



## **PROTOCOL FOR DISTINCTNESS, UNIFORMITY AND STABILITY TESTS**

***Aster L.***

**ASTER**

UPOV Species Code: ASTER

**Adopted on 23/06/2011**

**Entry into force on 01/06/2011**

## **I SUBJECT OF THE PROTOCOL**

The protocol describes the technical procedures to be followed in order to meet the requirement of Council Regulation 2100/94 on Community Plant Variety Rights. The technical procedures have been agreed by the Administrative Council and are based on general UPOV Document TG/1/3 and UPOV Guideline TG/141/3 dated 23/10/1992 for the conduct of tests for Distinctness, Uniformity and Stability. This protocol applies to all vegetatively propagated varieties of ***Aster L.*** of the family *Asteraceae*.

## **II SUBMISSION OF PLANT MATERIAL**

### 1. The Community Plant Variety Office (CPVO) is responsible for informing the applicant of:

- the closing date for the receipt of plant material;
- the minimum amount and quality of plant material required;
- the examination office to which material is to be sent.

The applicant is responsible for ensuring compliance with any customs and plant health requirements.

### 2. Final dates for receipt of documentation and material by the Examination Office:

The final dates for receipt of requests, technical questionnaires and the final date or submission period for plant material will be decided by the CPVO and each Examination Office chosen.

The Examination Office is responsible for immediately acknowledging the receipt of requests for testing, and technical questionnaires. If no or unsatisfactory plant material is submitted the CPVO should be informed as soon as possible.

### 3. Plant material requirements:

Information with respect to closing dates and submission requirements of plant material for the technical examination of varieties can be found on the CPVO website ([www.cpvo.europa.eu](http://www.cpvo.europa.eu)) and in the special Issue S2 of the Official Gazette of the Office.

Quality:.....The plant material supplied should be visibly healthy, not lacking in vigour or affected by any important pest or disease, especially virus, as laid down in Council Directive 2000/29/EC and its amendments, or organisms impairing quality as indicated in Council Directive 98/56/EEC and Commission Directive 93/49 and their amendments.

The plant material must not have undergone any treatment unless the CPVO and the examination office allow or request such treatment. If it has been treated, full details of the treatment must be given.

Labelling of sample: ..... - Species  
- File number of the application allocated by the CPVO  
- Breeder's reference  
- Examination reference (if known)  
- Name of applicant  
- The phrase "On request of the CPVO".

### **III CONDUCT OF TESTS**

#### **1. Variety collection**

A variety collection will be maintained for the purpose of establishing distinctness of the candidate varieties in test. A variety collection may contain both living material and descriptive information. A variety will be included in a reference collection only if plant material is available to make a technical examination.

Pursuant to Article 7 of Council Regulation No. 2100/94, the basis for a collection should be the following:

- varieties listed or protected at the EU level or at least in one of the EEA Member States;
- varieties protected in other UPOV Member States;
- any other variety in common knowledge.

It is the responsibility of Examination Office to keep the variety collection up to date.

#### **2. Material to be examined**

Candidate varieties will be directly compared with other candidates for Community plant variety rights tested at the same Examination Office, and with appropriate varieties in the variety collection. When necessary an Examination Office may also include other candidates and varieties.

#### **3. Characteristics to be used**

The characteristics to be used in DUS tests and preparation of descriptions shall be those referred to in Annex 1. All the characteristics shall be used, providing that observation of a characteristic is not rendered impossible by the expression of any other characteristic, or the expression of a characteristic is prevented by the environmental conditions under which the test is conducted. In the later case, the CPVO should be informed. In addition the existence of some other regulation e.g. plant health, may make the observation of the characteristic impossible.

The Administrative Council empowers the President, in accordance with Article 23 of Commission Regulation N° 874/2009, to insert additional characteristics and their expressions in respect of a variety.

#### **4. Grouping of varieties**

The varieties and candidates to be compared will 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 of expression are fairly evenly distributed throughout the collection. In the case of continuous grouping characteristics overlapping states of expression between adjacent groups is required to reduce the risks of incorrect allocation of candidates to groups. The characters used for grouping are the following:

- (a) Leaf: shape (characteristic 9)
- (b) Flower head: number of whorls of ray florets (characteristic 17)
- (c) Ray floret: colour of upper side (characteristic 28)

#### **5. Trial designs and growing conditions**

The minimum duration of tests will normally be one growing cycle if the results on distinctness and uniformity are conclusive. Tests will be carried out under conditions ensuring normal growth. The size of the plots will 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.

