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TWA/40/23
ORIGINAL: English
DATE: May 20, 2011

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

TECHNICAL WORKING PARTY FOR AGRICULTURAL CROPS

Fortieth Session
Brasilia, May 16 to 20, 2011

REPORT

adopted by the Technical Working Party for Agricultural Crops (TWA)

1. The Technical Working Party for Agricultural Crops (TWA) held its fortieth session in Brasília, Brazil, from May 16 to 20, 2011. The list of participants is reproduced in Annex I to this report.

2. The TWA was welcomed by Mr. Erikson Camargo Chandoha, Secretary of Agricultural Development and Cooperativism, Ministry of Agriculture, Livestock and Food Supply. A copy of the welcome address is provided in Annex II to this report.

3. The TWA received a presentation on plant variety protection in Brazil by Mrs. Daniela de Moraes Aviani, Coordinator, National Plant Variety Protection Service (SNPC), Ministry of Agriculture, Livestock and Food Supply. A copy of the presentation is provided in Annex III to this report.

4. The session was opened by Mr. Dirk Theobald (European Union), Chairperson of the TWA, who welcomed the participants and, in particular, new participants to the TWA.

Adoption of the Agenda

5. The TWA adopted the agenda as reproduced in document TWA/40/1 Rev.2.

Short Reports on Developments in Plant Variety Protection

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

6. The TWA noted the information on development in plant variety protection from members and observers provided in document TWA/40/20. The TWA noted that reports submitted to the Office of the Union after May 10, 2011, would be included in an addendum to document TWA/40/20.

(b) Reports on developments within UPOV

7. The TWA received a presentation from the Office of the Union on the latest developments within UPOV, a copy of which is attached as Annex IV to this document.

Molecular Techniques

8. The TWA noted the information provided in document TWA/40/2 "Molecular Techniques".

TGP Documents

9. The TWA considered the TGP documents below on the basis of document TWA/40/3.

Revision of TGP Documents:

TGP/7: Development of Test Guidelines

(i) Summary of revisions proposed for document TGP/7

10. The TWA considered document TWA/40/11 and noted the information on Part I concerning proposals for revisions on which the TC had reached a conclusion:

- Number of plants to be examined (for distinctness)
- Coverage of ornamental varieties in Test Guidelines
- Applications for varieties with low germination
- Selection of asterisked characteristics
- Indication of grouping characteristics
- Standard references in the Technical Questionnaire

11. The TWA examined Part II of document TWA/40/11 and made the following comments:

- Guidance on the number of plants to be examined (for distinctness)

12. The TWA considered the proposal in Annex I to document TWA/40/11, prepared by an expert from Germany. The TWA discussed whether the document should refer only to the assessment of distinctness, or whether it should be elaborated further in order to cover also uniformity and stability. The expert from the Netherlands proposed to prepare a general document based on general considerations and to consider separately the following points:

(a) the number of plants in the trial (Annex 1, Section 3.4)
(b) the number of plants/parts of plants to be examined for the assessment of distinctness (Annex 1, Section 4.1.4)
(c) the number of plants/parts of plants for the assessment of uniformity (Annex 1, Section 4.2)

13. The TWA agreed to suggest to the TC that it consider the proposal as a possible matter for discussion on the Monday session of the TC, in 2012.

- Guidance for method of observation

14. The TWA considered the background information concerning "Guidance for method of observation" (see document TWA/40/11, Annex II) and noted the comments by the TWPs at their sessions in 2010.

(ii) Providing photographs with the Technical Questionnaire

15. The TWA considered document TWA/40/12 and proposed that the text should read as follows:

(a) ASW 16 to read as follows:

"A representative color photograph (image) of the variety displaying its main distinguishing feature(s), ~~must~~should[1] accompany the Technical Questionnaire. [A photograph provided according to the specified requirements (see …. [authority reference to be added])~~in an appropriate format~~ will help the examination authority to prepare its examination of distinctness in a more efficient way, by giving a visual illustration of the candidate variety which supplements the information provided in the Technical Questionnaire. The information provided by the photograph may be used in the selection of the most ~~appropriate~~similar varieties of common knowledge to be grown alongside the candidate variety in the trial, as well as to ~~place~~group the variety optimally within the DUS trial. ~~For greater details, please consult the following weblink: www.[……].~~][#]"

(b) title of paragraph 7 of document TWA/40/12 to be amended as follows:

"~~*Optimal*~~ *photographic environment"*

(c) to delete the last two sentences of paragraph 8 of document TWA/40/12:

"Precisions on growing conditions

"8. The plants of the candidate variety appearing in the photographs should have been grown under standard growing conditions for the crop in question, as may have been indicated in the Technical Questionnaire (e.g. indoor, outdoor, season of

[1] ~~Strikethrough~~ (deletions)/Underlining (additions) indicate amendments proposed by the Enlarged Editorial Committee at its meeting on January 6, 2011. ~~Strikethrough~~ (deletions)/Underlining (additions) (highlighted in grey) indicate amendments proposed by the TWA at its fortieth meeting held in Brasilia from May 16 to 20, 2011.

[#] Authorities may include this section, duly completed, if appropriate

the year). If this is not the case, then any possible alteration in the expression of the characteristic(s) appearing in the photographs must be specified (e.g. seasonal conditions may influence the color and pattern of fruit and flowers ~~of flowers in certain ornamental species~~, such as over coloring in apple according to outdoor light intensity and night temperatures, delphinium grown either outdoors or indoors). ~~Furthermore, the photographs must not illustrate the original bred or discovered plant, or in the case of a new mutation or sport the plant part from which the variety originated. Instead, the photograph supplied must be based upon plants or trees propagated from the original plant or plant part.~~"

(d) to modify the second sentence of paragraph 10 of document TWA/40/12 to read "nominated similar variety(ies)":

"*Similar varieties*

"10. ~~If t~~Although not a requirement, the applicant may wish~~wishes~~ to illustrate differences between the candidate variety and the variety thought to be the most similar ~~by the applicant~~ as nominated by him/her under point 6 of the Technical Questionnaire, ~~it may be useful to~~ by providing~~e~~ photographs of the candidate variety alongside the aforesaid similar variety. In such photographs, the distinguishing plant parts of the candidate variety should be photographed alongside the same plant parts of the nominated similar variety(ies). ~~In order to have consistency in the display of such photographs for the use of the examination office, the candidate variety must always be on the left side of the photograph taken alongside the similar variety; special care must also be taken that both the candidate variety and the similar variety are correctly labeled.~~ Where there is more than one similar variety named by the applicant, a separate photograph of the relevant plant parts of the candidate variety and each of those of the similar varieties could be provided."

(e) to delete the beginning of paragraph 11 of document TWA/40/12:

"*Labeling*

"11. ~~To avoid any possible mix-up of photographs with other candidate varieties in the DUS trial, the candidate variety (and where relevant the similar variety) appearing in~~ A photograph must be clearly labeled with the breeder's reference and/or (proposed) variety denomination; trade names may be used only in addition to the breeder's reference and/or (proposed) variety denomination."

16. The TWA agreed that the examples for guidance on photographs for specific crops could be provided in a new annex to document TGP/7. The experts from Japan informed the TWA that such guidance was available and could be provided to be incorporated in that annex. The expert from the Republic of Korea commented that, when taking pictures of a candidate variety, similar varieties may be included.

(iii) Quantity of plant material required

17. The TWA considered and noted the information provided in document TWA/40/19.

(iv) Example varieties

18. The TWA considered document TWA/40/18 and noted the comments from the TWPs in 2010. The TWA agreed that, for the time being, it was not necessary to redraft the proposal

prepared by an expert from France concerning example varieties (see Annex to document TWA/40/18) and that it would be discussed on the Monday session of the TC in 2012. The TWA recommended that the TC should consider the possibility for national authorities to exchange example varieties. The expert from the Republic of Korea noted that it might be useful to have contact details of the relevant experts.

Development of regional sets of example varieties for the Test Guidelines for Rice

19. The TWA received a presentation on the development of a regional set of example varieties for South East Asia for the asterisked characteristics in the UPOV Test Guidelines, prepared by Mr. Edilberto Redoña, Senior Scientist (Plant Breeding) & Coordinator, International Network for Genetic Evaluation of Rice (INGER), International Rice Research Institute (IRRI) (see document TWA/40/21). The TWA concluded that the results of the project were of high value. It agreed to recommend to the TC to circulate this information to the other TWPs and to consider the possible inclusion of a regional set of example varieties for South East Asia as an Annex to the UPOV Test Guidelines.

Partial revision of the Test Guidelines for French Bean (document TG/12/9)

20. The TWA considered document TWA/40/17. One expert asked whether the new characteristic "Resistance to Bean Common Mosaic Necrosis Virus (BCMNV) covered characteristic 50 "Type of resistance to Bean Common Mosaic Virus (BCMV). Some experts expressed the view that indicating the disease resistance as an asterisked characteristic might be problematic since it obliges authorities to test resistance to diseases which may not occur in their territories or may not be important.

TGP Documents (continued)

TGP/8: Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability (document(s) to be prepared by the Office of the Union)

21. The TWA considered document TWA/40/14.

ANNEX I - TGP/8 PART I: DUS TRIAL DESIGN AND DATA ANALYSIS
New Section 2 - Data to be recorded (Drafter: Mr. Uwe Meyer (Germany))

22. The TWA considered Annex I to document TWA/40/14 and agreed that the document contained valuable information and should therefore be included in TGP/8.

ANNEX II – TGP/8 PART I: DUS TRIAL DESIGN AND DATA ANALYSIS
New Section 3 – Control of variation due to different observers (Drafter: Mr. Gerie van der Heijden (Netherlands))

23. The TWA noted the information provided in Annex II to document TWA/40/14 and agreed that example varieties illustrating the range of expressions could also be a useful element in the training of experts (see paragraph 2 (Training)). The TWA recommended to replace the title of the first heading "Control of variation due to different observers" by

"Minimizing the variation due to different observers" and to delete "and this procedure should preferably be described in ISO Guidelines" at the end of the paragraph on "Training".

ANNEX III - TGP/8 PART I: DUS TRIAL DESIGN AND DATA ANALYSIS
New Section 6 – Data processing for the assessment of distinctness and for producing variety descriptions (Drafters: experts from France, Germany, Japan, Kenya and the United Kingdom)

24. The TWA considered Annex III to document TWA/40/14. The TWA recommended to combine new Section 6 "Data processing for the assessment of distinctness and for producing variety descriptions" (Annex III to document TWA/40/14) with new Section 13 "Methods for data processing for the assessment of distinctness and for producing variety descriptions" (Annex VIII to document TWA/40/14) and new Section "Guidance for the development of variety descriptions" (Annex XI to document TWA/40/14).

ANNEX IV - TGP/8 PART I: DUS TRIAL DESIGN AND DATA ANALYSIS
New Section – Information of good agronomic practices for DUS field trials (Drafters: Mrs. Anne Weitz (European Union) and Argentina and France to contribute))

25. The TWA considered Annex IV to document TWA/40/14 and recommended not to retain this section.

ANNEX V - TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION
New Section after COYU – Statistical Methods for very small sample sizes (Drafter: Mr. Gerie van der Heijden (Netherlands))

26. The TWA considered Annex V to document TWA/40/14 and recommended to amend, in the first paragraph, "two varieties different" as "two varieties distinct" as follows:

"One of the main problems when applying a statistical test on small trials is that we do not have enough data available to limit the risk of making a wrong decision to an acceptable level. Every statistical test has a probability/risk of making wrong decisions: there is a Type I error, i.e. the risk of declaring ~~two varieties different~~ two varieties distinct where in reality they are not significantly different, and a Type II error: declaring two distinct varieties not significantly different."

27. The TWA also recommended to redraft the last paragraph of the document in such a way that a variety could not be rejected on the basis that a similar variety was not available in the field in the reference collection.

ANNEX VI - TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION
New Section 11 Examining DUS in bulk samples (Drafter: Mr. Kristian Kristensen (Denmark))

28. The TWA considered Annex VI to document TWA/40/14 and noted the new subsections 11.1 and 11.2 for "Examining DUS in bulk samples".

ANNEX VII - TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION
New Section 12 - Examining characteristics using image analysis (Drafter: Mr. Gerie van der Heijden (Netherlands))

29. The TWA considered Annex VII to document TWA/40/14 and noted that the TWC would develop subsection 12.3 “Guidance on the use of image analysis”.

ANNEX VIII - TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION
New Section 13 - Methods for data processing for the assessment of distinctness and for producing variety descriptions (Drafters: experts from France, Germany, Japan, Kenya and the United Kingdom)

30. The TWA considered Annex VIII to document TWA/40/14 and agreed that further guidance should be developed based on the information provided at the UPOV DUS Seminar, held in Geneva, in March 2010, and the examples provided in Annex VIII to document TWA/40/14. The TWA noted that, for the time being, two examples had been provided.

ANNEX IX - TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION
New Section - Guidance of data analysis for blind randomized trials (Drafters: France and Israel to provide examples)

31. The TWA noted the information provided in Annex IX to document TWA/40/14.

ANNEX X - TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION
New Section - Statistical methods for visually observed characteristics (Drafters: Denmark, France and the United Kingdom)

32. The TWA considered Annex X to document TWA/40/14 and noted the new draft for the part concerning “The combined over-years method for binomial characteristics”. It recommended to modify the title of the three parts of “Section 10 – Minimum number of comparable varieties for the Relative Variance Method” as follows:

THE COMBINED OVER-YEARS METHOD FOR NOMINAL-SCALED CHARACTERISTICS

THE COMBINED OVER-YEARS METHOD FOR ORDINAL-SCALED CHARACTERISTICS

THE COMBINED OVER-YEARS METHOD FOR BINOMIAL-SCALED CHARACTERISTICS

ANNEX XI - TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION
New Section - Guidance for the development of variety descriptions (Drafter to be agreed)

33. The TWA noted the information provided in Annex XI to document TWA/40/14.

ANNEX XII - TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION
Section 4 – 2x1 % Method - Minimum number of degrees of freedom for the 2x1% Method (Drafter to be agreed)

34. The TWA noted the information provided in Annex XII to document TWA/40/14.

ANNEX XIII - TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION
Section 9 - The Combined-Over-Years Uniformity Criterion (COYU) - Minimum number of degrees of freedom for COYU (Drafters: experts from France, Germany, Japan, Kenya and the United Kingdom)

35. The TWA noted the information provided in Annex XIII to document TWA/40/14.

ANNEX XIV - TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION
Section 10 – Minimum number of comparable varieties for the Relative Variance Method (Drafter: Mr. Nik Hulse (Australia))

36. The TWA considered Annex XIV to document TWA/40/14. The expert from Germany noted that according to TGP/10, comparable varieties should be considered for assessing uniformity, and according to TGP/9, similar varieties for assessing distinctness. There was no agreement on this proposal from the expert from Australia. The TWA recommended that the TWC provide guidance on the adequate sample size of comparable varieties to be used in order to correctly assess uniformity.

TGP/12: Guidance on Certain Physiological Characteristics

37. The TWA considered document TWA/40/15 and noted the modifications made in the document prepared by the Netherlands contained in the Annex to that document. The TWA recommended that a section providing guidance on how to apply the Standard Resistance Protocol should be developed. The TWA proposed that the contents of subsection 2.3.2.1 in document TGP/12 in respect of quantitative characteristics should be replaced by a reference to the relevant section in document TGP/7.

TGP/14 Glossary of Terms Used in UPOV Documents

38. The TWA considered documents TWA/40/3, Annexes I and II, and TWA/40/16 Rev.

39. The TWA received a presentation on a study concerning the "Examination of the use component and composite characters for determining distinctness", prepared by experts from Denmark, Germany and the United Kingdom and contained in Annex II to document TWA/40/3. The TWA stressed the importance of the results of the study. It illustrated the importance to get knowledge on the relationship between composite characteristics and their components in order to be able to decide which characteristics should be included in the Test Guidelines. The TWA proposed to prepare, for the forty-first session of the TWA, specific guidance in that respect, based on the presented study. Furthermore, the TWA invited the other TWPs to consider the results of the aforementioned study at their sessions in 2011.

40. The TWA noted the modifications made to document TWA/40/16 Rev. With regard to "Section 2: Botanical Terms, Subsection 3: Color", contained in the Annex to document TWA/40/16 Rev., the TWA recommended that the new proposal for subsection 3.2.5 "Variegation" be redrafted to avoid the impression that variegation is only limited to white and yellow color.

Uniformity assessment

(a) Method for calculation of COYU

41. The TWA noted the information provided in document TWA/40/10.

(b) Assessing uniformity by off-types on the basis of more than one sample or sub-samples (document to be prepared by the Office of the Union)

42. The TWA considered document TWA/40/9. An expert from France explained that the different approaches for assessing uniformity by off-types on the basis of more than one sample or sub-samples were not exclusively a statistical issue. The expert from Germany clarified that, even though applying the same population standard recommended by Test Guidelines, there may be reasons, such as variation between years or different administrative procedures, for using different approaches. She wondered whether it would be appropriate to develop a general recommendation beyond what is already in the Test Guidelines. She added that the information on population standard in the Test Guidelines provided a good recommendation. Experts from Australia, the Netherlands and the Czech Republic considered that, if different approaches could lead to different results, it might be useful for the TWC to provide some guidance on the possible consequences of different approaches.

43. The TWA agreed that the use of different approaches was the result of different factors, and that it may not be possible to develop general guidance beyond the recommendations already provided in the Test Guidelines. However, some experts considered that it might be useful for the TWC to consider the information contained in the replies to the questionnaire "Population standards used for assessing uniformity by off-types on the basis of more than one sample" and to provide some guidance on the consequences of different approaches.

