



EUROPEAN UNION
COMMUNITY PLANT VARIETY OFFICE

PROTOCOL FOR DISTINCTNESS, UNIFORMITY AND STABILITY TESTS

Allium cepa L. [*Allium cepa* (Cepa Group), *Allium cepa* (Aggregatum Group)]
and *Allium oschaninii* O. Fedtsch.

ONION and ECHALION, SHALLOT, and GREY SHALLOT

UPOV Species Code: ALLIU_CEP, ALLIU_OSC

Adopted on 14/06/2005

I SUBJECT OF THE PROTOCOL

The protocol describes the technical procedures to be followed in order to meet the 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/46/6 dated 24th March 1999 for the conduct of tests for Distinctness, Uniformity and Stability. This protocol applies to varieties of *Allium cepa* (Cepa Group) [onions and echalions], *Allium cepa* (Aggregatum Group) [shallots], and *Allium oschaninii* O.Fedtsch. [grey shallots].

Differentiation between onion and shallot

For the sake of this protocol, the differentiation between onions and shallots shall be made depending on the response to characteristics 10.1 and/or 10.2 in conjunction with characteristic 27.

In this protocol, seed propagated varieties in classes 1 to 3 for characteristic 10.1 may be considered as onion/echalion (if applied as such), and varieties in classes 7 to 9 shall be considered as shallot. Varieties applied as seed shallots in the classes below 7 have to be judged after re-planting in a second year according to characteristic 10.2.

Varieties in classes 1 to 3 for characteristic 10.2 are onions/echalions and varieties in class 7 to 9 are shallots. Varieties in classes between 3 and 7 of characteristic 10.2 will be judged upon the number of growing points as outlined in characteristic 27 after vegetative multiplication (in the second growing cycle).

Varieties in class 1 to 3 for characteristic 27 are onions/echalions whereas varieties in class 5 to 9 are shallots.

In cases of varieties falling in between classes 3 and 5 for characteristic 27, there shall be an exchange of results and plant material where appropriate between examination offices to try and reach a conclusion. If after this stage a conclusion still has not been reached, the final decision shall be taken by the granting / registering authority.*

This is illustrated thus:

* In the light of experience this procedure may be amended after three years.

Characteristic 10.1: Seed propagated varieties only:

Bulb: Tendency to split into bulblets (with dry skin around each bulblet)

	(	1	absent or very weak	)	onion/echalion
varieties	(	2		)	(if applied
applied	(	3	weak	)	as such)
as seed	(	4)	
shallot	(	5	medium)	
	(	6)	
	(	7	strong)	
	(	8		)	shallot
	(	9	very strong)	

Characteristic 10.2: Vegetatively propagated varieties only (including the replanted bulbs harvested from seed propagated varieties):

Bulb: Tendency to split into bulblets (with dry skin around each bulblet)

		1	absent or very weak)	
		2		)	onion/echalion
		3	weak)	
	(	4)	
	(	5	medium)	
	(	6)	
		7	strong)	
		8		)	shallot
		9	very strong)	

Characteristic 27: Bulb / Bulblet: number of growing points per kg

		1	very low)	
		2		)	onion/echalion
		3	low)	
		4		)	exchange of results
and/or material – decision after bilateral consultation		5	medium)	
		6)	
		7	high	)	shallot
		8)	
		9	very high)	

II SUBMISSION OF SEED AND OTHER 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.

A sub-sample of the material submitted for test will be held in the variety collection as the definitive sample of the candidate variety.

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. Immediately after the closing date for the receipt of plant material the Examination Office should inform the CPVO whether acceptable plant material has been received or not. However if unsatisfactory plant material is submitted the CPVO should be informed as soon as possible.

3. Plant material requirements

The final dates for request for technical examination and sending of Technical Questionnaire by the CPVO as well as submission date of plant material by the applicant can be found in the S2 supplement of the CPVO Official Gazette and the CPVO website (www.cpvo.europa.eu).

Quality of seed: Should not be less than the standards laid down for certified seed of onion in Annex 2 of Council Directive 2002/55/EC

Quality of bulbs: Should not be less than the standards laid down for plants in EC Directive 92/33 and its implementing measures.

Seed Treatment:..... 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.

Special requirements:..... -

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"
- In the case of a split sample, the quantity of seed being submitted.

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 variety 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.

The composition of the variety collection in each Examination Office depends on the environmental conditions in which the Examination Office is located.

Variety collections will be held under conditions which ensure the long term maintenance of each accession. It is the responsibility of Examination Offices to replace reference material which has deteriorated or become depleted. Replacement material can only be introduced if appropriate tests confirm conformity with the existing reference material. If any difficulties arise for the replacement of reference material Examination Offices must inform the CPVO. If authentic plant material of a variety cannot be supplied to an Examination Office the variety will be removed from the variety collection.

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. Examination Offices should therefore make efforts to co-ordinate the work with other offices involved in DUS-testing of onion and shallot. There should be at least an exchange of technical questionnaires for each candidate variety, and during the test period, Examination Offices should notify each other and the CPVO of candidate varieties which are likely to present problems in establishing distinctness. In order to solve particular problems Examination Offices may exchange plant material.

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 latter 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° 1239/95, 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 characteristics used for grouping are the following:

- (a) Bulb: Tendency to split into bulblets (with dry skin around each bulblet) (characteristics 10.1 and 10.2)
- (b) Bulb/Bulblet: general shape (in longitudinal section) (characteristic 18)
- (c) Bulb/Bulblet: basic colour of dry skin (characteristic 23)
- (d) Bulb/Bulblet: number of growing points per kg (characteristic 27)
- (e) Male sterility (characteristic 36)

5. Trial designs and growing conditions

The minimum duration of tests will normally be two independent growing cycles. For vegetatively propagated varieties, the duration of the testing may be reduced to 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 100 plants for vegetatively propagated varieties, 200 plants for seed propagated varieties applied as onions, and 300 plants for seed propagated varieties applied as shallots, which should be divided between two or more replicates.

All observations determined by measurement or counting should be made on 60 plants or parts of 60 plants.

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 seed propagated open-pollinated and hybrid varieties, relative uniformity standards should be used.

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 the assessment of uniformity of vegetatively propagated varieties, a candidate will be considered to be sufficiently uniform if the number of off-types does not exceed the number of plants as indicated in the table below.

Table of maximum numbers of off-types allowed for uniformity standards for vegetatively propagated varieties

Number of plants	off-types allowed
36-82	2
83-137	3

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 recording season 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 two growing periods but in some cases three growing periods 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.

