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FOR
ORNAMENTAL PLANTS AND FOREST TREES**

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WORKING PAPER ON THE REVISION OF TEST GUIDELINES FOR WILLOW (*Salix L.*)

Document prepared by experts from Germany

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I. Subject of these Guidelines

These Test Guidelines apply to all vegetatively propagated varieties of *Salix* L. of the family Salicaceae.

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. As a minimum, the following quantity of plant material is recommended:

30 hardwood cuttings with a diameter of at least 1 cm and a length of 20 cm.

2. The cuttings should be taken from one year old main shoots from stools. The plant material supplied should be visibly healthy, not lacking in vigor, or affected by any important pests or diseases. If the applicant submits distinguishing characteristics which can only be observed on adult trees, he should indicate to the authorities the location of at least one adult tree of the variety on which these characteristics can be observed. However, if the applicant does not submit such characteristics it is still recommended that he enables the authorities to make observations on adult trees as this can facilitate the examination and shorten the testing period.

3. 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. A test should normally be conducted for two growing periods. If distinctness and/or uniformity cannot be sufficiently established in two growing periods, the test should be extended for a further growing period.

2. The tests should normally 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 tests should be carried out under conditions ensuring normal growth.

Time of submission of plant material: Second half of March (Northern Hemisphere).

Planting of plants for the test: Beginning of April, in the open, planting distance 150x150 cm, 2 cuttings are planted per plant hole and one of them is removed after beginning of growth to have one growing plant.

Soil: Sandy, humid soil.

Fertilization: According to soil analysis.

The size of the plots should be such that plants or parts of plants may be removed for measurement and counting without prejudice to the observations which must be made up to the end of the growing period. As a minimum, each test should include a total of 10 plants. Separate plots for observation and for measuring can only be used if they have been subject to similar environmental conditions.

4. Additional tests for special purposes may be established.

IV. Methods and Observations

1. All observations should be made on 10 plants.
2. For the assessment of uniformity a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample of 10 plants, the maximum number of off-types allowed would be 1.

All observations on the main shoot and the branches should be made in autumn. Hairiness and color should be observed at 20 cm from the tip of the main shoot. All observations on the lenticells should be made in the observed middle third of the main shoot.

4. All observations on the leaf should be made in the middle of the growing period on leaves of the middle third of the main shoot.
5. The observations on the plant sex and spring foliation should be made at beginning of growth after winter dormancy.
6. Because daylight varies, color determinations made against a color chart should be made either in a suitable cabinet providing artificial daylight or in the middle of the day in a room without direct sunlight. The spectral distribution of the illuminant for artificial daylight should conform with the CIE Standard of Preferred Daylight D 6500 and should fall within the tolerance set out in the British Standard 950, Part I. These determinations should be made with the plant part placed against a white background.

V. Grouping of Varieties

1. The collection of varieties 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. Their various states of expression should be fairly evenly distributed throughout the collection.
2. It is recommended that the competent authorities use the following characteristics for grouping varieties:

- (a) Plant: sex (characteristic 1)

VI. Characteristics and Symbols

1. To assess distinctness, uniformity and stability, the characteristics and their states as given in the Table of Characteristics should be used.
2. Notes (numbers), for the purposes of electronic data processing, are given opposite the states of expression for each characteristic.
3. Legend:
 - (*) Characteristics that should be used on all varieties in every growing period over which examinations are made and always be included in the variety descriptions, 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.

VII. Table of Characteristics/Tableau des caractères/Merkmalstabelle/Tabla de caracteres

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1. Plant: sex		Pflanze: Geschlecht			
dioecious female		zweihäusig weiblich			1
dioecious male		zweihäusig männlich			2
monoecious unisexual		einhäusig eingeschlechtlich			3
monoecious hermaphrodite		einhäusig zwittrig			4
2. Plant: spring foliation		Pflanze: Frühjahrsaubtrieb			
very early		sehr früh		I - 3 - 58	1
early		früh		Godesberg	3
medium		mittel		Metz	5
late		spät		F - 65 - 02	7
very late		sehr spät		Mangahn	9
3. Main shoot: attitude		Haupttrieb: Haltung			
straight		gerade		Bredevoort	1
slightly curved		schwach gebogen		I - 3 - 58	2
curved		gebogen		Mittlerer Inn V	3
strongly curved		stark gebogen		75/64 (<i>Salix fragilis</i> L.)	4
sinuous		geschlängelt			5