The test design is as follows:

As a minimum, each test should include a total of 24 plants. Separate plots for observation and for measuring can only be used if they have been subject to similar environmental conditions.

All observations on single plants for vegetatively propagated varieties determined by measurement or counting should be made on 10 plants or parts taken from each of 10 plants and any other observations made on all plants in the test during flowering time.

All observations on plants should be made at the time of full flowering.

The time of beginning of flowering is defined as the time at which the first flower head of 50% of the plants is fully opened.

The observations on the time of beginning of flowering and the plant height should be made in plots which grow under natural daylight conditions.

All observations on the leaf should be made on leaves at the base of the lowest flowering branch.

All observations on the flower head and the ray floret should be made on fully expanded flower heads.

The test should be carried out under conditions ensuring normal growth.

6. Special tests

In accordance with Article 83(3) of Council Regulation No. 2100/94 an applicant may claim either in the Technical Questionnaire or during the test that a candidate has a characteristic which would be helpful in establishing distinctness. If such a claim is made and is supported by reliable technical data, a special test may be undertaken providing that a technically acceptable test procedure can be devised.

Special tests will be undertaken, with the agreement of the President of CPVO, where distinctness is unlikely to be shown using the characters listed in the protocol.

7. Standards for decisions

**a) Distinctness**

A candidate variety will be considered to be distinct if it meets the requirements of Article 7 of Council Regulation No. 2100/94.

**b) Uniformity**

For the assessment of uniformity of vegetatively propagated varieties, a population standard of 1% with an acceptance probability of at least 95% should be applied.

For a sample size between 6 and 35 plants for vegetatively propagated varieties, only 1 off-type is allowed.

**c) Stability**

A candidate will be considered to be sufficiently stable when there is no evidence to indicate that it lacks uniformity.

#### **IV REPORTING OF RESULTS**

After each growing cycle the results will be summarised and reported to the CPVO in the form of a UPOV model interim report in which any problems will be indicated under the headings distinctness, uniformity and stability. Candidates may meet the DUS standards after one growing cycle but in some cases two or more growing cycles may be required. When tests are completed the results will be sent by the Examination Office to the CPVO in the form of a UPOV model final report.

If it is considered that the candidate complies with the DUS standards, the final report will be accompanied by a variety description in the format recommended by UPOV. If not the reasons for failure and a summary of the test results will be included with the final report.

The CPVO must receive interim reports and final reports by the date agreed between the CPVO and the examination office.

Interim reports and final examination reports shall be signed by the responsible member of the staff of the Examination Office and shall expressly acknowledge the exclusive rights of disposal of CPVO.

#### **V LIAISON WITH THE APPLICANT**

If problems arise during the course of the test the CPVO should be informed immediately so that the information can be passed on to the applicant. Subject to prior agreement, the applicant may be directly informed at the same time as the CPVO particularly if a visit to the trial is advisable.

The interim report and final report shall be sent by the Examination Office to the CPVO.

#### **VI ENTRY INTO FORCE**

The present protocol enters into force on **01/06/2011**. This protocol will apply to all varieties tested as from this date.

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## **ANNEXES TO FOLLOW**

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### **ANNEX II**

Technical questionnaire

**ANNEX I**  
**TABLE OF CHARACTERISTICS**

CPVO N°	UPOV N°	Characteristics	Examples	Note
<b>1.</b>	<b>1.</b>	<b>Plant: height (beginning of flowering)</b>		
		very short		1
		short	Monte Casino	3
		medium	Pearl Moon, Sunset	5
		tall	Blue Wonder, Ideal	7
<b>2.</b>	<b>2.</b>	<b>Stem: attitude of branches</b>		
(+)	(+)	erect	Ideal	3
		semi-erect	Blue Wonder	5
		horizontal	Pink Butterfly	7
<b>3.</b>	<b>3.</b>	<b>Stem: thickness</b>		
		thin	Ideal	3
		medium	Blue Wonder	5
		thick	Suntop	7
<b>4.</b>	<b>4.</b>	<b>Stem: density of branches</b>		
(+)	(+)	sparse	Blue Wonder, Suntop	3
		medium	Dark Pink Star	5
		dense	Pink Moon	7
<b>5.</b>	<b>5.</b>	<b>Stem: hairiness</b>		
		absent or very weak	Ideal	1
		weak		3
		medium		5
		strong	Solidaster	7
		very strong		9