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ANNEX I

TABLE OF CHARACTERISTICS TO BE USED IN DUS-TEST AND PREPARATION OF DESCRIPTIONS

CPVO N°	UPOV N°	Stage	Characteristics	Examples	Note
1.	1.		Plant: number of leaves per pseudostem		
			few	SY300 (O)	3
			medium	The Kelsae (O)	5
			many	Yellow Sweet Spanish (O)	7
2.	2.		Foliage: attitude		
			erect	Pikant (S), Santé (S)	1
			erect to semi-erect	Canon (O), Keep Well (O), Success (S)	2
			semi-erect	Southport Red Globe (O), Bonilla (S), Mirage (S), Pikant (S), Prisma (S), Saffron (S)	3
			semi erect to horizontal	Hygro (O)	4
	horizontal		5		
3.	3.		Foliage: waxiness		
			absent or very weak		1
			weak	Yellow Sweet Spanish (O), Success (S)	3
			medium	Hikeeper (O), Golden Gourmet (S)	5
			strong	Calypso (O), Flevo (O), Santé (S)	7
	very strong		9		

CPVO N°	UPOV N°	Stage	Characteristics	Examples	Note
4.	4.		Foliage: green colour		3
			light	Guimar (O), Yellow Sweet Spanish (O), Tropix (S)	
			medium	Caribo (O), Texas Grano 502 (O), Golden Gourmet (S)	5
			dark	Hikeeper (O), La Reine (O), Santé (S)	7
5. (+)	5.	100	Foliage: cranking		
			absent or very weak	Pikant (S)	1
			weak	Golden Bear (O), Santé (S)	3
			medium	Hyduro (O)	5
			strong		7
			very strong		9
6.1	6.1		<u>Onion varieties only:</u> Leaf: length		
			very short	Barletta (O), Pompei (O)	1
			short	Nocera (O)	3
			medium	Jetset (O)	5
			long	Staro (O)	7
			very long	The Kelsae (O)	9
6.2	6.2		<u>Shallot varieties only:</u> Leaf: length		
			very short		1
			short	Pikant (S)	3
			medium	Spring Field (S)	5
			long	Golden Gourmet (S), Topper (S)	7
			very long		9

CPVO N°	UPOV N°	Stage	Characteristics	Examples	Note
7.1	7.1		<u>Onion varieties only: Leaf: diameter</u>		
			small	Nocera (O), Paris (O)	3
			medium	Hyfast (O)	5
			large	Dorata di Parma (O)	7
7.2	7.2		<u>Shallot varieties only: Leaf: diameter</u>		
			small	Pikant (S)	3
			medium	Spring Field (S)	5
			large	Golden Gourmet (S)	7
8.	8.	100	<u>Onion varieties only: Pseudostem: length (up to highest green leaf)</u>		
			(+) short	Barletta (O)	3
			medium	Hyduro (O), The Kelsae (O)	5
			long	Goldito (O)	7
9.	9.	100	<u>Onion varieties only: Pseudostem: diameter (at mid-point of length)</u>		
			(+) small	Coler (O)	3
			medium	Calypso (O), Justo (O), La Reine (O)	5
			large	Blanca grande tardia de Lérida(O), The Kelsae (O)	7
10.1	-	135	<u>Seed propagated varieties only: Bulb : Tendency to split into bulblets (with dry skin around each bulblet)</u>		
			(+) absent or very weak	Cuisse de Poulet du Poitou (O), Lagos (O)	1
			weak		3
			medium	Mirage (S)	5
			strong	Bonilla (S), Création (S)	7
			G	very strong	Rox (S), Tropix (S)	9

CPVO N°	UPOV N°	Stage	Characteristics	Examples	Note
10.2	-	135	<u>Vegetatively propagated varieties only (including the re-planted bulbs harvested from seed propagated varieties): Bulb : Tendency to split into bulblets (with dry skin around each bulblet)</u>		
(+)			absent or very weak	Cuisse de Poulet du Poitou (O), Lagos (O)	1
			weak		3
			medium	Mirage (S)	5
			strong	Bonilla (S), Création (S), Longor (S), Mikor (S)	7
G			very strong	Delvad (S), Rox (S), Tropix (S)	9
11.	11.		<u>Shallot varieties only: Bulb: degree of splitting into bulblets</u>		
			weak	Atlas (S)	3
			medium	Santé (S)	5
			strong	Griselle (GS)	7
12.1	12.1		<u>Onion varieties only: Bulb: size</u>		
			small		3
			medium	Rijnsburger 7 (O)	5
			large	The Kelsae (O)	7
12.2	12.2		<u>Shallot varieties only (grown from bulblets): Bulblet: size</u>		
			small	Atlas (S)	3
			medium	Spring Field (S), Topper (S)	5
			large	Delicato (S), Santé (S)	7
13.1	13.1		<u>Onion varieties only: Bulb: height</u>		
			short	Nocera (O), Stuttgarter Riesen (O)	3
			medium	Golden Bear (O), Rijnsburger 7 (O)	5
			tall	Birnförmige (O), The Kelsae (O)	7

CPVO N°	UPOV N°	Stage	Characteristics	Examples	Note
13.2	13.2		<u>Shallot varieties only (grown from bulblets); Bulblet: height</u>		
			very short		1
			short	Atlas (S)	3
			medium	Topper (S)	5
			tall	Mikor (S)	7
			very tall	Longor (S)	9
14.1	14.1		<u>Onion varieties only; Bulb: diameter</u>		
			small	Nocera (O), Owa (O)	3
			medium	Rijnsburger 7 (O)	5
			large	Stuttgarter Riesen (O)	7
14.2	14.2		<u>Shallot varieties only (grown from bulblets); Bulblet: diameter</u>		
			small	Pikant (S)	3
			medium	Success (S)	5
			large	Santé (S)	7
15.1	15.1		<u>Onion varieties only; Bulb: ratio height/diameter</u>		
			very small	Pompei (O)	1
			small	La Reine (O)	3
			medium	Rijnsburger 7 (O), Valenciana Temprana (O)	5
			large	Arad (O), The Kelsae (O)	7
			very large	Owa (O)	9

CPVO N°	UPOV N°	Stage	Characteristics	Examples	Note
15.2	15.2		<u>Shallot varieties only (grown from bulblets); Bulblet: ratio height/diameter</u>		
			very small		1
			small	Topper (S)	3
			medium	Pikant (S), Success (S)	5
			large	Longor (S)	7
			very large		9
16.	16.		Bulb/Bulblet: position of maximum diameter		
(+)			towards apex	Sweet Sandwich (O), Texas Grano 502 (O)	1
			at middle	Rijnsburger 7 (O), Valenciana tardía de exportacion (O), Red Sun (S)	2
			towards base	The Kelsae (O)	3
17.	17.	150	Bulb/Bulblet: width of neck		
(+)			very narrow	Pikant (S)	1
			narrow	La Reine (O), Topper (S)	3
			medium	Hyduro (O), Santé (S)	5
			broad	Blanca grande tardía de Lérida(O)	7
			very broad		9