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
4. Main shoot: color of the in the middle third (sunny side)		Haupttrieb: Farbe im mittleren Drittel (Sonnenseite)			
yellow		gelb			1
orange		orange		Gelbe Dotterweide	2
grey		grau			3
grey green		graugrün			4
light green		hellgrün		Graupa 34	5
green		grün		259/64 (<i>Salix x smithiana</i> Willd.)	6
brown green		braungrün		I - 3 - 58	7
grey brown		graubraun			8
red brown		rotbraun		Altenstadt 4	9
brown		braun		Straubinger Baumweide II	10
5. Main shoot: hairiness		Haupttrieb: Behaarung			
absent or very weak		fehlend oder sehr gering			1
weak		gering			3
medium		mittel			5
strong		stark			7
very strong		sehr stark			9

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
6. Main shoot: protrusion of lenticel		Haupttrieb: Hervorstehen der Lentizelle			
absent or very weak		fehlend oder sehr gering			1
weak		gering			3
medium		mittel			5
strong		stark			7
very strong		sehr stark			9
7. Main shoot: color of leaf bud		Haupttrieb: Farbe der Blattknospe			
light green		hellgrün			1
green		grün			2
greenish brown		grünlichbraun			3
brown		braun			4
reddish brown		rötlichbraun			5
8. Main shoot: hairiness of leaf bud		Haupttrieb: Behaarung der Blattknospe			
absent or very weak		fehlend oder sehr gering			1
weak		gering			3
medium		mittel			5
strong		stark			7
very strong		sehr stark			9

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
9. Branch: number of branches longer than 5 cm					
absent or very few		fehlend oder sehr gering		Altenstadt 4	1
few		gering		Mittlerer Inn III	3
medium		mittel		Bredevoort	5
many		groß		Belders	7
very many		sehr groß		I - 3 - 58	9
10. Branch: angle between first 5 cm of branch and stem in the middle third of stem (time: autumn of 1st year)					
very small		sehr klein			1
small		klein		Lievelde	3
medium		mittel			5
large		groß		259/64 (<i>Salix. x smithiana</i> Willd.)	7
very large		sehr groß			9
11. Branch: attitude					
curved up		aufwärts gebogen			1
straight		gerade			2
drooping		überhängend			3
first curved down, then curved up		erst abwärts, dann aufwärts gebogen			4

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
12. Branch: color (sunny side)		Zweig: Farbe (Sonnenseite)			
grey brown		graubraun			1
red brown		rotbraun		Boberg	2
brown		braun			3
13. Leaf blade: length of midrib		Blattspreite: Länge der Mittelrippe			
very short		sehr kurz			1
short		kurz			3
medium		mittel			5
long		lang			7
very long		sehr lang			9
14. Leaf blade: width		Blattspreite: Breite			
very narrow		sehr schmal			1
narrow		schmal			3
medium		mittel			5
broad		breit			7
very broad		sehr breit			9
15. Leaf blade: position of maximum width		Blattspreite: Lage der größtenBreite			
below the middle		unterhalb der Mitte			1
approximately at the middle		etwa in der Mitte			2
above the middle		oberhalb der Mitte			3

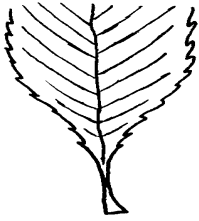
English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
16. Leaf blade: shape of base		Blattspreite: Form der Basis			
(+)					
wedge-shaped, acuminate		keilförmig, zugespitzt			1
wedge-shaped, acute		keilförmig, spitz			2
wedge-shaped, rounded		keilförmig, gerundet			3
rounded		abgerundet			4
straight		gerade			5
cordate		herzförmig			6
17. Leaf blade: shape of tip		Blattspreite: Form der Spitze			
(+)					
mucronate		aufgesetzte Spitze			1
acuminate		zugespitzt			2
narrowly acute		schmal spitz			3
acute		spitz			4
broadly acute		breit spitz			5
18. Leaf blade: color of upper side		Blattspreite: Farbe der Oberseite			
yellow green		gelbgrün			1
grey green		graugrün			2
green		grün			3
blue green		blaugrün			4
red green		rotgrün			5

