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TECHNICAL COMMITTEE

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PUBLICATION OF VARIETY DESCRIPTIONS

Document prepared by the Office of the Union

1. The project to consider the publication of variety descriptions (see document TC/38/10, Annex) identifies two main aspects to be developed. Firstly, it establishes the need for a Model Study to investigate and develop solutions to the technical issues concerning the possible development and publication of variety descriptions, at the international level, in an effective way. Secondly, it notes that there are important legal, administrative and financial issues which would need to be resolved, by the Administrative and Legal Committee (CAJ), before considering the possible introduction of an international system for the publication of variety descriptions. Regarding the Model Study, the proposal was that the Technical Committee (TC) and its Technical Working Parties (TWPs) should be invited to develop the technical aspects, whilst the *Ad hoc* Working Group on the Publication of Variety Descriptions (WG-PVD) was requested to develop a “test publication” of standardized variety descriptions produced in the Model Study.

2. The purpose of this document is to report on developments in the WG-PVD and the CAJ and to relay the progress in the model studies, as reported to the TWPs, and the comments made by the TWPs, at their sessions in 2004. The section on model studies also includes information on the projects for exchanging seed of selected varieties between interested countries, since those also provide information concerning variety descriptions produced in different locations.

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KEY TO ABBREVIATIONS

Country and organization codes

AR	Argentina	GB	United Kingdom	PL	Poland
AT	Austria	HR	Croatia	PT	Portugal
AU	Australia	HU	Hungary	PY	Paraguay
BE	Belgium	IE	Ireland	QZ	Community Plant Variety Office (CPVO)
BG	Bulgaria	IL	Israel	RO	Romania
BO	Bolivia	IT	Italy	RU	Russian Federation
BR	Brazil	JO	Jordan	SE	Sweden
BY	Belarus	JP	Japan	SG	Singapore
CA	Canada	KE	Kenya	SI	Slovenia
CH	Switzerland	KG	Kyrgyzstan	SK	Slovakia
CL	Chile	KR	Republic of Korea	TN	Tunisia
CN	China	LT	Lithuania	TT	Trinidad and Tobago
CO	Colombia	LV	Latvia	UA	Ukraine
CZ	Czech Republic	MA	Morocco	US	United States of America
DE	Germany	MD	Republic of Moldova	UY	Uruguay
DK	Denmark	MX	Mexico	UZ	Uzbekistan
EC	Ecuador	NI	Nicaragua	ZA	South Africa
EE	Estonia	NL	Netherlands	ZW	Zimbabwe
ES	Spain	NO	Norway		
FI	Finland	NZ	New Zealand		
FR	France	PA	Panama		

AD HOC WORKING GROUP ON THE PUBLICATION OF VARIETY DESCRIPTIONS (WG-PVD)

3. The WG-PVD held a meeting in Geneva, on March 31, 2004. In addition to the members of the WG-PVD, Mr. Joost Barendrecht (Coordinator for Model Study on *Alstroemeria*) and Mr. Chris Barnaby (Chairman of Technical Working Party for Ornamental Plants and Forest Trees (TWO)) participated in the meeting.

4. The WG-PVD welcomed the participation of the Coordinators of the Model Studies and the Chairmen of the Technical Working Parties in the WG-PVD meetings where this was possible in conjunction with their attendance at the sessions of the TC. It agreed that such invitations should be extended for future meetings.

Model Study

5. The WG-PVD based its discussions on document TC/40/7 and a report of the discussions in the TC, based on that document, as presented in the Report on the Conclusions (see document TC/40/10, paragraphs 24 to 28)

6. Discussions focussed on the number of varieties for which descriptions were to be compared. The WG-PVD noted that, for example, in barley, lettuce and potato there were very large numbers of varieties and, therefore, large numbers of descriptions which would be compared. In two of the crops, namely Chinese Cabbage and *Alstroemeria*, there was a relatively small number of varieties, but this was because the number of varieties described in more than one territory was very small. However, it was noted that in two crops, namely Apple and Strawberry, there might be some encouragement to include a larger number of varieties. In order to increase the range of coverage of the Model Study overall, it was agreed that the Office of the Union (Office) should circulate, to all members of the Union, the lists of varieties on which the model studies would be based, and should encourage members to provide descriptions of those varieties where available¹. It was considered important to emphasize that it was not necessary to provide descriptions of all the varieties if some were not available. It was also emphasized that descriptions would be useful even where these did not contain all the characteristics.

7. The WG-PVD discussed the need to conduct a thorough analysis of the data received and how to present that data. It was noted that, in general, this was a matter for statisticians and that the TC had agreed that the Chairman of the TWC should, after consultation with the members of the TWC, develop guidance on how to present the variation in the states of expression between different descriptions of the same variety and communicate this guidance to the Coordinators of the Model Studies via the Office. It was noted that the GAIA software, developed in France, might be used in the Model Study and recommended that this be considered further by the TWC.

8. The WG-PVD considered the development of the project in relation to the development of the web-based UPOV Plant Variety Database, because of the possibility of including variety description information in that database in the future - if that was decided to be appropriate. It was concluded that it was necessary to bear in mind the possibility of

¹ A circular was issued by the Office on May 13, 2004.

including descriptions, but also photographs and ways of linking the two types of information for a variety.

9. Discussions took place regarding the way in which description information included in the UPOV Plant Variety Database might be used. The WG-PVD recalled that the aim of the project was:

(a) to increase the availability of variety description information to interested parties (i.e. DUS examiners, breeders and maintainers of varieties of common knowledge) and thereby to maximize the effectiveness of the examination of distinctness; and

(b) to use appropriate elements of the variety description, in the process of examining distinctness, to eliminate varieties which do not require further comparison and to identify those varieties against which a further comparison is required,

and clarified that, with respect to the UPOV Plant Variety Database, the intention was not to develop an “on-line” DUS examination.

Administrative, Legal and Financial Considerations

10. The WG-PVD based its discussion on document CAJ/47/3, paragraphs 7, 8 and 11.

11. It was agreed that, at that stage, there were no administrative, legal or financial barriers to the model studies and no urgent matters concerning administrative, legal and financial issues that needed to be addressed. For that reason, the meeting planned in October 2004 to look at the administrative and legal issues was cancelled and it was agreed that the next meeting would take place in April 2005 when there could be a review of progress on the Model Studies.

Date of Next Meeting

12. The date of the next meeting was provisionally set for April 6, 2005, when the WG-PVD would discuss this document and the comments on this document made by the TC at its forty-first session.

ADMINISTRATIVE AND LEGAL COMMITTEE (CAJ)

13. At its forty-ninth session held in Geneva on April 1, 2004, the CAJ received an oral report on the meeting of the WG-PVD held in Geneva on March 31, 2004.

TECHNICAL WORKING PARTIES (TWPS) / MODEL STUDIES

Presentation and Analysis of Results

14. At its fortieth session, held in Geneva from March 29 to 31, 2004 the TC agreed that the Chairman of the TWC should, after consultation with the members of the TWC, develop guidance on how to present the variation in the states of expression between different

descriptions of the same variety and communicate this guidance to the Coordinators of the Model Studies via the Office. The TWC, at its twenty-second session, held in Tsukuba, Japan, from June 14 to 17, 2004, agreed the recommendations contained in Annex I to this document. Since that session, Mr. Uwe Meyer (Germany), Chairman of the TWC, has developed an Excel spreadsheet to automate the recommended analysis on data entered. This spreadsheet will be distributed to the coordinators of the model studies. The TWC considered that future analysis might be conducted to indicate possible trends in different countries.

Technical Working Party for Agricultural Crops (TWA)

15. At its thirty-third session held in Poznań, Poland, from June 28 to July 2, 2004, the TWA received reports on progress in the Model Study on Barley from the Coordinator, Mr. Gerhard Deneken (Denmark), and on Potato from the joint Coordinator, Mr. Henk Bonthuis (Netherlands).

Barley

16. Mr. Deneken informed the TWA that TG/19/10 was to be used as the basis for characteristics and states of expression and that descriptions based on TG/19/7 would be converted as far as possible. Mr. Deneken explained that 1,134 descriptions (compatible with TG/19/10) had been provided for 723 varieties as follows:

	Number of sources (countries providing description of the same variety)									Total
	1	2	3	4	5	6	7	8	9	
Number of varieties	505	128	44	22	7	8	5	1	3	218 (more than 1 source)

Country	NZ	AR	ZA	GB	SK	ES	LT	CA	FR	SL	HU	RU	AT	DE	DK	CZ
Number of variety descriptions	2	5	9	10	12	24	31	34	38	42	52	93	118	181	228	255

Year of description		1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Number of descriptions	103	2	1	1			1		1	2	1

Year of description	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Number of descriptions	1	1	3	4	7	5	9	12	20	24	26

Year of description	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
Number of descriptions	34	69	66	66	85	88	104	139	75	188	

Potato

17. The TWA received a presentation on progress in the Model Study on Potato from the joint Coordinator, Mr. Henk Bonthuis (Netherlands). Key elements of that presentation are presented as Annex II to this document.

18. Mr. Bonthuis summarized that some qualitative characteristics were stable (e.g. skin and flower color), but that several quantitative characteristics were, in general, not stable across environments. Some quantitative characteristics were more stable than others. He observed that stability appeared to increase in regional subsets and that morphological characteristics were more stable in the original breeding environment, although further work was needed to test that hypothesis. With regard to the project on the publication of variety descriptions, he considered that it would be necessary to examine the main effects behind the variation and ways in which genotype x environment (GxE) interaction could be excluded or minimized and to look at the potential for thresholds and correction factors to be developed.

TWA discussions

19. The TWA welcomed the tables developed by the TWC for the presentation and analysis of the data produced in the Model Studies and considered that these would provide a good overview of the level of variation in variety descriptions.

20. With regard to the Model Study on Potato, the expert from Australia noted that there was a high level of variation for lightsprout characteristics when considering that the characteristics were examined in controlled conditions. Experts from Germany, Netherlands and New Zealand indicated that there were significant differences between observers for those characteristics. In addition, it was noted that the conditions were not completely standardized between testing centers. The expert from Australia considered that there was a risk in using foreign descriptions for potato varieties and explained that it had been decided in Australia that it was necessary to conduct all the DUS examinations for potato in Australia. An expert from the Community Plant Variety Office (CPVO) considered that lightsprout characteristics were very important and emphasized the need for harmonization in description for these characteristics, suggesting that there was a need for improvement in the harmonization of observations. An expert from the United Kingdom suggested that it would be interesting to analyze the results for the grouping characteristics. An expert from France considered that it would be worthwhile to look at ways to reduce “observer effects” by using better explanations of characteristics in the Test Guidelines, with particular attention to be given to asterisked characteristics. The expert from Germany noted that this would not eliminate the GxE effects. Furthermore, the composition of variety collections was still likely to influence the ranges used to describe characteristics. Another expert from France suggested that the analysis of the potato descriptions should be considered in all the model studies.

21. The TWA agreed that its discussions had indicated that, as a first step, the emphasis should be on how the description of varieties could be improved and the possibilities for developing regional sets of example varieties. Thereafter, as a second step, it could be useful to look at using the GAIA software to compare variety descriptions.

Technical Working Party for Fruit Crops (TWF)

22. The Technical Working Party for Fruit Crops (TWF), at its thirty-fifth session, held in Marquardt (Potsdam), Germany, from July 19 to 23, 2004, received reports from Mrs. Alison Lean (United Kingdom), Coordinator of the Model Study on Apple, and Mr. Baruch Bar-Tel (Israel), Coordinator of the Model Study on Strawberry.

Apple

23. The TWF received a presentation by Mrs. Lean on the Model Study for Apple. The information used for that presentation is summarized in Annex III (Tables 1-3) to this document. Table 1 presents descriptions using a set of characteristics which have the same states of expression and example varieties in both versions of the Test Guidelines used in the Model Study (TG/14/5 and TG/14/8), in order to compare as many descriptions as possible. Table 2 analyzes asterisked characteristics for those descriptions, and Table 3 provides a variety average of the frequency of notes and range across 10 characteristics.

Strawberry

24. Mr. Baruch Bar-Tel (Israel), Coordinator of the Model Study on Strawberry, reported to the TWF that he had received lists of varieties from more than 10 authorities and would select an appropriate sample on which to request descriptions.

TWF discussions

25. The TWF noted, with regard to the Model Study on Apple, that the only qualitative characteristic in the Test Guidelines (Tree: type) had produced consistent results across all authorities. However, the results for other characteristics had shown different degrees of variation for the same variety. It was noted that not all authorities which had included varieties on their lists had provided descriptions for those varieties, and it was agreed that a further request, by Mrs. Lean and, if appropriate, the Office, should be made to try to obtain further descriptions. The TWF noted that the information was also to be sent to Mr. J el Guiard (France) for an analysis to be conducted using GAIA.

26. With regard to the Model Study on Strawberry, the TWF agreed that, if required, Mr. Richard Brand (France) would assist in the study.

Technical Working Party for Ornamental Plants and Forest Trees (TWO)

27. The Technical Working Party for Ornamental Plants and Forest Trees (TWO), at its thirty-seventh session held in Hanover, Germany, from July 12 to 16, 2004, received reports from Mr. Joost Barendrecht (Netherlands), Coordinator for the Model Study on Alstroemeria, and from Ms. Andrea Menne (Germany), Coordinator for the Model Study on Petunia.

Alstroemeria

28. The TWO considered document TWO/37/10, presented by Mr. Joost Barendrecht (Netherlands). The Annex to that document, containing the data received at that time, is reproduced in Annex IV to this document. The TWO heard that it was hoped that further descriptions would be received from at least one more country. Mr. Barendrecht explained

that he would also seek information on the cultivation conditions for the varieties (e.g. indoor / outdoor, time of planting) for which descriptions had been received and would be requesting photographs of the varieties from the contributing countries. Mr. Barendrecht observed that there was a lot of variation for quantitative characteristics, which he would try to investigate further, for example checking to see if some countries limited the bottom of the scale to note 3, whereas others might use the scale down to note 1. He explained that the qualitative characteristics 16 and 20, for which there was considerable variation in states of expression, would be replaced by new characteristics in the next version of the Test Guidelines. The information from the Model Study would be used to select the most appropriate example varieties for the Test Guidelines under revision by the TWO. A further report would be made at the thirty-eighth session of the TWO. It was agreed that the next report would provide an additional column indicating the color group for the characteristics recorded according to an RHS Colour Chart number.

Petunia

29. The TWO welcomed the report of the results of the Model Study in document TWO/37/8, reproduced in Annex V to this document, as presented by the Coordinator, Ms. Andrea Menne (Germany). Ms. Menne provided the following conclusions:

(a) Qualitative characteristics have identical notes for the same variety in all countries;

(b) Quantitative characteristics sometimes have different notes for the same variety in different countries;

(c) the RHS Colour Chart number for a variety differs when the color is difficult to observe;

(d) photographs may help to find similar varieties, but it should be noted that the original color might differ from the color in the photograph.

TWO discussions

30. With regard to the Model Study on Petunia, the TWO noted that the Test Guidelines for Petunia were only adopted in 2003 and, therefore, it would not be possible to obtain descriptions of varieties for characteristics in the Test Guidelines, other than those already obtained. The TWO noted that the high level of consistency for the states of expression across varieties indicated that the characteristics selected as Technical Questionnaire characteristics were appropriate for that purpose.

Technical Working Party for Vegetables (TWV)

31. At its thirty-eighth session held in Seoul, Republic of Korea, from June 7 to 11, 2004, the TWV received reports from Mr. Mitsuo Yuasa (Japan), Coordinator for the Model Study on Chinese Cabbage, and from Mr. Kees van Ettehoven (Netherlands), Coordinator for the Model Study on Lettuce.