CPVO N°	UPOV N°	Stage	Characteristics	Examples	Note
18.	18.	150	Bulb/Bulblet: general shape (in longitudinal section)		
(+)			elliptic	Owa (O), Longor (S)	1
			ovate	Birnformige (O), Rossa lunga di Firenze (O)	2
			broad elliptic	Ailsa Craig (O), Beacon (O), Early Yellow Globe(O), Hiball(O)	3
			circular	Rijnsburger 7(O), Pikant(S)	4
			broad ovate	Hysam (O)	5
			broad obovate	Lilia (O), Sweet Sandwich (O), Texas Grano 502 (O)	6
			rhombic	Zittauer gelbe (O)	7
			transverse elliptic	Sturka (O), Stuttgarter Riesen (O), Atlantic (S), Golden Gourmet (S)	8
G			transverse narrow elliptic	Brunswijker (O), De Moissac (O), Paille des vertus (O), Pompei (O)	9
19.	19.		<u>Onion varieties only:</u> Bulb: shape of top (in longitudinal section)		
(+)			depressed	Dorata di Parma (O)	1
			flat	La Reine (O), Sweet Sandwich (O),	2
			slightly raised	Valenciana Temprana (O)	3
			rounded	Rijnsburger 7 (O), Valenciana tardía de exportación (O)	4
			slightly sloping	Ailsa Craig (O), Rouge pale de Niort (O)	5
			strongly sloping	Owa (O)	6

CPVO N°	UPOV N°	Stage	Characteristics	Examples	Note	
20.	20.		Bulb/Bulblet: shape of base (in longitudinal section)			
			(+)	recessed	Paille des vertus (O)	1
				flat	Nocera (O), Valenciana Temprana (O)	2
				round	Rijnsburger 7 (O),Valenciana tardía de exportación (O), Atlas (S), Delicato (S)	3
				weakly tapered	Pompei (O), The Kelsae (O), Bonilla (S), Santé (S)	4
		strongly tapered	Owa (O), Longor (S)	5		
21.	21.		Bulb/Bulblet: adherence of dry skin after harvest			
				weak	Ailsa Craig (O), Tropix (S)	3
				medium	Rjinsburger 7 (O), Golden Gourmet (S)	5
		strong	Stuttgarter Riesen (O), Bonilla (S), Santé (S)	7		
22.	22.	150	Bulb/Bulblet: thickness of dry skin			
				thin	La Reine (O), Pikant (S)	3
				medium	Sturon (O), Santé (S)	5
		thick	Birnförmige (O), Espagnol (O)	7		
23.	23.		Bulb/Bulblet: basic colour of dry skin			
				white	La Reine (O)	1
				grey	Griselle (GS)	2
				green		3
				yellow	Zittauer gelbe (O), Creation (S), Golden Gourmet (S), Topper (S)	4
				brown	Valenciana Temprana (O), Delicato (S), Mirage (S)	5
				pink	Colorada de Figueras (O),Rox (S)	6
G		red	Brunswijker (O),Red Baron (O)	7		

CPVO N°	UPOV N°	Stage	Characteristics	Examples	Note	
24.	24.		Bulb/Bulblet: intensity of basic colour of dry skin			
			light		3	
			medium		5	
			dark		7	
25.	25.	150	Bulb/Bulblet: hue of colour of dry skin (in addition to basic colour)			
			absent	Pompei (O)	1	
			greyish		2	
			greenish	Otto (O)	3	
			yellowish	Topper (S)	4	
			brownish	Santé (S), Success (S)	5	
			pinkish	Delicato (S)	6	
			reddish	Southport Red Globe (O), Mikor (S), Mirage (S), Pikant (S)	7	
purplish		8				
26.	26.		Bulb/Bulblet: coloration of epidermis of fleshy scales			
			absent		1	
			greenish	Sturon (O), Golden Gourmet (S)	2	
		reddish	Brunswijker (O), Ruby (O), Pikant (S), Santé (S)	3		
27.		150	Bulb/Bulblet: number of growing points per kg			
			(+)	very low	Barletta (O), Pompei (O)	1
				low	Cuisse de Poulet du Poitou (O), Figaro (O), Owa (O)	3
				medium	Longor (S), Mirage (S), Prisma(S)	5
				high	Bonilla (S), Création (S), Mikor (S)	7
G			very high	Griselle (GS), Rox (S), Tropix (S)	9	

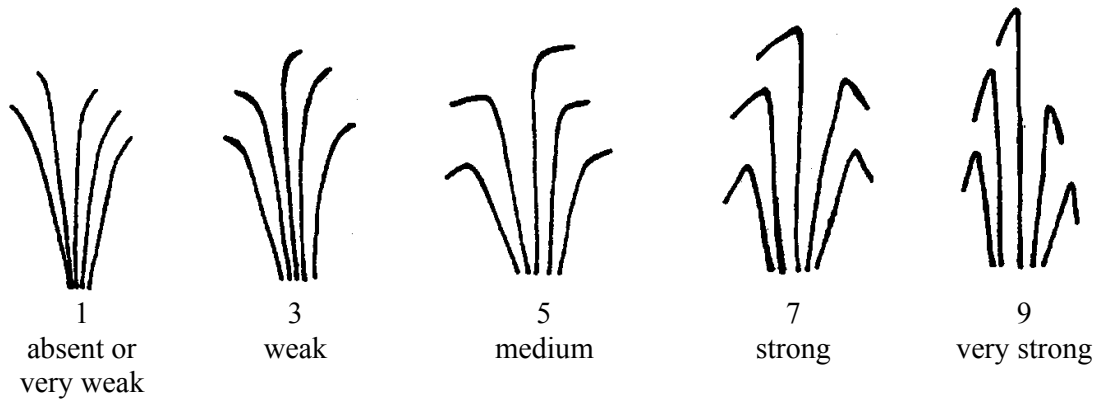
CPVO N°	UPOV N°	Stage	Characteristics	Examples	Note
28. (+)	28.	150	Bulb/Bulblet: dry matter content		
			very low	Exhibition (O)	1
			low	Golden Bear (O), The Kelsae (O)	3
			medium	Rijnsburger 7 (O), Golden Gourmet (S), Topper (S)	5
			high	Birnförmige(O), Zittauer gelbe(O), Creation (S), Longor (S)	7
		very high	Griselle (GS)	9	
29.	29.	40-100	<u>Onion varieties only:</u> Tendency to bolting in <u>spring</u> sown trials		
			absent or very weak	Desihidrobat (O)	1
			weak	Stuttgarter Riesen (O), Zittauer gelbe (O)	3
			medium	Legio (O)	5
			strong		7
		very strong	Bronzé d'Amposta (O)	9	
30.	30.		<u>Onion varieties only:</u> Time of beginning of bolting in <u>spring</u> sown trials		
			early	Bronzé d'Amposta (O)	3
			medium	Legio (O)	5
		late		7	
31.	31.	40-100	<u>Onion varieties only:</u> Tendency to bolting in <u>autumn</u> sown trials		
			absent or very weak	Coler(O)	1
			weak	Valenciana Temprana (O)	3
			medium	Arad (O)	5
			strong	Guimar (O)	7
		very strong	Valenciana tardía de exportación (O)	9	

