



These Test Guidelines have been superseded by a later version. The latest adopted version of Test Guidelines can be found at http://www.upov.int/test_guidelines/en/list.jsp

Ces principes directeurs d'examen ont été remplacés par une version ultérieure. La version adoptée la plus récente des principes directeurs d'examen figure à l'adresse suivante : http://www.upov.int/test_guidelines/fr/list.jsp

Diese Prüfungsrichtlinien wurden durch eine neuere Fassung ersetzt. Die neueste angenommene Fassung von Prüfungsrichtlinien ist unter http://www.upov.int/test_guidelines/de/list.jsp zu finden.

Las presentes directrices de examen han sido reemplazadas por una versión posterior. La versión de las directrices de examen de más reciente aprobación está disponible en http://www.upov.int/test_guidelines/es/list.jsp.



TG/162/4

INTERNATIONAL UNION
FOR THE PROTECTION
OF NEW VARIETIES OF
PLANTS

UNION INTERNATIONALE
POUR LA PROTECTION
DES OBTECTIONS
VÉGÉTALES

INTERNATIONALER
VERBAND ZUM SCHUTZ
VON PFLANZEN -
ZÜCHTUNGEN

UNIÓN INTERNACIONAL
PARA LA PROTECCIÓN
DE LAS OBTENCIONES
VEGETALES

GUIDELINES
FOR THE CONDUCT OF TESTS
FOR DISTINCTNESS, UNIFORMITY AND STABILITY

GARLIC

(Allium sativum L.)

GENEVA
2001

Copies of this document are available on request at the price of 10 Swiss francs each, including surface mail, from the Office of UPOV, 34, chemin des Colombettes, P.O. Box 18, 1211 Geneva 20, Switzerland

This document or parts of it may be reproduced, translated and published without obtaining the specific consent of UPOV, provided that the source is acknowledged.



TG/162/4

ORIGINAL: English

DATE: 2001-04-04

INTERNATIONAL UNION
FOR THE PROTECTION
OF NEW VARIETIES OF
PLANTS

UNION INTERNATIONALE
POUR LA PROTECTION
DES OBTENTIONS
VÉGÉTALES

INTERNATIONALER
VERBAND ZUM SCHUTZ
VON PFLANZEN -
ZÜCHTUNGEN

UNIÓN INTERNACIONAL
PARA LA PROTECCIÓN
DE LAS OBTENCIONES
VEGETALES

GUIDELINES
FOR THE CONDUCT OF TESTS
FOR DISTINCTNESS, UNIFORMITY AND STABILITY

GARLIC

(Allium sativum L.)

These Guidelines should be read in conjunction with document TG/1/2, which contains explanatory notes on the general principles on which the Guidelines have been established.

<u>TABLEOFCONTENTS</u>	<u>PAGE</u>
I. SubjectoftheseGuidelines	3
II. MaterialRequired	3
III. ConductofTests	3
IV. MethodsandObservations	4
V. GroupingofVarieties	4
VI. CharacteristicsandSymbols	4
VII. TableofCharacteristics	5
VIII. ExplanationsontheTableofCharacteristics	12
IX. Literature	16
X. TechnicalQuestionnaire	17

I. Subject of these Guidelines

These Test Guidelines apply to all vegetatively propagated varieties of *Allium sativum* L.

II. Material Required

1. The competent authorities decide when, where and in what quantity and quality the seed 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 plant material to be supplied by the applicant in one or several samples should be:

50 bulbs.

2. The plant material should at least meet the minimum requirements for sprouting capacity, moisture content and purity for marketing plant material in the country in which the application is made. It must be in good sanitary condition and free from virus, in particular from leek yellow stripe virus and onion yellow dwarf virus.

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. The minimum duration of tests should normally be two independent growing cycles.

2. The tests should normally be conducted at one place. If any important characteristic 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. 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 100 plants which should be divided between two or more replicates. Separate plots for observation and for measuring can only be used if they have been subject to similar environmental conditions.

4. Because of the effect of conditions of storage of bulbs on the expression of characteristics, comparison of varieties should be made only on material which has been propagated and stored under the same temperature and humidity conditions (e.g. 15 °C to 18 °C).

5. Additional tests for special purposes may be established.

IV. Methods and Observations

1. Unless otherwise indicated, all observations determined by measurement or counting should be made on 30 plants or part taken from each of 30 plants.
2. For the assessment of uniformity a population standard of 1% with an acceptance probability of at least 95% should be applied. In the case of a sample size of 100 plants the maximum number of off-types allowed would be 3.
3. All observations on the leaf, foliage and flowering stem should be made before foliage fall-over.
4. All observations on the bulb should be made on bulb harvested in the trial.

