Approximate plot number:***

4800 parcelas de cultivares./ 4800 plots of cultivars.  
5000 parcelas de material de cría./ 5000 plots of breeding nurseries.  
9800 muestras/campaña de granos/ 9800 samples/year of grain.

## **Actividades en el campo / *Field activities***

1. Evaluación de cultivares / *Cultivar testing:*

- 1) Cultivares comerciales (4 niveles de manejo) / *Commercial cultivars (4 management levels)*:**
    - a) RET sin fungicida (desde 1962). / *RET without fungicide (since 1962).***
    - b) RET con fungicida (desde 2000) / *RET with fungicide (since 2000).***
    - c) RET alta tecnología (desd 2007) / *RET high technology (since 2007).***
    - d) RET tradicional (desde 2011) / *RET traditional (since 2011).***
  - 2) Lineas precomerciales / *Pre-commercial lines*:**
    - a) ENSAYOS REGIONALES / *REGIONAL TRIALS***
- 2. Experimentos especiales / *Special experiments: research.***

### Niveles de manejo / Management levels

Ensayos/ Tryals	Rto esperado <i>Yield expected</i> (qq/ha)	Riego <i>Irrigation</i>	Fung. (aplic.)	Nd=Nf+X (kg/ha) <sup>a</sup>	P (kg/ha PDA) <sup>b</sup>	S (kg/ha) <sup>c</sup>
RET AT / <i>High technology</i>	110	Si	2	330	206	138
REG / <i>Regional</i>	80	No	1	240	150	100
RET F / <i>With fung.</i>	80	No	1	240	150	100
RET N / <i>Without fung.</i>	80	No	0	240	150	100
RETT / <i>Traditional tec.</i>	45	No	1	135	84	0

<sup>a</sup> Requerimientos calculados como 3 kg Nd/qq, Nf: N fertilizante, X: N a la siembra.

<sup>b</sup> Dosis de reposición del P exportado.

<sup>c</sup> Dosis preventiva, calculada como la mitad de la reposición del S exportado.

### Fecha y densidad de siembra *Sowing date and plant density*

	1° época 1° date	2° época 2° date	3° época 3° date	4° época 4° date
Fecha de siembra deseada <i>Desired planting date:</i>	10-jun	01-jul	20-jul	10-ago
RET AT	X	---	X	---
RET F	X	X	X	X
RET N	X	X	X	X
RET T	X	---	X	---
Densidad esperada (plantas/m <sup>2</sup> ) <i>Expected density (planys/m<sup>2</sup>)</i>	230	270	310	350
Densidad sembrada (semilla/m <sup>2</sup> ) <sup>a</sup> <i>Sown density (semilla/m<sup>2</sup>)</i>	307	360	411	465

<sup>a</sup> Densidad corregida por porcentaje de logro y poder germinativo.

### Análisis de suelo a la siembra *Analysis of soil at sowing*

<b>Variable</b> <i>Variable</i>	<b>Lote Sin Riego</b> <i>Lot without Irrigation</i>	<b>Lote Con Riego</b> <i>Lot with Irrigation</i>
<b>Superficial (prof.: 0-20 cm):</b> <i>Superficial:</i>		
<b>Humedad (%) / Humidity (%)</b> <sup>a</sup>	<b>29</b>	<b>29</b>
<b>P (ppm)</b>	<b>23</b>	<b>33</b>
<b>M.O. (%)</b>	<b>4.6</b>	<b>3.8</b>
<b>N-NO<sub>3</sub> (ppm)</b>	<b>7</b>	<b>4</b>
<b>Total 0-60 cm / Total 0-60 cm</b>		
<b>Agua útil (mm)</b> <sup>b</sup> <i>Useful Water (mm)</i> <sup>b</sup>	<b>78</b>	<b>78</b>
<b>N-NO<sub>3</sub> (kg/ha)</b>	<b>42</b>	<b>23</b>
<sup>a</sup> Capacidad de campo: 28% / <i>Field capacity: 28%</i> <sup>b</sup> Capacidad de campo: 78 mm / <i>Field capacity: 78 mm.</i>		

[Annex IV follows]