CPVO N°	UPOV N°	Stage	Characteristics	Examples	Note
32.	32.		<u>Onion varieties only:</u> Time of beginning of bolting in <u>autumn</u> sown trials		
			early		3
			medium		5
			late		7
33.	33.	105	<u>Onion varieties only:</u> Time of harvest maturity for <u>autumn</u> sown trials (foliage fall-over in 80% of plants)		
			very early	Coler (O)	1
			early	La Reine (O), Sonic (O)	3
			medium	Buffalo (O), Imai Early Yellow (O), Valenciana Temprana (O)	5
			late	Guimar (O), Senshyu Semi Globe Yellow (O), Shakespeare (O)	7
			very late	Valencia tardía (O)	9
34.1	34.1	105	<u>Onion varieties only:</u> Time of harvest maturity for <u>spring</u> sown trials (foliage fall-over in 80% of plants)		
			early	Buffalo (O), Golden Bear (O)	3
			medium	Piroska (O)	5
			late	Beacon (O)	7
34.2	34.2		<u>Shallot varieties only:</u> Time of harvest maturity (foliage fall-over in 80% of plants)		
			early	Rox (S)	3
			medium	Creation (S), Pikant (S)	5
			late	Golden Gourmet (S), Santé (S)	7
35. (+)	35.	160.1	Time of sprouting during storage		
		160.2	early	Golden Bear (O), The Kelsae (O)	3
			medium	Hygro (O), Hyper (O)	5
			late	Marion (O)	7

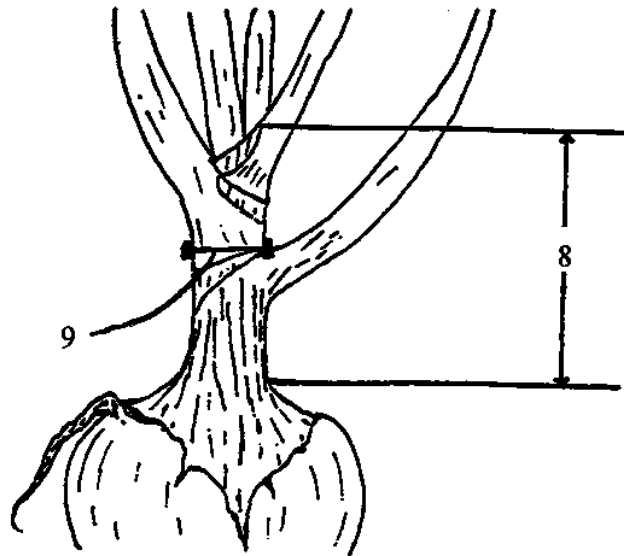
CPVO N°	UPOV N°	Stage	Characteristics	Examples	Note
36.	36.	270.1	Male sterility		
		270.2	absent or very weakly expressed	Rijnsburger 5 (O)	1
			weakly expressed	Hyduro (O), Creation (S)	2
G			strongly expressed	Sweet Sandwich (O), Atlas (S)	3

EXPLANATIONS AND METHODS

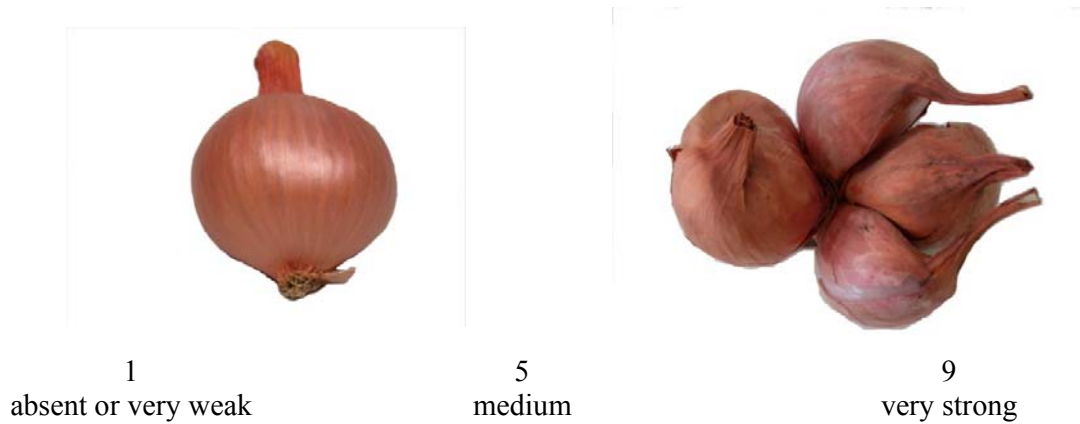
Ad 5: Foliage: cranking



Ad 8 and 9: Onion varieties only: Pseudostem: length (up to highest green leaf) (8) and diameter (at midpoint of length) (9)

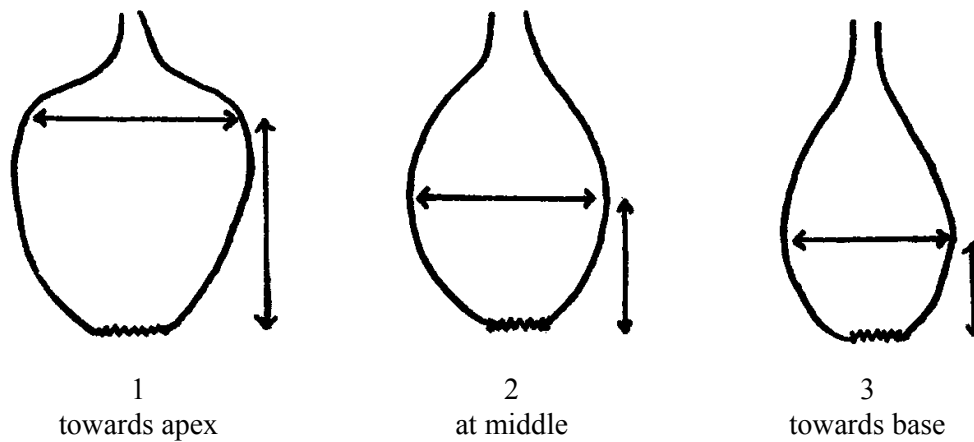


Ad 10.1 and 10.2: Bulb: Tendency to split into bulblets (seed propagated varieties, 10.1, and vegetatively propagated varieties, 10.2)