Discussion on Draft Test Guidelines

Coix

44. The subgroup discussed document TG/COIX(proj.1), presented by Mr. Kimikazu Ishikawa (Japan), and agreed the following:

cover page	to delete "*Coix lacryma-jobi* L. var. ma-yuen (Rom. Caill.) Stapf." from title and alternative names
2.3	to read: "The minimum quantity of plant material, to be supplied by the applicant, should be: […] of seed." leading expert to check quantity of seed
4.1.4	leading expert to check number of off-type plants
4.2.2	to check latest standard wording for uniformity in the case of cross-pollinated varieties and compare with other similar varieties
5.3	to consider whether to reduce the list of grouping characteristics
Char. 2	to move char. 2 after char. 4; check wording for this characteristic
Char. 6	to check relationship with char. 1; leading expert will check whether to add new characteristic on anther; China will make a proposal
Char. 7	to read: "Grain: Time of maturity"; move after Char. 19
Char. 8	to add an explanation under Ad. 10
Char. 10	to read: "Plant: range of grain distribution"
Chars. 12 and 13	leading expert to consider whether to have a single characteristic

Char. 13	to renumber notes as 1, 3, 5
Char. 14	the brackets should be moved to an explanation; to be indicated as MS/MG
Ad. 10	to expand explanation to explain char. 8 “Plant: height”
Char. 16	to check example varieties
Chars. 17 and 18	to check whether to combine chars. 17 and 18
Char. 19	to be indicated as MS/MG; leading expert to consider whether to delete
Chars. 20 and 28	to check whether chars. 20 and 28 are both needed
Char. 23	to consider whether to delete (*) and whether characteristic should be deleted
Char. 26	to read: “Grain: intensity of glossiness”
Char. 30	to check whether chars. 23 and 30 are both needed
Char. 31	leading expert to consider to add characteristic on “Culm: glaucosity” to be included after char. 13; China to propose example varieties
8.1 (a)	to read: “(a) Observations should be made at 50% of plants are fully heading”; leading expert to provide a better explanation of what fully heading means
Ad. 5	leading expert to check picture for state 2
Ad. 10	to delete sentence “The measurement is made from the lowest grain to the highest grain.”
Ad. 11	to read: “To be observed at the middle of internode in the central part of the longest culm.”
Ad. 15	to read: “To be observed at two thirds from the base of the longest culm.”
Ad. 16	to read: “To be observed on the largest sheathing bract of the longest culm.”
Ad. 17	to provide new photographs with clearer difference

Buckwheat

45. The subgroup discussed document TG/FAGOP(proj.5), presented by Mr. Masayuki Uchida (Japan), and agreed the following:

2.3	to read “500 g of fruit”
4.3.2	to read “Where appropriate, or in cases of doubt, stability may be further examined by testing a new fruit stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied.”
5.3	to correct numbers of grouping characteristics
Char. 1	to delete VG
Char. 7	to be indicated as MG

Char. 9	to read “Leaf blade: intensity of green color” to have states “light” (1), “medium” (2), “dark” (3)
Char. 13	to add explanation on “clusters” in 8.2: “The total number of flower clusters per plant should be observed”; to copy illustration from Ad. 6 and indicate clusters by arrows
Char. 21	to delete (+)
Char. 22	to be deleted
Ad. 6	to add explanation of terms “truss”, “corymb”, “cyme” to drawing (Japan to circulate completed drawing)
Ad. 7	to read “For plant height, the natural height should be measured” and to move to Ad. 7/Ad. 14
Ad. 22	to be deleted

Cassava

46. The subgroup discussed document TG/CASSAV(proj.2), presented by Mr. Simeon Kibet Kogo (Kenya) and Mr. Luis Asp Pacheco (Brazil) and agreed the following:

cover page	to read “*prepared by an expert from Brazil and Kenya*”
page 2	update table of contents after the inclusion of chapter 3.5 “Number of Plants / Parts of Plants to be Examined” (see new 3.5 below)
2.3	to read “The minimum quantity of plant material, to be supplied by the applicant, should be: 30 cuttings, each one with a length of 20 cm with at least 5 to 8 buds.”
new 3.5	to insert back chapter 3.5 (missing in proj.2) modified as follows: “*3.5 Number of Plants / Parts of Plants to be Examined* Unless otherwise indicated, all observations on single plants should be made on 10 plants or parts taken from each of 10 plants.”
3.5	renumber to 3.6
5.3	to delete char. 2 (a), char. 14 (g), char. 17 (h), char. 29 (k) from the list of grouping characteristics; to add chars. 16, 26 and new char. on “Branch habit” as grouping characteristics; grouping of characteristics needs to be rechecked
Table of Chars.	check order of characteristics; check whether it is lobe or leaflet
Char. 1	consider whether to be moved after char. 15
Char. 4	to read: “Leaf: predominant shape of central lobe”; reconsider obovate states, and linear pyramidal and linear pandurate states; check state names in TGP/14; states to correspond to illustrations in Ad. 4
Char. 6	check colors in TGP/14; keep states 3 and 4; Brazil to provide example varieties
Char. 7	to be deleted

Char. 8	Brazil to provide example varieties
Char. 9	to read: "Leaf: length of central lobe"
Char. 11	to read: "Leaf: width of central lobe"
Char. 12	add new state "purple" with note 4
Char. 14	check this characteristic; check example varieties (Karibuni)
Char. 15	delete state "entire and split"; notes to be 1 and 2; check against char. 19
Char. 16	Tanzania to check and provide example varieties for cream; add state "purplish" with note 5
Char. 17	to delete (*); check colors in TGP/14 (golden and silver are not valid colors)
Char. 18	delete "(middle part of plant)"; check in TGP/14 whether orange comes before brown; add state "purple" with note 5 and Brazil to provide example varieties
Char. 20	to read: "Stem: prominence of leaf scars on nodes" and delete "(middle part of plant)"; states to be changed to "weak" (1), "medium" (2), "strong" (3)
Char. 21	delete "(middle part of plant)"; Brazil to provide an illustration showing where to measure
Char. 22	delete "of adult plants"; check in TGP/14 whether red comes before purple
Char. 23	to read: "Root: peduncle"
new Char.	to add new characteristic "Root: length of peduncle"; Brazil to provide states
Char. 24	to combine white, cream and yellow as one state "whitish"; renumber notes accordingly to 1, 2, 3
Char. 26	check the term pulp; split yellow into two states: "light yellow" and "dark yellow"; renumber notes accordingly
Char. 28	check the term "conico-cylindrical" in TGP/14 and improve illustration with better pictures
Char. 30	to be deleted
Char. 31	improve explanation; remove state 2 and renumber states to 1 and 2; check names of states in TGP/14 (easy/difficult or low/high)
new Chars.	check two new characteristics: - "Type of plant" with states "compact" (1), "opened" (2), "umbrella" (3) and "cylindrical" (4) - "Branch habit" with states "erect" (1), "dicotomic" (2), "tricotomic" (3), "tetracotomic" (4)
8.1	to insert a second sentence before (a), (b) and (c) to read "All characteristics to be observed in the middle third of the plant."
8.1 (b)	to read: "(b) Observations should be made after 180 days (6 to 9 months) from planting"
Ad. 5	improve photographs

Ad. 9 and 11	to read: Ad. 9 “Leaf: length of central lobe” and Ad. 11 “Leaf: width of central lobe”

Common Vetch

47. The subgroup discussed document TG/32/7(proj.2)(rev.), presented by Mr. Luis Salaices (Spain), and agreed the following:

2.3	to read “1 kg of seed”
3.3	first paragraph to read: “The tests should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination. In this sense, the Common Vetch trial should be carried out with some physical support to ensure the correct training of the plant.”
4.1.4	to delete last sentence “For the assessment of uniformity 200 plants should be examined” to add an explanation on uniformity as in Durum Wheat
4.2	to add 4.2.3 and to draft explanation on uniformity following the example in Durum Wheat (TG/120/4(proj.2))
6.5	to add legend (A) = 100 plants; (B) = 200 plants
Table of Chars.	to indicate BBCH growth stage for all characteristics
Chars. 1 to 14	to add (B)
Char. 15	to add (A)
Chars. 17 to 23	to add (A)
Char. 2	to read “Seedling: anthocyanin coloration on the base of the stem”
Char. 3	to have states “very light” (1); “medium” (3); “very dark” (5)
Char. 4	to read “Time of beginning of flowering”; to add (+)
Char. 5	to move explanation in brackets “on upper third of plant” to section 8.2
Char. 7	to move explanation in brackets “on middle third of plant” to section 8.2
Char. 8	to move explanation in brackets “on middle third of plant” to section 8.2
Char. 9	to add (*)
Char. 16	to add an explanation
Char. 17	to add explanation on how to observe shape; ; to indicate as QL; to have states “circular” (1) and “irregular” (2)
Char. 18	state (4) to read “colorless”

8.1	to replace current wording with BBCH growth stages
Ad. 17	to delete illustration and to add explanation
TQ 4.2.1	to delete "(b) Cross pollination" and "(c) Hybrid"

Durum wheat (Triticum durum *Desf.*) *(Revision)*

48. The subgroup discussed document TG/120/4(proj.3), as presented by Mr. Tanvir Hossain (Australia) / Mr. Luis Salaices (Spain), and agreed the following:

cover page, alternative names	to add English name "Pasta Wheat"
3.4.1	to read "Each test should be designed to result in a total of at least 2,000 plants, which should be divided between at least 2 replicates. The assessment for the characteristic 'Seasonal type' should be carried out on at least 300 plants."
4.2.3	second paragraph to read "Characteristics which should be observed on a sample size of 100 plants are indicated by an "A" in the table of characteristics. For these "A" characteristics, with the exception of characteristics 1, the assessment of uniformity can be done in 2 steps. In a first step, 20 plants or parts of plants are observed. If no off-types are observed, the variety is declared to be uniform. If more than 3 off-types are observed, the variety is declared not to be uniform. If 1 to 3 off-types are observed, an additional sample of 80 plants or parts of plants must be observed."
6.5	to add "A" and "B"
Char. 2	to be deleted
Char. 6	to have "A" instead of "B"
Char. 9	to read "Culm: density of hairiness of uppermost node"
Char. 12	to read "75-92"; to read "Plant: length"
Char. 13	to read "75-92"
Char. 14	to add explanation
Chars. 15 and 16	to be deleted and combined into a new characteristic: "Glume: shape" with states ovoid (1); elongated (2); strongly elongated (3); to indicate new characteristic as PQ
Char. 20	to read "Lower glume: curvature of beak"; to have states absent (1); weak (3); moderate (5); strong (7); to indicate as QN
Char. 26	to be indicated as VG/MS
Char. 27	to be deleted
Char. 28	to read "Grain: length of brush hair"; to move "(in dorsal view)" to explanation under Ad. 28; to reduce the number of example varieties for states (3) and (5)

Chars. 29, 30 and 31	to be deleted and combined into a new characteristic: "Grain: shape" with states ovoid (1); semi elongated (2); elongated (3); to be indicated as PQ and to add new explanation/drawing
Char. 32	to have notes (1), (3), (5), (7), (9) instead of (1), (3), (5)
Ad. 13	to improve illustration by providing Durum Wheat drawings/photos
Ad. 15	to provide better illustrations
Ad. 22	to correct states to read (1), (3), (5)
Ad. 26	to add explanation and if possible to replace drawings by photographs
Ad. 28	to improve drawings
Ad. 29	to keep drawings for new characteristic but to have states ovoid (1); semi-elongated (2); elongated (3)
Ad. 33	to read "The seasonal type should be assessed on one or several plots sown in springtime. At the time when the latest spring type variety is fully mature (growth stage 91/92 of the Zadoks decimal code), the growth stage reached by the respective variety should be assessed. The states of expression are defined as follows:…"
9.	to delete 4th and 5th reference

Elytrigia

49. In the absence of the Leading Expert for Elytrigia, the TWA did not discuss document TG/ELYTR(proj.1).

Groundnut

50. The subgroup discussed document TG/93/4(proj.1), presented by Mrs. Lynette Croukamp (South Africa), and agreed the following:

2.3	to read: "The minimum quantity of plant material, to be supplied by the applicant, should be: 1 kg of seed" leading expert will check quantity
3.4.1	to check standard wording to explain plant spacing
Char. 1	state 1 to be changed to "erect", state 2 to "semi-erect" and state 3 to "prostrate"; leading expert to check wording in TGP/7
Char. 2	to be deleted
Char. 3	to read: "Prostrating varieties only: …"; delete state "horizontal" (1); renumber states accordingly as 1, 2 and 3; add a drawing
Char. 4	Brazil will send suggestions to add more stem characteristics
Char. 5	to have states "absent" (1) and "present" (9); to be indicated as QL

new Char. after Char. 5	to read “Stem: intensity of anthocyanin coloration” with states “weak” (3), “medium” (5) and “strong” (7); to be indicated as QN; add (a) and A
Char. 7	to read: “Leaflet: predominant position of broadest part”
Char. 8	to be deleted
Char. 9	to read: “Leaflet: predominant shape of apex”; leading expert to check states 2 and 4
Char. 10	to read: “Leaf: intensity of green color”
Char. 12	to change notes to 1, 2, 3, 4, 5
Char. 13	to read: “Pod: Degree of reticulation” with states “shallow” (3), “medium” (5) and “deep” (7)
Char. 14	to delete state “mostly one or two”; renumber states as 1 and 2; to be indicated as QL
Char. 15	to read: “Pod: presence of beak”; to have states “absent” (1) and “present” (9); to be indicated as QL
Chars. 16 and 17	to be deleted
Char. 18	to check colors and include RHS reference
Char. 19	to add new state “irregular” (3); add a drawing or specify what kernel to observe
Char. 20	to change back to: “Kernel: weight”; Brazil will propose a scale to be checked by leading expert
Char. 21	to consider whether to delete
Char. 22	to be reconsidered according to explanations to be provided by Brazil under Ad. 22 and add state 4 “
8.1 (a)	to add a new sentence before 8.1 (a) to read: “All observations should be made:”; check state of plant development
Ad. 9	to check states 2 and 4
Ad. 11	to add new sentence at the beginning of explanation to read: “To be observed on primary branches.”; to amend explanation for state 1 to read: “alternate (1): nodes with flowers alternating with nodes without flowers”
Ad. 12	to add new sentence at the beginning of explanation to read: “To observe the predominant expression.”
Ad. 22	Brazil proposes to refer to the type of kernel and will provide an explanation; add state 4 “other”

Hemp

51. The subgroup discussed document TG/CAN_SAT(proj.4), presented by Mr. Henk Bonthuis (Netherlands), and agreed the following:

cover page	to amend “fourtieth” by “fortieth”

<table>
<tr><td>1.</td><td>to read “These Test Guidelines apply to all varieties of Cannabis sativa L.”</td></tr>
<tr><td>2.4</td><td>to delete paragraph numbering</td></tr>
<tr><td>2.5 and 2.6</td><td>to be renumbered as 2.4 and 2.5</td></tr>
<tr><td>4.2.2</td><td>to delete the last two sentences “In case of monoecious varieties a population standard of 5 % and an acceptance probability of at least 95 % should be applied for male plants. In the case of a sample size of 200 plants, 15 male plants are allowed.”</td></tr>
<tr><td>Table of Chars.</td><td>leading expert will make a proposal of example varieties; DE proposes that for QN characteristics, example varieties should come from the same country</td></tr>
<tr><td>Char. 3</td><td>to read: “Hypocotyl: intensity of anthocyanin coloration”</td></tr>
<tr><td>Char. 4</td><td>to read: “Plant: anthocyanin coloration of crown”</td></tr>
<tr><td>Char. 6</td><td>to be deleted</td></tr>
<tr><td>Chars. 15, 16 and 17</td><td>to delete VS; to be indicated as MS/VG</td></tr>
<tr><td>Char. 22</td><td>to delete (+); check example varieties</td></tr>
<tr><td>Ad. 1</td><td>for states 1, 2 and 3, delete first line concerning ratio</td></tr>
<tr><td>Ad. 6</td><td>to be deleted</td></tr>
<tr><td>Ad. 12</td><td>first sentence to be moved after second paragraph and to be modified as follows: “Other varieties: 50% of all male plants with first staminate male flower open.”</td></tr>
<tr><td>Ad. 15, 16 and 17</td><td>The beginning of the first paragraph to read as follows: “Cannabis sativa L. is dioecious by nature, containing approximately equal proportions of male and female plants. Hermaphrodite plants (male and female flowers on one plant) occasionally occur …”

Ranges in proportion table to be amended as followed:
<table>
<tr><td>Proportion</td><td>Note</td><td>Ranges (percentage)</td></tr>
<tr><td>low</td><td>1</td><td>≤ 5 %</td></tr>
<tr><td>low to medium</td><td>2</td><td>6-35 %</td></tr>
<tr><td>medium</td><td>3</td><td>36-65 %</td></tr>
<tr><td>medium to high</td><td>4</td><td>66-95 %</td></tr>
<tr><td>high</td><td>5</td><td>> 95 %</td></tr>
</table>

To insert a new sentence after the table of proportion to read as follows: “Proportion should be based on at least 200 plants for seed-propagated varieties and at least 40 plants for vegetatively propagated varieties.”

Leading expert to check whether it is botanically correct to use ther terms “hermaphrodite plants” instead of “monoecious plants” throughout the Test Guidelines; check against the Test Guidelines for Asparagus</td></tr>
<tr><td>Ad. 18</td><td>to read: “Natural height should be observed on female and/or monoecious plants including inflorescence.”</td></tr>
<tr><td>TQ, 4.2.1</td><td>to delete “(c) Hybrid [ ]”; rename (d) to (c)</td></tr>
</table>

TQ, p. 25	to delete request for information related to hybrids from section 4.2 of the Technical Questionnaire
TQ, 5.	to be corrected according to changes in Table of Characteristics

Scorpion Weed

52. The subgroup discussed document TG/PHACE(proj.1), as presented by Mrs. Radmila Safarikova (Czeck Republic), and agreed the following:

2.3	to read: "The minimum quantity of plant material, to be supplied by the applicant, should be: 500 g of seed."
new Char. 1	to add new characteristic 1 "Ploidy" with state "diploid" (2) (example varieties "Amerigo, Lisette ") and state "tetraploid" (4) (example varieties "Oka, Polyphaci, Wolga"; indicate as "QL" and "C"; add (+) and provide an explanation under Chapter 8
Table of Chars.	to complete set of varieties for all characteristics; to replace letters (a) to (f) with BBCH growth stages (see 8.1)
Char. 1	to add more example varieties and/or add an explanation
Char. 2	to add example varieties
Chars. 2, & 4 to 12	to check with leading expert the stage of observation of all leaf, stem and plant characteristics, and renumber characteristics accordingly
Char. 4	to change MS to MG
Char. 5	to check possible influence of density of plants
Char. 6	to check whether it is "color or intensity of anthocyanin coloration"; in case of color, add example varieties for state "violet green"
Char. 7	to add example varieties for absent; if no example varieties, delete this characteristic
Char. 9	explanation to be added on how to observe; add illustration
Char. 11	to add example varieties; are characteristics 6 and 11 independent?
Char. 13	to add explanation
Char. 14	to add new state "white" (1) with example variety "Blanca"; renumber the other states to read 2, 3, 4 and 5
Char. 16	to change stage of observation to (f)
Char. 17	to change stage of observation to (f); add example varieties for "medium brown"
8.1	to replace letters (a) to (f) with BBCH growth stages
Ad. 4	explanation to be improved to clarify what the top of inflorescence is and to check whether it is natural height; if yes, change MS to MG

Sesame

53. The subgroup discussed document TG/SESAME(proj.6), as presented by Mr. Keun-Jin Choi (Republic of Korea), and agreed the following:

2.3	to read “30 g of seed”
4.3.2	to read “Where appropriate, or in cases of doubt, stability may be further examined by testing a new seed stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied.”
Char. 1	Kenya to provide example variety for state (2), otherwise delete characteristic
Char. 2	state (5) to read “very many”
Char. 3	states to read: basal (1); along stem (2); apical (3); to add example variety “Ansan” for state (2); Brazil to provide more example varieties
Char. 4	to add explanation/drawing
Char. 5	to have states (1), (2), (3)
Char. 6	to add explanation “To be observed at fully mature stage”; to add example varieties: “Adam” for state (3) and “Ansan” for state (7)
Char. 10	to add state “very strong” (9) and to move example variety “Milsung” from state (7) to new state (9)
Char. 12	to read “Leaf blade: conspicuousness of venations on lower side”; to have states “absent” (1) and “present” (9); to add example variety for state (9): “Yangbaek”; Brazil to provide example variety for state (1), otherwise delete characteristic
Char. 15	state 2 to read “yellowish”; to add example varieties: “Yangbaek” and “BRS Seda” for state (1); “Hucksun” for state (3)
Char. 17	to add example varieties: “Masekin” for state (1) and “Yangbaek” for state (9)
Char. 18	to read “Flower: intensity of pink color on outer side of corolla”
Char. 19	to read “Flower: intensity of pink color on inner side of lower lip”
Char. 21	Tanzania to provide example variety
Char. 23	to add example varieties: “Adam” for state (3) and “Ansan” for state (5)
Char. 24	to add example varieties: “Adam” for state (3) and “Mihuck” for state (5)
Char. 26	to have states “green” (1), “yellow” (2) and “purple” (3)
Char. 27	to delete characteristic
Char. 28	state (3) to read “gold”; to add example variety “Masekin” for state (3)
8.1	to read “(a) characteristics should be observed at flowering stage.”
Ad. 3	Korea to provide illustration for note 1 Brazil to provide illustration for note 2
Ad. 10	to have states “weak” (3), “medium” (5), “strong” (7) and “very strong” (9) and to provide illustration for state (7)
Ad. 29	to provide better illustrations

