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WORKING PAPER ON TEST GUIDELINES FOR LOTUS
(Lotus spp.)

Document prepared by experts from Uruguay

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I. Subject of these Guidelines

These Test Guidelines apply to *Lotus corniculatus* L., *Lotus pedunculatus* Cav., *Lotus tenuis* Waldst et Kit. ex Willd, & *Lotus subbiflorus* spp. subbiflorus. A single combined Table of Characteristics has been drawn up for the four species.

II. Material Required

1. The competent authorities decide when, where and in what quantity and quality the plant material required for testing the variety is to be delivered. Applicants submitting material from a State other than that in which the testing takes place must make sure that all customs formalities are complied with. The minimum quantity of seed to be supplied by the applicant in one or several samples should be:

0,5 Kg

The minimum requirements for germination capacity, moisture content and purity should not be less than the marketing standard for certified seed in the country in which the application is made. Especially for storage, which requires a higher standard, the applicant should state the actual germination capacity which should be as high as possible.

2. The plant material must not have undergone any treatment unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

III. Conduct of Tests

1. The minimum duration of tests should normally be two similar growing periods.

2. The test should be conducted at one place. If any important characteristics of the variety cannot be seen at that place, the variety may be tested at an additional place.

3. The field tests should be carried out under conditions ensuring normal growth. The size of the plots should be such that plants or parts of plants may be removed for measuring and counting without prejudice to the observations which must be made up to the end of the growing period. Each test should include a total of 60 spaced plants and may include row plots. Separate plots for observation and for measuring can only be used if they have been subject to similar environmental conditions.

4. Plots with spaced plants (A): Each test should consist of 60 single spaced plants per variety arranged in 3 to 4 replicates, i.e. plots of 20 and 15 plants. Characteristics should be measured on each plant in the trial so that a mean value per plot can be obtained; from these data a standard deviation per variety can be derived and the data submitted to a "two-way" analysis of variance. The significance of measured differences should be taken into account for assessing distinctness and the preparation of descriptions.

5. Row plots (B): Each test should consist of at least 10 meters of row arranged in 2 to 5 replicates. The density of the seed should be such that about 150 plants per meter can be expected.
6. Additional tests for special purposes may be established.

IV. Methods and Observations

1. On plots with single spaced plants, all observations determined by measurement or counting should be made on 60 plants or parts of 60 plants.
2. Interpretation of the results should be made according to cross pollinated species and to the rules as stated in the General Introduction to the Test Guidelines.
3. In cases in which more than one seed submission is made, a comparison should be made between the initial seed sample and any further seed submission.

V. Grouping of Varieties

1. The collection to be grown should be divided into groups to facilitate the assessment of distinctness. Characteristics which are suitable for grouping purposes are those which are known from experience not to vary, or to vary only slightly, within a variety and which in their various states are fairly evenly distributed within the collection.
2. It is recommended that the competent authorities use the following characteristics for grouping varieties.
 - a) ploidy (characteristic 1)
 - b) time of inflorescence emergence (characteristic 12)
 - c) length of central leaflet (characteristic 13)
 - d) width of central leaflet (characteristic 14)

VI. Characteristics and Symbols

1. To assess distinctness, homogeneity and stability, the characteristics and their states as given in the four UPOV working languages in the Table of Characteristics should be used. For each characteristic it is indicated whether "spaced plants" (A) or "row plots" (B) or "special test" (C) should be used. The name of each example variety is following by an abbreviation of its species (Lc = *Lotus corniculatus* L., Lp = *Lotus pedunculatus* Cav., Lt = *Lotus tenuis* Waldst et Kit. ex Willd and Ls = *Lotus subbiflorus* spp. *subbiflorus*)
2. Notes (numbers), for the purposes of electronic data processing, are given opposite the states of the different characteristics.

3. Legend

(*) Characteristics that should be used every growing period for the examination of all varieties and should always be included in the description of the variety, except when the state of expression of a preceding characteristic or regional environmental conditions render this impossible.

(+) See Explanations on the Table of Characteristics in Chapter VIII.

(1) To be observed on: A = spaced plants
 B = row plots
 C = special tests

(2) Species of example varieties:

Lc = *Lotus corniculatus* L.

Lp = *Lotus pedunculatus* Cav.