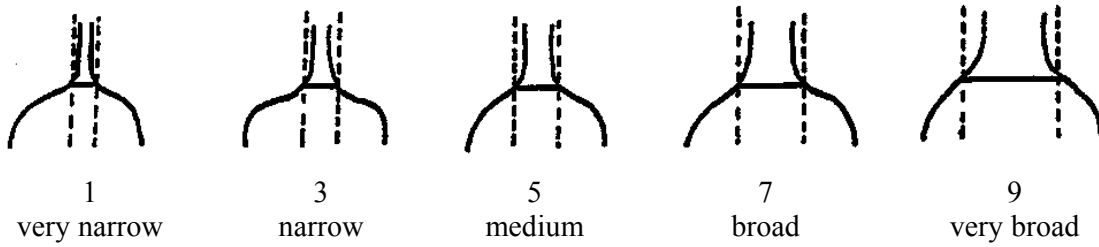


This characteristic has to be measured/counted plant by plant using medium sized bulbs for characteristic 10.2 and the standard deviation has to be established to be used in comparison to the medium of the standard deviation of the varieties of the same type.

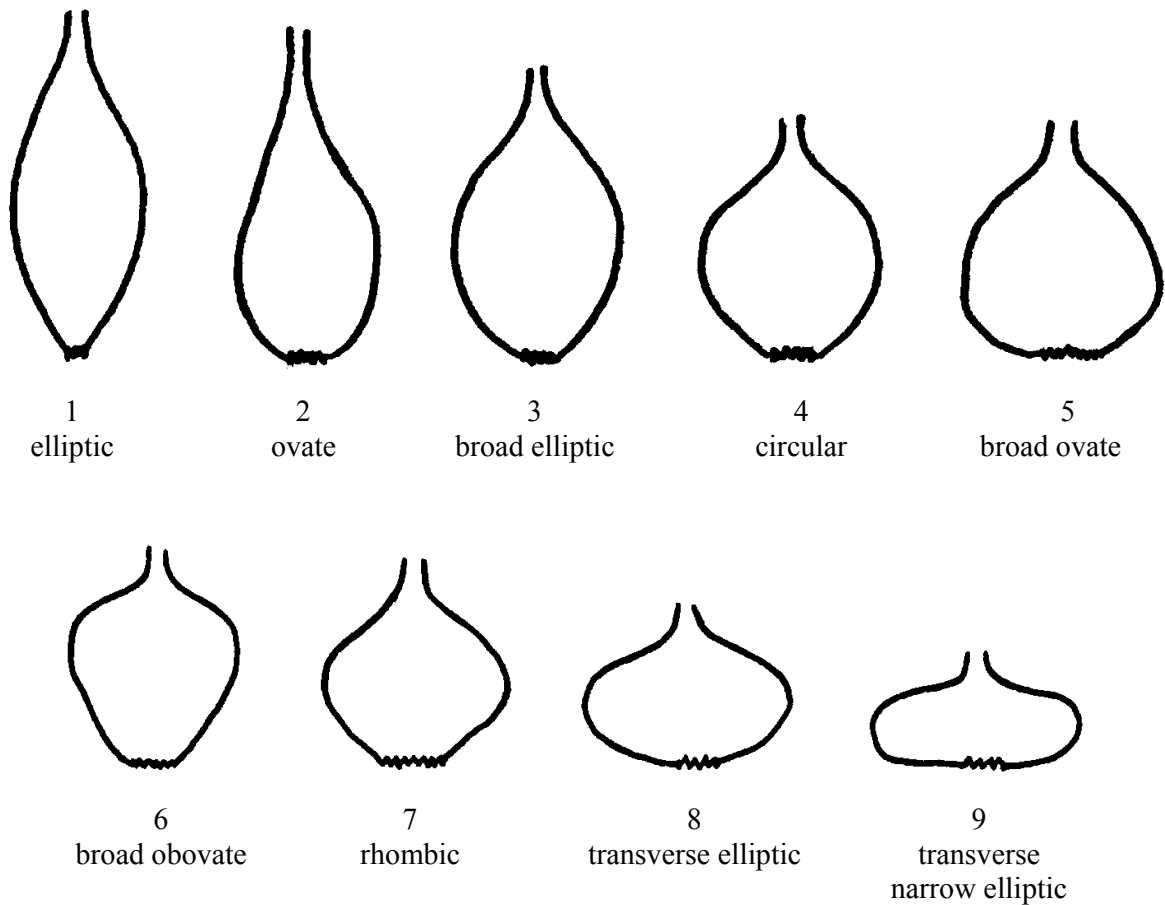
Ad 16: Bulb/Bulblet: position of maximum diameter



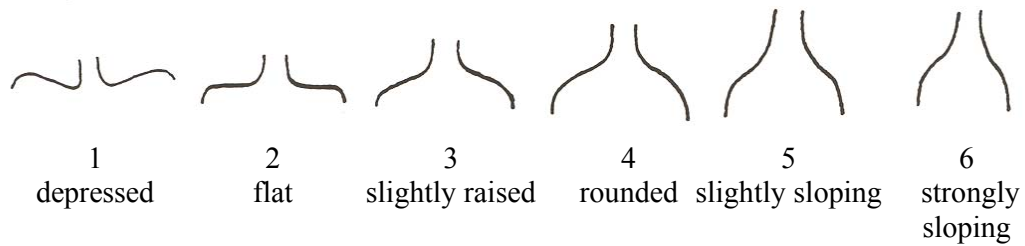
Ad 17: Bulb/Bulblet: width of neck



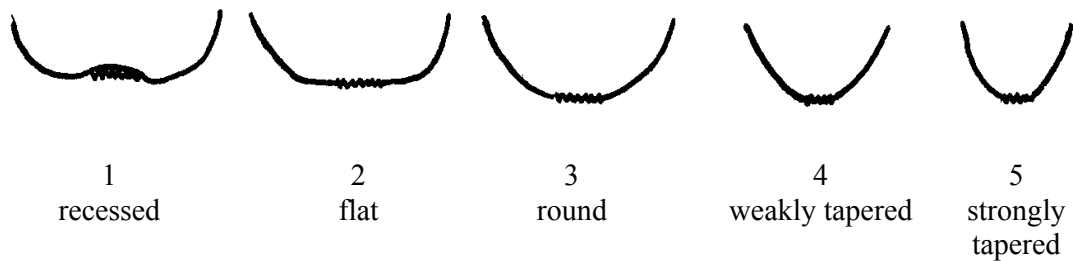
Ad 18: Bulb/Bulblet: general shape (in longitudinal section)



Ad 19: Onion varieties only: Bulb: shape of top (in longitudinal section)



Ad 20: Bulb/Bulblet: shape of base (in longitudinal section)



Ad 27: Bulb/Bulblet: number of growing points per kg

The number of growing points (axes) should be assessed when the bulb/bulblet has completely dried back at the end of storage, just before sprouting commences. Taking median sized bulbs, the bulb or bulblet should be cut in transverse section at $\frac{1}{3}$ of the length from the base. Each axis appears as a point, often greenish in colour surrounded by tissue rings.