Chinese Cabbage

32. The TWV heard from Mr. Yuasa that there were 14 varieties which appeared in the list from Germany, 67 from Japan, 60 from the Republic of Korea, 88 from the Netherlands and 20 from Poland. There were two varieties which appeared in the list of three countries, 23 varieties which appeared in the list of two countries and the remaining 197 varieties appeared only in the list of one country. A preliminary analysis of descriptions of the 26 varieties appearing in the list of two or three countries, which is reproduced in Annex VI to this document, was presented to the TWV. Mr. Yuasa made the following comments on the data:

(a) Variety 'Solado' showed the most similar expression between two countries (receiving the same note for the Netherlands and Poland in 50% of the characteristics), followed by 'Elliot', 'Optiko' and 'Stokin'. 'Oberisk' showed the largest difference in expression between two countries (receiving the same note for the Netherlands and Poland in 7% of the characteristics).

(b) "Outer leaf: color" showed the most similar expression between countries (having the same note for the same variety in 77% of cases), followed by "Head: color of wrapper leaf" (having the same note for the same variety in 58% of cases). "Time of bolting" showed the largest difference in expression between countries (having the same note for the same variety in no cases). "Outer leaf: curvature in longitudinal section" and "Outer leaf: serration of margin" showed a large difference in expression between countries (having the same note for the same variety in 4% of cases).

Lettuce

33. Mr. Kees van Ettekooven reported that information had been received from the Czech Republic, Germany, Hungary, the Netherlands (variety descriptions of protected varieties and variety descriptions from the Dutch national list of varieties), Poland and Spain. Mr. van Ettekooven introduced a report, reproduced in Annex VII to this document, based on a preliminary analysis of three varieties with descriptions from four sources, 21 varieties with descriptions from three sources and 24 varieties with descriptions from two sources. The preliminary analysis did not include the data from Hungary, because that was not provided in the necessary format. Varieties with a description from only one source and descriptions which were based on versions of the Test Guidelines other than TG/13/7 were also excluded.

34. From the preliminary analysis, Mr. van Ettekooven noted that data for the asterisked characteristics were generally available (except for characteristic 37 "Time of beginning of bolting") and that the number of differences was less than he expected, but in some cases was still considerable. He observed that there were less differences in descriptions for qualitative and pseudo-qualitative characteristics compared to quantitative characteristics.

TWV discussions

35. The TWV noted that the degree of difference in descriptions varied from characteristic to characteristic and, in particular, was dependent on the type of its expression (quantitative, qualitative or pseudo-qualitative). In general, differences were smaller in the case of qualitative and pseudo-qualitative characteristics. Some experts observed that a difference of one note might not be significant in the case of quantitative characteristics, whereas it might

be significant in the case of qualitative and pseudo-qualitative characteristics. Different descriptions might be attributed to different interpretations of the characteristic in question.

36. Given the occurrence of significant differences between variety descriptions of the same variety prepared by different authorities, the TWV felt it was important to consider the possible consequence of the publication of such different descriptions.

37. The TWV observed that one of the most important objectives of the publication of variety descriptions would be to facilitate the selection of varieties which should be planted side-by-side with the candidate variety according to the grouping characteristics. In that respect, the TWV endorsed the current UPOV approach that grouping characteristics should, in general, be selected from qualitative and pseudo-qualitative varieties.

38. Concerning the proposal to use GAIA software to compare variety descriptions, an expert from France explained that less stable and, therefore, less reliable characteristics, would receive a low evaluation in GAIA database and, therefore, GAIA software could provide useful information to compare variety descriptions, depending on the criteria set out by the crop expert.

39. The TWV agreed to wait for guidance from the Chairman of the TWC, which would meet in Tsukuba, Japan, from June 14 to 17, 2004, before taking further action on the analysis.

Project for Exchanging Seed of Selected Varieties Between Interested Countries

40. At its thirtieth session held in Texcoco, Mexico, from September 3 to 7, 2001, the TWA decided to set up a project for exchanging seed of selected varieties between interested countries, with descriptions to be produced by the participants in their countries. Those descriptions would then be sent to a coordinator for a report to be produced. Projects were proposed for spring oats (coordinator: Sweden), lupins (coordinator: South Africa) and white clover (coordinator: New Zealand). It was agreed that a project for rice would be established if a coordinator could be identified. Japan was subsequently agreed as the coordinator for rice.

41. Given the similarity of the information arising from the project for exchanging seed with that produced in the model studies, information from the project for exchanging seed, presented to the TWA at its thirty-third session, is included in this document.

Rice

42. At its thirty-third session, the TWA received a report from Mr. Chukichi Kaneda (Japan) on a trial grown in Japan in 2003. The trial contained the following varieties with seed obtained from the countries as indicated:

Brazil:	Bigua, Bonanca, Jaburu, and Talento
France:	Cigalon, Couachi, and O.B.P.C.
Hungary:	Sandora, Risabell, and M-225
Italy:	Balilla, Carnaroli and Ariete
Japan:	Koshihikari, Nipponbare, and Nakate-shinsenbon
Russian Federation:	Uzyupyg and Aucuam
Spain:	Lido, Puntal, Thaibonnet, and Galatxo
Uruguay:	INIA Tacuari, L1130, El Paso 144 and INIA Caraguata

43. Mr. Kaneda made the following observations in relation to the results presented in Annex VIII to this document:

(a) Time of heading: Varieties described as note 3 in France and Hungary flowered in late July in Japan. Varieties described as note 3 in Spain flowered in early August. The variety with note 3 in Japan flowered in mid August. The variety 'INIA Tacu', described as note 3 in Uruguay, was much later flowering in Japan than varieties described as note 7 in Uruguay.

(b) Stem length: This was considered to be related to the heading. Varieties from Hungary became shorter (were described with a lower note) in Japan, but those from Brazil and Uruguay became much taller (described with a higher note). The reason for the latter is to be investigated.

(c) Panicle length: Varieties from Spain, France and Hungary tended to be shorter in Japan (were described with a lower note), perhaps due to accelerated vegetative growth. Varieties from Uruguay and lowland rice varieties (Bigua and Jaburu) from Brazil became longer (higher notes) even though growth duration did not change much.

(d) Leaf blade attitude: The higher notes for Hungarian varieties might be due to the time of evaluation (over-mature). However, the reason for the higher notes for Uruguay is not yet known.

(e) Spikelet: hairs on lemma: Observations were made without a magnifying lens. Three Japanese varieties were noted as 3, and all others except for one from France and one from Hungary were rated as 1, even though many were described with notes 5 or 7 in their source country. The reason for the large difference is to be investigated to establish whether it is due to inappropriate observation or due to environmental factors.

(f) Panicle: distribution of awns: Results were consistent for European varieties, but varieties from South America had, in general, a much reduced expression of awns in Japan. Considering that this characteristic seems to be influenced by the balance between plant growth and climate/soil fertility, further testing will be needed.

44. The TWA invited a further report for the thirty-fourth session of the TWA.

White Clover

45. Mr. Philip Rhodes (New Zealand) made an oral report of the project on White Clover. Some results had been obtained from seed provided by New Zealand, South Africa and the United Kingdom. With regard to quantitative characteristics, there was a reasonable level of agreement between New Zealand and the United Kingdom in descriptions for varieties with

states of expression towards the small and large ends of the scale, but less agreement for varieties with states of expression in the middle of the ranges. He also reported that where varieties were described in New Zealand, using seed provided by New Zealand and the United Kingdom, there was, in general, agreement in descriptions. However, in some cases there were significant differences.

46. The TC is invited to:

(a) comment on the reports of the Model Studies and the projects for exchanging seed, as set out in paragraphs 15 to 45;

(b) note that its comments will be reported to the WG-PVD at its meeting on April 6, 2005.

[Annexes follow]

ANNEX I

RECOMMENDATIONS FOR COORDINATORS OF THE MODEL STUDIES

The TWC recommends that the coordinators of the model studies in the project to consider the publication of variety descriptions use the following tables and information to present and analyze the data.

Table 1: Qualitative Characteristics (QL) (e.g. Ploidy type)

Characteristic: Ploidy type (UPOV-Number: xx)													
Variety	Provided descriptions	Notes								Number of frequencies			
			2		4		6						
A	5		4		1						2		
B	4				4						1		
....													
....													
....													

Table 2: Pseudo-Qualitative Characteristics (PQ) (e.g. Flower color)

Characteristic: Flower color (UPOV-Number: yy)													
Variety	Provided descriptions	Notes								Number of frequencies			
		1	2	3	4	5	6						
A	5	4	1								2		
B	4				3		1				2		
C	5		1	4							2		
....													
....													

Table 3: Quantitative Characteristics (QN) (e.g. Leaf length)

Characteristic: Leaf length (UPOV-Number: zz)													
Variety	Provided descriptions	Notes									Number of frequencies	Range	Standard deviation
		1	2	3	4	5	6	7	8	9			
A	5					2	1	2			3	2	1.00
B	5				1	2		2			3	3	1.34
C	5	1								4	2	8	3.58
....													
....													
Average											u	v	w

Explanations

Number of frequencies

The number of frequencies for a variety is equal to the number of non-zero frequencies for that variety. If the frequencies were presented as bars in a histogram, the number of different notes appearing in a variety would be equal to the number of bars which were non-zero.

The corresponding mathematical function in 'MS-Excel' is 'count'. This function counts cells which contain numbers. Empty cells are ignored.

The number of frequencies can be computed for all kinds of characteristics (QL, PQ, QN).

Range

The 'Range' is the difference between the maximum and minimum notes.

There is no separate function in 'MS-Excel' for the range. The 'MS-Excel' functions 'max' and 'min' can be used.

The range can only be computed for quantitative characteristics (QN).

Standard deviation

The standard deviation is given by the following formula:

$$STD = \sqrt{\frac{1}{n-1} * \sum_{i=1}^n (x_i - \bar{x})^2}$$

- x_i note for a characteristic for the i^{th} country,
 n number of countries,
 i varies from 1 to n and
 \bar{x} arithmetic mean of this characteristic over all countries

The corresponding function in 'MS-Excel' is 'STDEV'.

The standard deviation can only be computed for quantitative characteristics (QN).

Further information:

- For easier comprehension of the tables and for correct use of the 'MS-Excel' function 'count', it is necessary not to include zeros for notes which do not appear for that variety
- Tables are intended to show variation of a variety over notes, provided by different countries, characteristic-by-characteristic
- Depending on the number of varieties, graphical presentations like histograms could be added
- The TWC will check the application of further methods (GAIA and other).

Table 2: Percentage of descriptions in common for pairs of countries

Number of descriptions		NL	DE	CZ	AT	CA	ZA	NZ	EE	UK	IL
301	NL	100	62	51	20	19	9	10	9	6	6
205	DE		100	52	22	11	3	4	9	4	5
175	CZ			100	17	22	9	10	13	6	6
63	AT				100	16	8	13	14	3	10
62	CA					100	19	26	15	19	15
29	ZA						100	28	3	24	7
31	NZ							100	10	16	6
27	EE								100	4	11
22	UK									100	18
19	IL										100

Table 3: Subset of varieties with descriptions provided by at least six countries

	NL	DE	CZ	AT	CA	ZA	NZ	EE	UK	IL	Total number of descriptions
Agria	X	X	X	X	X		X	X			7
Van Gogh	X	X	X	X	X		X	X			7
Asterix	X	X	X	X	X			X		X	7
Remarka	X	X	X	X	X			X		X	7
Adora	X	X	X	X	X				X	X	7
Mondial	X		X	X	X		X		X	X	7
Platina	X	X	X	X	X	X					6
Desiree	X	X	X	X			X			X	6
L. Rosetta	X	X	X			X	X		X		6
Santana	X	X	X		X	X				X	6
Victoria	X		X		X	X	X	X			6

Method of analysis

- (a) Analysis options: The results were analyzed in the following ways:
- (i) over all varieties, within a subset of three countries (CZ, DE, NL)
=> condensed, slightly unbalanced dataset; partial conclusions on a major dataset
 - (ii) over all varieties, within a subset of five countries (CZ, DE, NL plus AT, EE)
=> unbalanced dataset; coherent set of countries
 - (iii) over all varieties, across all countries
=> highly unbalanced dataset; overall conclusions
 - (iv) over a subset of varieties, across countries
=> condensed, slightly unbalanced dataset; partial conclusions on a major dataset
 - (v) individual varieties, across countries
=> direct comparison; no replications; few degrees of freedom (df); use of standard deviation (sd); use of minimum-maximum range.
- (b) Statistical analysis: the Genstat REML procedure (residual maximum likelihood) was used to handle the unbalanced dataset. When presenting the results and analyses below it is recalled that the following restrictions with regard to statistical analyses mean that the analyses should be considered with caution:
- (i) statistical variance analysis requires normal distribution of data and constant error variance;
 - (ii) qualitative (QL) characteristics should be tested by non-parametric methods;
 - (iii) characteristics with less than 9 notes (small range characteristics) have a more limited range of variance than characteristics using a 1-9 scale and are not comparable. Small range characteristics are not always normally distributed.
 - (iv) there are no replications for descriptions from similar sources, which implies that differences (among countries or among varieties) can only be tested against interactions (variety x country).
 - (v) constraints above are also relevant for the comparison of standard deviations
- (c) Null hypothesis to be tested: descriptions from different sources are equal (similar).

Preliminary results

In the following tables, the abbreviations below are used:

- *: Asterisked characteristic
- G: Grouping characteristic
- QL: Qualitative characteristic
- QN: Quantitative characteristic
- PQ: Pseudo-qualitative characteristic

TG/23/5: Table of Characteristics				
Key	* / G	Characteristic	Notes	Type
Char. 1		Lightsprout: size	1-9	QN
Char. 2	*	Lightsprout: shape	1-5	PQ
Char. 3	*/G	Lightsprout: anthocyanin coloration of base	1, 2	?
Char. 4	*	Lightsprout: intensity of anthocyanin coloration of base	1-9	QN
Char. 5	*	Lightsprout: pubescence of base	1-9	QN
Char. 6	*	Lightsprout: size of tip	1-9	QN
Char. 7		Lightsprout: habit of tip	?	?
Char. 8		Lightsprout: intensity of anthocyanin coloration of tip	1-9	QN
Char. 9		Lightsprout: pubescence of tip	1-9	QN
Char. 10		Lightsprout: number of root tips	1-9	QN
Char. 11		Lightsprout: protrusion of lenticels	1-9	QN
Char. 12		Lightsprout: length of lateral shoots	1-9	QN
Char. 13		Plant: height	1-9	QN
Char. 14		Plant: type	1-3	?
Char. 15		Plant: growth habit	?	?
Char. 16		Stem: thickness of main stem	1-9	QN
Char. 17	*	Stem: extension of anthocyanin coloration	1-9	QN
Char. 18		Leaf: size	1-9	QN
Char. 19		Leaf: silhouette	?	?
Char. 20		Leaf: intensity of green color	1-9	QN
Char. 21		Leaf: extension of anthocyanin coloration of midrib	1-9	QN
Char. 22	*	Leaflet: size	1-9	QN
Char. 23		Leaflet: width	1-9	QN
Char. 24		Leaflet: frequency of coalescence	1-9	QN
Char. 25	*	Leaflet: waviness of margin	1-9	QN
Char. 26		Leaflet: depth of veins	1/9	QL
Char. 27		Leaflet: anthocyanin pigmentation of blade of young leaflets at apical rosette	1-9	QN
Char. 28		Leaflet: glossiness of the upperside	1-9	QN
Char. 29		Leaf (midrib): frequency of secondary leaflets	1-9	QN
Char. 30		<u>Terminal</u> leaflet: frequency of secondary leaflets	1-9	QN
Char. 31		<u>Lateral</u> leaflet: frequency of secondary leaflets	1-9	QN
Char. 32		Lateral leaflet: size of secondary leaflet	1-9	QN
Char. 33		Inflorescence: size	1-9	QN
Char. 34		Inflorescence: anthocyanin coloration of peduncle	1-9	QN
Char. 35		Plant: frequency of flowers	1-9	QN
Char. 36		Flower: anthocyanin coloration of bud	1-9	QN
Char. 37		Flower corolla: size	1-9	QN
Char. 38	* / G	Flower corolla: color of inner side	1-3	PQ
Char. 39	*	Flower corolla: intensity of anthocyanin coloration of inner side in <u>colored</u> flower	1-9	QN
Char. 40	*	Flower corolla: anthocyanin coloration of outer side in <u>white</u> flower	1/9	QL

Char. 41		Flower corolla: size of white tips in colored flower	1-9	QN
Char. 42		Plant: frequency of fruits	1-9	QN
Char. 43		Plant: time of maturity	1-9	QN
Char. 44	*	Tuber: shape	1-6	PQ
Char. 45		Tuber: depth of eyes	1-9	QN
Char. 46		Tuber: smoothness of skin	1-9	QN
Char. 47	* / G	Tuber: color of skin	1-5	PQ
Char. 48		Tuber: color of base of eye	1-3	?
Char. 49	*	Tuber: color of flesh	1-5	PQ
Char. 50		<u>Yellow-skinned varieties only</u> : Tuber: anthocyanin coloration of skin in reaction to light	1-9	QN

(a) Consistency of descriptions across CZ, DE, NL

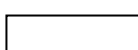
The following characteristics did not have significant differences (P=0.05) for the three countries:

TG/23/5: Table of Characteristics				
Key	* / G	Characteristic	Notes	Type
Char. 6	*	Lightsprout: size of tip	1-9	QN
Char. 18		Leaf: size	1-9	QN
Char. 19		Leaf: silhouette	?	?
Char. 21		Leaf: extension of anthocyanin coloration of midrib	1-9	QN
Char. 28		Leaflet: glossiness of the upperside	1-9	QN
Char. 34		Inflorescence: anthocyanin coloration of peduncle	1-9	QN
Char. 38	* / G	Flower corolla: color of inner side	1-3	PQ
Char. 40	*	Flower corolla: anthocyanin coloration of outer size in <u>white</u> flower	1/9	QL
Char. 47	* / G	Tuber: color of skin	1-5	PQ
Char. 48		Tuber: color of base of eye	1-3	?