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 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) Pseudostem: flowering stem (characteristic 10);
 - (b) Clove: color of scale (characteristic 29);
 - (c) Time of harvest maturity (characteristic 33);
 - (d) End of dormancy of clove in bulb (characteristic 34).

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 cycle over which the 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. Foliage: density (*)	Feuillage: densité	Laub: Dichte	Follaje: densidad		
loose	lâche	locker	laxo	Ramses	3
medium	moyen	mittel	medio	Printanor	5
dense	dense	dicht	denso	Germidour	7
2. Foliage: attitude (*) (+)	Feuillage: port	Laub: Haltung	Follaje: porte		
erect	dressé	aufrecht	erecto	Jolimont	1
erect to semi-erect	dressé à demi dressé	aufrecht bis halbaufrecht	erecto a semierecto	Printanor	2
semi-erect	demi dressé	halbaufrecht	semierecto	Jardinor	3
3. Leaf: greencolor (*)	Feuille: couleur verte	Blatt: Grünfärbung	Hoja: color verde		
light	claire	hell	claro		3
medium	moyenne	mittel	medio	Messidrome	5
dark	foncée	dunkel	oscuro	Germidour	7
4. Leaf: waxiness	Feuille: pruine	Blatt: Wachsschicht	Hoja: cerosidad		
absent or very weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil		1
weak	faible	gering	débil	Sprint	3
medium	moyenne	mittel	media	Messidrome	5
strong	forte	stark	fuerte	Germidour, Moratop	7
very strong	très forte	sehr stark	muy fuerte	Gayant, Printanor	9
5. Leaf: length (*) (longest leaf)	Feuille: longueur (feuille la plus longue)	Blatt: Länge (längstes Blatt)	Hoja: longitud (hoja más larga)		
short	courte	kurz	corta	Jardinor	3
medium	moyenne	mittel	media	Moraluz, Morasur	5
long	longue	lang	larga	Sultop	7

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
6. Leaf:width (* (asfor5)	Feuille:largeur (comme pour 5)	Blatt:Breite (wie unter 5)	Hoja:anchura (como para 5)		
narrow	étroite	schmal	estrecha	Ramses	3
medium	moyenne	mittel	media	Printanor	5
broad	large	breit	ancha	Germidour	7
7. Leaf:shape in cross (* section)	Feuille:forme en section transversale	Blatt:Form im Querschnitt	Hoja:forma de la sección transversal		
strongly concave	fortement concave	stark konkav	fuertemente cóncava		1
slightly concave	légèrement concave	leicht konkav	ligeramente cóncava	Ramses	2
flat	plane	flach	plana	Germidour	3
8. Pseudostem:intensity (* of anthocyanin coloration at base)	Pseudotige:intensité de la pigmentation anthocyanique à la base	Pseudostamm: Intensität der Anthocyanfärbung an der Basis	Pseudotallo: intensidad de la pigmentación antocianica en la base		
absent or very weak	absente ou très faible	fehlend oder sehr gering	ausente o muy débil	Printanor	1
weak	faible	gering	débil	Messidrome	3
medium	moyenne	mittel	media		5
strong	forte	stark	fuerte	Germidour	7
very strong	très forte	sehr stark	muy fuerte		9
9. Pseudostem:width of (* the base)	Pseudotige:largeur de la base	Pseudostamm:Breite der Basis	Pseudotallo:anchura de la base		
narrow	étroite	schmal	estrecha	Ramses	3
medium	moyenne	mittel	media	Printanor	5
broad	large	breit	ancha	Germidour	7
10. Pseudostem:flowering (* stem)	Pseudotige:tige florifère	Pseudostamm: Blütenstandstiel	Pseudotallo:tallo floral		
absent	absente	fehlend	ausente	Germidour	1
present	présente	vorhanden	presente	Rosede Lautrec	9