## LIST OF LEADING EXPERTS

**DRAFT TEST GUIDELINES TO BE SUBMITTED  
TO THE TECHNICAL COMMITTEE IN 2015**

All requested information to be submitted to the Office of the Union

**before January 2, 2015**

Species	Basic Document	Leading Expert(s)	Interested Experts (countries/organizations)
Adlay ( <i>Coix ma-yuen</i> Roman.)	TG/COIX(proj.4)	Mr. Yoshiaki Takamatsu (JP)	CN, KR, ISF, Office
*Adzuki/Red Bean ( <i>Vigna angularis</i> )	TG/ADZUK(proj.3)	Mr. Masayuki Uchida (JP)	CN, KR, ISF, Office
*Cassava ( <i>Manihot esculenta</i> Crantz.)	TG/CASSAV(proj.5) (rev.)	Mr. Simeon Kibet Kogo (KE), Mr. Fabrício Santana Santos (BR)	TWV, CN, CO, TZ, ZA, ISF, Office
*Sorghum ( <i>Sorghum bicolor</i> and <i>S. xdrummondii</i> ) (Revision)	TG/122/4(proj.3)	Mr. Luis Salaices (ES)	AU, BR, CA, CL, CN, CZ, DE, FR, GB, HU, IT, JP, KE, QZ, RO, TZ, UA, ZA, ESA, ISF, Office
*Urochloa ( <i>Brachiaria</i> )	TG/UROCH(proj.8)	Mr. Fabrício Santana Santos (BR)	AU, CO, MX, ZA, ISF, Office

DRAFT TEST GUIDELINES TO BE DISCUSSED AT TWA/44  
(\* indicates possible final draft Test Guidelines)

Guideline date for Subgroup draft to be circulated by Leading Expert: **March 27, 2015**

Guideline date for comments to Leading Expert by Subgroup: **April 24, 2015**

New draft to be submitted to the Office of the Union  
**before May 22, 2015**

Species	Basic Document	Leading expert(s)	Interested experts (countries/organizations)
Castor Bean ( <i>Ricinus comunis</i> L.)	TG/RICIN(proj.1)	Mr. Adriaan de Villiers (ZA)	AR, BG, BR, FR, IT, QZ, UA, ESA, ISF, Office
Cotton ( <i>Gossypium</i> L.)	TG/88/6	Mr. Luis Salaices (ES)	AR, AU, BR, CN, CO, ES, JP, KE, QZ, TZ, VN, ZA, CLI, ESA, ISF, Office
*Elytrigia ( <i>Elytrigia elongata</i> (Host) Nevski), ( <i>Agropyron elongatum</i> (Host) P. Beauv.)	TG/ELYTR(proj.4)	Mr. Alberto Ballesteros (AR)	HU, PL, QZ, ESA, ISF, Office
Field Bean ( <i>Vicia faba</i> L. var. minor)	TG/8/6	Ms. Cheryl Turnbull (GB)	AR, AU, CO, DE, DK, ES, FR, GB, IT, QZ, ZA, CLI, ESA, Office
Finger millet ( <i>Eleusine coracana</i> (L.) Gaertn.)	TG/ELEUS(proj.1)	Ms. Nadiya Leschuk (UA)	BR, KE, TZ, ISF, Office
Oats ( <i>Avena sativa</i> L. & <i>Avena nuda</i> L.)	TG/20/7	Mr. Antonio Escolano (ES)	AR, AU, BR, CA, CN, CO, DE, DK, ES, FI, FR, GB, IT, JP, KR, NL, QZ, UY, ZA, ESA, ISF, Office
Quinoa ( <i>Chenopodium quinoa</i> Willd.)	TG/CHENO(proj.1)	Mr. Erik Lawaetz (DK)	AR, BR, CA, CL, CO, FR, KR, NL, QZ, ZA, ESA, ISF, Office
Red Clover ( <i>Trifolium pratense</i> L.)	TG/5/7	Ms. Robyn Hierse (ZA)	AR, AU, BR, DE, DK, ES, FI, FR, GB, IT, JP, QZ, UY, ZA, CLI, ESA, ISF, Office
*Scorpion Weed ( <i>Phacelia tanacetifolia</i> Benth.)	TG/PHACE(proj.3)	Mrs. Bogna Kowalczyk (PL)	AT, CZ, DE, FR, QZ, RO, ISF, Office
Soya Bean ( <i>Glycine max</i> (L.) Merrill)	TG/80/6	Mr. Alberto Ballesteros (AR)	AR, AU, BR, CA, CN, CO, FR, IT, JP, KR, PY, QZ, UY, VN, CLI, ESA, ISF, Office
*Wheat ( <i>Triticum aestivum</i> L. emend. Fiori et Paol.) (Revision)	TG/3/12(proj.3)	Mrs. Virginie Bertoux (FR)	AR, AT, AU, BG, BR, CA, CL, CN, CZ, DE, DK, ES, FI, GB, HR, HU, IT, JP, KE, KR, NL, PL, QZ, RO, SK, UA, ZA, CLI, ESA, ISF, Office

[End of Annex IV and of document]