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The following characteristics did have significant differences (P=0.05) for the three countries:

Char. 1			Char. 15 1.00%			Char. 29		
CZ	4.89	a..	NL	4.63	a.	CZ	4.92	a.
DE	5.35	.b.	CZ	4.73	ab	NL	5.03	a.
NL	5.64	..c	NL	4.92	.b	DE	6.38	.b
Char. 2			Char. 16			Char. 30		
CZ	2.43	a..	CZ	4.95	a.	CZ	4.14	a..
DE	2.75	.b.	DE	5.53	.b	NL	4.64	.b.
NL	2.90	..c	NL	5.73	.b	DE	6.08	..c
Char. 3 1.60%			Char. 17 2.60%			Char. 31		
DE	1.15	a.	DE	2.69	a.	DE	3.03	a..
CZ	1.16	ab	NL	2.93	.b	CZ	3.92	.b.
NL	1.18	.b	CZ	2.98	.b	NL	4.28	..c
Char. 4			Char. 18 5.50%			Char. 32		
NL	5.17	a..	DE	5.60	a	DE	3.14	a.
CZ	5.78	.b.	CZ	5.62	a	CZ	4.32	.b
DE	7.10	..c	NL	5.83	a	NL	4.40	.b
Char. 5			Char. 19 28.80%			Char. 33		
CZ	3.45	a.	DE	5.05	a	CZ	4.44	a.
NL	4.67	.b	NL	5.10	a	DE	4.80	ab
DE	4.81	.b	CZ	5.24	a	NL	4.90	.b
Char. 6 9.20%			Char. 20			Char. 34 72.80%		
CZ	4.54	a	NL	4.99	a.	NL	2.75	a
NL	4.58	a	DE	5.30	.b	DE	2.80	a
DE	4.79	a	CZ	5.44	.b	CZ	2.85	a
Char. 7			Char. 21 47.30%			Char. 35		
CZ	4.38	a..	NL	2.05	a	CZ	4.46	a.
NL	4.70	.b.	CZ	2.05	a	DE	5.26	.b
DE	5.10	..c	DE	2.15	a	NL	5.46	.b
Char. 8			Char. 22 0.60%			Char. 36		
NL	3.38	a..	DE	5.35	a.	CZ	2.90	a..
CZ	5.06	.b.	NL	5.51	ab	NL	3.55	.b.
DE	5.52	..c	CZ	5.65	.b	DE	4.28	..c
Char. 9			Char. 23 0.50%			Char. 37		
CZ	4.04	a.	DE	4.95	a.	DE	4.91	a.
NL	4.23	a.	CZ	4.99	a.	CZ	4.97	a.
DE	5.14	.b	NL	5.17	.b	NL	5.40	.b
Char. 10			Char. 24			Char. 38 12.40%		
CZ	4.66	a.	CZ	3.30	a.	DE	1.37	a
NL	4.74	a.	NL	3.60	.b	NL	1.40	a
DE	5.15	.b	DE	3.71	.b	CZ	1.41	a
Char. 11 3.10%			Char. 25			Char. 39		
NL	4.75	a.	NL	3.36	a.	DE	4.24	a.
DE	4.85	ab	DE	3.73	.b	CZ	4.46	a.
CZ	5.02	.b	CZ	3.90	.b	NL	4.94	.b
Char. 12			Char. 26			Char. 40 11.10%		
CZ	3.79	a.	NL	4.60	a..	DE	1.17	a
NL	4.24	.b	CZ	4.81	.b.	CZ	1.20	a
DE	4.38	.b	DE	5.34	..c	NL	1.60	a
Char. 13			Char. 27					
CZ	5.26	a..	NL	0.97	a.			
NL	5.69	.b.	DE	1.08	a.			
DE	6.79	..c	CZ	1.43	.b			
Char. 14			Char. 28 60.10%					
DE	1.84	a.	NL	4.89	a			
NL	2.11	.b	CZ	4.89	a			
CZ	2.16	.b	DE	4.98	a			

 Highly significant differences (P < 0.001) for three countries (CZ, DE, NL).
P = critical level of significance

 Different at 0.001 < P < 0.05

 Only significantly different at P < 0.05

A letter in common (a,b,c) indicates that there are no significant differences between the countries at P = 0.05.

(b) Consistency of descriptions across 3, 5 and 10 countries

The results indicate that:

- (i) most (40) characteristics have significant differences;
- (ii) significant differences increase as the number of countries increases;
- (iii) qualitative characteristics are the most consistent across countries

3 countries		5 countries		all countries	
Lightsprout: size of tip (1 – 9)					
Char.	6	Char.	6	Char.	6
9.20%		<0.1%		<0.1%	
CZ 4.54 a		CZ 4.52 a . .		NZ 4.17 a . . .	
NL 4.58 a		NL 4.58 a . .		ZA 4.48 a b . .	
DE 4.79 a		AT 4.70 a b .		CZ 4.51 a b . .	
		DE 4.80 . b .		NL 4.60 a b . .	
		EE 5.53 . . c		AT 4.70 a b c .	
				DE 4.80 . b c .	
				UK 5.33 . . c d	
				EE 5.48 . . . d	
				IL 5.85 . . . d	
				CA *	
Leaf: size (1-9)					
Char.	18	Char.	18	Char.	18
5.50%		0.20%		<0.1%	
DE 5.60 a		EE 5.54 a .		UK 4.67 a . . .	
CZ 5.62 a		DE 5.55 a .		NZ 4.76 a . . .	
NL 5.83 a		CZ 5.63 a .		ZA 5.43 . b . .	
		NL 5.86 a b		IL 5.50 . b c .	
		AT 6.11 . b		DE 5.57 . b c .	
				EE 5.57 . b c .	
				CZ 5.69 . b c .	
				NL 5.88 . . c .	
				AT 6.17 . . . d	
				CA *	
Leaf: silhouette (1-9)					
Char.	19	Char.	19	Char.	19
28.80%		<0.1%		<0.1%	
DE 5.05 a		DE 5.06 a .		IL 3.35 a . .	
NL 5.10 a		NL 5.12 a .		DE 5.09 . b .	
CZ 5.24 a		EE 5.19 a .		NL 5.11 . b .	
		CZ 5.26 a .		EE 5.14 . b .	
		AT 5.93 . b		CZ 5.25 . b .	
				ZA 5.25 . b .	
				CA 5.28 . b .	
				UK 5.28 . b .	
				AT 5.93 . . c	
				NZ 6.07 . . c	

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3 countries		5 countries		all countries	
Leaf: extension of anthocyanin coloration of midrib (1-9)					
Char.	21	Char.	21	Char.	21
47.30%		<0.1%		<0.1%	
NL 2.05 a		NL 2.05 a .		IL 1.23 a	
CZ 2.05 a		CZ 2.06 a .		NL 2.06 . b . . .	
DE 2.15 a		DE 2.16 a .		CZ 2.09 . b . . .	
		AT 2.32 a .		DE 2.19 . b . . .	
		EE 2.85 . b		CA 2.28 . b c . .	
				AT 2.36 . b c . .	
				ZA 2.70 . . c d .	
				EE 2.88 . . . d .	
				UK 4.01 e	
				NZ *	
Leaflet: glossiness of the upper side (1-9)					
Char.	28	Char.	28	Char.	28
60.10%		<0.1%		<0.1%	
NL 4.89 a		EE 3.95 a .		IL 3.68 a .	
CZ 4.89 a		AT 4.91 . b		EE 3.97 a .	
DE 4.98 a		NL 4.91 . b		UK 4.12 a .	
		CZ 4.92 . b		CZ 4.92 . b	
		DE 4.99 . b		AT 4.94 . b	
				NL 4.94 . b	
				DE 4.97 . b	
				ZA 5.28 . b	
				CA *	
				NZ *	
Inflorescence: anthocyanin coloration of peduncle (1-9)					
Char.	34	Char.	34	Char.	34
72.80%		31.40%		4.90%	
NL 2.75 a		AT 2.52 a		NZ 2.43 a . .	
DE 2.80 a		EE 2.63 a		IL 2.49 a b .	
CZ 2.85 a		NL 2.82 a		AT 2.71 a b .	
		DE 2.84 a		EE 2.76 a b .	
		CZ 2.87 a		ZA 2.77 a b .	
				CA 2.90 a b .	
				NL 2.93 a b .	
				DE 2.99 . b .	
				CZ 3.04 . b .	
				UK 3.78 . . c	
Flower corolla: color of inner side (1-3)					
Char.	38	Char.	38	Char.	38
12.40%		3.30%		<0.1%	
DE 1.37 a		DE 1.38 a .		DE 1.39 a	
NL 1.40 a		NL 1.40 a .		NL 1.42 a b . . .	
CZ 1.41 a		CZ 1.41 a .		CZ 1.43 a b . . .	
		AT 1.42 a b		AT 1.43 a b c . .	
		EE 1.52 . b		ZA 1.45 a b c d .	
				UK 1.46 a b c d .	
				CA 1.48 . b c d .	
				EE 1.55 . . c d e	
				IL 1.60 . . . d e	
				NZ 1.63 e	

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3 countries		5 countries		all countries	
Flower corolla: anthocyanin coloration of outer side in white flowers (1/9)					
Char.	40	Char.	40	Char.	40
11.10%		10.80%		1.70%	
DE 1.17 a		CZ 1.16 a		IL 0.51 a .	
CZ 1.20 a		DE 1.18 a		CA 0.68 a .	
NL 1.60 a		AT 1.44 a		ZA 0.80 a b	
		NL 1.63 a		CZ 1.22 a b	
		EE 1.98 a		DE 1.24 a b	
				AT 1.55 a b	
				NL 1.64 . b	
				EE 1.97 . b	
				UK 2.74 . b	
				NZ *	
Tuber: color of skin (1-5)					
CHAR.	47	Char.	47	Char.	47
41.50%		28.70%		0.40%	
NL 1.09 a		EE 1.04 a		EE 1.05 a .	
DE 1.10 a		AT 1.09 a		CA 1.05 a .	
CZ 1.11 a		NL 1.09 a		AT 1.10 a .	
		DE 1.11 a		NL 1.10 a .	
		CZ 1.11 a		IL 1.11 a .	
				NZ 1.11 a .	
				DE 1.12 a .	
				CZ 1.12 a .	
				ZA 1.16 a .	
				UK 1.33 . b	
Tuber: color of base of eye (1-3)					
Char.	48	Char.	48	Char.	48
13.80%		62.40%		<0.1%	
DE 1.1 a		DE 1.10 a		IL 1.01 a . .	
NL 1.11 a		EE 1.11 a		UK 1.08 a b .	
CZ 1.12 a		NL 1.12 a		DE 1.10 . b .	
		AT 1.12 a		EE 1.12 . b .	
		CZ 1.12 a		NL 1.12 . b .	
				AT 1.12 . b .	
				CZ 1.12 . b .	
				ZA 1.26 . . c	
				CA *	
				NZ *	



P = 0.05 (basis for tprob grouping – abc)



p = 0.001

(c) Most variable characteristics

The following table presents the standard deviations of the most variable characteristics for the varieties with most descriptions:

	Lightsprout: intensity of anthocyanin coloration of base	Lightsprout: pubescence of base	Lightsprout: habit of tip	Lightsprout: intensity of anthocyanin coloration of tip	Leaflet: frequency of coalescence	Leaf (midrib): frequency of secondary leaflets	Terminal leaflet: fre quency of secondary leaflets	Lateral leaflet: size of secondary leaflet	Tuber: smoothness of skin	Tuber: anthocyanin coloration of skin in reaction to light	
	char. 4 (*)	char. 5 (*)	char.7	char. 8	char. 24	char. 29	char. 30	char. 32	char. 46	char. 50	number of descriptions
Agria	1.00	1.25	1.40	1.99	0.00	1.79	2.00	1.50	1.10	1.41	7
Van Gogh	1.57	1.00	0.79	2.36	1.63	1.14	1.10	1.67	1.83	1.10	7
Asterix	1.38	0.76	1.51	1.25	1.79	1.79	2.26	1.10	0.84	-	7
Remarka	1.15	1.41	1.25	1.15	1.41	2.07	2.99	0.89	1.33	0.98	7
Adora	1.41	2.57	1.72	2.04	0.55	0.52	0.89	0.89	0.45	0.98	7
Mondial	1.27	2.48	1.21	1.91	0.96	2.00	2.83	2.06	1.94	1.15	7
Platina	1.87	1.26	0.82	0.82	1.26	0.89	0.84	1.14	1.10	1.58	6
Desiree	1.60	1.60	1.55	0.98	0.58	0.84	1.26	1.41	1.00	-	6
L. Rosetta	1.37	1.33	0.41	1.33	2.08	0.00	3.20	1.50	1.79	-	6
Santana	0.98	0.75	1.37	0.98	1.63	1.95	2.97	1.82	2.19	2.19	6
Victoria	0.75	1.75	0.84	1.51	1.26	0.58	1.26	1.63	1.37	0.00	6
Range	2.2	2.1	3.3	2.2	2.8	2.5	2.0	2.4	3.0	3.1	(= max-min)

(d) Characteristic 43 “Plant: time of maturity” (1-9) (QN)

The following table presents the notes and standard deviations for characteristic 43 “Plant: time of maturity” for the varieties with most descriptions:

	NL	DE	CZ	AT	CA	ZA	NZ	EE	UK	IL	Standard deviation	Number of descriptions
Agria	6		5	6	7			6			0.71	7
Van Gogh	7		7	6				8			0.82	7
Asterix	6		7	6				6			0.50	7
Remarka	6		5	6	9			7		6	1.38	7
Adora	1		1	3					1	1	0.89	7
Mondial	7		6	7						3	1.89	7
Platina	4		5	4							0.58	6
Desiree	6		6	6							0.00	6
L. Rosetta	4		5								0.71	6
Santana	4		4		7					5	1.41	6
Victoria	4		5					5			0.58	6
Berber	3		2	3				2			0.58	5
Folva	7		5	7				5			1.25	5
Quarta	4		4	5				5			0.58	5
Impala	3		2	2				1			0.82	5
Ukama	3		2	2							0.58	5
Nicola	6		6	5							0.58	5
Novita	3		3	4						3	0.50	5
Rikea	3		3		5			1			1.63	5
Felsina	4		3		5					4	0.82	5
Vital	7		5							7	0.55	5
Fresco	1			1				1	1		0.00	5
Carlita	3							3		3	0.00	5
Florissant	5		5	6	5						0.50	5
Innovator	3		5								1.41	5
L. Christie	2		1		5						2.08	5
Liseta	3		3							3	0.00	5
Valor			7		8						0.71	5
Avg. Maturity (all varieties)	4.624	4.087	4.455	4.472	6.124			4.446	4.585	4.208		