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
11. Floweringstem: (* curvature (+)	Tigeflorale: courbure	Blütenstandstiel: Krümmung	Tallofloral: curvatura		
absent	absente	fehlend	ausente	Morasur,Sultop	1
present	présente	vorhanden	presente	Iberose	9
12. Floweringstem: (* length (+)	Tigeflorale: longueur	Blütenstandstiel: Länge	Tallofloral: longitud		
short	courte	kurz	corto	RosedeLautrec	3
medium	moyenne	mittel	medio	Morasol	5
long	longue	lang	largo	Sultop	7
13. Floweringstem: (* bulblets (+)	Tigeflorale:bulbilles	Blütenstandstiel: Bulbillen	Tallofloral: bulbillos		
absent	absentes	fehlend	ausentes	RosedeLautrec	1
present	présentes	vorhanden	presentes	Germidour	9
14. Bulb:size (*)	Bulbe:taille	Zwiebel:Größe	Bulbo:tamaño		
small	petite	klein	pequeño	Fructidor	3
medium	moyenne	mittel	mediano	Printanor	5
large	grande	groß	grande	Messidrome	7
15. Bulb:shapein (* longitudinalsection (+)	Bulbe:forme en sectionlongitudinale	Zwiebel:Form im Längsschnitt	Bulbo:forma en secciónlongitudinal		
transversenarrow elliptic	elliptiqueétroite transverse	querschmalelliptisch	elíptica estrecha transversal	Sprint	1
transversebroadelliptic	elliptiquelarge transverse	querbreitelliptisch	elíptica ancha transversal	Germidour	2
circular	arrondie	kreisförmig	circular	DeRoumanie	3
16. Bulb:shapein cross section	Bulbe:forme en sectiontransversale	Zwiebel:Form im Querschnitt	Bulbo:forma en seccióntransversal		
elliptic	elliptique	elliptisch	elíptica	Fructidor	1
circular	arrondie	kreisförmig	circular	Sprint	2

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
17. Bulb:position of cloves at tip of bulb (+)	Bulbe:position des caïeux à l'extrémité supérieure du bulbe	Zwiebel:Position der Zehen an der Spitze der Zwiebel	Bulbo:posición de los dientes en el extremo del bulbo		
inserted	insérée	im Hals	insertos	Sprint	1
at same level	au même niveau	am Halsbeginn	almismo nivel	Corail	2
exerted	extérieure	unterhalb des Halses	exertos	Germidour	3
18. Bulb:position of root disc (*)	Bulbe:position du plateau racinaire	Zwiebel:Position der Wurzelscheibe	Bulbo:posición del disco radicular		
depressed	déprimée	eingesenkt	deprimido	Germidour	1
flat	plane	flach	plano	Rosede Lautrec	2
raised	ensailie	vorgewölbt	protuberante		3
19. Bulb:shape of base (*) (+)	Bulbe:forme de la base	Zwiebel:Form der Basis	Bulbo:forma de la base		
recessed	déprimée	eingebuchtet	deprimida	Germidour, Ramses	1
flat	plate	flach	plana	Printanor	2
rounded	arrondie	abgerundet	redonda	de Roumanie	3
20. Bulb:compactness of cloves	Bulbe:compacité des caïeux	Zwiebel:Dichte der Zehen	Bulbo:compacidad de los dientes		
loose	faible	locker	laxo	Sprint	3
medium	moyenne	mittel	medio	Germidour	5
compact	forte	dicht	compacto	Printanor	7
21. Bulb:ground color of dry external scales (*)	Bulbe:couleur de fond des tunique sèches	Zwiebel:Grundfarbe der trockenen Außenschalen	Bulbo:color de fondo de las cáscas externas		
white	blanche	weiß	blanco	Printanor, Ramses	1
yellowish white	blanc jaunâtre	gelblichweiß	blanco amarillento	Vigor Max, Vigor Supreme	2
reddish white	blanc rougeâtre	rötlichweiß	blanco rojizo	Germidour	3

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
22. Bulb:anthocyanin stripes on dry external scales (*)	Bulbe:striures anthocyaniques sur les tuniques externes sèches	Zwiebel: Anthocyanstreifen auf den trockenen Außenschalen	Bulbo:estrías antocíánicas en las catáfilas externas		
absent	absentes	fehlend	ausentes	Printanor, Ramses	1
present	présentes	vorhanden	presentes	Germidour, Sprint	9
23. Bulb:skin adherence of dry external scales	Bulbe:adhérence des tuniques externes sèches	Zwiebel: Anhaftender trockenen Außenschalen	Bulbo: adherencia de las catáfilas externas		
weak	faible	gering	débil	Sprint	3
medium	moyenne	mittel	media	Messidrome	5
strong	forte	stark	fuerte	Printanor, Gayant	7
24. Bulb:thickness of dry external scales	Bulbe:épaisseur des tuniques externes sèches	Zwiebel: Dicker der trockenen Außenschalen	Bulbo:espesor de las catáfilas externas		
thin	minces	dünn	delgadas	Ramses	3
medium	moyennes	mittel	medias	Morasur	5
thick	épaisses	dick	gruesas	Jolimont	7
25. Bulb:number of cloves (*)	Bulbe:nombre de caïeux	Zwiebel:Anzahl Zehen	Bulbo:número de dientes		
few	petit	gering	bajo	Mondor	3
medium	moyen	mittel	medio	Printanor	5
many	grand	groß	alto	Ramses	7
26. Bulb:distribution of cloves (* (+)	Bulbe:d istribution des caïeux	Zwiebel:Verteilung der Zehen	Bulbo:distribución de los dientes		
radial	rayonnante	radial	radial	Rosede Lautrec, Sprint	1
non-radial	nonrayonnante	nicht radial	nonradial	Blanc de Beaumont, Messidrome, Rougeatre de Vendée	2