CPVO N°	UPOV N°	Characteristics	Examples	Note
6.	6.	<b>Stem: anthocyanin coloration of internode</b>		
		absent	Blue Wonder	1
		present	Suntop	9
7.	7.	<b>Stem: distribution of anthocyanin coloration of internodes</b>		
		in stripes	Dark Pink Star	1
		diffuse	Suntop	2
8.	8.	<b>Stem: anthocyanin coloration in leaf axil</b>		
		absent	Dark Pink Star	1
		present	Suntop	9
9.	9.	<b>Leaf: shape</b>		
		linear	Blue Wonder	1
		elliptic	Suntop	2
		ovate	Ideal	3
<b>G</b>		obovate		4
10.	10.	<b>Leaf: length</b>		
		short	Sunset	3
		medium		5
		long	Dark Pink Star	7
11.	11.	<b><u>Varieties with linear or elliptic leaves only:</u></b> <b>Leaf: width</b>		
		narrow	Pearl Moon	3
		medium	White Moon	5
		broad	Painted Lady	7
12.	12.	<b><u>Varieties with ovate or obovate leaves only:</u></b> <b>Leaf: width</b>		
		narrow		3
		medium	Ideal	5
		broad		7



CPVO N°	UPOV N°	Characteristics	Examples	Note
13.	13.	<b>Leaf: dentations</b>		
		absent	Blue Wonder	1
		on distal part of margin	Suntop	2
		on whole margin	Pink Skipper	3
14.	14.	<b>Leaf: intensity of green colour</b>		
		light	Blue Wonder	3
		medium	Dark Pink Star	5
		dark	Monte Casino	7
15.	15.	<b>Leaf: anthocyanin coloration</b>		
		absent		1
		present		9
16.	16.	<b>Side branch of first order: distribution of flower heads</b>		
		spread along axis	Dark Pink Star	1
		at distal part only	Monte Casino	2
17. (+)  G	17. (+)	<b>Flower head: number of whorls of ray florets</b>		
		one	Blue Wonder	1
		two	Dark Pink Star	2
		more than two	Kfir	3
18.	18.	<b><u>Flower heads with one or two whorls of ray florets only:</u> Flower head: number of ray florets</b>		
		few	Dark Pink Star	3
		medium	Mother of Pearl	5
		many	White Butterfly	7
19.	19.	<b>Flower head: diameter</b>		
		small	Monte Casino	3
		medium	Dark Pink Star	5
		large	White Butterfly	7

CPVO N°	UPOV N°	Characteristics	Examples	Note
20.	20.	<b>Ray floret: length</b>		
		short	Miyosnow Star	3
		medium	Suntop	5
		long	Ziv	7
21.	21.	<b>Ray floret: shape</b>		
		narrow elliptic	Suntop	1
		narrow obovate	Blue Wonder	2
22.	22.	<b>Ray floret: attitude</b>		
		semi-upright	Dark Pink Star	3
		horizontal	Suntop	5
		reflexed	Blue Wonder	7
23.	23.	<b>Ray floret: curvature of longitudinal axis</b>		
		strongly incurved		1
		incurved	Blue Wonder, Suntop	3
		straight	White Butterfly	5
		recurved	White Moon	7
		strongly recurved		9
24.	24.	<b>Ray floret: curvature of tip</b>		
		incurved		1
		straight	Blue Wonder, Suntop	2
		recurved	Mother of Pearl	3
25.	25.	<b>Ray floret: shape in cross section</b>		
		concave	Blue Wonder	1
		straight	Suntop	2
		convex	Sunkid, White Moon	3
26.	26.	<b>Ray floret: shape of apex</b>		
		acute	Painted Lady	1
		rounded	Suntop	2