- (f) Characteristic 40 “Flower corolla: anthocyanin coloration of outer side in white flower”
(1,9) (*) (QL)

The following table presents the notes and standard deviations for characteristic 40 “Flower corolla: anthocyanin coloration of outer side in white flower” for only those varieties which did not have consistent descriptions across countries:

note 1 = absent; note 9 = present

	NL	DE	CZ	AT	CA	ZA	NZ	EE	UK	IL	Standard deviation	Number of descriptions
Agria	1		1	1	1			9			3.58	5 (7)
Allure	9	1									5.66	2 (2)
Anosta			1					9			5.66	2 (3)
Atlas	9	9	1								4.62	3 (3)
Desiree			9							1	5.66	2 (6)
Dorado	9		1			1					4.62	3 (3)
Felsina	1	9	9		1					1	4.38	5 (5)
Fianna	9				1						5.66	2 (4)
Gloria	1	9	1								4.62	3 (4)
Hilite Russet	1				1				9		4.62	3 (3)
Kuras	9	1	1	1							4.00	4 (4)
Sante	9		1		1			1			4.00	4 (4)
Saturna		1	1	9							4.62	3 (4)
Stefano	9	1									5.66	2 (2)
Taiga	9	1									5.66	2 (2)

(g) Characteristic 47 “Tuber: color of skin” (1-5) (*) (G) (PQ)

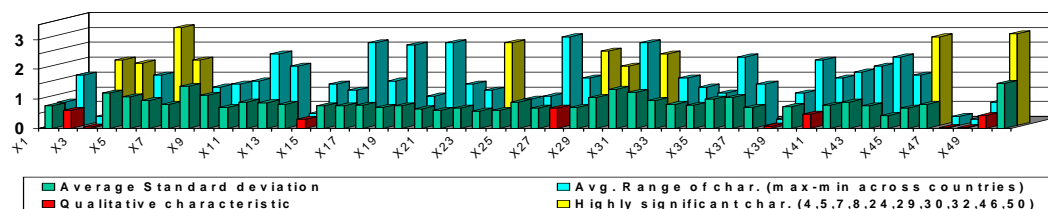
The following table presents the notes and standard deviations for characteristic 47 “Tuber: color of skin” for only those varieties which did not have consistent descriptions across countries:

note 1 = yellow; note 2 = red; 3 = blue; 4 = red parti-colored; 5 = blue parti-colored

	NL	DE	CZ	AT	CA	ZA	NZ	EE	UK	IL	Standard deviation.	Number of descriptions
Cleopatra	2				1						0.71	2 (2)
Diana	2	1							2		0.58	3 (3)
Glamis	1								4		1.73	3 (3)
Merlin					1	4			4		2.12	3 (3)
Quarta	1	4	4	1				1			1.64	5 (5)
Rasant	1	2	2								0.58	3 (3)
Redstar	2				1		2				0.58	3 (3)

(h) Averages across all countries

The following table presents a summary of the analyses across all countries:



(i) Similarities across countries

Correspondence analysis using multivariate-biplot analysis has been conducted to assess similarities among countries for different sets of characteristics, but is not presented here. The preliminary conclusions are presented below.

Methodology: The following constraints have been identified with regard to methodology:

- (i) unbalanced datasets require adapted analyses of variance (REML);
- (ii) restrictions on statistical analyses need full attention;
- (iii) test against interactions – no final conclusions yet with regard to whether the interactions are due to the observer or due to the genotype – environment interaction;
- (iv) use of standard deviation for direct comparison depends on the range of notes for the characteristic and the number of observations;
- (v) possible environmental factors include: year; location; soil; growing conditions; day-length; observer; interpretation of Test Guidelines.

Characteristics:

- (i) some qualitative (QL) characteristics are consistent (skin and flower color);
- (ii) several quantitative (QN) characteristics are not consistent across environments (in general);
- (iii) some QN characteristics are more consistent than others.

Regional similarities

- (i) consistency seems to increase in regional subsets;
- (ii) morphology is more stable in the original breeding environment (adaptation) - further study of varieties (with subsets based on origin) will be conducted to test that hypothesis.

Implications for the publication of variety descriptions

- (i) need to consider how the main environmental effects could be excluded or minimized – perhaps by thresholds and corrections;
- (ii) need to consider whether the use of published variety descriptions would be at the regional or world-wide level.

It is recalled that TG/23/6 has now been adopted by the TC and has replaced TG/23/5. A comparison between TG/23/5 and TG/23/6 is presented in the following table:

TG/23/5		TG/23/6		Characteristic	Notes	Type
	* / G		* / G			
Char. 1		1		Lightsprout: size	1-9	QN
Char. 2	*	2	*	Lightsprout: shape	1-5	PQ
Char. 3	*/G			Lightsprout: anthocyanin coloration of base	1, 2	?
		4	*/G	Lightsprout: proportion of blue in anthocyanin coloration of base	1-3	QN
Char. 4	*	3	*	Lightsprout: intensity of anthocyanin coloration of base	1-9	QN
Char. 5	*	5	*	Lightsprout: pubescence of base	1-9	QN
Char. 6	*			Lightsprout: size of tip	1-9	QN
		6		Lightsprout: size of tip in relation to base	1-9	QN
Char. 7		7		Lightsprout: habit of tip	?	?
Char. 8		8		Lightsprout: intensity of anthocyanin coloration of tip (TG/23/6: anthocyanin coloration of tip)	1-9	QN
Char. 9		9		Lightsprout: pubescence of tip	1-9	QN
Char. 10		10	*	Lightsprout: number of root tips	1-9	QN
Char. 11				Lightsprout: protrusion of lenticels	1-9	QN
Char. 12		11		Lightsprout: length of lateral shoots	1-9	QN
Char. 13		28		Plant: height	1-9	QN
Char. 14		12		Plant: type (TG/23/6: foliage structure)	1-3	QN
Char. 15		13	*	Plant: growth habit	?	?
Char. 16				Stem: thickness of main stem	1-9	QN
Char. 17	*	14	*	Stem: extension of anthocyanin coloration (TG/23/6: anthocyanin coloration)	1-9	QN
Char. 18		15		Leaf: size (TG/23/6: outline size)	1-9	QN
Char. 19		16		Leaf: silhouette (TG/23/6: openness)	(1-5)	(QN)
Char. 20		18		Leaf: intensity of green color (TG/23/6: green color)	1-9	QN
Char. 21		19		Leaf: extension of anthocyanin coloration of midrib (TG/23/6: anthocyanin coloration on midrib of upper side)	1-9	QN
Char. 22	*	20		Leaflet: size (TG/23/6: Second pair of lateral leaflets: size)	1-9	QN
Char. 23		21		Leaflet: width (TG/23/6: Second pair of lateral leaflets: width in relation to length)	1-9	QN
Char. 24		22		Leaflet: frequency of coalescence (TG/23/6: Terminal and lateral leaflets: frequency of coalescence)	1-9	QN
Char. 25	*	23		Leaflet: waviness of margin	1-9	QN
Char. 26				Leaflet: depth of veins	1/9	QL
		24		Leaflet: depth of veins	1-9	QN
Char. 27				Leaflet: anthocyanin pigmentation of blade of young leaflets at apical rosette	1-9	QN
Char. 28		25		Leaflet: glossiness of the upperside	1-9	QN

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Char. 29		17		Leaf (midrib): frequency of secondary leaflets (TG/23/6: Leaf: presence of secondary leaflets)	1-9	QN
Char. 30				<u>Terminal</u> leaflet: frequency of secondary leaflets	1-9	QN
Char. 31				<u>Lateral</u> leaflet: frequency of secondary leaflets	1-9	QN
Char. 32				Lateral leaflet: size of secondary leaflet	1-9	QN
		26		Leaflet: pubescence of blade at apical rosette	1/9	QL
Char. 33		30		Inflorescence: size	1-9	QN
Char. 34		31		Inflorescence: anthocyanin coloration of peduncle	1-9	QN
Char. 35		29	*	Plant: frequency of flowers	1-9	QN
Char. 36		27		Flower: anthocyanin coloration of bud (TG/23/6: Flower bud: anthocyanin coloration)	1-9	QN
Char. 37		32		Flower corolla: size	1-9	QN
Char. 38	* / G			Flower corolla: color of inner side	1-3	PQ
Char. 39	*			Flower corolla: intensity of anthocyanin coloration of inner side in <u>colored</u> flower	1-9	QN
		33	*/G	Flower corolla: intensity of anthocyanin coloration on inner side	1-9	QN
		34	*/G	Flower corolla: proportion of blue in anthocyanin coloration on inner side	1-3	QN
		35	*	Flower corolla: extent of anthocyanin coloration on inner side	1-9	QN
Char. 40	*			Flower corolla: anthocyanin coloration of outer size in <u>white</u> flower	1/9	QL
Char. 41				Flower corolla: size of white tips in colored flower	1-9	QN
Char. 42				Plant: frequency of fruits	1-9	QN
Char. 43		36	*/G	Plant: time of maturity	1-9	QN
Char. 44	*	37	*	Tuber: shape	1-6	PQ
Char. 45		38		Tuber: depth of eyes	1-9	QN
Char. 46				Tuber: smoothness of skin	1-9	QN
Char. 47	* / G			Tuber: color of skin	1-5	PQ
		39	*/G	Tuber: color of skin	1-7	PQ
Char. 48				Tuber: color of base of eye	1-3	?
		40	*	Tuber: color of base of eye	1-4	PQ
Char. 49	*			Tuber: color of flesh	1-5	PQ
		41	*	Tuber: color of flesh	1-9	PQ
Char. 50		42		<u>Yellow-skinned varieties only</u> : Tuber: anthocyanin coloration of skin in reaction to light (TG/23/6: <u>Light beige and yellow skinned varieties only</u> : ...)	1-9	QN

[Annex III follows]

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Table 1: Descriptions for characteristics common to TG/14/5 and TG/14/8

TG/14/5		2	7	9	11	12	20	23	25	32
*/G/TQ			*	*		*		*	*	
Tree: vigor		Tree: habit	Dormant one-year-old shoot: pubescence (on upper half of shoot)	Dormant one-year-old shoot: thickness (diameter at center)	Dormant one-year-old shoot: length of internode	Dormant one-year-old shoot: number of lenticels	Unopened flower: color of bud just before flower opens	Flower: size (diameter of flower with petals pressed into horizontal position)	Petals: position of margins	Leaf: general pose
1-9 (QN)		1-9	1-9 (QN)	1-9 (QN)	1-9 (QN)	1-9 (QN)	1-6 (PQ)	1-9 (QN)	1-9 (QN)	1-9

Note: Highlighted boxes indicate some differences between TG/14/5 and TG/14/8

TG/14/8				1	2	3	4	5	6	7	8	9	10	11
Source of description	Variety Denomination	Year of description	TG	Tree: vigor	Tree: type	Tree: habit (columnar types excluded)	Dormant one-year-old shoot: pubescence (on upper half of shoot)	Dormant one-year-old shoot: thickness (diameter at center)	Dormant one-year-old shoot: length of internode	Dormant one-year-old shoot: number of lenticels	Unopened flower: color (balloon stage)	Flower: size (diameter of flower with petals pressed into horizontal position)	Petals: relative position of margins	Leaf: attitude in relation to shoot
				1-9 (QN)	1/2 (QL)	1-9 (QN)	1-9 (QN)	1-9 (QN)	1-9 (QN)	1-9 (QN)	1-6 (PQ)	1-9 (QN)	1-3 (QN)	1-9
CZ	Bohemia	1994	14-5	7		3	5	7		7		5	5	5
GB (DE, NL)	Bohemia	1994	14-5	7		3	6	7		7		5	3	6
SK	Bohemia	1995	14-8	7	2	3	5	7	7	7	4	7	3	5
ZA	Caudle	2002	14-8	9	2	3	3	7	5	3	4	5	3	5
NZ	Caudle	2002/03	14-8	5	2	4	5	5	5	5	4	5	3	3
CPVO	Caudle		14-8	5	2	3to5	5	7	5	5	5	5	2	5
GB (DE, NL)	Hidala	1993	14-5	3		3to5	5	5		5		5	3	4
CA	Hidala	2002	14-5	5		3	7	5		3		5	7	3
ZA	Hidala	2004	14-8	7	2	3	7	3	5	3	4	3	1	3
CA	Honeycrisp	1999	14-5	4		4	5	3		8		5	7	5
CPVO	Honeycrisp	2000	14-8	4	2	3	5	5	3	5	3	4	2	5
NZ	Honeycrisp	2002/03	14-8	5	2	5	5	5	5	4	3	5	2	5
CA	Huaguan	2002	14-5	4		4	7			7		4	7	3
NZ	Huaguan	2001/02	14-8	5	2	4	5	5	5	4	3	5	2	5
CA	Huashuai	2001	14-5	7		5	3					7	7	4
NZ	Huashuai	2002/03	14-8	7	2	5	1	6	4	5	3	7	3	4
GB (BE)	Jonagored	1985	14-5	5		6	3	5		5		5	3	5
CA	Jonagored	1995	14-5	6		5	5	5		3		5	3	3
ZA	Jonagored	1995	14-8	9	2	5	5	7	5	3	4	7	2	3
SK	Jonagored	1998	14-8	5	2	5	7	5	5	7		5	2	5
HU	Jonagored	2003	14-8	7	2	5	5	5	5	5	4	5	3	5
NZ	Jonagored	1996/97	14-8	5	2	4	7	6	5	5	4	6	3	5
JP	Maypole	1992	14-8	3	1		7	3	1	3	4	5		
SK	Maypole	1998	14-8	5	1	3	3	3	1	7	6	7	3	7
GB (BE)	Pinova	1993	14-5	6		5	1	5		5		5	3	7
NZ	Pinova	2002/03	14-8	5	2	5	5	6	5	6	4	7	1	7
ZA	Pinova	2004	14-8	7	2	1	5	5	5	5	5	7	2	5
ZA	Royal Gala	2004	14-8	5	2	3	5	3	5	5	5	5	1	3
NZ	Royal Gala		14-8	5	2	5	3	5	5	6	4	5	1	5
GB (BE)	Schneica	1992	14-5	5		5	7	6		5		5	5	7
HU	Schneica	2003	14-8	6	2	5	5	5	5	5	4	5	3	5
CPVO	Scigold	2003	14-8	5	2	5	7	3	5	3	4	5	1	5
NZ	Scigold	1998/99	14-8	6	2	5	6	5	5	3	3	5	3	5
CA	Scired	2003	14-5	3		3	6			9		3	3	3
NZ	Scired	1996/97	14-8	5	2	5	3	5	5	6	4	5	1	5
CA	Sciros	2002	14-5	7		4	6	6		4		5	6	4
CPVO	Sciros		14-8	5	2	5	5	5	5	7	4	5	3	3
GB (BE)	Sunrise	1994	14-5	5		5	5	7		6		5	3	6
NZ	Sunrise	1997/98	14-8	5	2	5	7	7	5	4	3	5	1	5
JP	Telamon	1992	14-8	1	1		5	7	1	3	4	5		
SK	Telamon	1998	14-8	3	1	1	7	7	1	7	5	7	3	5
JP	Trajan	1992	14-8	3	1		7	5	1	3	3	5		
SK	Trajan	1998	14-8	3	1	1	7	7	1	7	3	3	2	5
JP	Tuscan	1992	14-8	3	1		7	5	1	3	4	5		
SK	Tuscan	1998	14-8	5	1	1	7	7	1	7	4	5	3	5
CZ	Vanda	1994	14-5	5		5	3	3		5		5	3	3
GB (DE, NL)	Vanda	1994	14-5	6		5	3	5		7		4	3	5