Urochloa (Brachiaria)

54. The subgroup discussed document TG/UROCH(proj.5), presented by Mr. Fabrício Santana Santos (Brazil), and agreed the following:

2.3	to read "The minimum quantity of plant material, to be supplied by the applicant, should be: 500 g of seed" to delete "or 60 plants, in the case of vegetatively propagated varieties" to check material required and test design (in comparison to other TGs)
3.4.1	to read "Each test should be designed to result in a total of at least 60 spaced plants which should de divided into three replicates."
4.1.4	to read "Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 30 plants or parts taken from each of 30plants and any other observations made on all plants in the test, disregarding any off-type plants."
Table of Chars.	General remark: to check which characteristics to be observed in the second year
Char. 1	to be deleted; the breeder should provide information on the total number of chromosomes of the variety, and this information should be added in the TQ
Char. 2	to have states "erect", "semi erect", "ascending", "prostrate"; to check allocation of notes (3, 5, 7, 9?); to be observed in first and second year
Char. 3	to read "Plant: height"
Char. 4	to be deleted
Char. 5	to be deleted
Char. 6	state (1) to read "absent or very weak"; to delete "Group 1 only"; to evaluate in the second year
Char. 7	to check in TGP/14 whether states "pachimorph" (1), "intermediate" (2) and "leptomorph" (3) can be used
Char. 8	to check when to measure
Char. 9	to specify that it does not refer to floral culm; to check if "Group 1 only" should be deleted
Char. 10	to check if "Group 1 only" should be deleted
Char. 13	to read "Leaf sheath: distribution of hairs"
Char. 14	state (2) to read "narrow lanceolate" and to check wording in TGP/14
Char. 17	to read "Leaf blade: hairiness"; to have states "absent" (1) and "present" (9); to check when to be observed; to delete "Group 1 only"
Char. 18	to be checked; to have states "on upper side only" (1), "on lower side only" (2), "on margins only" (3) and "hair on both sides" (4)
Char. 19	to be deleted
Char. 20	to read "Inflorescence: length of peduncle"
Char. 22	to delete "Group 1 only"

Char. 23	to delete “Group 1 only”; to be indicated as PQ
Char. 24	state (2) to read “light purple”
Char. 25	to be deleted
Char. 26	to read “Spikelet: density of hairiness”
Char. 28	to read “Seed.: surface texture”; to clarify if seed or cariopsis
8.1	(b) to read: “Observations on culms and fully developed leaves should be made on the second leave from the top.”; to provide improved version of “Definitions”
Ad. 8	to read “The development of stolons should be assessed 3 months after sowing/planting.”
Ad. 14	to be provided
Ad. 20	to be provided
Ad. 21	to be provided
Ad. 22	to be provided
Ad. 23	to be provided
Ad. 28	to be provided

Variety denominations

55. The TWA noted the developments reported in document TWA/40/4.

Information and databases

(a) UPOV information databases

56. The TWA noted the information provided in document TWA/40/5. With regard to Annex III “UPOV codes to be checked by authorities”, the experts of the TWA were invited to provide comments to the Office of the Union by December 2011.

(b) Variety description databases

57. The TWA noted the information provided in documents TWA/40/6 and TWA/40/13. The expert from France presented a concept of a database containing pea variety descriptions as the first step for the setting up of the variety description database. The TWA agreed that the project for pea was a good example for the development of a variety description database and encouraged the French expert to continue its development. However, the TWA stressed that a good knowledge needed to be acquired with regard to the reliability of at least the grouping characteristics, before the presented concept could be applied for other species.

(c) Exchangeable software

58. The TWA noted the information provided in document TWA/40/7.

(d) Electronic application systems

59. The TWA noted the information provided in document TWA/40/8.

Matters to be resolved concerning Test Guidelines adopted by the Technical Committee (if appropriate)

60. The TWA took note of the information concerning the Test Guidelines for Foxtail Millet (*Setaria italica* (L.) P. Beauv.) (document TG/SETARIA(proj.5)) contained in document TWA/40/22 It also noted that the subgroup did not have enough time to consider the reply of the leading expert to the request made by the TC at its forty-seventh session. The TWA agreed that the Test Guidelines for Foxtail Millet should be rediscussed at its forty-first session.

Recommendations on draft Test Guidelines

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

61. The TWA agreed that the following draft Test Guidelines should be sent to the TC for adoption at its forty-eighth session, to be held in Geneva in March 2012, on the basis of the following documents and the comments in this report:

Buckwheat (*Fagopyrum esculentum* Moench)	TG/FAGOP (proj.5)
Durum wheat (Revision) (*Triticum durum* Desf.)	TG/120/4(proj.3)
Hemp (*Cannabis sativa* L.)	TG/CAN_SAT (proj.4)
Sesame (*Sesamum indicum* L.)	TG/SESAME (proj.6)

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

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

Adlay (*Coix ma-yuen* Roman.)	TG/COIX(proj.1)
Adzuki/Red bean (*Vigna angularis*)	new
Cassava (*Manihot esculenta* Crantz.)	TG/CASSAV (proj.2)
*Common Vetch (*Vicia sativa* L.) (Revision)	TG/32/7(proj.2) (rev.)
*Foxtail Millet (*Setaria italica* (L.) P. Beauv.)	TG/SETARIA(proj.5)
Groundnut (*Arachis* L.) (Revision)	TG/93/4(proj.1)
Kentucky Bluegrass (*Poa pratensis* L.) (Revision)	TG/33/6
Rhodesgrass (*Chloris gayana* Kunth)	new
Scorpion Weed (*Phacelia tanacetifolia* Benth.)	TG/PHACE(proj.1)
Sorghum (*Sorghum bicolor* L.) (Revision)	TG/122/3

Tall wheatgrass (*Elytrigia elongata* (Host) Nevski), (*Agropyron elongatum* (Host) P. Beauv.)	new
**Urochloa (Brachiaria)*	TG/UROCH(proj.5)
Wheat (*Triticum aestivum*) (Revision)	TG/3/11 + Corr.

63. The leading experts, interested experts and timetables for the development of the Test Guidelines are set out in Annex VIII.

Guidance for drafters of Test Guidelines

64. The TWA received a presentation on the assistance provided on the UPOV TG webpage for drafters of Test Guidelines. The TWA agreed to propose to the TC to give access to the TWP Chairpersons to the UPOV TG webpage.

Date and Place of the Next Session

65. At the invitation of France, the TWA agreed to hold its forty-first session in Angers, from May 21 to 25, 2012, with the preparatory workshop on May 20, 2012.

Future Program

66. 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 (oral reports by the participants)
   (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

67. On the morning of May 18, 2011, the TWA visited Pioneer Seeds, Brasilia D.F. Seed Processing and Research Unit, and its soybean seed production plant. It was welcomed by Mr. Welcimar Gonçalves da Cunha, Associated Researcher, who made a presentation on the company, a copy of which is provided in Annex V to this report. The TWA then visited the Brazilian Enterprise for Research on Farming and Cattle Raising, EMBRAPA Cerrados. It was received by Mr. Wenceslau Goedert, Head a.i., who made an introduction to the enterprise, and by Mr. José de Ribamar N. dos Anjos, Agronomist. A copy of his presentation is provided in Annex VI. The TWA visited field trials of cassava and urochloa. It received a copy of the guidelines used by EMBRAPA Cerrados for DUS testing and the breeding program for urochloa, which is provided in Annex VII to this report.

Medal

68. The TWA thanked Mr. Dirk Theobald and took note that he will be awarded a UPOV bronze medal in recognition of his chairmanship of the TWA from 2009 to 2011.

[Annexes follow]

ANNEX I

PROVISIONAL LIST OF PARTICIPANTS

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Dirk Theobald, Chairman

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[Annex II follows]

ANNEX II

Welcome Speech made by
Mr. Erikson Camargo Chandoha, Secretary of Agricultural Development and Cooperativism,
Ministry of Agriculture, Livestock and Food Supply

OPENING SESSION OF THE 40th. TECHNICAL WORKING PARTY FOR AGRICULTURAL CROPS – TWA / UPOV

MR. **DIRK THEOBALD**, CHAIRPERSON OF THE TECHNICAL WORKING PARTY FOR AGRICULTURAL CROPS – TWA OF THE INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS - UPOV

MR. **RAIMUNDO LAVIGNOLLLE**, DIRECTOR OF UPOV

MR. **HÉLCIO CAMPOS BOTELHO**; DIRECTOR OF THE DEPARTMENT OF INTELLECTUAL PROPERTY AND AGRICULTURE TECHNOLOGY OF SDC/MAPA

MRS. **DANIELA DE MORAES AVIANI**, COORDINATOR OF THE NATIONAL SERVICE OF PLANT VARIETY PROTECTION OF SDC/MAPA.

IT'S A GREAT HONOUR FOR THE MINISTRY OF AGRICULTURE, CATTLE AND FOOD SUPPLY OF BRAZIL TO HOST IN BRASILIA THE 40TH TWA, WHICH BEGINS TODAY.

IT'S ALSO A PLEASURE TO WELCOME THE REPRESENTATIVES OF 25 COUNTRIES AND INTERNATIONAL ORGANIZATIONS MEMBERS OF UPOV. **WELCOME!**

FOR US IT WILL BE AN UNIQUE OPPORTUNITY OF SHARING EXPERIENCES AND TO EXPAND THE KNOWLEDGE ABOUT INTELLECTUAL PROPERTY IN PLANT VARIETIES.

PLANT VARIETY PROTECTION IN BRAZIL, ESTABLISHED SINCE 1997, IS PLAYING AN IMPORTANT ROLE OVER THE LAST DECADE IN THE AGRIBUSINESS DEVELOPMENT AND BY CHERISHING SCIENTIFIC RESEARCH, THROUGH THE ENFORCEMENT OF THE PLANT BREEDERS' RIGHTS.

THE PVP LAW ATTRACTED INVESTMENTS IN AGRICULTURAL RESEARCH, ENCOURAGING THE ESTABLISHMENT OF PARTNERSHIPS BETWEEN THE PUBLIC AND PRIVATE SECTORS AND AMONG RESEARCH INSTITUTIONS AND SEED PRODUCERS AND, AS A CONSEQUENCE, THE MANY DIVERSE CROPS, AS LONG AS ITS BEING "IMPROVED", HAVE RESULTED IN VARIETIES WHICH ARE GRADUALLY ADAPTED TO THE DIFFERENT REGIONS IN BRAZIL MAKING IT POSSIBLE, FOR INSTANCE, THAT GROWERS FROM THE NORTHEAST AND NORTH REGIONS OF BRAZIL COULD CULTIVATE GRAPES AND SOYBEANS, SPECIES ORIGINATED IN TEMPERATED REGIONS. THE SAME OCCURS TO WHEAT, THAT HAS BEEN INTRODUCED TO THE CERRADO REGION, WHERE WE ARE LOCATED.

THE STRENGTHENING OF THE RESEARCH ON PLANT BREEDING ALSO ALLOWS THE CREATION OF VARIETIES THAT ARE RESISTENT TO DROUGHT, PESTS AND THAT ARE EVEN MORE PRODUCTIVE. THE IMPORTANCE OF THIS WORK IS UNDENIABLE, FOR IT RESULTS IN THE OBTENTION OF HIGH-PERFORMANCE VARIETIES, WITH QUALITY AND PRODUCTIVITY, AND ITS FAIR REWARD IS POSSIBLE BY MEANS OF THE PLANT VARIETY PROTECTION LAW.

WE ARE CONVINCED THAT THE EFFECTIVENESS OF THE PLANT BREEDER'S RIGHTS IS AN ESSENTIAL CONDITION TO PROMOTE THE RESEARCH, INVESTMENTS AND GENERATION OF NEW TECHNOLOGIES, PROVIDING BENEFITS TO THE AGRICULTURE OF BRAZIL. THE DEVELOPMENT OF AGRICULTURE IS ESSENTIAL TO RESPOND TO THE CHALLENGES OF FEEDING AN INCREASINGLY POPULATED WORLD.

PLANT VARIETY PROTECTION IS THEN UNDERSTOOD AS A BASIC STRATEGY FOR THE SUCCESS OF BRAZILIAN AGRICULTURE AND FOR THE NATIONAL AND INTERNATIONAL AGRIBUSINESS.

THEREFORE, BRAZIL HAS BEEN WORKING IN THE IMPROVEMENT OF THE PVP LAW, WITH THE AIM TO PROMOTE THE RESEARCH IN PLANT IMPROVEMENT AND THE NECESSARY SECURITY FOR ITS SUSTAINABILITY, WELL KEEPING ITS COMPETITIVENESS IN GENERATING TECHNOLOGY FOR THE AGRICULTURAL SECTOR BY ATTRACTING FOREIGN INVESTMENTS, KNOWLEDGE AND TECHNOLOGY.

WE HAVE BEEN ACTIVELY PARTICIPATING IN UPOV ACTIVITIES, THROUGH THE SNPC. IN 2002, WE HOSTED THE 31ST TWA SESSION, IN RIO DE JANEIRO, IN 2006, THE 37TH TWF SESSION AND THE 39TH TWO SESSION IN FORTALEZA, IN WHICH OCCASION NATIONAL AND FOREIGN EXPERTS HAD THE OPPORTUNITY TO INCREASE THEIR KNOWLEDGE, STRENGTHENING THEIR RELATIONSHIP AND PROMOTING THE DEVELOPMENT OF THE UPOV SYSTEM.

WE ARE LOOKING FORWARD TO HOSTING THE NEXT SESSION OF BMT HERE IN BRASILIA, NEXT NOVEMBER, PARTICULARLY CONSIDERING THE NEW CHALLENGES OF INTELLECTUAL PROPERTY, TAKING INTO ACCOUNT THE GROWING USE OF GENETIC ENGINEERING IN PLANT BREEDING IN AGRICULTURAL CROPS.

FINALLY, WE WOULD LIKE TO THANK UPOV AND BRASPOV FOR THEIR SUPPORT TO MAKE POSSIBLE THIS MEETING. WE WISH YOU A PRODUCTIVE WEEK AND GREAT SUCCESS IN YOUR WORK.

[Annex III follows]

TWA/40/23
ANNEX III
Presentation made by Daniela de Moraes Aviani,
Coordinator, National Plant Variety Protection Service (SNPC),
Ministry of Agriculture, Livestock and Food Supply of Brazil

Plant Variety Protection in Brazil

Daniela de Moraes Aviani
Coordinator
SNPC/DEPTA/SDC/MAPA

Ministério da Agricultura, Pecuária e Abastecimento I 1860 - 2010

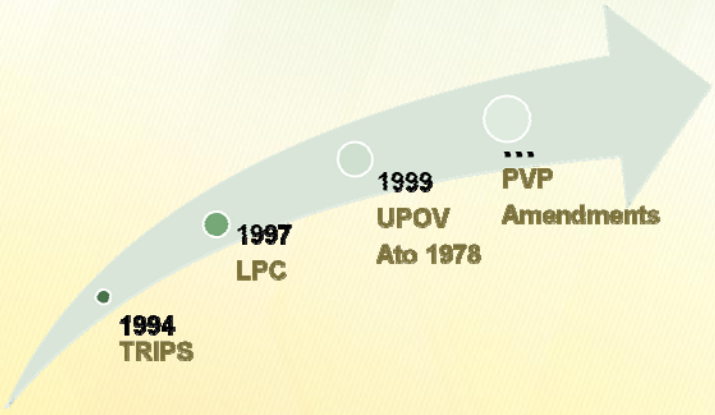
MINISTRY OF AGRICULTURE, LIVESTOCK AND FOOD SUPPY
MAPA

SECRETARIAT OF AGRICULTURAL DEVELOPMENT AND COOPERATIVISM
SDC

DEPARTAMENT OF INTELLECTUAL PROPERTY AND AGRICULTURAL TECHNOLOGY
DEPTA

National Plant Variety Protection Service
SNPC

Evolution of PVP Law in Brazil



PVP Law in Brazil

Act 1978	X	Act 1991
15 & 18 years ☜		Essencialy Derived Variety ☜
Lim. # spp. ☜		Provisional Protection ☜

110 genus/species

PBR EXCEPTIONS

- **Save seeds (farmers' privilege);**
- **Use or sell as food or raw material;**
- **Small holders (for donation or exchange);**
- **Breeding programs**

REVISION ON PVP LAW

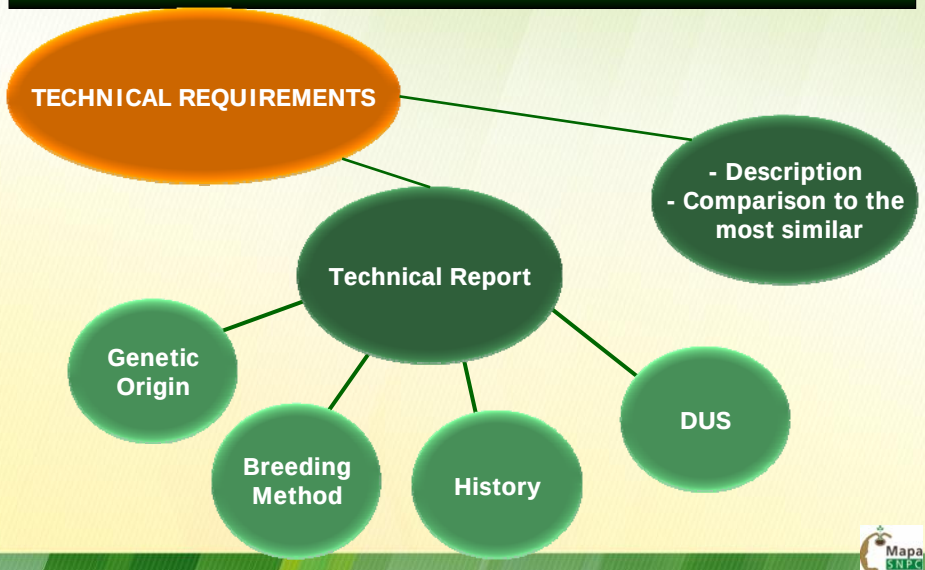
- **Extend breeders' rights to harvest material;**
- **Restricts the farmers' privilege;**
- **Forbid saving seeds;**
- **Protection for all species;**
- **Increase the duration of protection;**
- **Review DUS procedures (acreditation/DUS field inscription for inspection);**
- **Improve the enforcement measures**

LODGE OF APPLICATIONS

DECLARATORY SYSTEM

- **Electronic Application Form**
- **Technical Report**
- **Live sample**
- **Sworn Statement**
- **Tax**

REQUIREMENTS FOR APPLYING



FOREIGN TESTS AND TRIALS

Foreign tests and trials may be accepted when they are purchased by SNPC from UPOV member countries.

Tests may also be conducted abroad. If necessary it can be requested to repeat in Brazil to confirm the characteristics.

COST OF PROTECTION

The total cost of protection is 520 USD. This price includes a 120 USD fee for application and analysis, and a certificate fee of 400 USD, upon issuance of the certificate.

The annual fee for maintenance of the protection is about 250 USD.

LIVE SAMPLE

A live sample must be submitted to the SNPC.

The applicant must comply with all import procedures.