Lt = *Lotus tenuis* Waldst et Kit. ex Willd

Ls = *Lotus subbiflorus* spp. subbiflorus

VII. Table of Characteristics

Characteristics	Plot (1)	English	Example Varieties (2)	Note
(*)1. Ploidy	C	diploid		2
		tetraploid		4
2. Cotyledon: width (when fully expanded)	C	narrow		3
		medium		5
		broad		7
3. Leaf: hairs (at vegetative stage)	A	absent or very sparse		1
		sparse		3
		medium		5
		dense		7
		very dense		9
4. Leaf: intensity of green color (as for 3)	A	light		3
	B	medium		5
		dark		7
5. Stem: hairs (as for 3)	A	absent or very sparse		1
		sparse		3
		medium		5
		dense		7
		very dense		9
(*) 6. Plant: growth habit (as for 3)	A	erect		1
		semi erect		3
		medium		5
		semi prostrate		7
		prostrate		9
(*) 7. Plant: width (as for 3)	A	narrow		3
		medium		5
		broad		7
8. Plant: natural height (at inflorescence emergence)	A	very short		1
		short		3
		medium		5
		tall		7
		very tall		9
9. Plant: vigour of winter growth	A	absent or very weak		1
	B	weak		3
		medium		5
		strong		7
10. Flower: bud color	A	yellow		1
		orange		2
		red		3
11. Flower corolla: color	A	yellow		1
		orange		2

Characteristics	Plot (1)	English	Example Varieties (2)	Note
(*)12. Plant: time of inflorescence emergence (when 3 inflorescences show color in the floret)	A	very early		1
		early		3
		medium		5
		late		7
		very late		9
(*)13. Leaf: length of central leaflet (3rd to 4th leaf from end tip of longest stem)	A	short		3
		medium		5
		long		7
(*)14. Leaf: width of central leaflet (as for 13)	A	narrow		3
		medium		5
		broad		7
15. Stem: length of longest stem (when fully expanded)	A	very short		1
		short		3
		medium		5
		tall		7
		very tall		9
16. Rhizomes:	A	absent		1
	B	present		9
17. Seed: weight	C	low		3
		medium		5
		high		7
18. Duration:	A	annual		1
	B	perennial		9

X. Technical Questionnaire

		Reference Number (not to be filled in by the applicant)	
<p>TECHNICAL QUESTIONNAIRE to be completed in connection with an application for plant breeders' rights</p>			
1.	Species	<i>Lotus corniculatus</i> L.	[]
		<i>Lotus pedunculatus</i> Cav.	[]
		<i>Lotus tenuis</i> Waldst et Kit. ex Willd	[]
		<i>Lotus subbiflorus</i> spp. subbiflorus	[]
2.	Applicant (Name and address)		
3.	Proposed denomination or breeder's reference		

4. Information on origin, maintenance and reproduction of the variety

4.1 Variety type

Open pollinated variety []

Other type []
(to be indicated)

4.2 Genetic origin and breeding method

4.3 Other information

5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the state of expression which best corresponds).

Characteristics	Example Varieties	Note
5.1 Ploidy (1)		
Diploid		2[]
Tetraploid		4[]
5.2 Plant: time of inflorescence emergence (12) (when 3 inflorescences show color in the floret)		
very early		1[]
early		3[]
medium		5[]
Late		7[]
very late		9[]
5.3 Leaf: length of central leaflet (13) (3 rd to 4 th leaf from end tip of longest stem)		
short		5[]
medium		7[]
long		9[]
5.4 Leaf: width of central leaflet (14) (3 rd to 4 th leaf from end tip of longest stem)		
narrow		3[]
medium		5[]
broad		7[]

6. Similar varieties and differences from these varieties

Denomination of similar variety	Characteristic in which the similar variety is different ^{o)}	State of expression of similar variety	State of expression of candidate variety
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^{o)} In the case of identical states of expressions of both varieties, please indicate the size of the difference.

7. Additional information which may help to distinguish the variety

7.1 Resistance to pests and diseases

7.2 Special conditions for the examination of the variety

7.3 Other information

8. Authorization for release

- (a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?

Yes [] No []

- (b) Has such authorization been obtained?

Yes [] No []

If the answer to that question is yes, please attach a copy of such an authorization.

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