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TG/14/5	34	35	36	39	47	49	50	52	53	54	55
	Leaf: length	Leaf: width	Leaf blade:ratio length/width (from fourth to sixth fully expanded leaf)	Leaf blade: indentation of margin (as for 36)	Petiole: length	Fruit: size	Fruit: shape	Fruit: ribbing	Fruit: prominence of ribbing	Fruit: crowning at distal end	Fruit: degree of crowning at distal end
	1-9 (QN)	1-9 (QN)	1-9 (QN)	1/2 (QL)	1-9 (QN)	1-9 (QN)	1-13 (PQ)	1/9 (QL)	1-9 (QN)	1/9 (QL)	1-9 (QN)

Note: Highlighted boxes indicate some differences be

TG/14/8				12	13	14	15	16	17	20		21		22
Source of description	Variety Denomination	Year of description	TG	Leaf blade: length	Leaf blade: width	Leaf blade:ratio length/width	Leaf: shape of incisions of margin	Petiole: length	Fruit: size	Fruit: shape		Fruit: ribbing		Fruit: crowning at calyx end
				1-9 (QN)	1-9 (QN)	1-9 (QN)	1/2 (QL)	1-9 (QN)	1-9 (QN)	1-12 (PQ)		1/9 (QN)		1-9 (QN)
CZ	Bohemia	1994	14-5			5	-	5	7	1	1		1	-
GB (DE, NL)	Bohemia	1994	14-5			5		7	7	2	9	1	9	4
SK	Bohemia	1995	14-8	7	7		2	7	6	1		3		3
ZA	Caudle	2002	14-8	5	5	5	1	5	7	2		1		5
NZ	Caudle	2002/03	14-8	6	7	3	2	6	8	2		1		5
CPVO	Caudle		14-8	6	5	5	2	5	6	8		7		7
GB (DE, NL)	Hidala	1993	14-5			5		5	6	2,10	9	5	9	5
CA	Hidala	2002	14-5				1	5	9	2	9	2	9	4
ZA	Hidala	2004	14-8	5	3	7	1	5	6	5		1		3
CA	Honeycrisp	1999	14-5			5	2	4	9	2	1		2	2
CPVO	Honeycrisp	2000	14-8	5	5	5	1	5	7	8		1		1
NZ	Honeycrisp	2002/03	14-8	5	5	4	2	7	6	1		1		1
CA	Huaguan	2002	14-5				2	5	5	3	1		9	3
NZ	Huaguan	2001/02	14-8	5	5	5	1	5	5	2		3		3
CA	Huashuai	2001	14-5				2	5	9	2	9	9	9	7
NZ	Huashuai	2002/03	14-8	5	4	6		5	6	2		7		5
GB (BE)	Jonagored	1985	14-5			5	2	3	6	2	9	1	9	5
CA	Jonagored	1995	14-5			5	2	3	5	2	1		1	
ZA	Jonagored	1995	14-8	5	3	3	2	3	8	1		1		1
SK	Jonagored	1998	14-8	7	5	5	2	5	7	5		5		5
HU	Jonagored	2003	14-8	7	5	5	2	3	7	2		4		4
NZ	Jonagored	1996/97	14-8	6	6	5	2	7	9	1		1		5
JP	Maypole	1992	14-8	3		5	1	3	1					3
SK	Maypole	1998	14-8	7	5	5	2	7	1	2		5		5
GB (BE)	Pinova	1993	14-5			6	2	5	6	6	9	5	9	5
NZ	Pinova	2002/03	14-8	5	5	5	2	6	5	2		1		3
ZA	Pinova	2004	14-8	5	5	7	1	5	9	6		1		1
ZA	Royal Gala	2004	14-8	5	3	9	1	5	6	9		1		3
NZ	Royal Gala		14-8	5	5	5	2	5	4	2		1		1
GB (BE)	Schneica	1992	14-5			5	2	3	7	2	9	5	9	3
HU	Schneica	2003	14-8	7	5	5	2	3	7	2		4		4
CPVO	Scigold	2003	14-8	5	3	7	1	3	5	1		3		3
NZ	Scigold	1998/99	14-8	6	5	7	2	5	7	2		1		5
CA	Scired	2003	14-5				1	5	6	2	9	2	9	3
NZ	Scired	1996/97	14-8	5	7	7	1	3	5	11		1		5
CA	Sciros	2002	14-5				1	6	9	1	9	5	9	6
CPVO	Sciros		14-8	7	5	7	2	3	6	5		7		7
GB (BE)	Sunrise	1994	14-5			5	2	5	5	6	9	5	9	5
NZ	Sunrise	1997/98	14-8	5	5	5	2	5	6	2		3		6
JP	Telamon	1992	14-8	5		7	1	5	3					3
SK	Telamon	1998	14-8	7	5	5	2	7	5	2		3		5
JP	Trajan	1992	14-8	5		5	1	5	3					3
SK	Trajan	1998	14-8	7	5	5	2	7	5	2		3		3
JP	Tuscan	1992	14-8	3		5	1	3	3					3
SK	Tuscan	1998	14-8	7	7	5	2	7	6	4		5		5
CZ	Vanda	1994	14-5			5	-	5	6	5	9	7	1	-
GB (DE, NL)	Vanda	1994	14-5			5		6	7	5	9	1	9	3

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TG/14/5	56	57	59	61	62	63	64	65	66	68	69
	*	*		*		*	*	*		*	*
	Fruit: aperture of eye	Fruit: size of eye	Fruit: length of sepal (visual)	Fruit: depth of eye basin	Fruit: width of eye basin	Fruit: thickness of stalk	Fruit: length of stalk	Fruit: depth of stalk cavity	Fruit: width of stalk cavity	Fruit: bloom of skin	Fruit: greasiness of skin
	1-9 (QN)	1-9 (QN)	1-9 (QN)	1-9 (QN)	1-9 (QN)	1-9 (QN)	1-9 (QN)	1-9 (QN)	1-9 (QN)	1/9 (QL)	1/9 (QL)

Note: Highlighted boxes indicate some differences be

TG/14/8				23	24	25	26	27	28	29	30	31	32	33
				*	*		*		*	*	*		*	
Source of description	Variety Denomination	Year of description	TG	Fruit: aperture of eye	Fruit: size of eye	Fruit: length of sepal	Fruit: depth of eye basin	Fruit: width of eye basin	Fruit: thickness of stalk	Fruit: length of stalk	Fruit: depth of stalk cavity	Fruit: width of stalk cavity	Fruit: bloom of skin	Fruit: greasiness of skin
				1-3 (QN)	1-9 (QN)	1-9 (QN)	1-9 (QN)	1-9 (QN)	1-9 (QN)	1-9 (QN)	1-9 (QN)	1-9 (QN)	1-3 (QN)	1-3 (QN)
CZ	Bohemia	1994	14-5	5	5	5	5	5	3	7	5	5	1	1
GB (DE, NL)	Bohemia	1994	14-5	3,5	5	5	7	7	5	9	7	7	1	1
SK	Bohemia	1995	14-8	1	5	5	5	7	5	3	7	7	1	1
ZA	Caudle	2002	14-8	2	5	5	5	5	3	5	9	9	3	1
NZ	Caudle	2002/03	14-8	6	6	5	7	7	5	5	7	9	1	1
CPVO	Caudle	14-8		2	5	5	7	5	3	9	7	5	1	1
GB (DE, NL)	Hidala	1993	14-5	5	5	7	5	5	4	6	6	7	1	1
CA	Hidala	2002	14-5	7	6	6	6	7	5	6	6	7	9	1
ZA	Hidala	2004	14-8	1	5	3	3	3	7	3	5	7	2	1
CA	Honeycrisp	1999	14-5	3	4	3	7	7	5	7	7	7	9	7
CPVO	Honeycrisp	2000	14-8	1	3	3	7	3	3	5	7	5	1	1
NZ	Honeycrisp	2002/03	14-8	5	5	4	7	7	6	6	7	7	1	1
CA	Huaguan	2002	14-5	3	3	4	5	4	5	5	4	3	9	1
NZ	Huaguan	2001/02	14-8	3	5	7	5	5	4	6	6	5	1	1
CA	Huashuai	2001	14-5	7	6	3	8	7	7	6	4	7	9	9
NZ	Huashuai	2002/03	14-8	6	6	5	7	7	7	5	6	7	1	1
GB (BE)	Jonagored	1985	14-5	5	7	7	7	7	5	7	7	5	1	1
CA	Jonagored	1995	14-5	3	5	5	5	5	5	6	5	5	1	1
ZA	Jonagored	1995	14-8	3	7	5	7	5	5	9	7	7	2	1
SK	Jonagored	1998	14-8	2	7	7	7	7	7	5	7	7	1	1
HU	Jonagored	2003	14-8	2	6	5	6	7	5	7	6	7	2	3
NZ	Jonagored	1996/97	14-8	3	5	5	7	5	5	5	6	5	1	1
JP	Maypole	1992	14-8	1			3	5	3	7	5	5		5
SK	Maypole	1998	14-8	1	5	5	5	5	3	9	7	7	2	2
GB (BE)	Pinova	1993	14-5	3	5	5	5	5	4	7	5	5	1	1
NZ	Pinova	2002/03	14-8	5	5	5	7	5	5	9	7	5	1	1
ZA	Pinova	2004	14-8	2	5	5	5	5	5	7	5	7	2	2
ZA	Royal Gala	2004	14-8	1	5	5	3	3	5	3	7	5	2	1
NZ	Royal Gala		14-8	3	3	5	5	5	6	5	5	4	1	1
GB (BE)	Schneica	1992	14-5	5	5	7	5	5	5	7	7	7	1	1
HU	Schneica	2003	14-8	2	6	5	5	6	4	7	6	6	2	3
CPVO	Scigold	2003	14-8	2	5	7	7	5	5	5	5	7	1	1
NZ	Scigold	1998/99	14-8	3	5	5	6	5	5	4	6	5	1	2
CA	Scired	2003	14-5	3	5	6	6	5	4	4	4	3	9	9
NZ	Scired	1996/97	14-8	5	6	5	5	5	7	4	5	5	1	1
CA	Sciros	2002	14-5	7	7	7	6	6	6	5	5	6	9	1
CPVO	Sciros		14-8	2to3	5	7	7	6	5	6	7	5	1	1
GB (BE)	Sunrise	1994	14-5	5	6	4	6	5	5	5	6	6	1	1
NZ	Sunrise	1997/98	14-8	5	6	5	5	5	5	5	5	5	1	1
JP	Telamon	1992	14-8	3			5	5	5	3	5	5	1	1
SK	Telamon	1998	14-8	1	3	5	5	5	7	3	3	5	1	1
JP	Trajan	1992	14-8	3			3	3	5	3	3	5	1	3
SK	Trajan	1998	14-8	2	7	5	7	7	5	5	7	7	2	1
JP	Tuscan	1992	14-8	1			5	5	5	3	5	6	1	1
SK	Tuscan	1998	14-8	2	7	5	7	7	7	3	7	7	1	1
CZ	Vanda	1994	14-5	7	5	5	7	5	5	5	7	7	1	9
GB (DE, NL)	Vanda	1994	14-5	5,7	7	6	5	7	6	5	7	9	1	9

Table 2: Analysis of Variety Descriptions for Individual Characteristics

(a) Pseudo-qualitative characteristics

Characteristic **Fruit: shape**

TG/14/5 Char. 50 * / G / TQ / PQ
TG/14/8 Char. 20 * / G / TQ / PQ

Variety	Number of descriptions	Notes												only TG/14/5	Number of frequencies		
		1	2	3	4	5	6	7	8	9	10	11	12			13	
Bohemia	3	2	1														2
Caudle	3		2						1								2
Hidala	3		1.5			1						0.5					3
Honeycrisp	3	1	2						1								3
Huaguan	2		1	1													2
Huashuai	2		2														1
Jonagored	6	2	3			1											3
Maypole																	
Pinova	3		1				2										2
Royal Gala	2		1							1							2
Schneica	2		2														1
Scigold	2	1	1														2
Scired	2		1									1					2
Sciros	2	1				1											2
Sunrise	2		1				1										2
Telamon																	
Trajan																	
Tuscan																	
Vanda	2					2											1
Average																2.0	

Table 2: Analysis of Variety Descriptions for Individual Characteristics (continued)

(b) Quantitative characteristics

Characteristic **Dormant one-year-old shoot: number of lenticels**

Variety	Number of descriptions	Notes									Number of frequencies	Range
		1	2	3	4	5	6	7	8	9		
Bohemia	3							3			1	0
Caudle	3			1		2					2	2
Hidala	3			2		1					2	2
Honeycrisp	3				1	1			1		3	4
Huaguan	2				1			1			2	3
Huashuai												
Jonagored	6			2		3		1			3	4
Maypole	2			1				1			2	4
Pinova	3					2	1				2	1
Royal Gala	2					1	1				2	1
Schneica	2					2					1	0
Scigold	2			2							1	0
Scired	2						1			1	2	3
Sciros	2				1			1			2	3
Sunrise	2				1		1				2	2
Telamon	2			1				1			2	4
Trajan	2			1				1			2	4
Tuscan	2			1				1			2	4
Vanda	2					1		1			2	2
Average											1.9	2.4

Characteristic **Flower: size (diameter of flower with petals pressed into horizontal position)**

Variety	Number of descriptions	Notes									Number of frequencies	Range
		1	2	3	4	5	6	7	8	9		
Bohemia	3					2		1			2	2
Caudle	3					3					1	0
Hidala	3			1		2					2	2
Honeycrisp	3				1	2					2	1
Huaguan	2				1	1					2	1
Huashuai	2							2			1	0
Jonagored	6					4	1	1			3	2
Maypole	2					1		1			2	2
Pinova	3					1		2			2	2
Royal Gala	2					2					1	0
Schneica	2					2					1	0
Scigold	2					2					1	0
Scired	2			1		1					2	2
Sciros	2					2					1	0
Sunrise	2					2					1	0
Telamon	2					1		1			2	2
Trajan	2			1		1					2	2
Tuscan	2					2					1	0
Vanda	2				1	1					2	1
Average											1.6	1.0

Characteristic **Petiole: length**

Variety	Number of descriptions	Notes									Number of frequencies	Range
		1	2	3	4	5	6	7	8	9		
Bohemia	3					1		2			2	2
Caudle	3					2	1				2	1
Hidala	3					3					1	0
Honeycrisp	3				1	1		1			3	3
Huaguan	2					2					1	0
Huashuai	2										1	0
Jonagored	6			4		1		1			3	4
Maypole	2			1				1			2	4
Pinova	3					2	1				2	1
Royal Gala	2					2					1	0
Schneica	2			2							1	0
Scigold	2			1		1					2	2
Scired	2			1		1					2	2
Sciros	2			1			1				2	3
Sunrise	2					2					1	0
Telamon	2					1		1			2	2
Trajan	2					1		1			2	2
Tuscan	2			1				1			2	4
Vanda	2					1	1				2	1
Average											1.8	1.6

Characteristic **Fruit: size**

TG/14/5 Char. 49 * / QN
TG/14/8 Char. 17 * / QN

Variety	Number of descriptions	Notes									Number of frequencies	Range
		1	2	3	4	5	6	7	8	9		
Bohemia	3						1	2			2	1
Caudle	3						1	1	1		3	2
Hidala	3						2			1	2	3
Honeycrisp	3						1	1		1	3	3
Huaguan	2					2					1	0
Huashuai	2						1			1	2	3
Jonagored	6					1	1	2	1	1	5	4
Maypole	2	2									1	0
Pinova	3					1	1			1	3	4
Royal Gala	2				1		1				2	2
Schneica	2							2			1	0
Scigold	2					1		1			2	2
Scired	2					1	1				2	1
Sciros	2						1			1	2	3
Sunrise	2					1	1				2	1
Telamon	2			1		1					2	2
Trajan	2			1		1					2	2
Tuscan	2			1			1				2	3
Vanda	2						1	1			2	1
Average											2.2	1.9