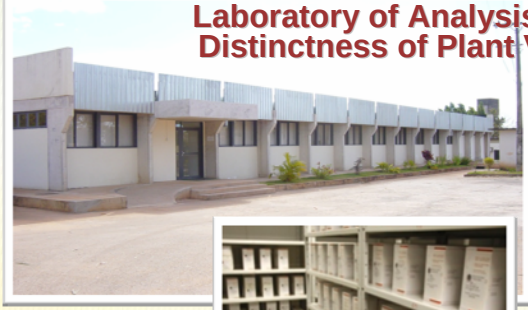
ENFORCEMENT

Inspection / Seed Law

The titleholder may sue any person who infringes his rights.

He may ask a court to issue an injunction to prevent from further violations and also might bring a suit in such cases.

Laboratory of Analysis, Description and Distinctness of Plant Varieties (LADIC)



Seed Bank

DNA Bank

- ✓ ASSISTS the trials for distinctness of varieties by analysing morphological characteristics of live samples;
- ✓ PROMOTES reference studies to standard seed descriptors;
- ✓ PROVIDES support to field tests;
- ✓ STORES live seed samples of lodged and common knowledge varieties;
- ✓ SUPPORTS seed inspection activities.

RING TRIALS OF EXAMPLE VARIETIES

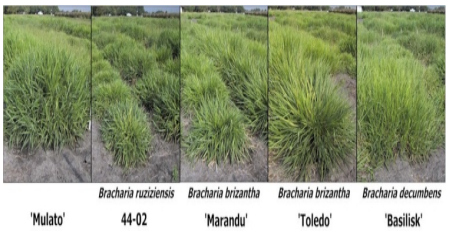
OBJECTIVES: Enhance trust on Brazilian testing system by providing training and organizing harmonized methodology and protocols among the breeders in charge of DUS tests.

COTTON
28 varieties
7 institutions/locations
4 states

SOYBEAN
93 varieties
14 institutions/locations
9 states

WHEAT
25 varieties
5 institutions/locations
3 states

RICE
27 varieties
6 institutions/locations
3 states



UROCHLOA

10 varieties

2 institutions/locations

2 states

CASSAVA

20 varieties / 1 location

PEARL MILLET

10 varieties

7 institutions/locations

5 states

Promotion of Intellectual Property

Objective: The National Plant Variety Protection Service (SNPC) promotes regular training and update on Intellectual Property providing lectures and organizing workshops and courses

Per year:

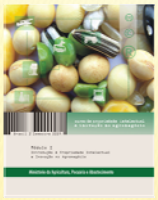
20 Lectures and Conferences

5 Workshops

On Line Distance Learning Courses

Course on PVP

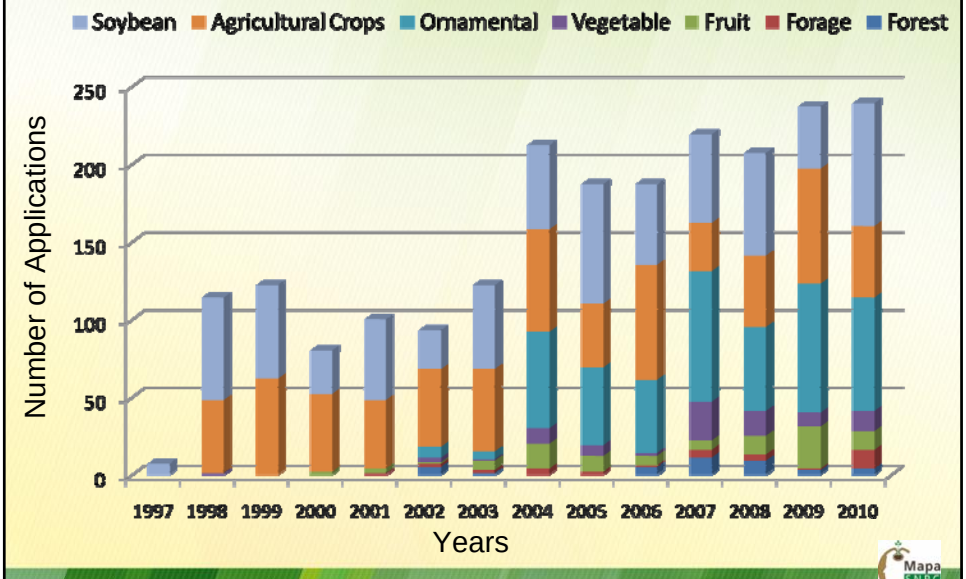
- ✓ 2010: 400 participants
- ✓ 2011: 100 (planned)

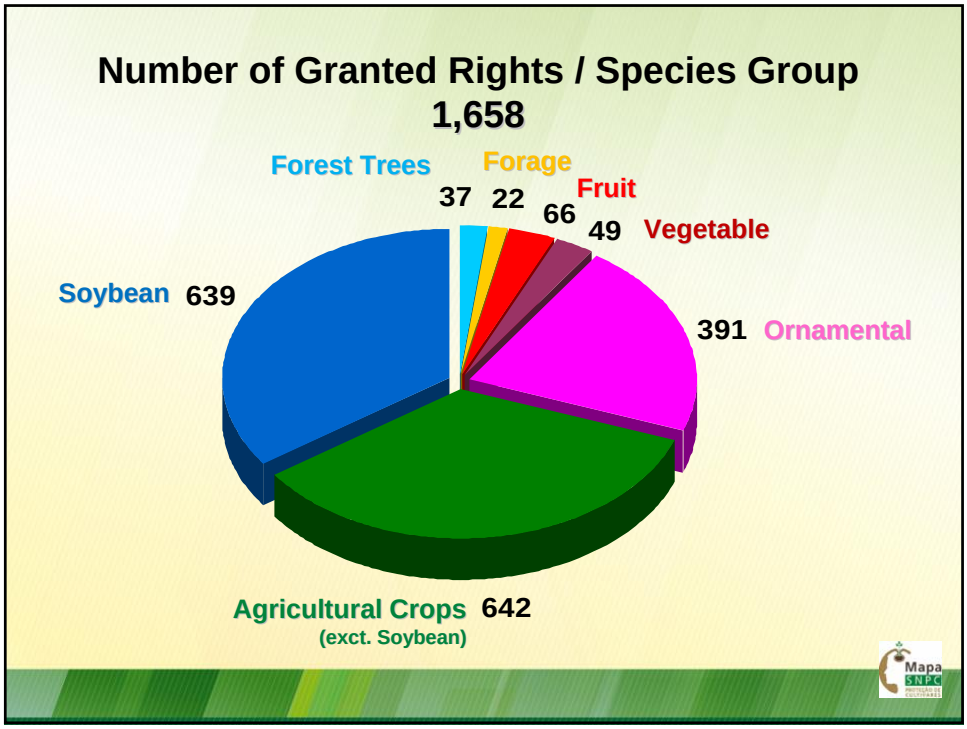


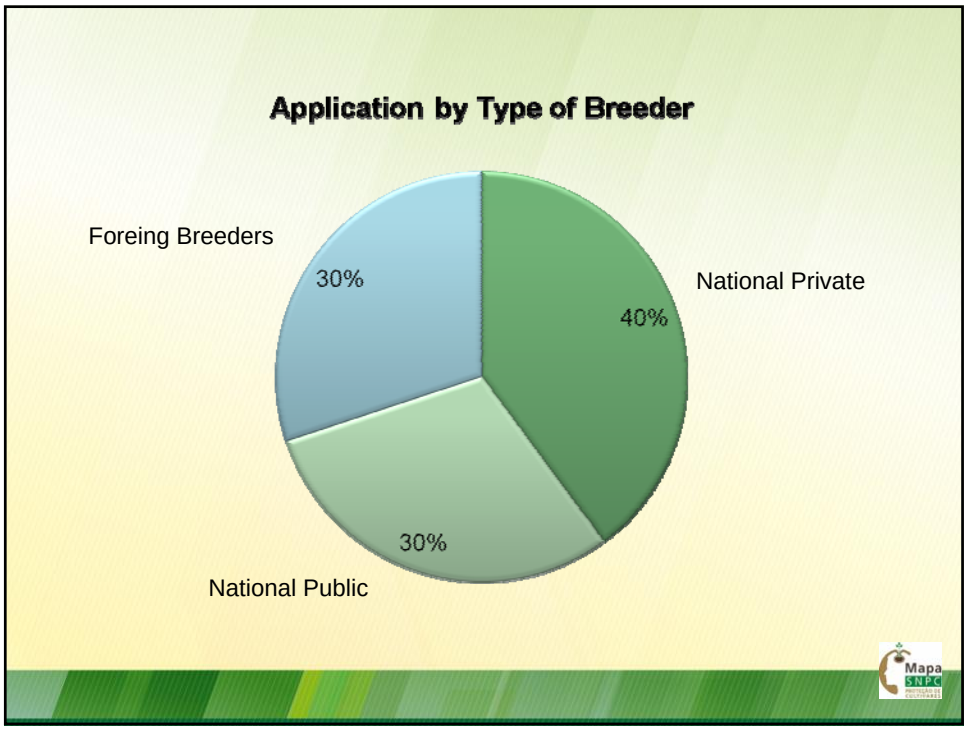
Intellectual Property and Innovation in Agribusiness

- ✓ 2009: 1000 participants
- ✓ 2010: 1400 participants
- ✓ 2011: 1000 (planned)

Plant Variety Applications in Brazil (2,126)




Number of Granted Rights / Species Group
1,658
Forest Trees
37
Forage
22
Fruit
66
Vegetable
49
Ornamental
391
Soybean
639
Agricultural Crops
(exct. Soybean)
642


Application by Type of Breeder
Foreing Breeders
30%
National Private
40%
30%
National Public

[Annex IV follows]

Presentation made by the Office of the Union on Recent Developments within UPOV

TECHNICAL WORKING PARTY ON AGRICULTURAL CROPS
Fortieth Session

REPORT ON DEVELOPMENTS IN UPOV

Brasilia, May 16 to 20, 2011

1

OVERVIEW

- Membership / Examination of Laws
- Council
- Consultative Committee
- CAJ & CAJ-AG
- TC
- Other developments
  - Publications
  - Second World Seed Conference / World Seed Project
  - Open day
- Information on DUS guidance and cooperation

2

MEMBERSHIP OF UPOV

69 Members
(68 States and the European Community)

New Members

Former Yugoslav Republic of Macedonia	as of May 4, 2011

Laws examined	Council session	Advice
Republic of Tajikistan	October 21, 2010	Positive
Republic of Serbia	April 8, 2011	Positive

3

COUNCIL

4

COUNCIL

ELECTED

for a term of three years ending in 2013

Chair of the Administrative and Legal Committee
Mr. Lü Bo (China)

Vice-Chair of the Administrative and Legal Committee
Mr. Martin Ekvad (European Union)

Chair of the Technical Committee
Mr. Joël Guiard (France)

Vice-Chair of the Technical Committee
Mr. Alejandro Barrientos-Priego (Mexico)

5

COUNCIL

INFORMATION MATERIALS ADOPTED OCTOBER 2010

Latest reference	Explanatory Notes on:
UPOV/EXN/VAR/1	Definition of Variety under the 1991 Act of the UPOV Convention
UPOV/EXN/CAL/1	Conditions and Limitations Concerning the Breeder's Authorization in Respect of Propagating Material under the UPOV Convention
	INF documents
UPOV/INF/4/1	Financial Regulations and Rules of UPOV
UPOV/INF/10/1	Internal Audit
UPOV/INF/12/3	Explanatory Notes on Variety Denominations under the UPOV Convention
UPOV/INF/15/1	Guidance for Members of UPOV on Ongoing Obligations and Related Notifications
UPOV/INF/16/1	Exchangeable Software
UPOV/INF/17/1	Guidelines for DNA-Profiling: Molecular Marker Selection and Database Construction ("BMT Guidelines")

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COUNCIL

INFORMATION MATERIALS ADOPTED (reminder)

Guidance for the preparation of laws based on the 1991 Act of the UPOV Convention (document UPOV/INF/6/1)

PART I: EXAMPLE TEXT FOR ARTICLES

PART II: NOTES BASED ON INFORMATION MATERIALS

(available in English, French, German, Spanish, Arabic, Chinese, Russian, Bahasa Indonesian)

7

COUNCIL

TGP DOCUMENTS ADOPTED OCTOBER 2010

Document reference	Issue	Title
TGP/0	/3	List of TGP Documents and Latest Issue Dates
TGP/5		Experience and Cooperation in DUS Testing:
Section 2	/3	UPOV Model Form for the Application for Plant Breeders' Rights
TGP/7	/2	Development of Test Guidelines
TGP/8	/1	Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability
TGP/14	/1	Glossary of Terms Used in UPOV Documents

8

UPOV

Mr. Jördens Gold Medal

9

UPOV

Plant Variety Database

Freely accessible

on the UPOV website

during 2011

10

CONSULTATIVE COMMITTEE

11

CONSULTATIVE COMMITTEE

Observers

- Established a working group to review the rules concerning observers and recommend appropriate changes
- Granted observer status to:
  - Association for Plant Breeding for the Benefit of Society (APBREBES): Council, CAJ, TC, TWPs
  - European Coordination Via Campesina (ECVC): Council, CAJ, TC, TWPs
- Extended observer status to:
  - CropLife International: CAJ, TC, TWPs

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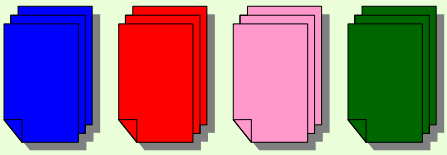
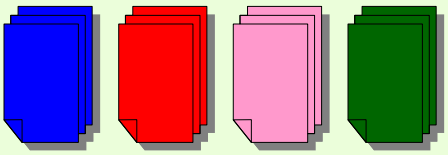
CONSULTATIVE COMMITTEE

- Established Organizing Committee for the celebration of the **Fiftieth Anniversary**
- Associated activities / developments
  - Symposium on Plant Breeding for the Future
  - restructuring of the UPOV website
  - visual presentation on UPOV website
  - new "UPOV Collection"



CONSULTATIVE COMMITTEE



UPOV Collection

(a) UPOV Convention
(b) UPOV/INF document series
(c) Explanatory notes on the UPOV Convention
(d) General Introduction
(e) TGP documents

(f) Test Guidelines (website link)
(g) UPOV Collection of Laws and Treaties (website link)
(h) List of UPOV members (website link)
(i) Addresses of Plant Variety Protection Offices (website link)
(j) UPOV Organigram (website link)
(k) Databases and information (website link)
  – List of the Taxa Protected by the Members of the Union
  – Cooperation in Examination
  – List of Species in which practical technical knowledge has been acquired or for which National Guidelines have been established
(l) Plant Variety Database (website link)
(m) GENIE Database (website link)

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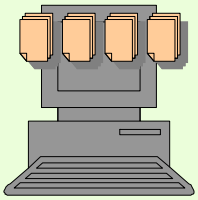
CONSULTATIVE COMMITTEE

UPOV Collection: website maintenance



- UPOV Collection on website
- Status document (c.f. document TGP/0)
- Electronic notification of updates to "subscribers"

15

CONSULTATIVE COMMITTEE

UPOV Collection: physical collection

- SET OF BINDERS with PRINTED DOCUMENTS
  - two sets per member of the Union
  - one set per observer State
  - one set per observer organization
- In the first instance only (and for new members and observers), printed versions of all documents in the "UPOV Collection", except for Test Guidelines, would be provided with the binders
- Members of the Union, observer States and observer organizations will be notified, electronically, of updates and will need to print the documents

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UPOV

ADMINISTRATIVE AND LEGAL COMMITTEE (CAJ)

17

UPOV

CAJ/ CAJ-AG

OVERVIEW OF THE DEVELOPMENT OF INFORMATION MATERIALS

CAJ/63 to consider CIOPORA request to develop explanatory notes on "propagation and propagating material"

Latest reference	Explanatory Notes on:	Status
UPOV/EXN/HRV Draft 6	**Acts in Respect of Harvested Material under the 1991 Act of the UPOV Convention**	**CAJ-AG October 2011**
UPOV/EXN/BRD Draft 4	**Definition of Breeder under the 1991 Act of the UPOV Convention**	**CAJ-AG October 2011**
CAJ-AG/11/6/3	**Essentially Derived Varieties under the 1991 Act of the UPOV Convention (revision)**	**CAJ-AG October 2011**

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UPOV

TECHNICAL COMMITTEE (TC)

19

UPOV

TECHNICAL COMMITTEE (TC)

written reports to the Office of the Union in advance of the Technical Working Party (TWP)

experts from France to present the concept of a database containing pea variety descriptions of member of the Union to the TWP 2011 and to the TC at its forty-eighth session.

Draft UPOV/INF/16/2 “Exchangeable Software” (to CAJ and Council)

20

TECHNICAL COMMITTEE (TC)

UPOV/INF/16 “Exchangeable Software”

• should be modified in order to allow the offer for assistance on the electronic office management systems made by the CPVO

•Netherlands and the Russian Federation would be invited to TWC

21

TECHNICAL COMMITTEE (TC)

a summary of information for all adopted Test Guidelines and made available to Leading Experts on the TG Drafters’ webpage

The TC agreed that, the adopted Test Guidelines should also be made available in Word format on the freely accessible area of the UPOV website.

copies of all previous adopted versions of Test Guidelines available on the first restricted area of the UPOV website

22

TECHNICAL COMMITTEE (TC)

forty-eighth session should be held over three days: Monday morning to Wednesday afternoon.

Monday should be dedicated to a discussion on experiences of members of the Union in measures to improve the efficiency and effectiveness of DUS testing

23

TECHNICAL COMMITTEE (TC)

In considering how to improve the effectiveness of the TC work, the following measures were agreed:

(a) to display documents under consideration at the session on the screen in the language of the original document.

(b) to add an indication in document reference of the language.

(c) to consider ways of improving the quality of draft Test Guidelines submitted by the TWPs for adoption to the TC. In that regard, the TC noted the importance of all necessary information being provided by the Leading Expert by the specified date, the importance of the role of the TWP chairpersons and the importance of posting the draft Test Guidelines on the UPOV website sufficiently in advance of the TC-EDC meeting in order that comments could be made before the TC-EDC meeting.

(d) The TC-EDC to hold a two-day meeting in January.

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TECHNICAL COMMITTEE (TC)
TGs adopted

NEW TEST GUIDELINES (11)	
TG/ACERO(proj.4)	Acerola, Barbados-cherry, West Indian-cherry
TG/AGAPA(proj.4)	African Lily, Agapanthus, Blue Lily, Lily of the Nile
TG/BOUGA(proj.5)	Bougainvillea
TG/CACAO(proj.4)	Cacao
TG/CAMEL(proj.4)	Camellia
TG/DRAGON(proj.5)	Dragon Fruit, Strawberry pear
TG/HIBIS(proj.7)	Rose-of-Sharon, shrub-althaea
TG/RUMEX(proj.7)	Dock, Garden sorrel, sorrel, sorrel dock, sour dock
TG/SETARIA(proj.5)	Foxtail Millet, Italian Millet, Hungary Millet
TG/TOREN(proj.4)	Bluewings, Torenia, Wishbone-flower
TG/VRIES(proj.6)	Vriesea

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TECHNICAL COMMITTEE (TC)
TGs adopted

REVISIONS OF TEST GUIDELINES (8)	
TG/44/11(proj.5)	Tomato
TG/51/7(proj.4)	Gooseberry
TG/52/6(proj.4)	Red and White Currant
TG/56/4(proj.4)	Almond
TG/57/7(proj.6)	Flax, Linseed
TG/84/4(proj.4)	Japanese Plum
TG/99/4(proj.4)	Olive
TG/184/4(proj.3)	Cardoon, Globe Artichoke, Cardoon
PARTIAL REVISIONS OF TEST GUIDELINES (2)	
TG/13/10 Rev. (TC/47/2, TC/47/24)	Lettuce
TG/55/7 Rev. (TC/47/2, TC/47/24)	Spinach

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TECHNICAL COMMITTEE (TC)
TGs adopted

Test Guidelines for Mandarins (Citrus; Group 1) (document TG/201/1) to be referred back to the TWF for further consideration

Test Guidelines for Canna (document TG/CANNA(proj.7)) and Eucalyptus (document TG/EUCAL(proj.6)) be referred back to the TWO for further consideration.