This characteristic has to be measured/counted plant by plant and the standard deviation has to be established to be used in comparison to the medium of the standard deviation of the varieties of the same type.



Ad 28: Bulb/Bulblet: dry matter content

Dry matter content should be determined according to III-5 for 3 x 20 bulbs (e.g. one sample of 20 bulbs from each plot). From these bulbs the dry skin should be removed as well as the protruding part of the root disk. From these 20 bulbs a bulk sample should be prepared by cutting the bulbs into small pieces of 1-5 mm size. A representative sample should be weighed directly after cutting (we should be aware that the biodegradation of sugars and carbohydrates starts as soon as cells are damaged). The samples should be dried for 2 hours at 105oC and then the temperature should be lowered to 65oC during 22 hours. Lowering of temperature is necessary to avoid caramelisation. The remaining weight should be assessed after 24 hours. From these figures the dry matter content may be calculated.

The dry matter content could also be assessed by refractometer.

Ad 35: Time of sprouting during storage

Care should be taken to exclude damaged bulbs. Storage temperature should be maintained between 2oC and 5oC with good ventilation which can be achieved by storing in stacking, slotted trays.

In climates which have cooler summer temperature, it is advisable to 'cure' bulbs for 2 weeks at a temperature of 30-35oC. Temperatures above 40oC should be avoided to prevent growth of *Aspergillus niger*.

A minimum of 50 bulbs are required to assess sprouting. Assessment should be carried out every 2 to 4 weeks.

Code for the Growth Stages 1: Seed to Bulb

<u>Growth stage</u>	<u>General description</u>
<u>Vegetative Cycle</u>	
00	Dry Seed
0	Germination
<u>Seedling growth</u>	
10	Emerged seedling at 'loop' stage
15	Seedling with testa above ground and still attached to cotyledon
20	Emergence of first true leaf
25	Second true leaf stage
30	Third leaf stage
35	Fourth leaf stage
40	Fifth leaf stage
<u>Plant growth</u>	
45	Sixth leaf stage
50	Seventh leaf stage - first leaf senescing
55	Eighth leaf stage
60	
65	Tenth leaf stage; second and third leaves senescing; early bulb development
70	
75	
80	
85	
90	
95	
100	Full expansion of leaves achieved; continued swelling of bulb
105	Beginning of foliage fall-over, weakening of false stem turgidity
115	Leaves dry off; bulb size continues to increase; darkening of bulb scales
120	
125	
130	
135	Bulb at harvestable maturity
140	
145	
150	Complete die-back of foliage; bulb top seals over for dormancy

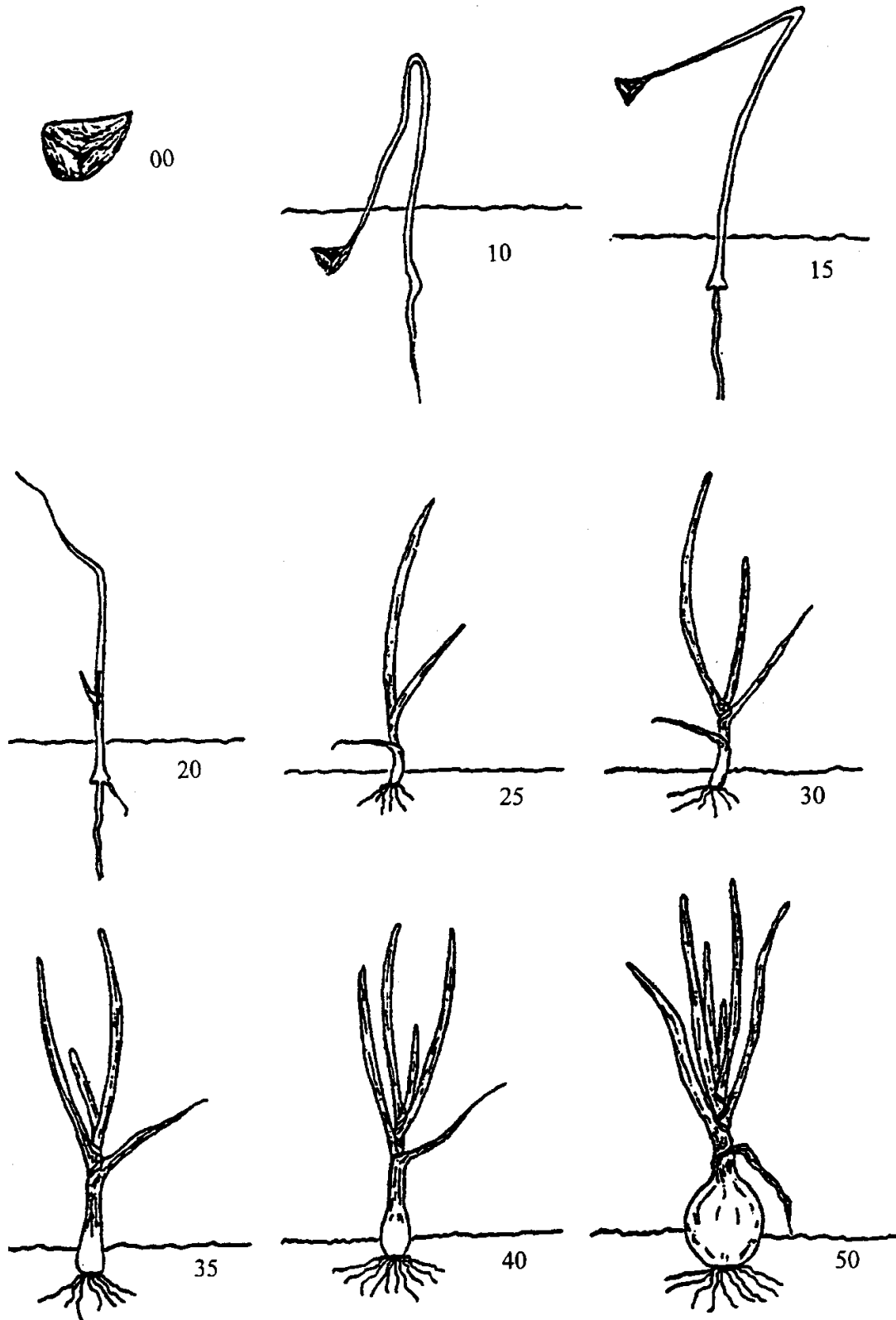
Code for the Growth Stages 2: Bulb to Seed