Characteristic **Fruit: size of eye**

TG/14/5 Char. 57 * / QN
TG/14/8 Char. 24 * / QN

Variety	Number of descriptions	Notes									Number of frequencies	Range
		1	2	3	4	5	6	7	8	9		
Bohemia	3					3					1	0
Caudle	3					2	1				2	1
Hidala	3					2	1				2	1
Honeycrisp	3			1	1	1					3	2
Huaguan	2			1		1					2	2
Huashuai	2						2				1	0
Jonagored	6					2	1	3			3	2
Maypole												
Pinova	3					3					1	0
Royal Gala	2			1		1					2	2
Schneica	2					1	1				2	1
Scigold	2					2					1	0
Scired	2					1	1				2	1
Sciros	2					1		1			2	2
Sunrise	2						2				1	0
Telamon												
Trajan												
Tuscan												
Vanda	2					1		1			2	2
Average											1.8	1.1

Characteristic **Fruit: depth of eye basin**

TG/14/5 Char. 61 * / QN
TG/14/8 Char. 26 * / QN

Variety	Number of descriptions	Notes									Number of frequencies	Range
		1	2	3	4	5	6	7	8	9		
Bohemia	3					2		1			2	2
Caudle	3					1		2			2	2
Hidala	3			1		1	1				3	3
Honeycrisp	3							3			1	0
Huaguan	2					2					1	0
Huashuai	2							1	1		2	1
Jonagored	6					1	1	4			3	2
Maypole	2			1		1					2	2
Pinova	3					2		1			2	2
Royal Gala	2			1		1					2	2
Schneica	2					2					1	0
Scigold	2						1	1			2	1
Scired	2					1	1				2	1
Sciros	2						1	1			2	1
Sunrise	2					1	1				2	1
Telamon	2					2					1	0
Trajan	2			1				1			2	4
Tuscan	2					1		1			2	2
Vanda	2					1		1			2	2
Average											1.9	1.5

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Model Study on Apple

Characteristic **Fruit: thickness of stalk**
TG/14/5 Char. 63 * / QN
TG/14/8 Char. 28 * / QN

Variety	Number of descriptions	Notes									Number of frequencies	Range	
		1	2	3	4	5	6	7	8	9			
Bohemia	3			1		2						2	2
Caudle	3			2		1						2	2
Hidala	3				1	1			1			3	3
Honeycrisp	3			1		1	1					3	3
Huaguan	2				1	1						2	1
Huashuai	2								2			1	0
Jonagored	6					5		1				2	2
Maypole	2			2								1	0
Pinova	3				1	2						2	1
Royal Gala	2					1	1					2	1
Schneica	2				1	1						2	1
Scigold	2					2						1	0
Scired	2				1				1			2	3
Sciros	2					1	1					2	1
Sunrise	2					2						1	0
Telamon	2					1			1			2	2
Trajan	2					2						1	0
Tuscan	2					1			1			2	2
Vanda	2					1	1					2	1
Average											1.8	1.3	

Characteristic **Fruit: length of stalk**

TG/14/5 Char. 64 * / QN
TG/14/8 Char. 29 * / QN

Variety	Number of descriptions	Notes									Number of frequencies	Range	
		1	2	3	4	5	6	7	8	9			
Bohemia	3			1				1		1		3	6
Caudle	3					2				1		2	4
Hidala	3			1				2				2	3
Honeycrisp	3					1	1	1				3	2
Huaguan	2					1	1					2	1
Huashuai	2					1	1					2	1
Jonagored	6					3	1	2				3	2
Maypole	2							1		1		2	2
Pinova	3							2		1		2	2
Royal Gala	2			1		1						2	2
Schneica	2								2			1	0
Scigold	2				1	1						2	1
Scired	2				2							1	0
Sciros	2					1	1					2	1
Sunrise	2					2						1	0
Telamon	2			2								1	0
Trajan	2			1		1						2	2
Tuscan	2			2								1	0
Vanda	2					2						1	0
Average											1.8	1.5	

Characteristic **Fruit: depth of stalk cavity**

TG/14/5 Char. 65 * / QN
TG/14/8 Char. 30 * / QN

Variety	Number of descriptions	Notes									Number of frequencies	Range	
		1	2	3	4	5	6	7	8	9			
Bohemia	3					1		2				2	2
Caudle	3							2		1		2	0
Hidala	3					1	2					2	1
Honeycrisp	3							3				1	0
Huaguan	2				1		1					2	2
Huashuai	2				1		1					2	2
Jonagored	6					1	2	2		1		4	4
Maypole	2					1		1				2	2
Pinova	3					2		1				2	2
Royal Gala	2					1		1				2	2
Schneica	2							1	1			2	1
Scigold	2					1	1					2	1
Scired	2				1	1						2	1
Sciros	2					1		1				2	2
Sunrise	2					1	1					2	1
Telamon	2			1		1						2	2
Trajan	2			1				1				2	4
Tuscan	2					1		1				2	2
Vanda	2							2				1	0
Average											2.0	1.6	

Characteristic **Fruit: amount of over color**

TG/14/5 Char. 74 * / QN
TG/14/8 Char. 35 * / QN

Variety	Number of descriptions	Notes									Number of frequencies	Range
		1	2	3	4	5	6	7	8	9		
Bohemia	3					1		1	1		3	3
Caudle	3			1		2					2	2
Hidala	3						1	2			2	1
Honeycrisp	3			1		1	1				3	3
Huaguan	2					1		1			2	2
Huashuai	2					2					1	0
Jonagored	6					1		4	1		3	3
Maypole	2							2			1	0
Pinova	3			1		1		1			3	4
Royal Gala	2	1				1					2	4
Schneica	2							2			1	0
Scigold	2			2							1	0
Scired	2						1			1	2	3
Sciros	2					1	1				2	1
Sunrise	2					2					1	0
Telamon	2					2					1	0
Trajan	2			1		1					2	2
Tuscan	2	1		1							2	2
Vanda	2					1	1				2	1
Average											1.9	1.6

Characteristic **Fruit: size of lenticels**

TG/14/5 Char. 79 * / QN
TG/14/8 Char. 42 * / QN

Variety	Number of descriptions	Notes									Number of frequencies	Range
		1	2	3	4	5	6	7	8	9		
Bohemia	3					1		2			2	2
Caudle	3					3					1	0
Hidala	3					3					1	0
Honeycrisp	3					2	1				2	1
Huaguan	2			1		1					2	2
Huashuai	2			1	1						2	1
Jonagored	6					5	1				2	1
Maypole	2			1		1					2	2
Pinova	3					2		1			2	2
Royal Gala	2				1	1					2	1
Schneica	2					1	1				2	1
Scigold	2			1		1					2	2
Scired	2					1		1			2	2
Sciros	2							2			1	0
Sunrise	2			1		1					2	2
Telamon	2					2					1	0
Trajan	2			1				1			2	4
Tuscan	2			1				1			2	4
Vanda	2			1	1						2	1
Average											1.8	1.5

Characteristic **Fruit: firmness of the flesh (measurement with penetrometer)**

TG/14/5 Char. 81 * / QN
TG/14/8 Char. 43 * / QN

Variety	Number of descriptions	Notes									Number of frequencies	Range
		1	2	3	4	5	6	7	8	9		
Bohemia	3					2	1				2	1
Caudle	3					3					1	0
Hidala	3							2		1	2	2
Honeycrisp	3					1	1	1			3	2
Huaguan	2						1	1			2	1
Huashuai	2					1	1				2	1
Jonagored	6			1		4		1			3	4
Maypole	2			1		1					2	2
Pinova	3					2		1			2	2
Royal Gala	2					2					1	0
Schneica	2			1		1					2	2
Scigold	2							2			1	0
Scired	2					1	1				2	1
Sciros	2							2			1	0
Sunrise	2					1		1			2	2
Telamon	2					1		1			2	2
Trajan	2					1		1			2	2
Tuscan	2			1		1					2	2
Vanda	2			1		1					2	2
Average											1.9	1.5

Characteristic **Time of beginning of flowering (10% open flowers)**

TG/14/5 Char. 90 * / G / TQ / QN
TG/14/8 Char. 46 * / G / TQ / QN

Variety	Number of descriptions	Notes									Number of frequencies	Range
		1	2	3	4	5	6	7	8	9		
Bohemia	3					3					1	0
Caudle	2					2					1	0
Hidala	3			1		1	1				3	3
Honeycrisp	2					2					1	0
Huaguan	2					1	1				2	1
Huashuai												
Jonagored	6					6					1	0
Maypole	2			2							1	0
Pinova	2					1		1			2	2
Royal Gala	2					2					1	0
Schneica	2					2					1	0
Scigold	2			2							1	0
Scired	2					1	1				2	1
Sciros	2						2				1	0
Sunrise	2			2							1	0
Telamon	2					2					1	0
Trajan	2			1		1					2	2
Tuscan	2			1		1					2	2
Vanda	2					2					1	0
Average											1.4	0.6

Table 3: Average Number of Frequencies and Range by Variety.

Summary

Characteristics TG/14/8 Chars. 9, 16, 17, 26, 28, 29, 30, 35, 42, 43

Variety	Number of descriptions	Sources of Descriptions	Number of frequencies	Range
Jonagored	6	CA, GB, HU, NZ, SK, ZA	2.9	2.6
Hidala	3	CA, GB, ZA	2.0	1.6
Honeycrisp	3	CA, NZ, CPVO	2.4	1.9
Bohemia	3	CZ, GB, SK	2.0	2.1
Pinova	3	GB, NZ, ZA	2.0	1.7
Caudle	3	NZ, ZA, CPVO	1.8	1.4
Sciros	2	CA, CPVO	1.8	1.4
Huaguan	2	CA, NZ	1.8	1.4
Huashuai	2	CA, NZ	1.4	0.6
Scired	2	CA, NZ	1.9	1.8
Vanda	2	CZ, GB	1.8	1.1
Schneica	2	GB, HU	1.4	0.4
Sunrise	2	GB, NZ	1.4	0.6
Maypole	2	JP, SK	1.8	2.0
Telamon	2	JP, SK	1.6	1.3
Trajan	2	JP, SK	1.9	2.7
Tuscan	2	JP, SK	1.8	2.2
Scigold	2	NZ, CPVO	1.5	0.7
Royal Gala	2	NZ, ZA	1.8	1.5
Average			1.8	1.5

[Annex IV follows]

ANNEX IV

Model Study on Alstroemeria

TG/29/6

Variety Denomination	Breeder's Reference	Breeder	Applicant (if different from breeder)	Status of Description (Official/ Other)	Year of description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
						* Stem: length	* Stem: thickness	* Stem: density of foliage	* Leaf: length	* Leaf: width	* Leaf: shape of blade	* Leaf: longitudinal axis of blade	* Inflorescence: number of branches in umbel	* Inflorescence: length of pedicel	* Inflorescence: length of branches in umbel	* Flower: main color	* Flower: size	* Flower: spread of tepals	* Outer tepal: shape of blade	* Outer tepal: depth of emargination	* Outer tepal: main color of inner side of blade	* Outer tepal: stripes on inner side of blade	* Outer tepal: number of stripes on inner side of blade	* Inner tepal: shape of blade	* Inner lateral tepal: main color of inner side of middle zone of blade	* Inner lateral tepal: number of stripes on inner side of blade	* Inner lateral tepal: size of stripes on inner side of blade	* Stamens: main color of filament	* Stamens: small spots on filament	* Stamens: color of anthers at the start of dehiscence	* Pistil: anthocyanin coloration of ovary	* Pistil: spots on the stigma
						1-9	1-9	1-9	1-9	1-9	1-3	1/2	1-9	1-9	1-9	1-12	1-9	1-9	1-5	1-9	RHS	1/9	1-9	1/2	RHS	1-9	1-9	1-9	1/9	1-7	1-9	1-9
Stabec	90708-20	Staaveren		Off. NL	1993	7	8	5	9	7	2	1	5	7	3	7	5	5	5	7	62B-C	9	1	1	9B	5	5	6	1	1	1	1
Stabec	90708-20	Staaveren		Off. RSA	1997	5	5	3	5	5	2	1	5	7	4	8	5	5	5	7	54C	9	3	1	9A	5	5	6	1	1	5	1
Stabec		Zanten		Off. CA	2001	N/A	5	6	N/A	N/A	2	1	5	N/A	N/A	6	7	7	N/A	5	54A	1	N/A	1	9A	5	5	7	1	7	5	1
Stamond	90629-37	Staaveren		Off. NL	1993	9	7	6	7	5	2	1	5	5	3	1	7	5	3	5	155D	9	1	1	155D	4	5	6	1	4	4	1
Stamond	90629-37	Staaveren		Off. RSA	1997	5	7	7	5	5	1	2	6	5	7	1	5	3	3	7	155D	9	5	2	155D	5	5	6	1	7	3	
Stamond		Zanten		Off. CA	2001	N/A	5	7	N/A	N/A	2	2	5	N/A	N/A	1	7	6	N/A	5	155D	9	1	1	4D	5	5	6	1	5	7	1
Staprilan	91D-169-16	Staaveren		Off. NL	1993	1	1	9	1	1	3	2	3	3	3	3	5	5	5	3	8B-C	9	1	3	9A-B	4	5	2	1	4	1	1
Staprilan	91D-169-16	Staaveren		Off. RSA	1997	3	3	5	5	5	2	1	5	3	3	3	5	5	4	3	20a	9	5	2	9B	7	3	2	1	4	1	1
Staprilan		Zanten		Off. CA	2001	N/A	3	5	N/A	N/A	2	1	5	N/A	N/A	3	5	5	N/A	3	5C	9	3	1	12A	5	5	7	1	7	1	1
Staprinag	93D-820-12	Staaveren		Off. NL	1997	1	1	9	1	5	3	2	1	3	3	1	5	5	5	3	155A	9	1	2	4A-B	4	4	6	1	7	3	1
Staprinag	93D-820-12	Saaveren		Off. RSA	1997	3	5	7	6	5	2	2	5	5	3	7	5	5	4	5	36D	1	5	1	4B	7	3	6	1	7	3	1
Staprinag		Zanten		Off. CA	2001	N/A	3	5	N/A	N/A	1	1	5	N/A	N/A	1	5	5	N/A	5	155D	9	3	1	2B	5	5	7	1	7	3	1
Staprisis	93D-788-11	Staaveren		Off. NL	1997	1	1	9	1	1	3	1	3	3	3	8	5	4	5	3	65A-B	1	0	2	8D	4	4	7	1	4	1	9
Staprisis	93D-788-11	Saaveren		Off. RSA	1997	3	3	5	3	5	3	2	3	3	5	8	3	5	4	3	54B	1		2	9A	5	5	6	1	4	1	1
Staprisis		Zanten		Off. CA	2001	N/A	3	5	N/A	N/A	1	1	3	N/A	N/A	8	4	4	N/A	5	65A	1	N/A	1	12A	5	5	7	1	7	1	9
Stasach	90T-689-15	Staaveren		Off. NL	1997	7	5	5	7	5	1	2	5	7	5	6	5	5	5	3	40A	9	0	2	40A	5	6	4	1	4	3	1
Stasach	90T-689-15	Saaveren		Off. RSA	1997	5	3	5	7		3	1	5	7	5	6	5	5	4	3	44A	1		2	44A	5	3	5	1	4	5	1
Stasach		Zanten		Off. CA	2001	N/A	5	6	N/A	N/A	3	2	3	N/A	N/A	6	4	5	N/A	3	42B	1	N/A	1	15A	5	3	5	1	3	5	1
Statiren	90R708-16	Staaveren		Off. NL	1997	5	5	7	7	5	1	2	5	5	3	8	7	5	5	5	55D	9	1	1	4C-D	3	6	5	1	1	1	9
Statiren	90R708-16	Saaveren		Off. RSA	1999	7	5	5	6	5	2	1	5	7	6	8	7	7	5	7	51C	9	3	1	9D	7	5	6	1	7	5	1
Statiren		Zanten		Off. CA	2001	N/A	6	6	N/A	N/A	3	2	5	N/A	N/A	6	7	7	N/A	5	48A	9	2	1	3C	5	6	5	1	7	3	9

Note: For characteristics 1, 4, 5, 9 and 10 marked N/A actual measurements have been taken; characteristic 14 marked N/A has not been taken up in the Test Guidelines

[Annex V follows]

ANNEX V

MODEL STUDY ON PETUNIA

(a) Varieties and characteristics used in the Model Study

In the first step of the Model Study on Petunia, data were requested for a limited number of characteristics of eight varieties representing certain groups of Petunia varieties:

- ‘Shihi Brilliant’: large flower diameter, single-colored (purple).
- ‘Kesupite’: medium flower diameter, single-colored (white).
- ‘Sunsolos’: small flower diameter, single-colored (light blue violet).
- ‘Marrose’: single-colored with very strong veining.
- ‘Kerpril’: double flowers, medium flower diameter, single-colored with strong veining.
- ‘Silk Road’: double flowers, small flower diameter, single-colored with very weak veining.
- ‘Brevt’: single flowers, bi-colored.
- ‘Limelight’: leaves variegated.