CPVO N°	UPOV N°	Characteristics	Examples	Note
27.	27.	<b>Ray floret: dentation of apex</b>		
		absent	Blue Wonder	1
		present	Suntop	9
28.	28.	<b>Ray floret: colour of upper side (in winter)</b>		
<b>G</b>		RHS Colour Chart (indicate reference number)		
29.	29.	<b>Ray floret: distribution of intensity of colour</b>		
		lighter at base	Blue Wonder	1
		evenly distributed	Suntop	2
		lighter at tip		3
30.	30.	<b>Involucre: shape</b>		
		cylindrical	Suntop	1
		campanulate	Mother of Pearl	2
		urceolate		3
		funnel-shaped	Ziv	4
31.	31.	<b>Invoclure: length</b>		
		short	Blue Wonder	3
		medium	Lilac Blue Admiral	5
		long	Suntop	7
32.	32.	<b>Involucre: diameter</b>		
		small	Blue Wonder	3
		medium	Painted Lady	5
		large	Suntop, Ziv	7
33.	33.	<b>Involure: number of involucral bracts</b>		
		few	Blue Wonder	3
		medium	White Butterfly	5
		many	Suntop	7

CPVO N°	UPOV N°	Characteristics	Examples	Note
34.	34.	<b>Involucre: position of involucral bracts</b>		
		adpressed	Lilac Blue Admiral	1
		free	Suntop	2
35.	35.	<b>Involucre: overlapping of involucral bracts</b>		
		absent or very weak		1
		weak	Dark Pink Star	3
		medium	Ideal	5
		strong	Mother of Pearl	7
36.	36.	<b>Disc: diameter (before anthesis of disc florets)</b>		
		absent or very small		1
		small	Monte Casino	3
		medium	Suntop	5
		large	Mother of Pearl	7
37.	37.	<b>Varieties with disc only: Disc: colour (as for 36.)</b>		
		green	White Butterfly	1
		yellow	Blue Wonder	2
		orange	Suntop	3
38.	38.	<b>Varieties with disc only: Disc floret: size</b>		
		small	Blue Wonder	3
		medium	Suntop	5
		large	Mother of Pearl	7
39.	39.	<b>Varieties with disc only: Disc floret: shape</b>		
		cylindrical	Suntop	1
		funnel-shaped	Dark Pink Star	2
		petaloid		3

CPVO N°	UPOV N°	Characteristics	Examples	Note
40.	40.	<b><u>Varieties with disc only:</u></b> <b>Disc floret: shape of apex of corolla lobe</b>		
		acute	Monte Casino	1
		rounded	Pink Moon	2
41.	41.	<b><u>Varieties with disc only:</u></b> <b>Disc floret: colour of corolla lobe</b>		
		white	Monte Casino	1
		greenish	Pearl Moon	2
		yellowish	Suntop	3
		purple	Ideal	4
42.	42.	<b><u>Varieties with disc only:</u></b> <b>Stigma: position compared with anthers</b>		
		below		1
		same level		2
		above		3
43.	43.	<b>Time of beginning of flowering</b>		
		early	Ideal	3
		medium	Miyosnow Star	5
		late	Ziv White	7

## **EXPLANATIONS ON THE TABLE OF CHARACTERISTICS**

### Ad. 2: Stem: attitude of branches

The observation on the attitude of branches should be made on branches of first order at the time of full flowering of the flowering stem, when all branches have at least one fully opened flower head.

### Ad. 4: Stem: density of branches

The observation on the density of branches on the stem should be made from the lowest flowering branch upwards along 20 cm of stem.

### Ad. 17: Flower head: number of whorls of ray florets

The observation on the number of whorls of ray florets of the flower head should be made on flower heads on which the ray florets begin to show colour.

## **LITERATURE**

RANSON, E.R., 1946: "Michaelmas Daisies and Other Garden Asters," Gifford, London

JELITTO, L. & SCHACHT, W., 1990: "Hardy Herbaceous Perennials," pp. 75-80, Third Edition, 2 Volumes, Revised by W. Schacht and A. Fessler, translated by M.E. Epps, Batsford, London

## **ANNEX II**

The Technical Questionnaire is available on the CPVO website under the following reference:  
CPVO-TQ/141/1