<u>Growth Stage</u>	<u>General Description</u>
<u>Reproductive Cycle</u>	
160.1	Start of sprouting in store - swelling of root initials or emergence of shoot at top of bulb
170.1	
180.1	Sprouted bulbs with emerging leaves
190.1	
200.1	Splitting of outer skin
210.1	Emergence of scape and undeveloped spathe
220.1	Scape elongation and swelling of middle
230.1	
240.1	Swelling of spathe
250.1	Splitting of spathe
260.1	Enlargement of umbel
270.1	Opening of florets (where fertile)
280.1	Pollination of florets
290.1	Seed set - swelling of pollinated ovaries
300.1	
310.1	
320.1	Ripe seed in umbels
330.1	
340.1	
350.1	Dry seed

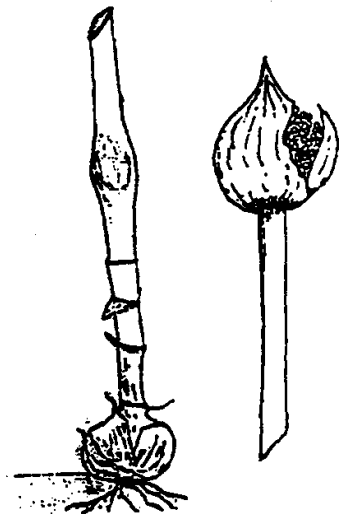
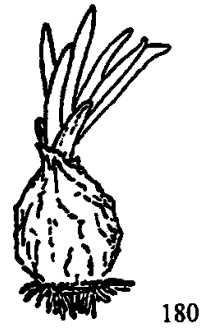
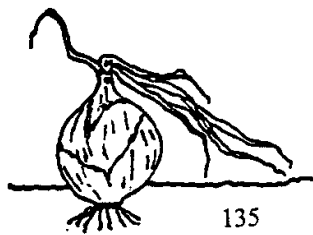
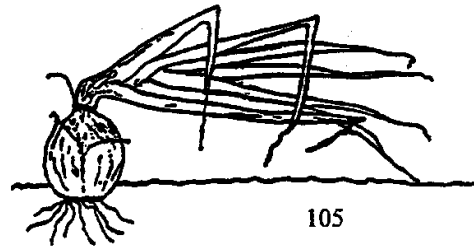
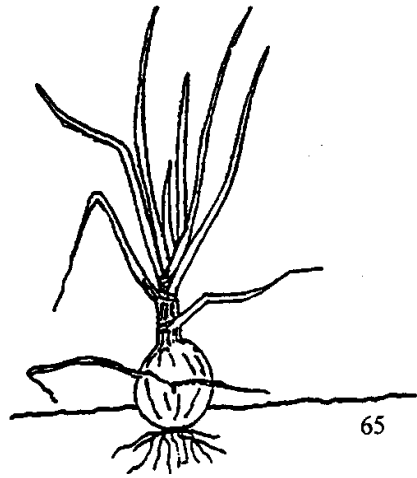
Code for the Growth Stages 3: Bulb to Bulblet

<u>Growth Stage</u>	<u>General Description</u>
150	Dry bulb with complete foliage die-back
160.2	
170.2	Bulb shape becoming less rounded
180.2	
190.2	Bulb shape becoming irregular with development of small splits in the dry outer skin
200.2	
210.2	More than one growing point emerging from the top of the bulb
220.2	
230.2	Long splits developing in the outer skin of the bulb and differentiation of bulb into bulblets
240.2	
250.2	
260.2	
270.2	Separation of bulblets from parent bulb except at base. Bulblets separated from each other by a dry outer skin
280.2	
290.2	Complete separation of bulblets from 'parent bulb'
300.2	Development of many leaves

Code for the Growth Stages 1 and 2: Illustrations (applicable for onions)



Code for the Growth Stages 1 and 2: Illustrations (applicable for onions)



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ANNEX II



European Union
Community Plant Variety Office

TECHNICAL QUESTIONNAIRE

to be completed in connection with an application for Community Plant Variety Rights
Please answer all questions. A question without any answer will lead to a non-attribution
of an application date. In cases where a field / question is not applicable, please state so.

1. **Botanical taxon:** Name of the genus, species or sub-species to which the variety belongs and common name (please tick only one of the corresponding boxes)

Species *Allium cepa* L.

Sub-species (i) *Allium cepa* (Cepa group)

ONION, ECHALION

(ii) *Allium cepa* (Aggregatum group)

SHALLOT

Species *Allium oschaninii* O. Fedtsch

GREY SHALLOT

2. **Applicant(s):** Name(s) and address(es), phone and fax number(s), Email address, and where appropriate name and address of the procedural representative

3. Variety denomination

a) Where appropriate proposal for a variety denomination:

b) Provisional designation (breeder's reference):

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

4.1 Method of maintenance and reproduction

- (a)
- (i) open-pollinated..... []
 - (ii) single hybrid..... []
 - (iii) three-way hybrid []
 - (iv) clone []
 - (v) other type (indicate that type)..... []
- (b)
- (i) seed propagated..... []
 - (ii) vegetatively propagated..... []
- (c) Other information on genetic origin and breeding method
- (i) variety..... []
 - (ii) parent- line / inbred line []
 - (iii) other (please specify)..... []

4.2 Geographical origin of the variety: the region and the country in which the variety was bred or discovered and developed

4.3 Shall the information on data relating to components of hybrid varieties including data related to their cultivation be treated as confidential?

YES NO

If yes, please give this information on the attached form for confidential information.

If no, please give information on data relating to components of hybrid varieties including data related to their cultivation:

Breeding scheme (indicate female component first)

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

Characteristics	Example varieties	Note
5.1 Plant: number of leaves per pseudostem (1)		
few	SY300 (O)	3 []
medium	The Kelsae (O)	5 []
many	Yellow Sweet Spanish (O)	7 []
5.2 Foliage: green colour (4)		
light	Guimar (O), Yellow Sweet Spanish (O), Tropix (S)	3 []
medium	Caribo (O), Texas Grano 502 (O), Golden Gourmet (S)	5 []
dark	Hikeeper (O), La Reine (O), Santé (S)	7 []