(b) Descriptions

The data in this Annex were provided by Canada, Germany, Japan, New Zealand and Poland. The characteristics chosen were those listed in the Technical Questionnaire of the Petunia Test Guidelines (document TG/212/1), with the addition of the characteristic “Corolla tube: main colour of inner side”.

In Japan, flower colors are assessed with the help of the Color Chart of the Japanese Horticultural Society (JHS Color Chart) rather than the RHS Colour Chart. The numbers in the JHS Color Chart were, therefore, converted to the equivalent number in the RHS Colour Chart. Furthermore, it should be noted that in Japan a flower which has colored veins is considered as bi-colored.

In the qualitative characteristics “Leaf: variegation”, “Flower: type” and “Corolla lobe: number of colours”, the data of the different countries are all the same. In the quantitative characteristics “Flower: diameter” and “Corolla lobe: conspicuousness of veins on upper side”, there are some large differences (e.g. in data for the flower diameter of ‘Kesupite’). In addition, the assessment of the flower color differs from country to country to some extent.

The reasons for differences could be:

- (i) different growing conditions in the countries: In Canada, the plants are grown in a polyhouse, whereas in all other countries the plants are grown in the open;
- (ii) different years and different weather conditions in which the plants have been observed: It is well known that plant growth can vary from year to year as a result of different weather conditions.

(iii) Test Guidelines for Petunia were only finished in April 2003; therefore the characteristics were not so well defined at the time of the observation as they are now. Perhaps the lack of example varieties for notes in the quantitative characteristics, at the time of the observation, led to variation in descriptions between countries.

(c) Photographs

Photographs were provided by Canada, Germany, Japan and Poland. Example photographs of the varieties 'Sunsolos', 'Kerpril' and 'Marrose' are shown in this Annex.

The way of taking a photograph is different in the different countries. Only Poland used a scale every time and always integrated the leaves in the picture. The flower color differs to some extent, but it should be noted that this is a print-out and the quality and color of the original photograph might be better than the print-out.

(d) Conclusions

(i) Qualitative characteristics have identical notes for the same variety in all countries;

(ii) Quantitative characteristics sometimes have different notes for the same variety in different countries;

(iii) the RHS Colour Chart number for a variety differs when the color is difficult to observe;

(iv) photographs may help to find similar varieties, but it should be noted that the original color might differ from the color in the photograph.

PETUNIA

Numbering of characteristics according to TG/212/1

Variety	Country	Year of testing	Char. 9 Leaf: variegation	Char. 18 Flower: type	Char. 19 Flower: diameter	Char. 22 Corolla lobe: number of colors of upper side	Char. 23 Corolla lobe: main color of upper side RHS	Color name	Char. 27 Corolla lobe: conspic- uousness of veins on upper side	Char. 30 Corolla tube: main color of inner side RHS	Color name	Growing conditions
Shihi Brilliant	DE	1994	1	1	6	1	74A (1986)	purple	6	79C (1986)	dark violet	outdoor
(Revolution Brilliant Pink)	CA	2000	1	1	7	1	74A-B (1986)	purple	7	79D (1986)	dark violet	polyhouse
	NZ	1993/94	1	1	7	1	N74A (2001)	purple	6	N186A (2001)	black	outdoor
	PL	2001	1	1	7	1	74A (1995)	purple	5	80A (1995)	violet	outdoor
	JP	1988	1	1	5	2*	74B** (1986)	purple	-	83A, darker (1986)	dark violet	outdoor
Kesupite	DE	1995	1	1	4	1	155C (1986)	white	3	150C (1986)	yellow green	outdoor
(Revolution White)	CA	2000	1	1	6	1	155D (1986)	white	3	155D (1986)	white	polyhouse
(Surfinia White)	NZ	1993/94	1	1	4	1	155C (1986)	white	2	155D (1986)	white	outdoor
	PL	2002	1	1	7	1	155C (1995)	white	3	150D/155D (1995)	white	outdoor
	JP	1991	1	1	5	1	yellowish white	yellowish white	-	RHS 8D (1986)	light yellow	outdoor

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Variety	Country	Year of testing	Char. 9 Leaf: variegation	Char. 18 Flower: type	Char. 19 Flower: diameter	Char. 22 Corolla lobe: number of colors of upper side	Char. 23 Corolla lobe: main color of upper side RHS	Color name	Char. 27 Corolla lobe: conspic- uousness of veins on upper side	Char. 30 Corolla tube: main color of inner side RHS	Color name	Growing conditions
Sunsolos	DE	1994	1	1	2	1	69D (1986)	light blue violet	7	79D (1986)	dark violet	outdoor
(Revolution Blue Vein)	CA	2000	1	1	4	1	84B fading to 69D (1986)	violet fading to light blue violet	7	88C-D (1986)	blue violet	polyhouse
(Surfinia Blue Vein)	NZ	1993/ 94	1	1	3	1	87D (1986)	violet	7	83A (1986)	dark violet	outdoor
	PL	2003	1	1	5	1	85C-D (1995)	light blue violet	5	80C (1995)	violet	outdoor
	JP	1992	1	1	3	2	85C (1986)	light blue violet	-	79A, darker (1986)	dark violet	outdoor
Marrose	DE	1994	1	1	6	1	66B (1986)	purple red	9	75A (1986)	violet	outdoor
(Surfinia Hot Pink)	CA	2000	1	1	6	1	68A (1986)	blue pink	9	78C (1986)	violet	polyhouse
	PL	2003	1	1	7	1	67B (1995)	blue pink	9	78C-D (1995)	violet	outdoor
	JP	1996	1	1	5	2	74B (1986)	purple	-	83A (1986)	violet	outdoor

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Variety	Country	Year of testing	Char. 9 Leaf: variegation	Char. 18 Flower: type	Char. 19 Flower: diameter	Char. 22 Corolla lobe: number of colors of upper side	Char. 23 Corolla lobe: main color of upper side RHS	Color name	Char. 27 Corolla lobe: conspic- uousness of veins on upper side	Char: 30 Corolla tube: main color of inner side RHS	Color name	Growing conditions
Kerpril (Priscilla)	DE	1998	1	2	5	1	86A (1995)	dark violet	8	87A (1995)	violet	outdoor
	CA	1999	1	2	5	1	87A fading to 85A (1986)	violet fading to light blue violet	7	86A (1986)	dark violet	polyhouse
	NZ	1998/99	1	2	5	1	80A (1995)	violet	7	79A (1995)	dark violet	outdoor
	PL	2003	1	2	7	1	85B (1995)	light blue violet	7	79A (1995)	dark violet	outdoor
	JP	2000	1	2	4	2	81C (1986)	violet	-	79B (1986)	dark violet	outdoor
Silk Road	DE	1998	1	2	2	1	155B (1995)	white	1	155A (1995)	white	outdoor
	NZ	1998/99	1	2	4	1	155B (1995)	white	3	155B (1995)	white	outdoor
Limelight	DE	1998	9	1	3	1	74A (1995)	violet	3	79A (1995)	dark violet	outdoor
	CA	2000	9	1	3	1	74A (1986)	violet	3	84A (1986)	violet	polyhouse
Brevt (Evita)	DE	1998	1	1	3	2	83A (1995)	dark violet	5	84A(1995)	violet	outdoor
	NZ	2000/01	1	1	5	2	83A (1995)	dark violet	4	79A (1995)	dark violet	outdoor
	PL	2000	1	1	5	2	89A-B/ 86A	violet blue/dark violet	5	86A (1995)	dark violet	outdoor

Explanations:

* JP considers a flower which has coloured veins as bicoloured.

**The Colour Chart which is used by JP is JHS, the numbers of the JHS were converted to RHS. The conspicuousness of veins on upper side is not assessed by JP.

Sunsolos



Germany



Canada



Poland



Japan

Kerpil



Germany



Canada



Poland



Japan

Marrose



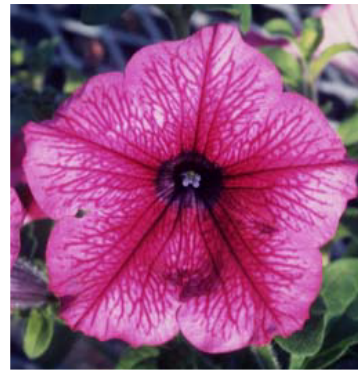
Germany



Canada



Poland



Japan

[Annex VI follows]

ANNEX VI

Table: Model Study on Chinese Cabbage

TG/105/3			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		
			*				*		*					*							*		*						*			
	Country	Year of description	Plant: height	Outer leaf: attitude	Outer leaf: size	Outer leaf: shape	Outer leaf: blistering	Outer leaf: size of blisters	Outer leaf: color	Outer leaf: intensity of color	Outer leaf: glossiness	Outer leaf: hairiness	Outer leaf: curvature in longitudinal section	Outer leaf: undulation of margin	Outer leaf: incisions of margin (at distal part)	Outer leaf: serration of margin (at base)	Outer leaf: shape of midrib in cross section	Outer leaf: width of midrib (at base)	Head: height	Head: width	Head: shape in longitudinal section	Head: formation	Head: color of wrapper leaf	Head: intensity of color of wrapper leaf	Head: blistering of wrapper leaf	Head: internal color	Head: firmness (at harvest maturity)	Head: length of internal stem (as for 25)	Time of head formation	Time of bolting	Percentage with the same hole (%)	
			1-9	1-9	1-9	1-5	1-9	1-9	1-3	1-9	1-9	1-9	3-7	1-9	1-9	1-9	1/2	1-9	1-9	1-9	1-6	1-3	1-3	1-9	1-9	1-4	1-9	1-9	1-9	1-9	-	32
Chinlee (Barum)	Netherlands	2002	5	5	6	2	5	6	2	5	4	5	5	4	-	6	1	6	5	6	2	2	2	4	4	2	6	3	5	-		
Barum	Poland	2000	4	5	5	2	5	5	2	5	7	6	3	5	1	7	2	4	4	6	3	2	3	5	5	3	6	4	5			
Bilko	Netherlands	1998	5	3	6	2	7	4	2	7	6	2	3	3	3	5	1	7	5	5	2	3	3	5	5	3	5	6	5	-	39	
Bilko	Poland	2000	4	5	5	2	6	5	2	7	7	5	7	5	1	7	2	5	5	5	2	3	3	5	7	3	3	3	3	5		
Chiko	Netherlands	1983	7	3	7	1	3	3	2	6	-	-	-	3	1	-	-	-	-	3	1	3	2	5	3	-	7	1	3	-	29	
Chiko	Poland	1998	7	3	5	1	3	5	2	6	5	4	6	7	3	7	2	3	7	4	1	2	2	3	7	2	4	7	7			
Chorus	Netherlands	1989	5	4	5	4	1	-	2	5	6	5	-	1	1	-	1	-	-	-	5	3	3	5	4	-	5	3	7	-	25	
Chorus	Poland	2001	5	5	7	2	5	5	2	5	5	5	5	3	1	7	2	6	5	7	3	3	3	4	7	2	6	4	5			
Darek	Netherlands	2000	5	4	6	1	4	6	2	4	4	4	4	1	5	3	2	8	6	5	2	3	3	6	6	2	6	3	4	-	14	
Darek	Poland	2000	4	5	5	2	7	5	2	6	7	5	4	5	2	7	2	6	4	6	3	2	3	5	5	4	7	4	7			
Disco	Poland	1998	5	5	5	2	4	5	2	5	6	5	6	5	3	7	2	5	5	5	2	2	2	3	7	3	5	3	5		36	
Disco=Disko	Netherlands	1992	6	5	7	3	4	5	1	5	5	3	-	3	3	-	1	-	5	6	2	3	3	5	6	2	5	3	5			
Elliot	Netherlands	1996	3	5	5	-	5	5	2	5	4	4	-	4	-	4	-	5	5	5	3	2	3	3	4	2	6	3	3	-	43	
Elliot	Poland	1998	3	6	5	2	5	5	2	6	5	5	3	5	3	7	2	5	3	5	3	2	2	3	7	2	4	3	5			
Green Rocket	Germany	1991	8	3	7	1	3		2	7				6	6		2	5	8	3	1	1	3	7	3	3		6	4	2	11	
Green Rocket	Netherlands	1985	7	4	7	4	4	4	2	6	-	-	-	4	1	-	-	-	-	-	1	3	3	6	4	-	6	1	6	-		
Green Rocket	Poland	2001	7	3	5	1	3	5	2	5	3	7	7	7	3	7	2	5	7	3	1	3	3	5	3	2	3	9	5			
Kingdom 65	Netherlands	1986	6	3	6	4	3	7	2	7	-	-	-	1	1	-	-	-	-	-	4	3	3	6	3	-	5	1	6	-	14	
Kingdom 65	Poland	2001	5	5	5	1	5	5	2	4	5	6	5	5	1	7	2	4	5	7	3	3	3	3	5	2	6	4	5			
Manoko	Netherlands	1995	5	3	5	2	7	4	2	5	5	3	-	3	3	5	1	7	5	5	1	3	2	5	7	2	5	3	3	5	36	
Manoko	Poland	1998	5	5	5	2	5	5	2	5	6	5	7	1	1	7	2	5	3	4	2	2	2	3	7	3	5	3	3			

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TG/105/3			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		
			*				*		*					*							*		*					*				
	Country	Year of description	Plant: height	Outer leaf: attitude	Outer leaf: size	Outer leaf: shape	Outer leaf: blistering	Outer leaf: size of blisters	Outer leaf: color	Outer leaf: intensity of color	Outer leaf: glossiness	Outer leaf: hairiness	Outer leaf: curvature in longitudinal section	Outer leaf: undulation of margin	Outer leaf: incisions of margin (at distal part)	Outer leaf: serration of margin (at base)	Outer leaf: shape of midrib in cross section	Outer leaf: width of midrib (at base)	Head: height	Head: width	Head: shape in longitudinal section	Head: formation	Head: color of wrapper leaf	Head: intensity of color of wrapper leaf	Head: blistering of wrapper leaf	Head: internal color	Head: firmness (at harvest maturity)	Head: length of internal stem (as for 25)	Time of head formation	Time of bolting	Percentage with the same note (%)	
			1-9	1-9	1-9	1-5	1-9	1-9	1-3	1-9	1-9	1-9	3-7	1-9	1-9	1-9	1/2	1-9	1-9	1-9	1-6	1-3	1-3	1-9	1-9	1-4	1-9	1-9	1-9	1-9	-	14
	Nagaoka King (Oushou)	Netherlands	1983	5	4	6	1	4	3	1	5	7	-	-	1	1	-	-	-	-	3	2	3	4	5	-	4	1	6	-	-	14
	Nagaoka King (Oushou)	Japan	1983	6	5	6		4		2	6	4	6		4	2			6	5	3	3	3	3		2	8		8			
	Nekita	Netherlands	1997	5	5	5	2	3	7	2	6	4	3	-	3	2	3	1	5	5	4	1	3	3	5	4	3	5	2	6	-	32
	Nekita	Poland	1998	5	5	5	2	5	5	2	6	6	6	5	4	1	7	2	5	3	5	2	2	2	3	7	3	5	3	3		
	Nerva	Netherlands	1986	4	6	5	4	4	5	2	4	-	-	-	3	1	-	-	-	-	5	2	3	4	6	-	6	1	3	-	18	
	Nerva	Poland	1998	4	5	7	2	3	5	2	3	3	3	6	1	1	6	2	7	3	4	2	2	2	3	7	2	7	3	1		
	Obelisk (Harumaki-goku)	Netherlands	1982	5	5	6	1	6	3	1	5	-	-	-	3	1	-	-	-	-	5	2	3	4	6	-	-	-	1	7	7	
	Obelisk (Harumaki-goku)	Japan	1982	4	5	4		5		1	4	5	3		5	3			4	4	4	3	2			3	8		3	5		
	Optiko	Netherlands	1992	5	5	5	2	5	5	1	5	5	3	-	4	3	-	1	-	6	5	2	3	3	4	5	2	5	3	3	-	43
	Optiko	Poland	1998	5	5	6	2	5	5	2	5	6	6	5	5	1	7	2	5	3	5	2	2	2	3	7	2	5	3	3		
	Osiris (Taibyō-60nichi)	Japan	1982	3	5	4		5		1	4	5	4		5	4			3	5	3	3	3	3		2	8		2	3	11	
	Osiris (Taibyō-60nichi)	Netherlands	1982	5	3	5	1	3	3	2	6	-	-	-	5	1	-	-	-	-	3	2	3	5	3	-	-	-	4	6		
	Parkin	Poland	2000	5	5	7	2	6	4	2	6	6	5	6	3	3	7	2	5	4	5	3	3	3	5	7	2	6	3	7		21
	Parkin	Germany	1991	4	5	6	3	5		2	7				5	2		2	6	3	5	2	2	3	6	5	3		5	7	5	
	Parkin	Netherlands	1991	5	5	6	2	5	5	2	7	6	3	-	3	3	-	2	-	5	5	2	2	3	5	5	3	5	3	7	-	
	Regina (50nichi)	Japan	1983	5	3	5		5		2	5	6	5		5	5			5	5	3	3	3	3		2	8		4	5	14	
	Regina (50nichi)	Netherlands	1983	4	4	5	1	6	3	1	6	6	-	-	3	1	-	-	-	-	3	1	3	4	6	-	7	1	3	-		