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DOCUMENTS PROPOSED TO THE COUNCIL FOR ADOPTION BY TC AND CAJ

28

DOCUMENTS PROPOSED TO THE COUNCIL FOR ADOPTION BY TC AND CAJ

BMT/DUS Draft 5: Possible use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)

document TGP/15 (models with a positive assessment and with accepted examples) should be developed separately, but in parallel, to document BMT/DUS

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DOCUMENTS PROPOSED TO THE COUNCIL FOR ADOPTION BY TC AND CAJ

TGP/11/1: Examining Stability

TGP/5: Section 10/2 Draft 2: Experience and Cooperation in DUS Testing: Notification of Additional Characteristics

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UPOV

OTHER DEVELOPMENTS

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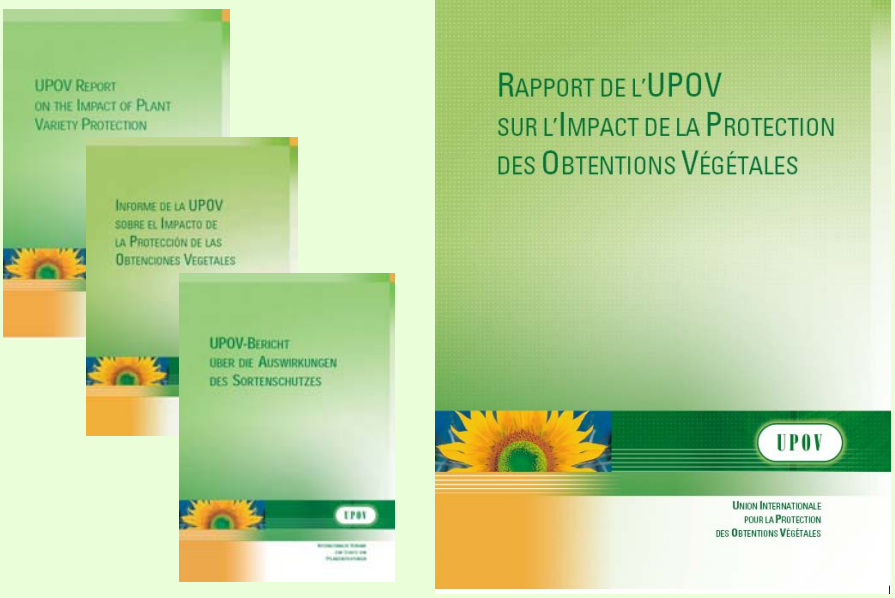
UPOV



DECLARATION FROM THE SECOND WORLD SEED CONFERENCE

Spanish, Chinese, Russian and Arabic to follow

33

Second World Seed Conference

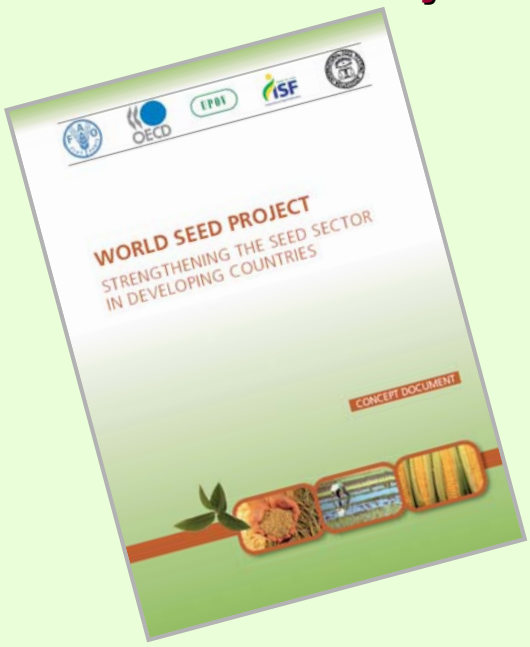
"Follow-up"

... proposal for the five organizations to work together in selected countries to provide an example of how to put in place a framework to encourage the development of new varieties and deliver high quality seed for farmers

34

UPOV

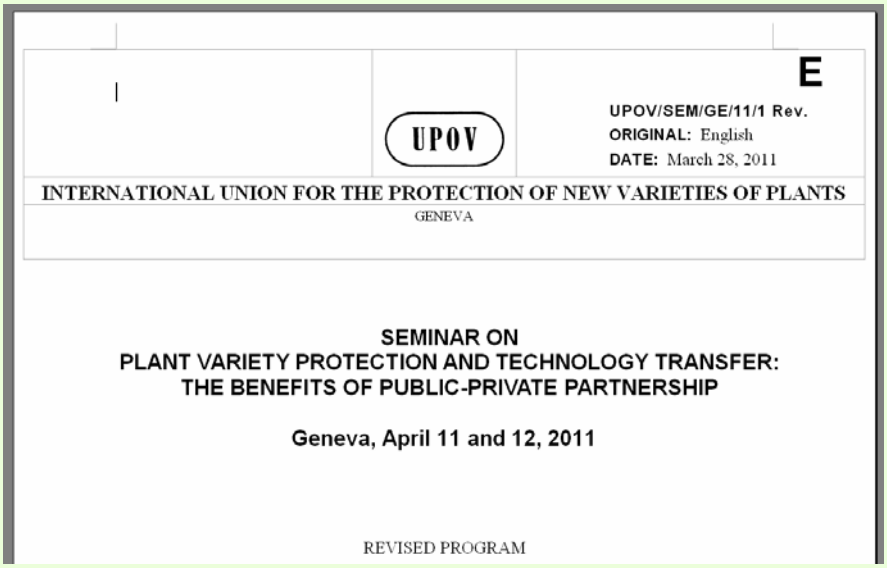
World Seed Project



35

UPOV

Seminar



E

UPOV

UPOV/SEM/GE/11/1 Rev.
ORIGINAL: English
DATE: March 28, 2011

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

SEMINAR ON
PLANT VARIETY PROTECTION AND TECHNOLOGY TRANSFER:
THE BENEFITS OF PUBLIC-PRIVATE PARTNERSHIP

Geneva, April 11 and 12, 2011

REVISED PROGRAM

36

Open Day

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UPOV OPEN DAY

Exhibitors/Exhibiteurs: (from left to right / de gauche à droite)

Mr. Bruno Etavard, Meilland International - Rose varieties / variétés de rose
Mrs. Dominique Thevenon, CIOPORA – Apple varieties / variétés de pommes
Mr. Wilhelm Wicki, Delley Seeds and Plants Ltd, Switzerland – Wheat varieties / variétés de blé

Posters on view in lobby

UPOV OPEN DAY

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Information on DUS Guidance and Cooperation

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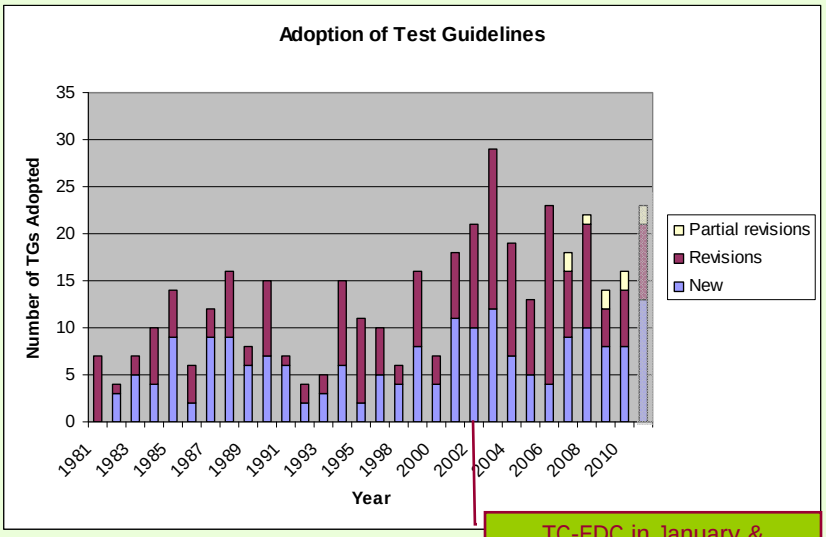
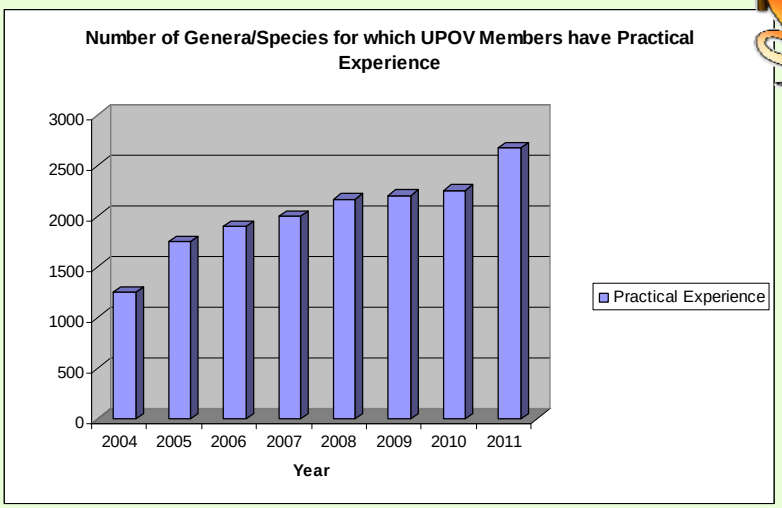
Adoption of Test Guidelines



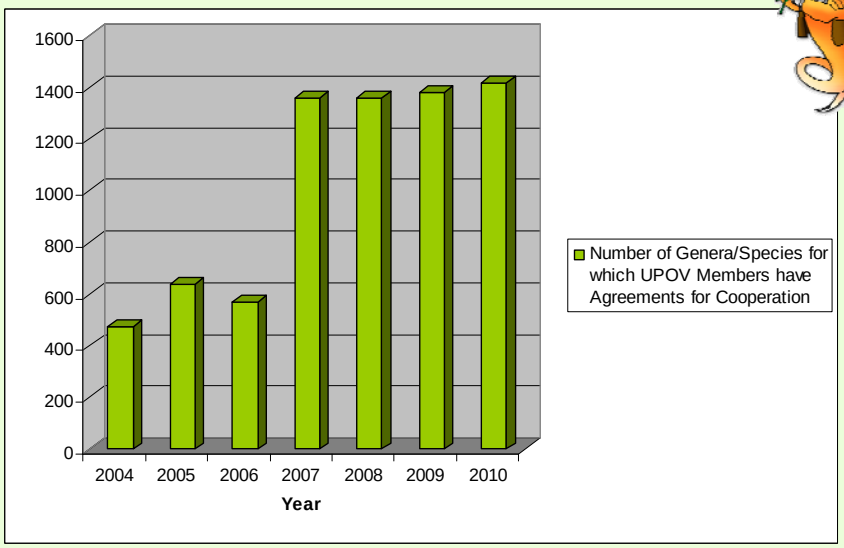
TC-EDC in January & morning before TC

Practical Experience



UPOV

Cooperation



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UPOV

THANK YOU

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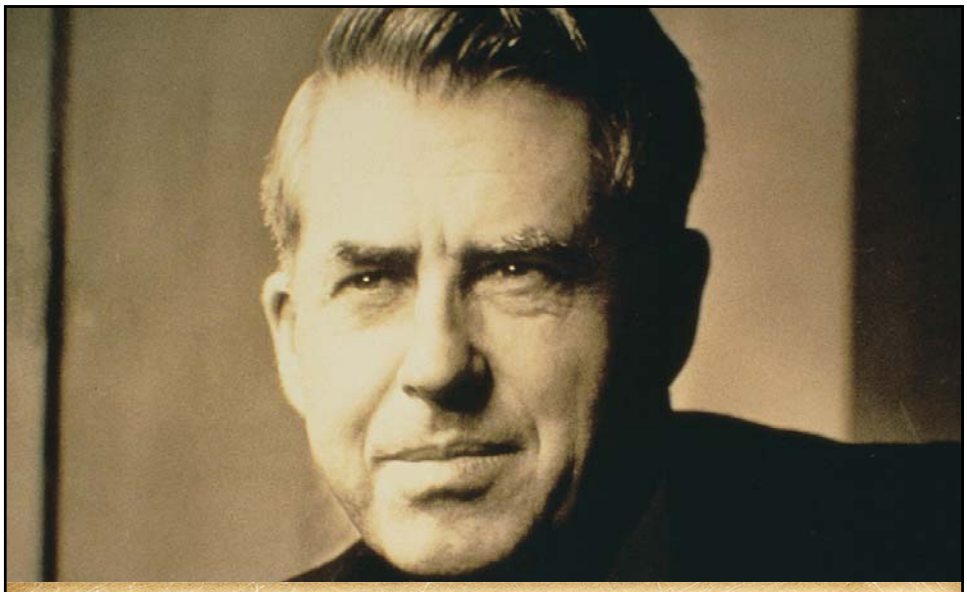
[Annex V follows]

TWA/40/23
ANNEX V
Presentation made by Welcimar Gonçales da Cunha,
Associated Researcher, Pioneer Sementes Limitada, Brasilia D.F. Unit

PRODUTOS · MARCA
PIONEER®

Science with Service
Delivering Success.



1913, Iowa, EUA.

Henry Wallace starts the first research program of corn hybrids.

**In 1926 he founded the Pioneer Hi-Bred,
the first corn breeding company in the world.**

1º - We strive to produce
the best products on the market.

2º - We deal honestly and fairly with our employees,
customers, seedgrowers,
sales force, business associates and shareholders.

3º - We advertise and sell our products vigorously, but
without misrepresentation.

4º - We give helpful management suggestions
to our customers to assist them in making
the greatest possible profit from our products.

Our mission statement, the long look, was written in 1952:

Pioneer's activities start in Brazil,with the partnership of Proagro

1970 1971 1972 1973

Pioneer and Proagro are mergered.
Proagro-Pioneer is born with its headquarters in Porto Alegre/RS.

1970 1971 1972 1973 1974 1975

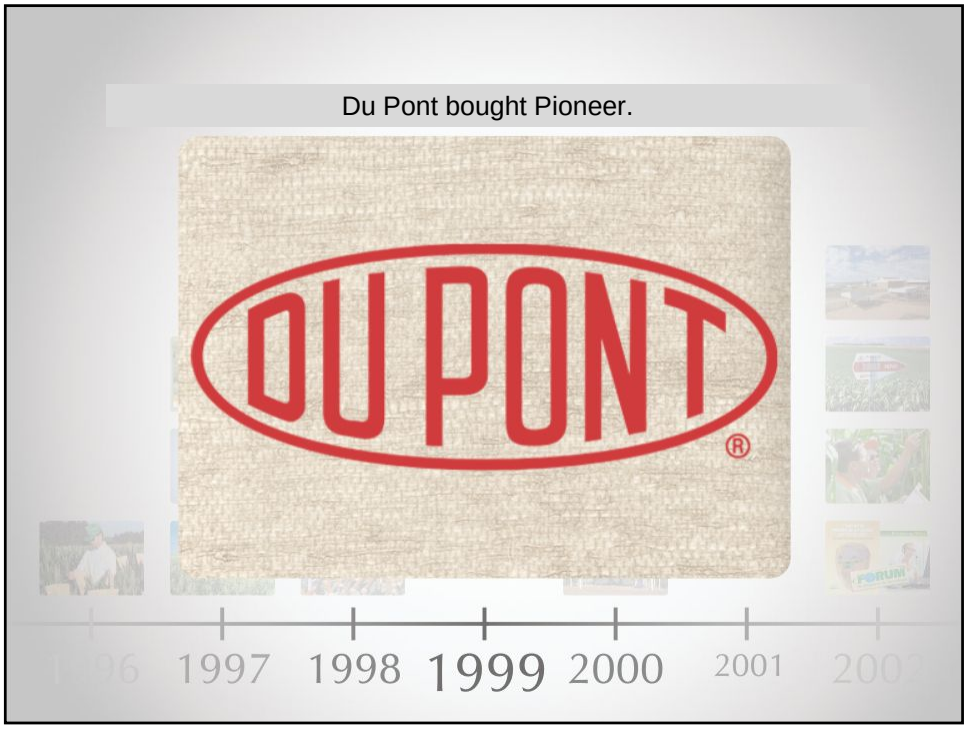
Proagro-Pioneer headquarters was transferred to Santa Cruz do Sul/RS.

1974 1975 1976 1977 1978 1979

Proagro-Pioneer partnership finished. Pioneer Hi-Breed turns the main shareholder. Pioneer Sementes Ltda was created.

1980 1981 1982 1983 1984

Du Pont bought Pioneer.

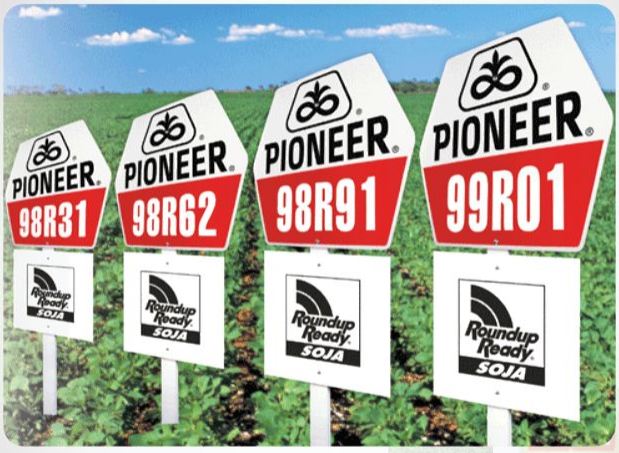


Pioneer bought Dois Marcos soybean breeding program. It is the starting point of Pioneer in the soybean market in Brazil.

Construction of the soybean production plant in Brasilia/DF.

1999 2000 2001 **2002** 2003 2004 2005

The first transgenic variaties of soybean with the Roundup Ready gene are launched by Pioneer.