Characteristics	Example varieties	Note
5.3.1 (10.1) <u>Seed propagated varieties only: Bulb : tendency to split into bulblets (with dry skin around each bulblet)</u>		
absent or very weak	Cuisse de Poulet du Poitou (O), Lagos (O)	1 []
weak		3 []
medium	Mirage (S)	5 []
strong	Bonilla (S), Creation (S)	7 []
very strong	Rox (S), Tropix (S)	9 []
5.3.2 (10.2) <u>Vegetatively propagated varieties only (including the re-planted bulbs harvested from seed propagated varieties): Bulb : tendency to split into bulblets (with dry skin around each bulblet)</u>		
absent or very weak	Cuisse de Poulet du Poitou (O), Lagos (O)	1 []
weak		3 []
medium	Mirage (S)	5 []
strong	Bonilla (S), Creation (S), Longor (S), Mikor (S)	7 []
very strong	Delvad (S), Rox (S), Tropix (S)	9 []
5.4.1 (12.1) <u>Onion varieties only: Bulb: size</u>		
small		3 []
medium	Rijnsburger 7 (O)	5 []
large	The Kelsae (O)	7 []
5.4.2 (12.2) <u>Shallot varieties only (grown from bulblets) : Bulb: size</u>		
small	Atlas (S)	3 []
medium	Spring Field (S), Topper (S)	5 []
large	Delicato (S), Santé (S)	7 []

Characteristics	Example varieties	Note
5.5 (18)	<u>Bulb/Bulblet: general shape (in longitudinal section)</u>	
elliptic	Owa (O), Longor (S)	1 []
ovate	Birnförmige (O), Rossa lunga di Firenze (O)	2 []
broad elliptic	Ailsa Craig (O), Beacon (O), Early Yellow Globe (O), Hiball (O)	3 []
circular	Rijnsburger 7 (O), Pikant (S)	4 []
broad ovate	Hysam (O)	5 []
broad obovate	Lilia (O), Sweet Sandwich (O), Texas Grano 502 (O)	6 []
rhombic	Zittauer gelbe (O)	7 []
transverse elliptic	Sturka (O), Stuttgarter Riesen (O), Atlantic (S), Golden Gourmet (S)	8 []
transverse narrow elliptic	Brunswijker (O), De Moissac (O), Paille des vertus (O), Pompei (O)	9 []
5.6 (23)	<u>Bulb/Bulblet: basic colour of dry skin</u>	
white	La Reine (O)	1 []
grey	Griselle (GS)	2 []
green		3 []
yellow	Zittauer gelbe (O), Creation (S), Golden Gourmet (S), Topper (S)	4 []
brown	Valenciana Temprana (O), Delicato (S), Mirage (S)	5 []
pink	Colorada de Figueras (O), Rox (S)	6 []
red	Brunswijker (O), Red Baron (O)	7 []

Characteristics	Example varieties	Note
5.7 (25) absent greyish greenish yellowish brownish pinkish reddish purplish	Bulb/Bulblet: hue of colour of dry skin (in addition to basic colour) Pompei (O) Otto (O) Topper (S) Santé (S), Success (S) Delicato (S) Southport Red Globe (O), Mikor (S), Mirage (S), Pikant (S) 	 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 []
5.8 (27) very low low medium high very high	Bulb/Bulblet: number of growing points per kg Barletta (O), Pompei (O) Cuisse de Poulet du Poitou (O), Figaro (O), Owa (O) Longor (S), Mirage (S), Prisma (S) Bonilla (S), Creation (S), Mikor (S) Griselle (GS), Rox (S), Tropix (S)	 1 [] 3 [] 5 [] 7 [] 9 []
5.9 (28) very low low medium high very high	Bulb/Bulblet: dry matter content Exhibition (O) Golden Bear (O), The Kelsae (O) Rijnsburger 7 (O), Golden Gourmet (S), Topper (S) Birnförmige (O), Zittauer gelbe (O), Creation (S), Longor (S) Griselle (GS)	 1 [] 3 [] 5 [] 7 [] 9 []

Characteristics	Example varieties	Note
5.10 <u>Onion varieties only:</u> Time of harvest maturity for <u>autumn</u> sown trials (33) (foliage fall-over in 80% of plants)		
very early	Coler (O)	1 []
early	La Reine (O), Sonic (O)	3 []
medium	Buffalo (O), Imai Early Yellow (O), Valenciana Temprana (O)	5 []
late	Guimar (O), Senshyu Semi Globe Yellow (O), Shakespeare (O)	7 []
very late	Valencia tardía (O)	9 []
5.11.1 <u>Onion varieties only:</u> Time of harvest maturity for <u>spring</u> sown trials (34.1) (foliage fall-over in 80% of plants)		
early	Buffalo (O), Golden Bear (O)	3 []
medium	Piroska (O)	5 []
late	Beacon (O)	7 []
5.11.2 <u>Shallot varieties only:</u> Time of harvest maturity (foliage fall-over in 80% of plants) (34.2)		
early	Rox (S)	3 []
medium	Creation (S), Pikant (S)	5 []
late	Golden Gourmet (S), Santé (S)	7 []
5.12 Male sterility (36)		
absent or very weakly expressed	Rijnsburger 5 (O)	1 []
weakly expressed	Hyduro (O), Creation (S)	2 []
strongly expressed	Sweet Sandwich (O), Atlas (S)	3 []

6. Similar varieties and differences from these varieties:

Denomination of similar variety	Characteristic in which the similar variety is different ¹⁾	State of expression of similar variety	State of expression of candidate variety
---------------------------------	--	--	--

¹⁾ 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

7.2.1 Day length conditions which favour full bulb development

(a) short day []

(b) long day []

7.2.2 Suitability for storage

(a) none []

(b) short term []

(c) long term []

7.2.3 Other conditions

[] YES, please specify

[] NO

7.3 Other information

[] YES, please specify

[] NO

8. GMO-information required

The variety represents a Genetically Modified Organism within the meaning of Article 2(2) of Council Directive EC/2001/18 of 12/03/2001.

YES NO

If yes, please add a copy of the written attestation of the responsible authorities stating that a technical examination of the variety under Articles 55 and 56 of the Basic Regulation does not pose risks to the environment according to the norms of the above-mentioned Directive.

9. Information on plant material to be examined

9.1 The expression of a characteristic or several characteristics of a variety may be affected by factors, such as pests and disease, chemical treatment (e.g. growth retardants or pesticides), effects of tissue culture, different rootstocks, scions taken from different growth phases of a tree, etc.

9.2 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If the plant material has undergone such treatment, full details of the treatment must be given. In this respect, please indicate below, to the best of your knowledge, if the plant material to be examined has been subjected to:

- | | | |
|---|------------------------------|-----------------------------|
| (a) Microorganisms (e.g. virus, bacteria, phytoplasma) | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| (b) Chemical treatment (e.g. growth retardant or pesticide) | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| (c) Tissue culture | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| (d) Other factors | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

Please provide details of where you have indicated "Yes":

I/we hereby declare that to the best of my/our knowledge the information given in this form is complete and correct.

Date

Signature

Name

[End of document]