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TG/105/3			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
	Country	Year of description	Plant: height	Outer leaf: attitude	Outer leaf: size	Outer leaf: shape	Outer leaf: blistering	Outer leaf: size of blisters	Outer leaf: color	Outer leaf: intensity of color	Outer leaf: glossiness	Outer leaf: hairiness	Outer leaf: curvature in longitudinal section	Outer leaf: undulation of margin	Outer leaf: incisions of margin (at distal part)	Outer leaf: serration of margin (at base)	Outer leaf: shape of midrib in cross section	Outer leaf: width of midrib (at base)	Head: height	Head: width	Head: shape in longitudinal section	Head: formation	Head: color of wrapper leaf	Head: intensity of color of wrapper leaf	Head: blistering of wrapper leaf	Head: internal color	Head: firmness (at harvest maturity)	Head: length of internal stem (as for 25)	Time of head formation	Time of bolting	Percentage with the same note (%)
			1-9	1-9	1-9	1-5	1-9	1-9	1-3	1-9	1-9	1-9	3-7	1-9	1-9	1-9	1/2	1-9	1-9	1-9	1-6	1-3	1-3	1-9	1-9	1-4	1-9	1-9	1-9	1-9	
Solado	Netherlands	1996	5	5	7	2	5	5	2	5	5	4	-	3	2	3	2	7	5	7	1	2	3	5	4	-	5	3	5	-	50
Solado	Poland	2000	5	5	7	2	6	5	2	5	6	5	7	5	2	7	2	5	4	7	3	3	3	5	7	2	5	3	6		
Sprinkin (Norangman-jeom)	Rep. of Korea	2001	3	5	5	3	5	5	2	5	5	5	7	3	3	5	1	6	3	5	1	5	5	5	5	3	5	3	5	-	43
Sprinkin (Norangman-jeom)	Netherlands	2002	5	5	5	1	6	5	2	5	4	3	5	3	3	5	2	5	5	5	2	2	3	5	6	3	7	3	3	-	
Storkin	Netherlands	1999	5	3	5	2	3	5	2	7	3	5	2	2	2	5	1	6	3	5	2	2	3	4	3	2	5	3	7	-	43
Storkin	Poland	2001	4	5	5	2	3	5	2	5	3	7	4	3	1	7	2	5	4	5	2	2	3	5	7	2	7	3	5		
Taranko	Netherlands	1992	6	3	5	2	3	5	1	5	3	5	-	5	3	-	1	-	5	5	1	1	3	3	5	2	5	3	7	-	25
Taranko	Poland	1998	7	3	6	1	3	3	2	5	6	4	4	8	5	7	2	6	6	5	1	2	2	3	6	3	5	5	6		
Victor	Germany	1991	4	4	5	2	4		2	5			3	2		2	5	4	5	2	3	2	5	4	2		5	5	4	29	
Victor	Netherlands	1992	5	5	5	2	5	4	2	5	5	4	-	3	3	-	1	-	5	5	5	2	3	4	5	2	7	4	5	-	
Vitimo	Netherlands	1999	3	4	4	2	7	5	2	7	3	5	3	3	5	5	1	5	4	6	6	2	3	5	7	4	6	3	2	-	36
Vitimo	Poland	2001	3	5	5	2	7	5	2	6	7	5	7	5	1	7	2	5	3	5	2	3	3	5	7	3	7	4	5		
Yamiko	Netherlands	1995	5	3	5	2	3	5	2	7	3	5	-	3	3	3	1	7	5	5	1	2	3	5	5	3	5	3	5	-	39
Yamiko	Poland	1998	3	5	5	2	5	5	2	6	5	5	6	4	1	7	2	5	3	5	2	2	2	3	7	3	5	3	5		
Yuki	Netherlands	1993	5	5	6	2	5	6	2	6	4	4	-	4	3	4	1	-	5	5	2	2	3	5	6	2	3	3	5	-	32
Yuki	Poland	2000	5	5	6	2	6	5	2	5	7	6	4	6	1	7	2	5	4	6	3	2	3	5	7	3	6	5	5		
Percentage of the same note (%)			38	42	42	46	35	35	77	46	8	12	4	12	23	4	12	12	8	42	42	35	58	27	8	31	31	31	35	0	

[Annex VII follows]

ANNEX VII

MODEL STUDY ON LETTUCE

Characteristic 1 * Seed color (PQ; 1-3)

All sources provided a note for all 48 varieties. Score:

	0 differences	diff, 1 note	diff, 2 notes	diff, 3 notes
4 descriptions	3			
3 descriptions	21			
2 descriptions	24			

Characteristic 2 * Anthocyanin coloration (QL; 1/9)

Only 1 note was missing. Score:

	0 differences	diff, 1 note	diff, 2 notes	diff, 3 notes
4 descriptions	3			
3 descriptions	21			
2 descriptions	23	1 (mistake)		

Characteristic 7 * Plant diameter (QN; 1-9)

All sources provided a note for all 48 varieties. Score:

	0 differences	diff, 1 note	diff, 2 notes	diff, 3 notes
4 descriptions	1	1		1
3 descriptions	9	6	6	
2 descriptions	9	10	4	

Characteristic 8 * Plant head formation (PQ; 1-3)

All sources provided a note for all 48 varieties. Score:

	0 differences	diff, 1 note	diff, 2 notes	diff, 3 notes
4 descriptions	2	1		
3 descriptions	19	2		
2 descriptions	22	2		

Characteristic 13 * Head Shape (PQ; 1-4)

5 notes were missing. Score:

	0 differences	diff, 1 note	diff, 2 notes	diff, 3 notes
4 descriptions	1	2		
3 descriptions	7	11		
2 descriptions	18	4		

Characteristic 17 * Color of outer leaves (PQ; 1-5)

All notes were present. Score:

	0 differences	diff, 1 note	diff, 2 notes	diff, 3 notes
4 descriptions	2	1		
3 descriptions	11	10		
2 descriptions	18	6		

Characteristic 18 * Intensity of color of outer leaves (QN; 1-9)

All notes were present. Score:

	0 differences	diff, 1 note	diff, 2 notes	diff, 3 notes
4 descriptions	1	2		
3 descriptions	8	10	3	
2 descriptions	16	5	3	

Characteristic 19 * Anthocyanin coloration (QL; 1/9)

All notes were present. Score:

	0 differences	diff, 1 note	diff, 2 notes	diff, 3 notes
4 descriptions	31			
3 descriptions	21			
2 descriptions	24			

Characteristic 25 * Leaf blistering (QN; 1-9)

All notes were present. Score:

	0 differences	diff, 1 note	diff, 2 notes	diff, 3 notes	diff, 4 notes	diff, 5 notes
4 descriptions	0	2			1	
3 descriptions	2	8	8	2		1
2 descriptions	5	13	5		1	

Characteristic 37 * Time of beginning of bolting (QN; 1-9)

Only 63 out of the maximum 123 notes were given, no comparison possible.

[Annex VIII follows]

ANNEX VIII

PROJECT FOR EXCHANGING SEED OF SELECTED VARIETIES OF RICE

Method of cultivation in 2003

The following varieties from seven countries were grown in 2003 together with Japanese varieties representing three maturity groups from seven regions, Hokkaido to Kyushu. Of the Japanese varieties, only three from the Warm-East region are listed in the Table:

Spain: Lido, Puntal, Thaibonnet, and Galatxo
 France: Cigalon, Couachi, and O.B.P.C.
 Russia: Uzyupyg and Aucuam
 Italy: Balilla, Carnaroli and Ariete
 Uruguay: INIA Tacuari, L1130, El Paso 144 and INIA Caraguata
 Hungary: Sandora, Risabell, and M-225
 Brazil: Bigua, Bonanca, Jaburu, and Talento

(listed in the order of plots planted)

Japan: Koshihikari, Nipponbare, and Nakate-shinsenbon

Seeds were sown in seedling boxes on April 23, 2003, and a single seedling per hill was transplanted on May 21 in the lowland field of NICS, Tsukuba (36.00 N, 139.59 E). Two repetitions of each variety were planted; each repetition consisting of a 2-row plot with spacing of 20 cm x 15 cm between the rows and 30 cm between each repetition (“namiki-ue” pattern). Compound fertilizer (N:P₂O₅:K₂O = 15:15:15) was applied before transplanting at the rate of 80 kg N per ha.

The weather in summer was considered unfavorable for evaluating flowering response in 2003. The monthly mean temperatures from May to September were 17.3, 21.6, 21.2, 24.3 and 22.2°C and were much lower than in average years. This low temperature delayed flowering by almost one week, especially for early varieties.

Results

Plant type and appearance of varieties were recorded in photographs on September 11. Most of the asterisked characteristics of TG/16/8(proj.3) were examined on September 25. At that time, very early varieties such as those from Russia and Hungary were already over-matured, and two varieties from Brazil were still at a vegetative stage. As the data were recorded by a single observer, without double checking, the results may not indicate the exact expression of the characteristics, and it is feared that direct comparison of data between contributor countries and Japan is not appropriate for some characteristics.

The following table contains only data of varieties and characteristics available from both sources: the notes submitted by the contributor country are indicated as “National description”, and notes recorded in Tsukuba are indicated as “Japan” in the line below for each characteristic.

Notes for the Table:

The following table presents the description according to the information provided by the contributors on the basis of document TG/16/4. Where the information was provided on the basis of document TG/16/8(proj.3) for characteristics not covered by the previous version of the Test Guidelines for Rice (TG/16/4), the rows are shaded.

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Country of description		Uruguay				Brazil				Japan		
Variety denomination		INIA Tacu*	L1130	El Paso 144	INIA Cara*	Bigua	Jaburu	Bonanca	Talento	Koshihikari	Nipponbare	Naka-shin*
4. Penultimate leaf: anthocyanin coloration of auricles	National description	1	1	1	1	1	1	1	1			
	Japan	1	1	1	1	1	1	1	1	1	1	1
5. Flag leaf: curvature of blade	National description	3	1	1	1	1	1	1	1	5	1	1
15. (*) Flag leaf: attitude of blade (early observation)	Japan	3	3	1	5	1	1	1	1	1	1	1
16. (*) Flag leaf: attitude of blade (late observation)	Japan	4	4	1	5					3	2	2
6. Time of heading (50% of plants with heads)	National description	3	7	7	7	101 days	99 days	82 days	86 days	3	7	8
	Japan	Aug. 24	Aug.19	Aug. 19	Aug. 20	Sept. 7	Sept. 12	Aug. 14	Aug. 20	Aug. 12	Aug. 23	Aug. 24
9. Lemma: anthocyanin coloration of apex	National description	1	1	1	3	1	1	1	6	1	1	1
	Japan	1	7	1	1	1	1	1	9	1	1	1
10. Spikelet: color of stigma	National description	1	1	1	1	1	1	1	1			
	Japan	1	1	4	1	1	1	1	1	1	1	1
12. Stem: length (excluding panicle; excluding floating rice)	National description	3	3	3	3	3	3	5	3	6	4	4
	Japan	6	6	5	9	8	7	6	4	6	5	5
13. Stem: anthocyanin coloration of nodes	National description	1	1	1	1	1	1	1	1			
	Japan	1	1	1	1	1	1	1	1	1	1	1
14. Panicle: length	National description	5	7	5	5	5	5	5	3	4	5	4
	Japan	5	5	7	6	8	8	5	3	5	5	4
15. Panicle: curvature of main axis	National description	7	7	3	3							
	Japan	5	7	6	5	5	5	5	5	5	5	5
16. Spikelet: hairs on lemma	National description	1	1	7	1	7	5	1	1			
	Japan	1	1	1	1	1	1	1	1	3	3	3
20. Panicle: distribution of awns (90)	National description	3	5	5	5	4	2	5	1			
34. (*) Panicle: distribution of awns (70-80)	Japan	1	1	3	1	1	1	1	1	3	3	1
42. (*) Panicle: attitude of branches (90)	National description					3	3	3	3	2	2	
	Japan	5	5	3	3	1	1	3	3	3	3	3

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Country of description Variety denomination		Spain				France		Hungary		
		Lido	Puntal	Thaibonnet	Galatxo	Cigalon	Couachi	Sandora	Risabell	M-225
4. Penultimate leaf: anthocyanin coloration of auricles	National description	1	1	1	1	1	1	1	1	1
	Japan	1	1	1	1	1	9?	1	1	1
5. Flag leaf: curvature of blade	National description	3	3	3	3	3	1	3	1	3
15. (*) Flag leaf: attitude of blade (early observation)	Japan	3	3	3	3	1	1	5	5	5
16. (*) Flag leaf: attitude of blade (late observation)	Japan	3	3	4	3	3	1	5	5	5
6. Time of heading (50% of plants with heads)	National description	Aug.8 (3)	Aug.16(7)	Aug.12 (5)	Aug.8 (3)	3	9	3	3	3
	Japan	Aug.5	Aug.15	Aug. 13	Aug.4	Jul. 26	Aug. 20	Jul. 24	Jul. 27	Jul. 17
9. Lemma: anthocyanin coloration of apex	National description	1	1	1	1	1	1	1	1	1
	Japan	1	9	5	1	1	5	3	1	1
10. Spikelet: color of stigma	National description	1	4	4	1	1	2	1	1	1
	Japan	1	5	5	1	1	5	1	1	1
12. Stem: length (excluding panicle; excluding floating rice)	National description	6	5	4	3	3	1	7	9	4
	Japan	6	5	5	3	3	3	5	5	3
13. Stem: anthocyanin coloration of nodes	National description	1	1	1	1	1	1	1	1	1
	Japan	1	1	1	1	1	1	1	1	1
14. Panicle: length	National description	3	7	6	5	3	5	6	7	3
	Japan	3	5	6	3	2	6	3	5	2
15. Panicle: curvature of main axis	National description	3	5	5	7	3	5	5	5	3
	Japan	3	5	5	7	3	5	3	5	5
16. Spikelet: hairs on lemma	National description	4	1	1	5	5	5	5	5	5
	Japan	1	1	1	1	3	1	1	1	3
20. Panicle: distribution of awns (90)	National description	1	1	1	1			1	1	1
34. (*) Panicle: distribution of awns (70-80)	Japan	1	1	1	1	1	1	1	1	1
42. (*) Panicle: attitude of branches (90)	National description	1	4	5	5	3	5			
	Japan	1	3	1	5	3	1	3	3	1

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