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
19. Leaf blade: hairiness of upper side		Blattspreite: Behaarung der Oberseite			
absent or very weak		fehlend oder sehr gering			1
weak		gering			3
medium		mittel			5
strong		stark			7
very strong		sehr stark			9
20. Leaf blade: hairiness of lower side		Blattspreite: Behaarung der Unterseite			
absent or very weak		fehlend oder sehr gering			1
weak		gering			3
medium		mittel			5
strong		stark			7
very strong		sehr stark			9
21. Petiole: length		Blattstiel: Länge			
very short		sehr kurz			1
short		kurz			3
medium		mittel			5
long		lang			7
very long		sehr lang			9

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
22. Petiole: color of upper side		Blattstiel: Farbe der Oberseite			
yellow green		gelbgrün			1
green		grün			2
red green		rotgrün			3
violet green		violettgrün			4
23. Stipule: length		Nebenblatt: Länge			
very short		sehr kurz			1
short		kurz			3
medium		mittel			5
long		lang			7
very long		sehr lang			9
24. Stipule: type		Nebenblatt: Typ			
(+)					
type 1		Typ 1			1
type 2		Typ 2			2
type 3		Typ 3			3

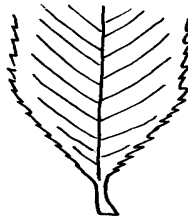
VIII. Explanations on the Table of Characteristics

Ad. 16: Leaf blade: shape of base



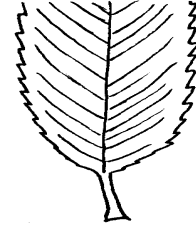
1

wedge-shaped, acuminate



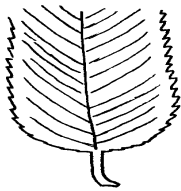
2

wedge-shaped, acute



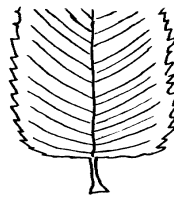
3

wedge-shaped, rounded



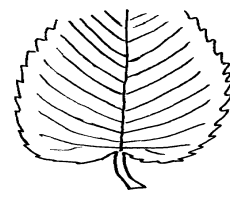
4

rounded



5

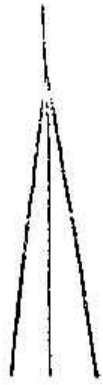
straight



6

cordate

Ad. 17: Leaf blade: shape of tip



1

mucronate



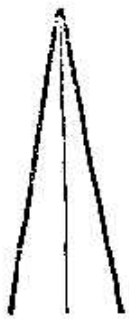
2

acuminate



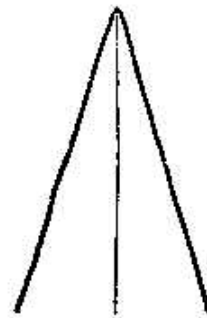
3

narrowly acute



4

acute



5

broadly acute

Ad. 24: Stipule: type



1

type 1



2

type 2



3

type 3

IX. Literature

Newsholme, Christopher, 1992. "Willows, the genus Salix." London, B.T. Batsford Ltd., (GB).

Schiechtl, H.M., 1992. "Weiden in der Praxis", Patzer Verlag, Hannover-Berlin, (DE).

X. Technical Questionnaire

	<p>Reference Number (not to be filled in by the applicant)</p>
<p style="text-align: center;">TECHNICAL QUESTIONNAIRE to be completed in connection with an application for plant breeders' rights</p>	
1. Genus	<p style="text-align: center;"><i>Salix L.</i> WILLOW</p>
2. Applicant (Name and address)	
3. Proposed denomination or breeder's reference	

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

4.1 Origin

(a) Seedling (indicate parent varieties)

..... []

(b) Mutation (indicate parent variety)

..... []

(c) Discovery (indicate where and when)

..... []

(d) Other (specify)

..... []

4.2 Method of reproduction

– Cuttings []

– *In vitro* propagation []

– Other (specify) []

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 Plant: sex (1)		
dioecious female		1 []
dioecious male		2 []
monoecious unisexual		3 []
monoecious hermaphrodite		4 []
5.2 Plant : spring foliation (2)		
very early	I - 3 - 58	1 []
early	Godesberg	3 []
medium	Metz	5 []
late	F - 65 - 02	7 []
very late	Mangahn	9 []

6. Similar varieties and differences between 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

^{o)} In the case of identical states of expressions of both varieties, please indicate the size of the difference.