2003 2004 2005 **2006** 2007 2008 2009

The first two soybean cyst nematode resistance are launched by Pioneer

2005 2006 2007 2008 2009

PIONEER IN THE WORLD

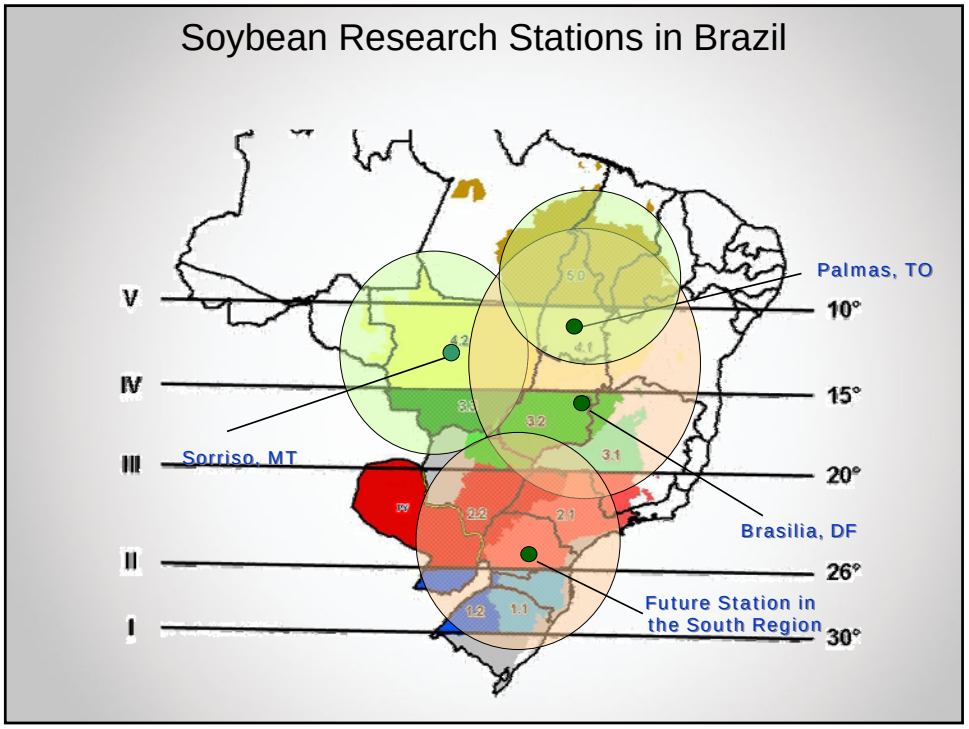
sales units
production units
research units

PIONEER IN THE WORLD

It is located in more than 70 countries with 100 research stations and 76 production units.

Products: corn, soybean, sorgum, alfalfa, sunflower, canola, wheat, rice, cotton, millet and mustard.

Soybean Research Stations


Soybean Research Stations in Brazil
Palmas, TO
Sorriso, MT
Brasilia, DF
Future Station in
the South Region
V
IV
III
II
I
10°
15°
20°
26°
30°


Brasília Research Station

Sorriso Research Station

Palmas Research Station

PIONEER IN BRAZIL

38 years acting in the corn market in Brazil.

2010 Data (Summer + Safrinha)
Total area: 13.182.300 ha (CONAB).
Potential Market (bags of 60MK): 8.616.473 bgs (APPS).

PIONEER IN BRAZIL

10 years acting in the soybean market in Brazil.

2010 Data
Total area: 23.062.600 ha (CONAB).
Acting area: BA, GO, MG, MT, TO, MA, PI, PA and MS.

PIONEER – HELPING AGRICULTURE WITH RESEARCH

Corn

- Annual investments: US$ 10.000.000,00
- Number of plots / year: 210.000
- Number of lines / winter nursery / year: 95.000
- Number of lines / summer / year: 60.000
- Number of tested hybrids / year: 10.500

Product development:

Number of yield test locations

- Strip-test / year: 170 locations
- Pre-commercial tested hydrids / year: 6 to 9

PIONEER - HELPING AGRICULTURE WITH RESEARCH

Soybean

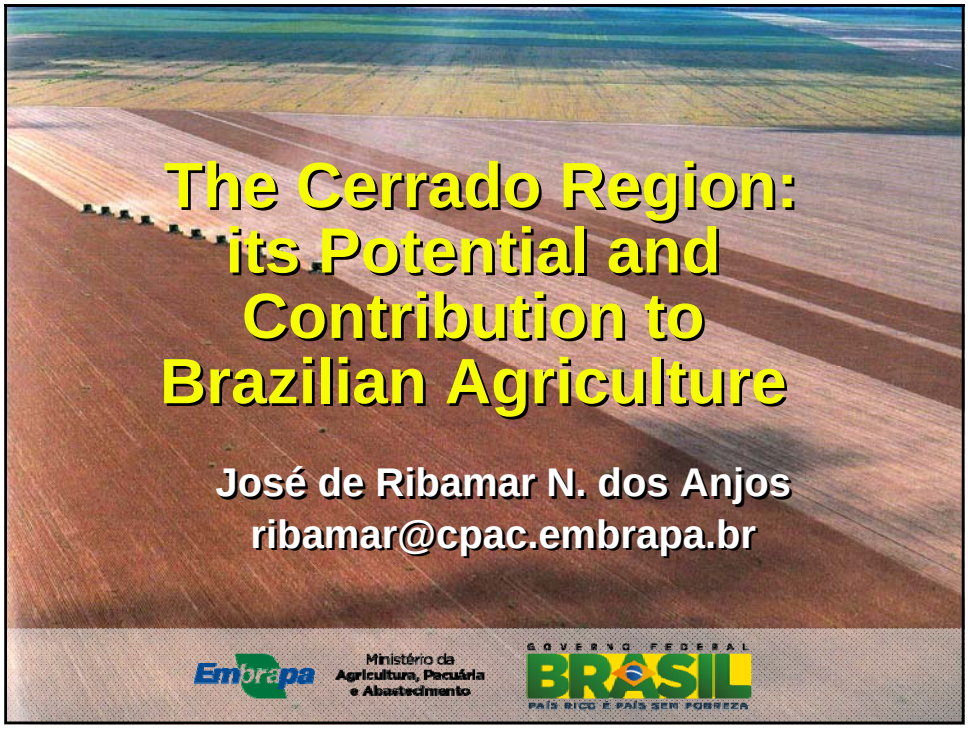
- Annual investments: US$ 6.000.000,00
- Number of yield test plots / year: 150.000
- Number of tested lines / year: 85.000
- Pre-commercial tested lines / year: 8 to 12

- Roundup Ready resistance variaties and other transgenics.
- Soybean Cyst Nematode, Root knot Nematode and other diseases (rust, white mold, target spot, etc).
- Rain tolerance.
- Seed quality.

From 2001 to 2009, R$ 358 million were invested in seed production units and research stations.

In the past two years, more than 150 employees were hired. Most of them are technicians and agronomists.

Annex VI follows


The Cerrado Region: its Potential and Contribution to Brazilian Agriculture
José de Ribamar N. dos Anjos
ribamar@cpac.embrapa.br
Embrapa
Ministério da Agricultura, Pecuária e Abastecimento
GOVERNO FEDERAL
BRASIL
PAÍS RICO É PAÍS SEM POBREZA


Embrapa (Brazilian Agricultural Research Corporation) Network
Embrapa Headquarters
13 National Thematic Research Centers
14 National Product Research Centers
18 Agroforestry or Ecorregional Research Centers
03 Special Services
17 State Agricultural Research Institutes
Source: Embrapa
Embrapa

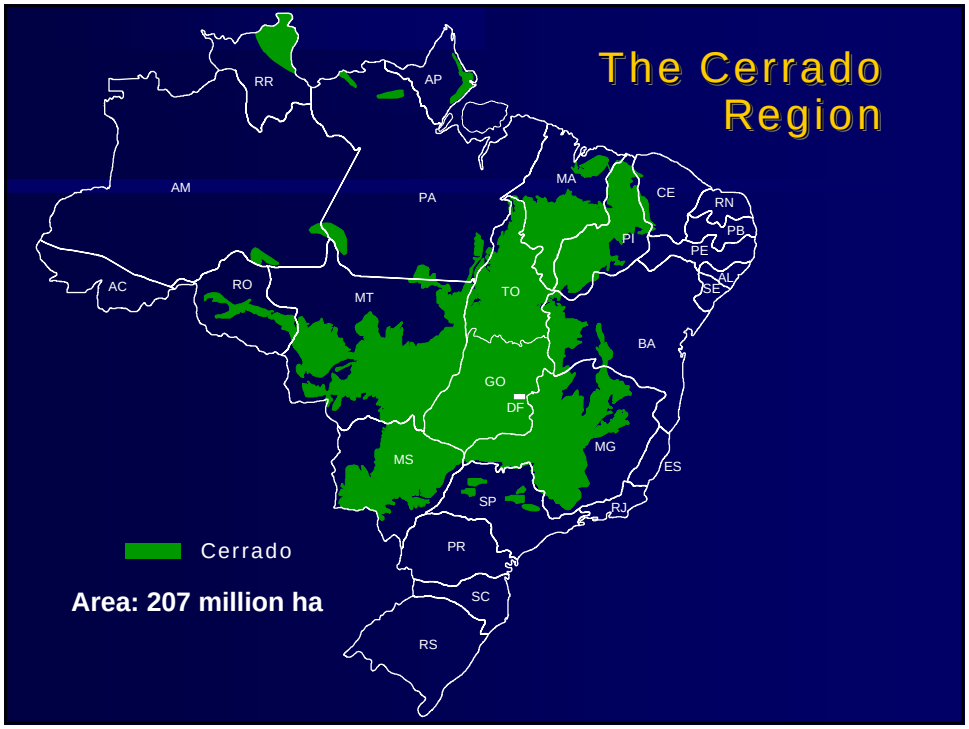
Human Resources

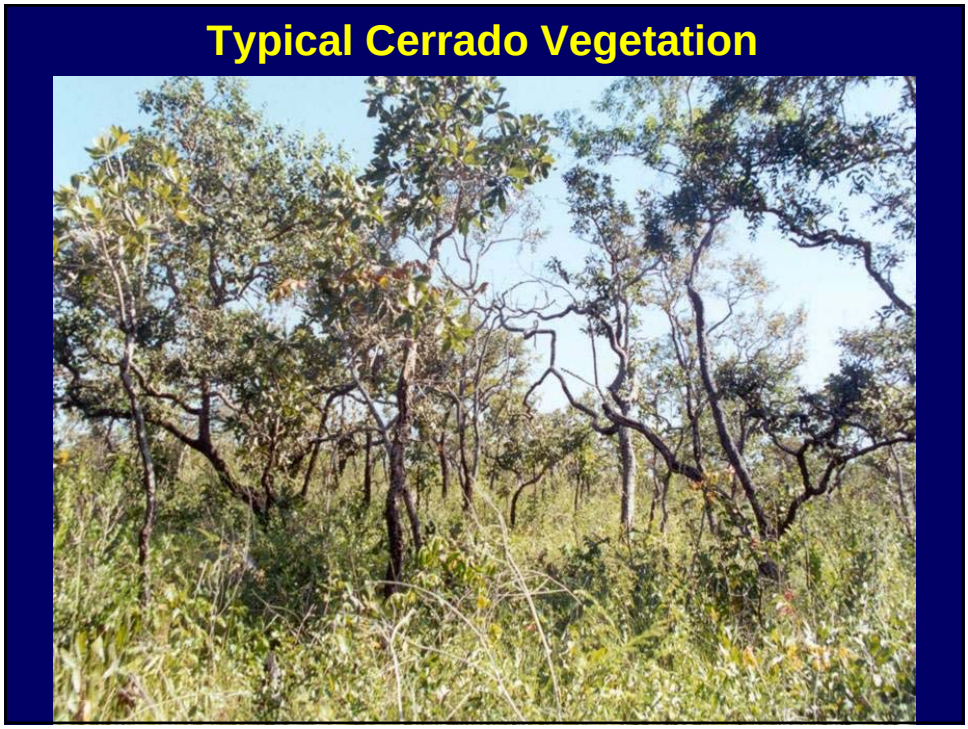
- **Researchers: 94**
  - ➔ MSc: 20
  - ➔ PhD: 74
- **Analysts: 78**
  - ➔ BSc: 53
  - ➔ MSc: 23
  - ➔ PhD: 2
- **Support: 258**

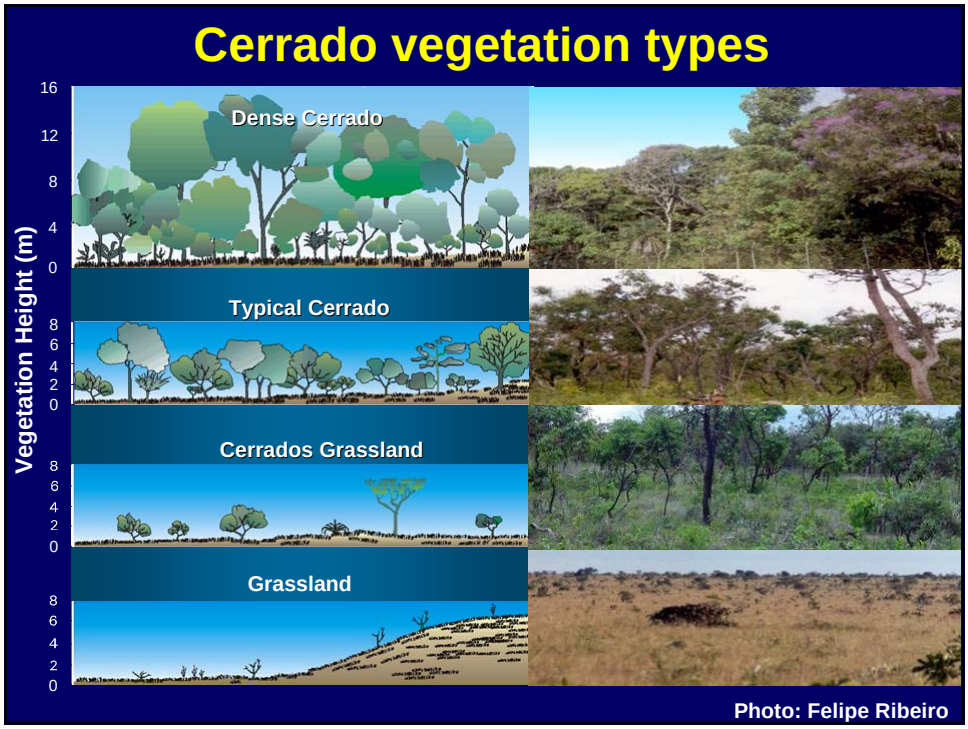
- **Total: 430 employees**

Research Subjects

- **Plant Sciences:** plant breeding, biotechnology, soil fertility, crop protection, agroenergy, irrigation engineering;
- **Animal Sciences:** integrated crop-livestock-forest systems, animal nutrition, animal breeding, biotechnology, fodder crops breeding, animal reproduction;
- **Natural Resources and Environmental Sciences:** ecology, agroclimatology, soil sciences, hydrology, land use, precision agriculture.




Typical Cerrado Vegetation


Cerrado vegetation types
Vegetation Height (m)
Dense Cerrado
Typical Cerrado
Cerrados Grassland
Grassland
Photo: Felipe Ribeiro

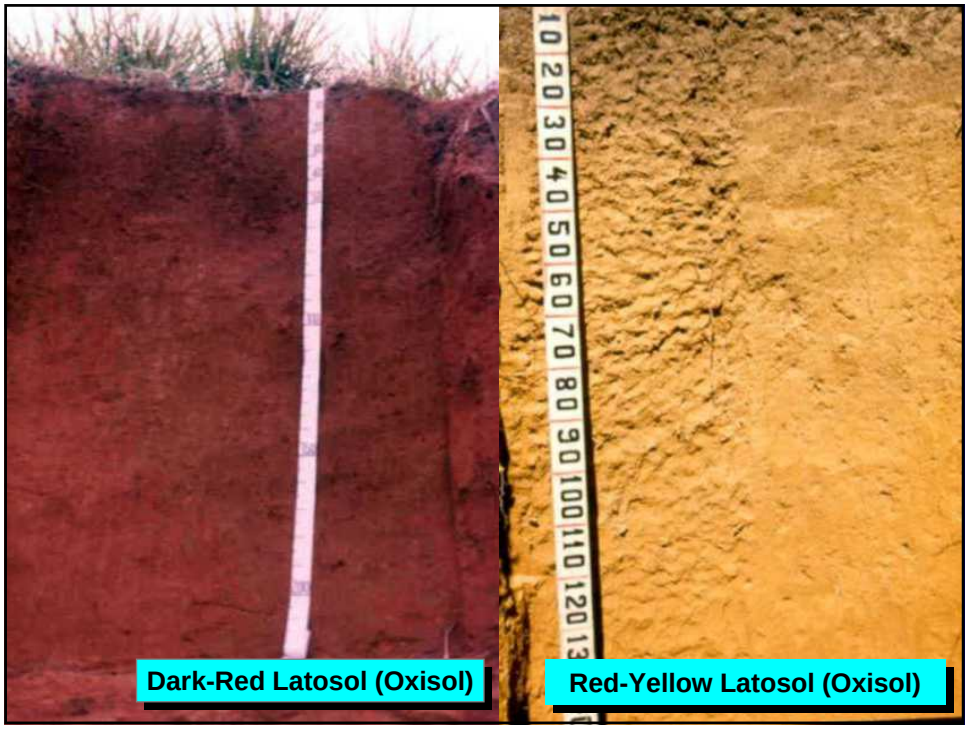
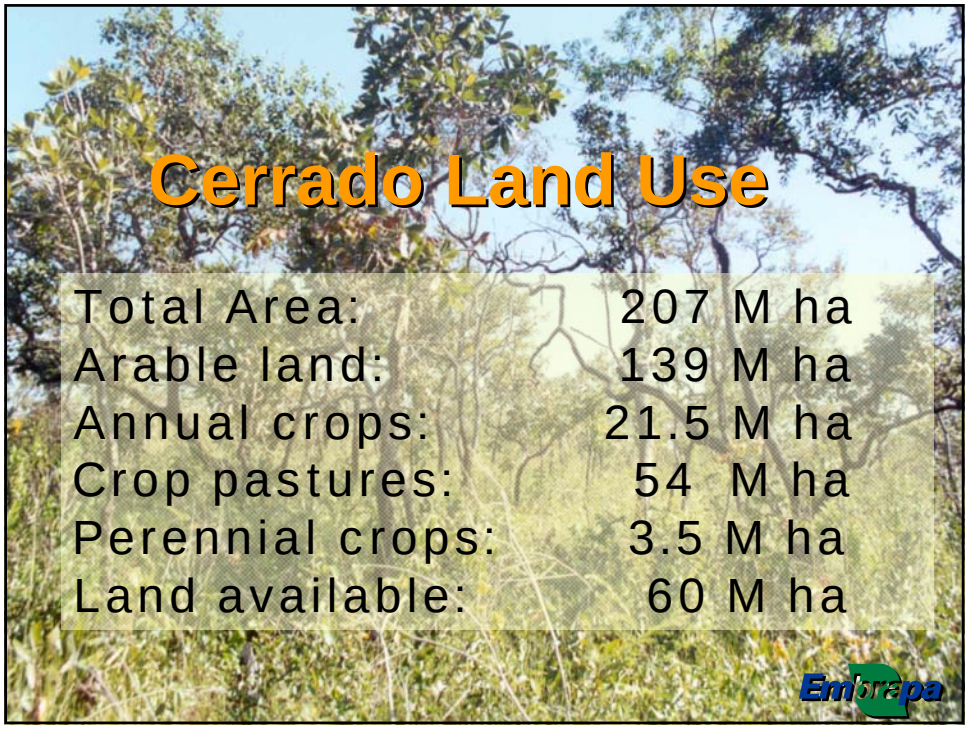
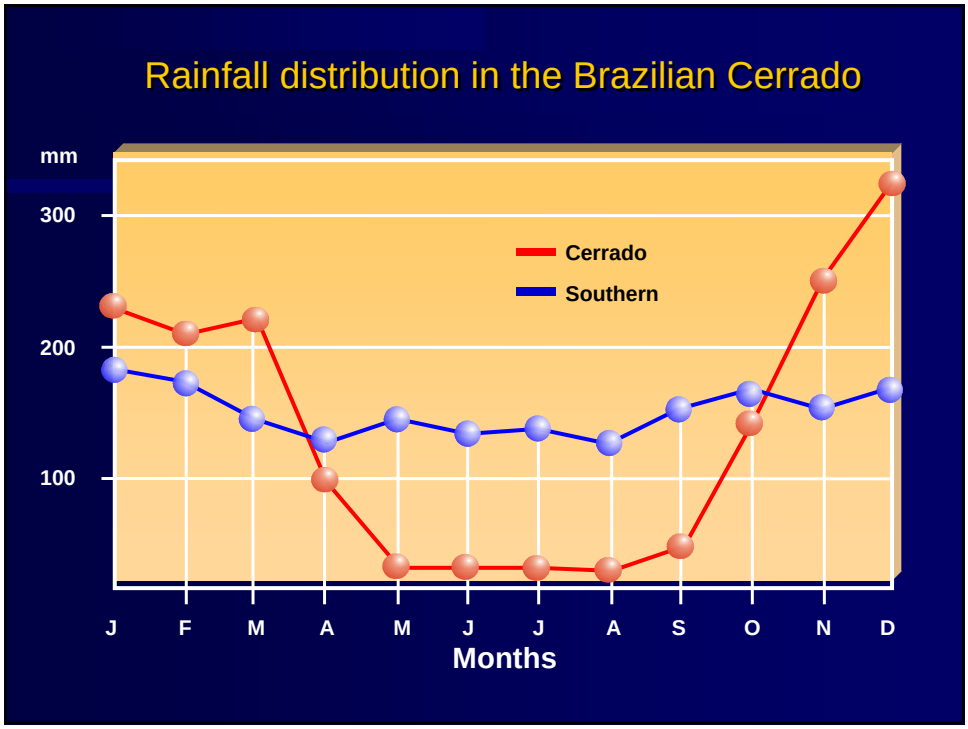
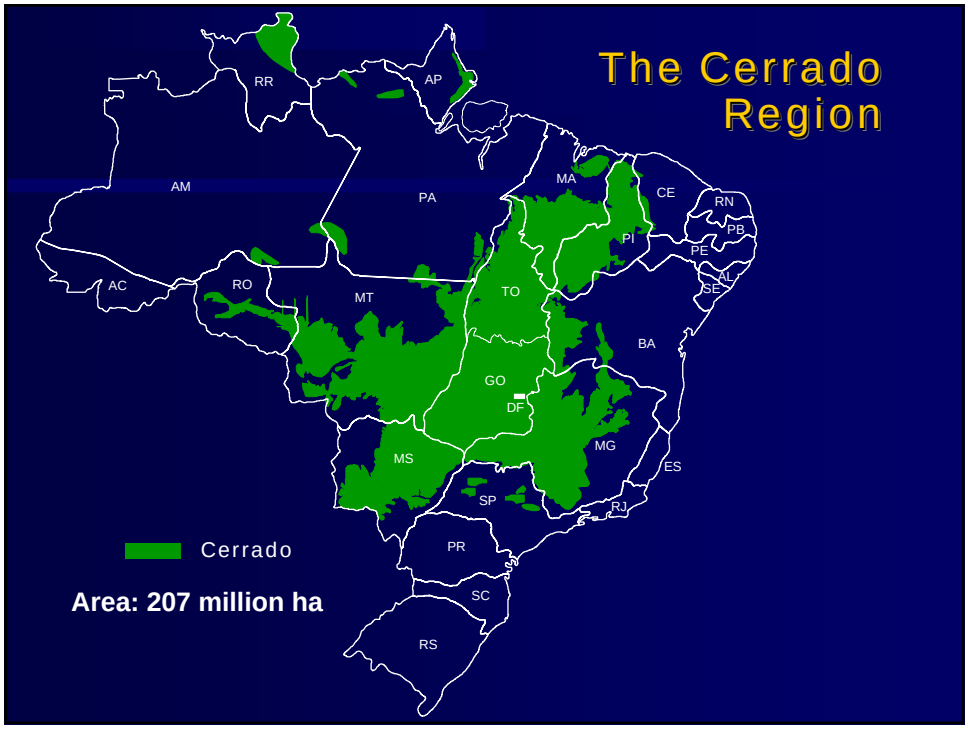
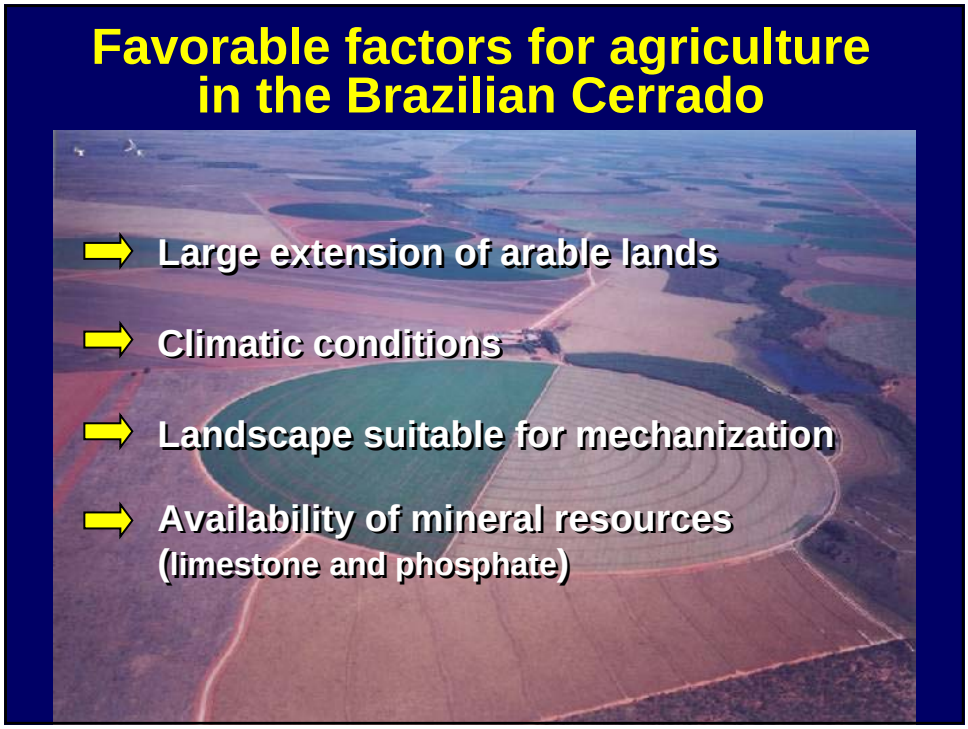

Dark-Red Latosol (Oxisol)
Red-Yellow Latosol (Oxisol)

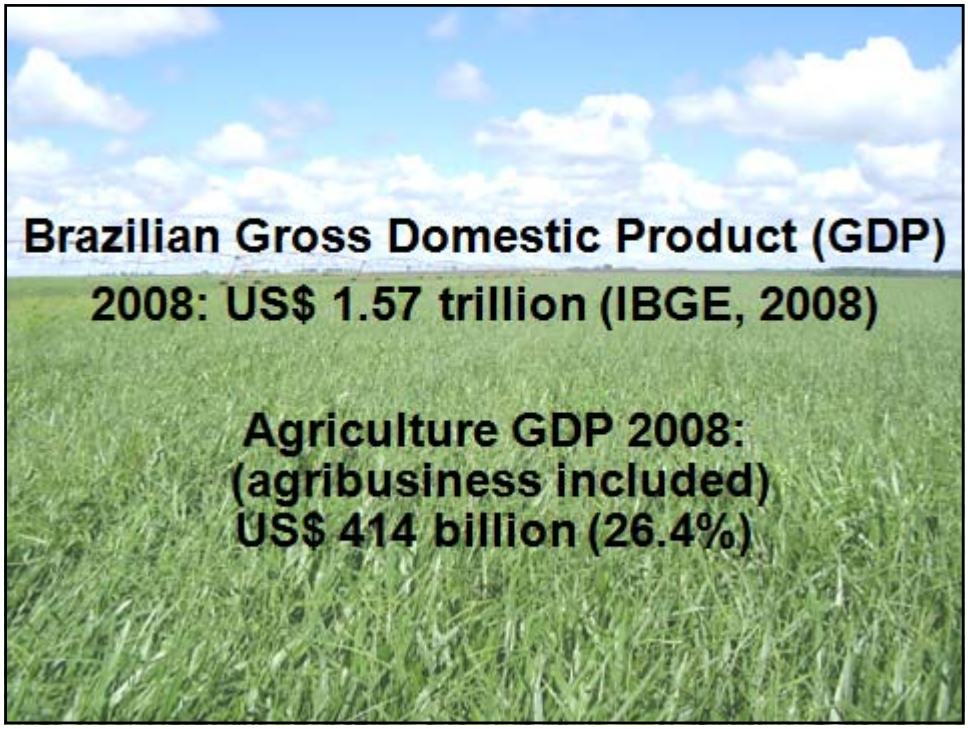

Photo: Djalma M. G. de Sousa

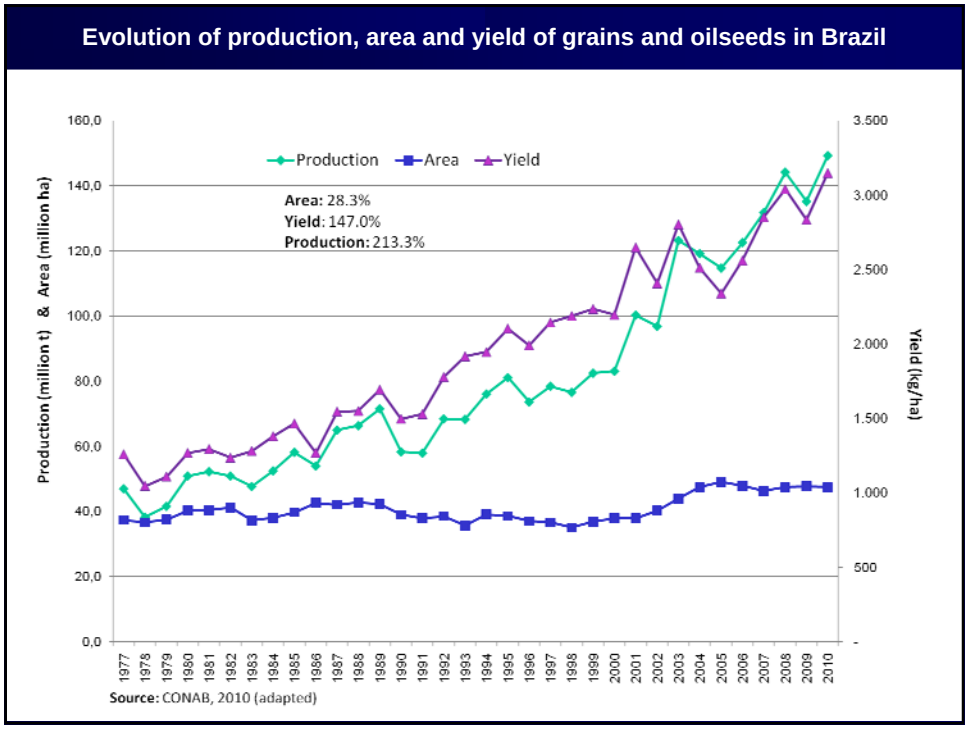

Cerrado Land Use
Total Area: 207 M ha
Arable land: 139 M ha
Annual crops: 21.5 M ha
Crop pastures: 54 M ha
Perennial crops: 3.5 M ha
Land available: 60 M ha
Embrapa


Rainfall distribution in the Brazilian Cerrado
mm
300
200
100
Cerrado
Southern
J
F
M
A
M
J
J
A
S
O
N
D
Months


The Cerrado Region
RR
AP
AM
PA
MA
CE
RN
PB
PI
PE
AL
SE
AC
RO
MT
TO
BA
GO
DF
MG
ES
MS
SP
RJ
PR
SC
RS
Cerrado
Area: 207 million ha


Favorable factors for agriculture in the Brazilian Cerrado
Large extension of arable lands
Climatic conditions
Landscape suitable for mechanization
Availability of mineral resources (limestone and phosphate)


Brazilian Gross Domestic Product (GDP)
2008: US$ 1.57 trillion (IBGE, 2008)
Agriculture GDP 2008:
(agribusiness included)
US$ 414 billion (26.4%)


Evolution of production, area and yield of grains and oilseeds in Brazil
Production
Area
Yield
Area: 28.3%
Yield: 147.0%
Production: 213.3%
Production (million t) & Area (million ha)
Yield (kg/ha)
160,0
140,0
120,0
100,0
80,0
60,0
40,0
20,0
0,0
3.500
3.000
2.500
2.000
1.500
1.000
500
-
1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
Source: CONAB, 2010 (adapted)

The contribution of the Cerrado to Brazil's Agricultural Production

Crop	Cerrado		
	Area (Million ha)	Production (Million t)	Yield (ton/ha)
Soybean	10.61 (49%)	30.94 (54%)	2.92
Cotton	0.74 (91%)	2.74 (95%)	3.67
Beans	0.76 (19%)	1.25 (36%)	1.63
Corn	4.35 (32%)	21.5 (42%)	4.94
Rice	0.76 (26%)	1.61 (13%)	2.13
Coffee	0.40 (19%)	0.55 (23%)	1.40

Sources: IBGE/Embrapa Cerrados, 2009

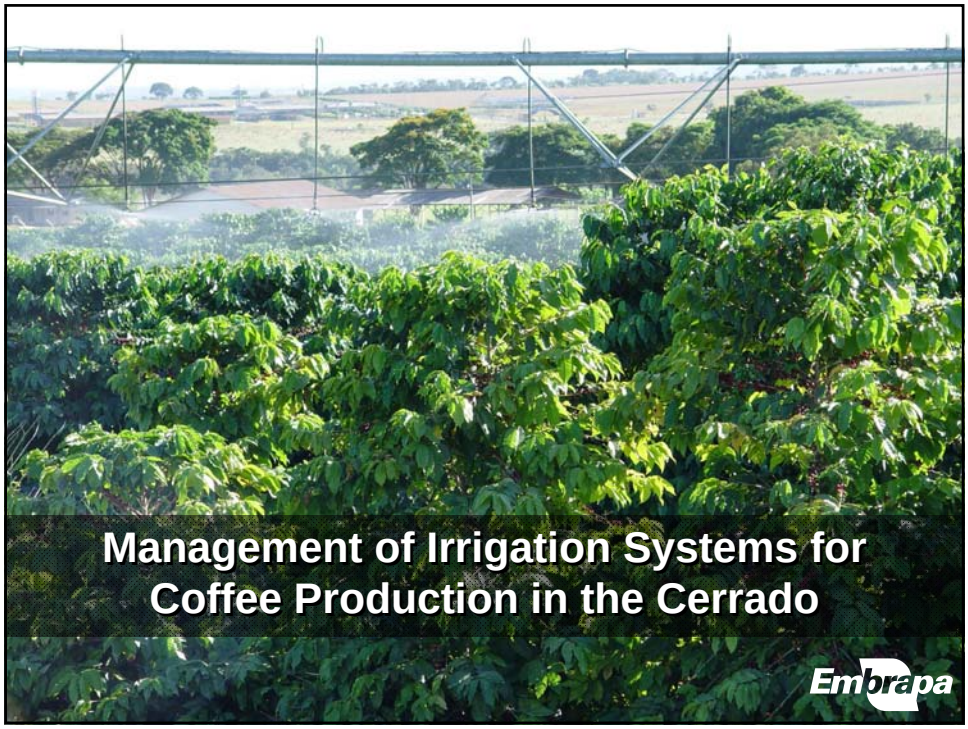
Soybean varieties

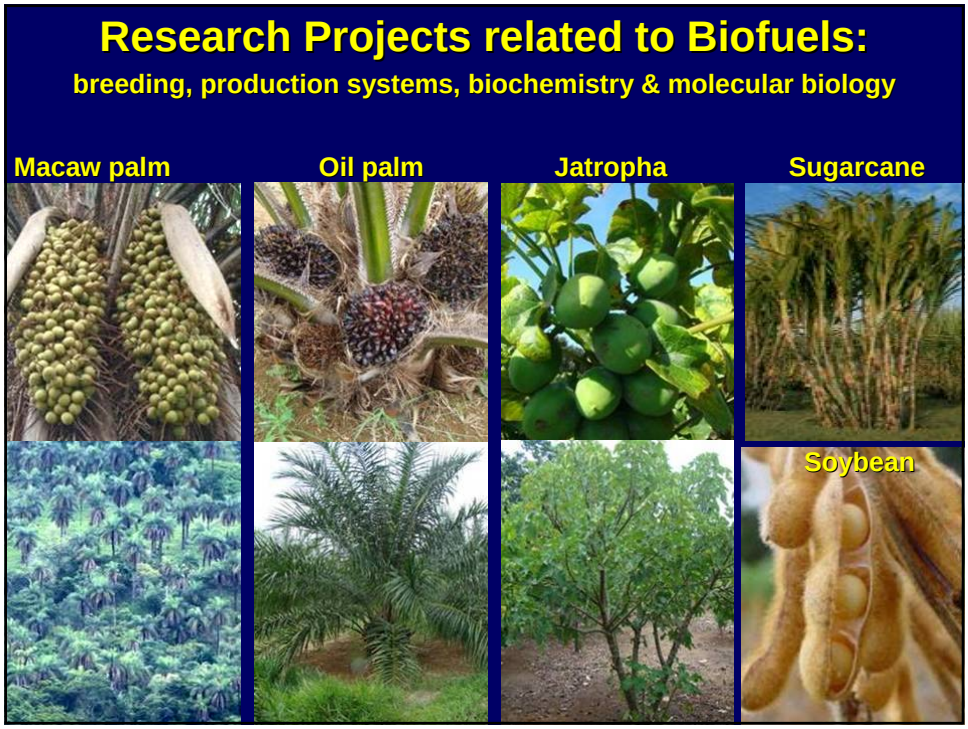
Wheat Cultivars:
- **Embrapa 22**
- **Embrapa 42**
- **BRS 264**
- **BRS 207**

- **Potential: 7 t/ha**

Barley Cultivars:
- **BRS 180**
- **BRS 195**
- **BRS Demeter**

- **Potencial: 6 t/ha**


Management of Irrigation Systems for
Coffee Production in the Cerrado
Embrapa

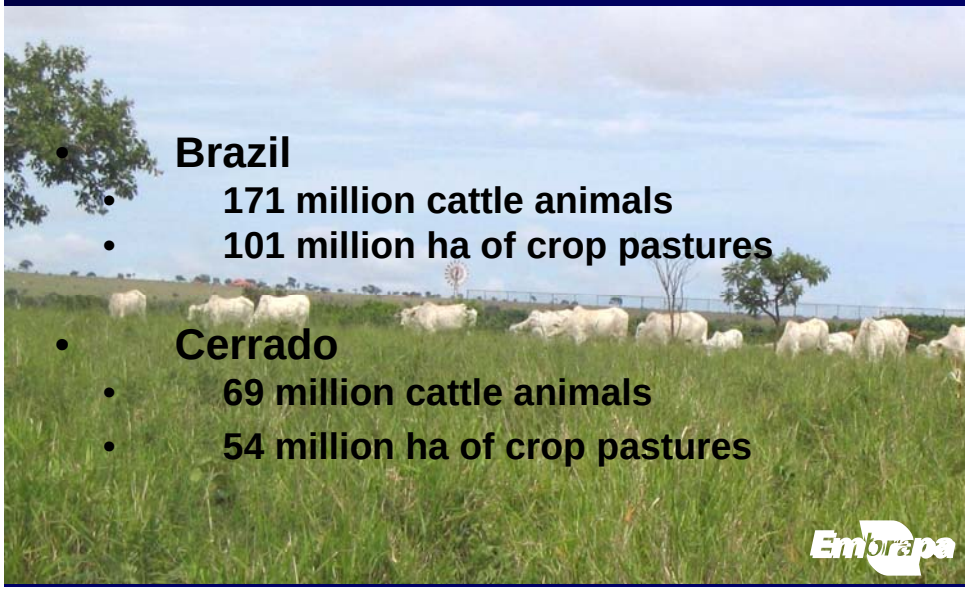

Research Projects related to Biofuels:
breeding, production systems, biochemistry & molecular biology
Macaw palm
Oil palm
Jatropha
Sugarcane
Soybean

Main studied species: yield potential

Species	Yield (ton oil/ha/year)
Oil palm (*Elaeis guineensis*)	6.00
Physic nut (*Jatropha curcas*)	1.00
Macaw palm (*Acrocomia aculeata*)	4.00
Soybean (*Glycine max*)	0.60

- **Sugarcane in the Cerrado**: **cultivar evaluation, soil and water management, and socioeconomic and environmental impacts**
- **General Objective**: **To improve the agricultural technology for sugarcane production in the Cerrado**

Beef Production: Brazil x Cerrado



- Brazil
  - 171 million cattle animals
  - 101 million ha of crop pastures
- Cerrado
  - 69 million cattle animals
  - 54 million ha of crop pastures

Quality of Brazil Genetic Nellore (BRGN) cows

Integrated Crop-Livestock-Forest Systems

A winning combination of different land use systems: grains, cattle, forest and others on the same farm, based on crop rotation and intercropping

Photo: Karina Pulrolnik

Photo: Lourival Vilela

Advantages of the Integrated Crop-Livestock-Forest Systems

- Increases crop yields, soil biological activity and nutrient recycling
- Intensifies land use, improving profits
- Increases grain and forage productivity
- Keeps cash flow
- Improves economic stability


Cassava Research Program
Breeding Projects

[Annex VII follows]

ANNEX VII

40th Technical Working Party for Agricultural Crops UPOV – TWA

Guidelines For The Conduct Of Tests For Distinctness, Uniformity And Stability Applied To *Urochloa* Species

Embrapa

Brasília, 18th of may of 2011

Overview of Cultivated pasture in Brazil

- Cultivated pastures in Brazil covers more than 100 million hectares and Brachiaria species covers more than 50 million hectares. Brachiria brizantha cv. Marandu and B. decumbens cv. Basilisk are the primary cultivars.

- The forage seed industry in Brazil negotiates annually about 500 million dollars, standing in the third position behind soybean and corn seeds. Seed sales of *Brachiaria* species represent 80% of this numbers.

- The seeds productions area of forage seed production is about 210.000 ha, and *Brachiaria* species represents 60% of the total area.

- Nowadays, 15 cultivars of *Brachiaria* are register in the RNC-MAPA, but only 4 of them, are under the Plant variety protection system.

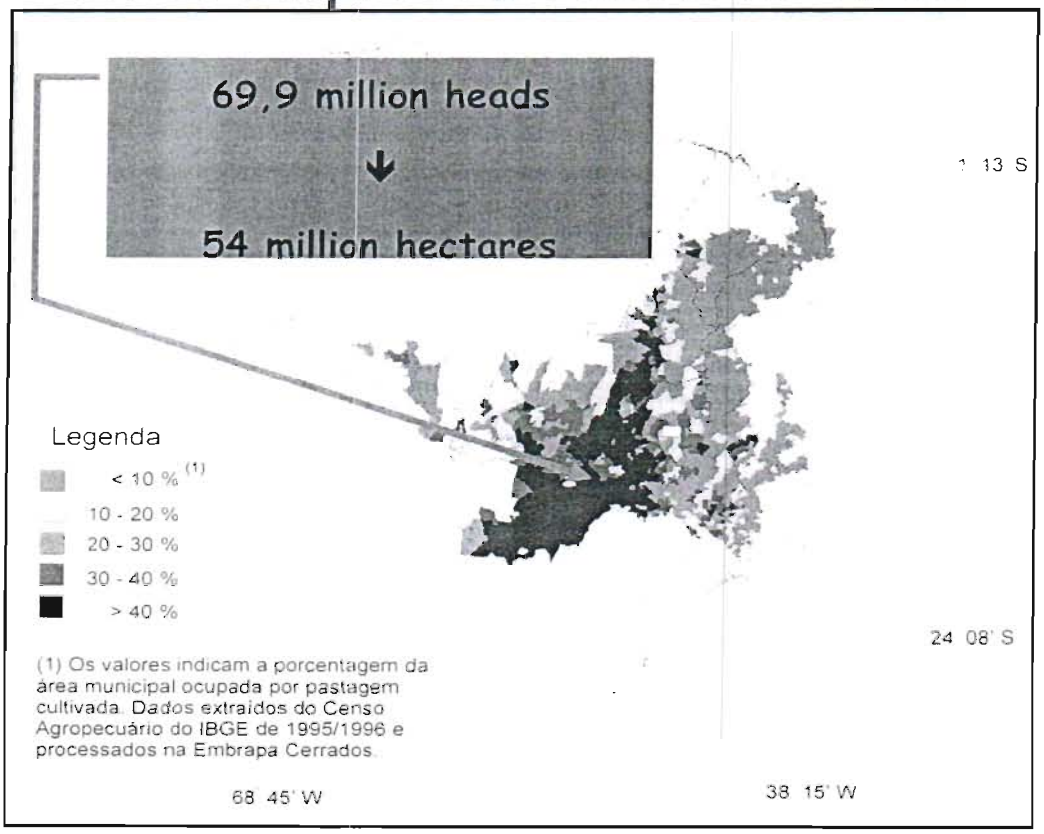
Cerrado: Total area and land use

Cerrados

- 205 Million ha
- 112 Million ha arable
- 54 Million ha improved Pastures
- 10 Million ha field crops
- 2 Million ha cultivated forest and Perennial crops

Cerrados

Total Improved Pastures Areas



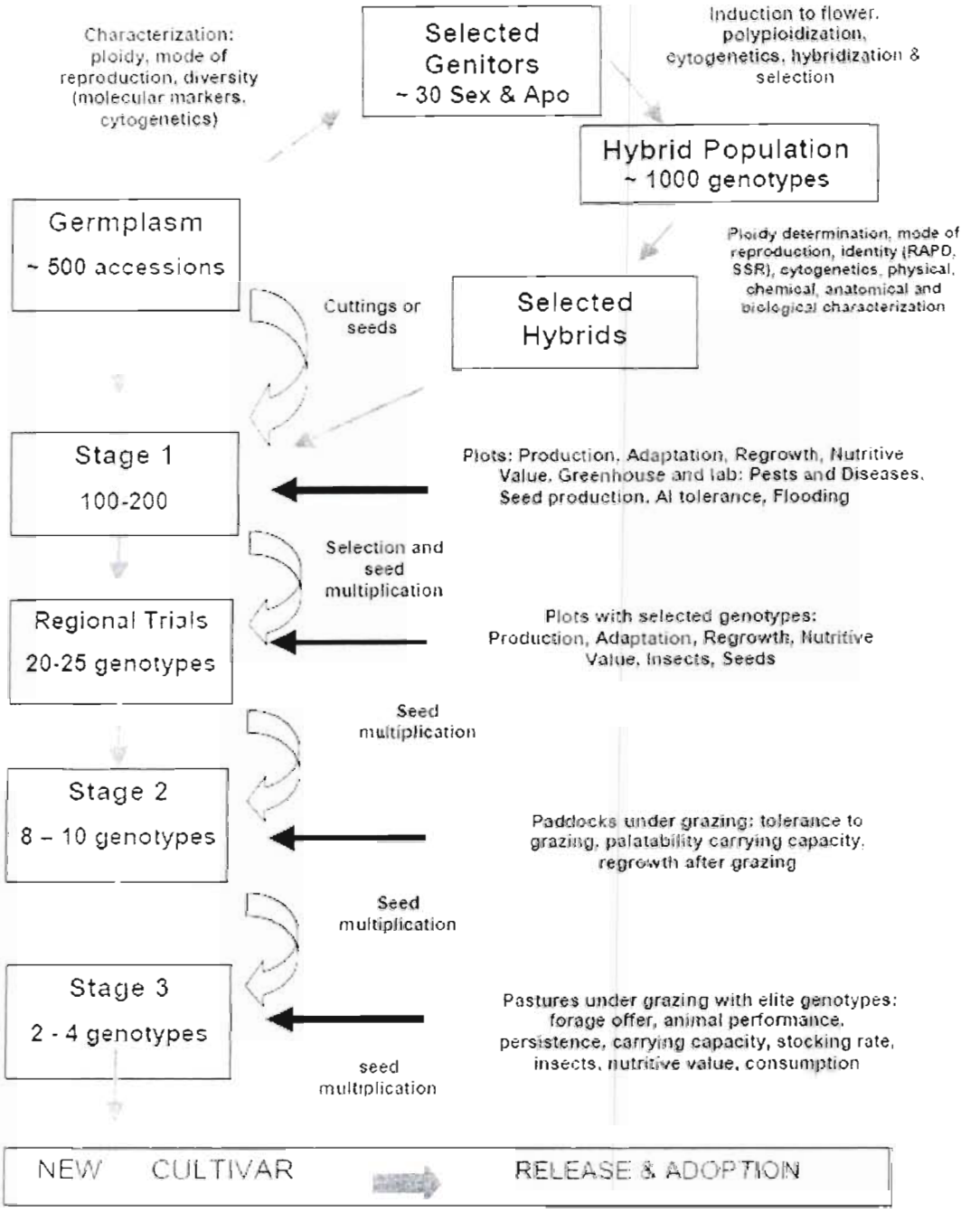
Embrapa´s Brachiaria Breeding Program

(Valle et al., 2009)

Brachiaria has shown remarkable plasticity in adapting to poor and acid soils of the Brazilian savannas, in a variety of climates and altitudes, competing well with weeds and displaying good animal performance. The species of economic importance to Brazil (B. decumbens, B. brizantha, B. ruziziensis and B. humidicola) are originally from east and south of Africa.

The introduction of large germplasm collections of *Brachiaria*, in the 1980's, by Embrapa Beef Cattle Center prompted efforts to select for new cultivars using two paths: direct selection from the natural diversity present in the germplasm and generation of new diversity through hybridization followed by selection for specific traits. The breeding program has established the objectives of identifying genotypes adapted to soils of the savannas, with good productivity, resistance to insects, good nutritive value and high seed production

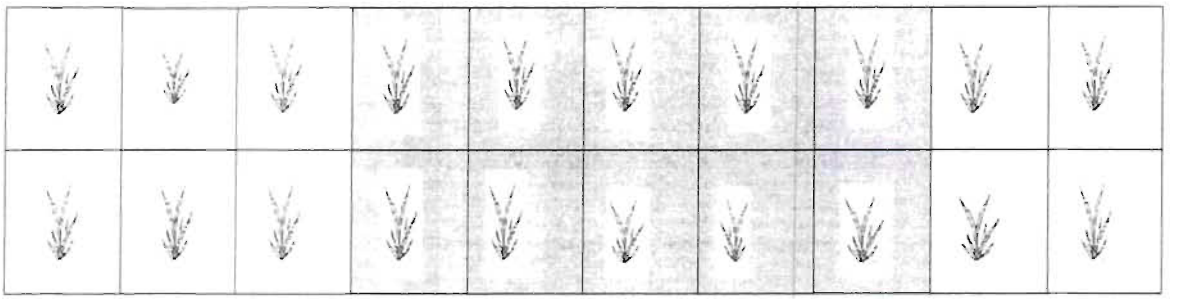
Until the diverse germplasm became available in 1986, selection was very restricted and new cultivars, impossible to obtain. The development of new cultivars is a long term process which may involve selection from natural diversity and generation of novel diversity through hybridization. It is necessarily a team work, where breeders, phytopathologists, entomologists, animal nutrition and soil fertility specialists, work together in order to identify those superior genotypes that will impact production systems with better animal performance and sustainable pasture production.


Characterization: ploidy, mode of reproduction, diversity (molecular markers, cytogenetics)
Selected Genitors ~ 30 Sex & Apo
Induction to flower, polyploidization, cytogenetics, hybridization & selection
Hybrid Population ~ 1000 genotypes
Germplasm ~ 500 accessions
Ploidy determination, mode of reproduction, identity (RAPD, SSR), cytogenetics, physical, chemical, anatomical and biological characterization
Cuttings or seeds
Selected Hybrids
Stage 1 100-200
Plots: Production, Adaptation, Regrowth, Nutritive Value, Greenhouse and lab: Pests and Diseases, Seed production, Al tolerance, Flooding
Selection and seed multiplication
Regional Trials 20-25 genotypes
Plots with selected genotypes: Production, Adaptation, Regrowth, Nutritive Value, Insects, Seeds
Seed multiplication
Stage 2 8 – 10 genotypes
Paddocks under grazing: tolerance to grazing, palatability carrying capacity, regrowth after grazing
Seed multiplication
Stage 3 2 - 4 genotypes
Pastures under grazing with elite genotypes: forage offer, animal performance, persistence, carrying capacity, stocking rate, insects, nutritive value, consumption
seed multiplication
NEW CULTIVAR
RELEASE & ADOPTION

The Brachiaria D.U.S. Test

- 10 cultivars
- *B. Brizantha, B. decumbens, B. humidicola, B. ruziziensis* and interspecific hybrids
- Experimental design:

60 plants distributed in 3 replications, each plot is arranged in 2 lines of 10 spaced plants; 1,5m within lines and plants



- Characteristics evaluated: total of 31

1. Plant ploidy
2. Plant growth habit
3. Plant height
4. Rhizome development
5. Rhizome shape
6. Stolon development
7. Culm number of basal tillers
8. Culm number of nodal tillers
9. Culm length of internode
10. Culm diameter
11. Leaf attitude
12. Leaf sheath density of hairs
13. Leaf distribution of hairs of sheath
14. Leaf shape of blade
15. Leaf blade length
16. Leaf blade width
17. Leaf blade density of hairs
18. Leaf blade distribution of hairs
19. Inflorescence length of peduncule
20. Inflorescence length of main rachis
21. Inflorescence length of basal racemes
22. Inflorescence shape in transverse section of rachis
23. Inflorescence number of racemes
24. Inflorescence stigma color at anthesis
25. Spikelet insertion on rachis
26. Spikelet density of hairs
27. Time of beginning of flowering
28. Flowering duration
29. Seed density
30. Seed thousand seed weight
31. Seed colou

[Annex VIII follows]

ANNEX VIII

LIST OF LEADING EXPERTS

DRAFT TEST GUIDELINES TO BE SUBMITTED
TO THE TECHNICAL COMMITTEE IN 2012

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

before July 1, 2011

Species	Basic Document	Leading expert(s)	Interested experts (countries)
Buckwheat (*Fagopyrum esculentum* Moench)	TG/FAGOP (proj.5)	Mr. Masayuki Uchida (JP)	AT, BG, CN, CZ, DE, FR, KR, PL, QZ, RU, UA, ESA, ISF, Office
Hemp (*Cannabis sativa* L.)	TG/CAN_SAT (proj.4)	Mr. Henk Bonthuis (NL)	AU, BG, BR, CZ, DE, FR, GB, HU, NZ, PL, RO, QZ, (RU), UA, ZA, ESA, ISF, Office
Sesame (*Sesamum indicum* L.)	TG/SESAME (proj.6)	Mr. Baruch Bar-Tel (IL) / Mr. Keun-Jin Choi (KR)	BG, BR, CN, JP, UA, ISF, Office

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

July 29, 2011

Leading Expert to circulate the changes agreed by the TWA and the additional information requested to the interested experts by July 1, 2011 for comments by July 22, 2011.

Durum wheat (Revision) (Triticum durum Desf.)	TG/120/4(proj.3)	Mr. Tanvir Hossain (AU) / Mr. Luis Salaices (ES)	AR, AT, (AZ), BG, BR, CA, CN, CZ, DE, ES, FR, HR, HU, (IL), JP, MX, NZ, PL, (PT), QZ, RO, (RU), SK, UA, ZA, ESA, ISF, Office

DRAFT TEST GUIDELINES TO BE DISCUSSED AT TWA/41
(* indicates possible final draft Test Guidelines)

Guideline date for Subgroup draft to be circulated by Leading Expert: **February 20, 2012**
Guideline date for comments to Leading Expert by Subgroup: **March 19, 2012**

New draft to be submitted to the Office of the Union
before April 16, 2012

Species	Basic Document	Leading expert(s)	Interested experts (countries)
Adzuki/Red bean (*Vigna angularis*)	new	Mr. Masayuki Uchida (JP)	CN, KR
Cassava (*Manihot esculenta* Crantz.)	TG/CASSAV (proj.2)	Mr. Simeon Kibet Kogo (KE), Mr. Luis Pacheco (BR)	TWV, BR, CN, CO, TZ, ZA, ISF, Office,
Coix (*Coix lacryma-jobi*)	TG/COIX(proj.1)	Mr. Kimikazu Ishikawa (JP)	CN, KR, ISF, Office
*Common Vetch (*Vicia sativa* L.) (Revision)	TG/32/7(proj.2) (rev.)	Mr. Luis Salaices (ES)	AR, AU, BG, BR, CZ, FR, HR, IT, PL, QZ, RO, UA, ZA, ESA, ISF, Office
*Foxtail Millet (*Setaria italica* (L.) P. Beauv.)	TG/SETARIA (proj.5)	Mr. Xianmin Diao (CN)	AR, BR, HU, JP, KE, KR, MX, ISF, Office
Groundnut (*Arachis* L.) (Revision)	TG/93/4(proj.1)	Mrs. Lynette Croukamp (ZA)	AR, AU, BG, BR, CN, JP, KE, KR, MX, ISF, Office
Kentucky Bluegrass (*Poa pratensis* L.) (Revision)	TG/33/6	Mrs. Beate Rücker (DE)	AU, BR, CZ, FI, IT, NL, PL, QZ, RO, UK, ZA
Rhodesgrass (*Chloris gayana* Kunth)	new	Mr. Tanvir Hossain (AU)	AR, BR, KE, MX, NZ, ZA, ISF, Office
Scorpion Weed (*Phacelia tanacetifolia* Benth.)	TG/PHACE (proj.1)	Mrs. Bogna Kowalczyk (PL)	AT, CZ, DE, FR, QZ, RO, ISF, Office
Sorghum (*Sorghum bicolor* L.) (Revision)	TG/122/3	Mr. Luis Salaices (ES)	BR, CL, CN, CZ, DE, FR, IT, JP, KE, QZ, RO, TZ, ZA
Tall wheatgrass (*Elytrigia elongata* (Host) Nevski), (*Agropyron elongatum* (Host) P. Beauv.)	new	Mr. Alberto Ballesteros (AR)	HU, PL, QZ, ISF, Office
**Urochloa (Brachiaria)*	TG/UROCH (proj.5)	Mr. Fabrício Santana Santos (BR)	AU, CO, MX, ZA, ISF, Office
Wheat (Revision)	TG/3/11 + Corr.	Mr. Joël Guiard (FR)	AU, BR, CA, CL, CN, CZ, DE, DK, ES, FI, GB, IT, JP, KE, KR, NL, PL, QZ, RO, ZA

DRAFT TEST GUIDELINES TO POSSIBLY BE DISCUSSED IN FUTURE SESSIONS

Finger millet (*Eleusine coracana* (L.) Gaertn.)	new	Mr. Fabrício Santana Santos (BR)	To decide in 2012

[End of Annex VIII and of document]