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
27. Bulb:externalcloves (* (+)	Bulbe:caïeuxexternes	Zwiebel:externe Zehen	Bulbo:dientes exteriores		
absent	absents	fehlend	ausentes	Sprint,Sultop	1
present	présents	vorhanden	presentes	BlancdeBeaumont, Morasol	9
28. Clove:size (*	Caïeu:taille	Zehe:Größe	Diente:tamaño		
small	petite	klein	pequeño	RosedeLautrec	3
medium	moyenne	mittel	medio	Printanor	5
large	grande	groß	grande	Germidour	7
29. Clove:colorofscale (*	Caïeu:couleurdela tunique	Zehe:Schalenfarbe	Diente:col ordelapiel		
white	blanche	weiß	blanco	Ramses	1
cream	crème	cremefarben	crema	Messidrome	2
pink	rose	rosa	rosa	Printanor	3
purple	violette	purpur	violeta	Morasol,Sprint	4
brown	brune	braun	marrón	Corail	5
30. Clove:intensityof colorof scale (*	Caïeu:intensitédela couleurdelatunique	Zehe:Intensitätder Schalenfarbe	Diente:intensidaddel colordelapiel		
weak	faible	gering	débil	Printanor	3
medium	moyenne	mittel	media	Ibérose,Sultop	5
strong	forte	stark	fuerte	Morasol,Mor asur, Moratop	7
31. Clove:anthocyanin stripesonscale (*	Caïeu:striures anthocyaniquesdela tunique	Zehe: Anthocyanstreifen auf derSchale	Diente:estriás antociánicasenlapiel		
absent	absentes	fehlend	ausentes	Ramses	1
present	présentes	vorhanden	presentes	Morasur	9
32. Clove:colorofflesh (*	Caïeu:couleurdela chair	Zehe:Farbedes Fleisches	Diente:colordela pulpa		
white	blanche	weiß	blanco	Printanor	1
yellowish	jaunâtre	gelblich	amarillento	Germidour	2

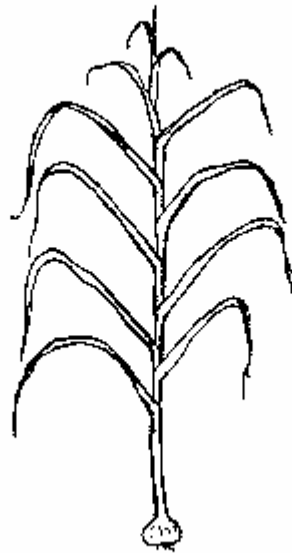
English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
33. Time of harvest (* maturity)	Époque de maturité de récolte	Zeitpunkt der Erntereife	Época de madurez para la cosecha		
very early	très précoce	sehr früh	muy temprana	Ramses	1
early	précoce	früh	temprana	Sprint	3
medium	moyenne	mittel	media	Germidour, Messidrome	5
late	tardive	spät	tardía	Printanor	7
very late	très tardive	sehr spät	muy tardía	Gayant	9
34. End of dormancy of (* clove in bulb (+))	Levé de dormance des caïeux dans le bulbe	Ende der Keimruhe der Zehen in der Zwiebel	Final de la dormancia de los dientes en el bulbo		
very early	très précoce	sehr früh	muy temprana	Ramses	1
early	précoce	früh	temprana	Sprint	3
medium	moyenne	mittel	media	Rosede Lautrec	5
late	tardive	spät	tardía	Fructidor	7
very late	très tardive	sehr spät	muy tardía	Gayant	9

VIII. ExplanationsontheTableofCharacteristics

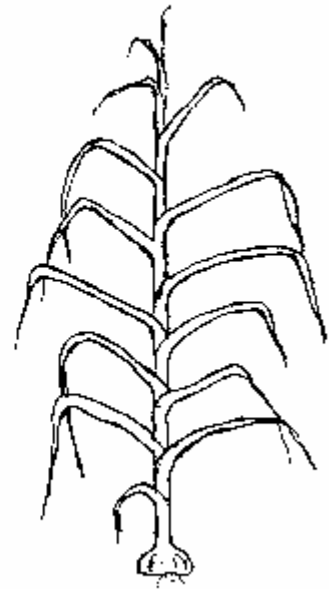
Ad.2:Foliage:attitude



1
erect



2
erect to semi -erect



3
semi-erect

Ad.11:Floweringstem:curvature

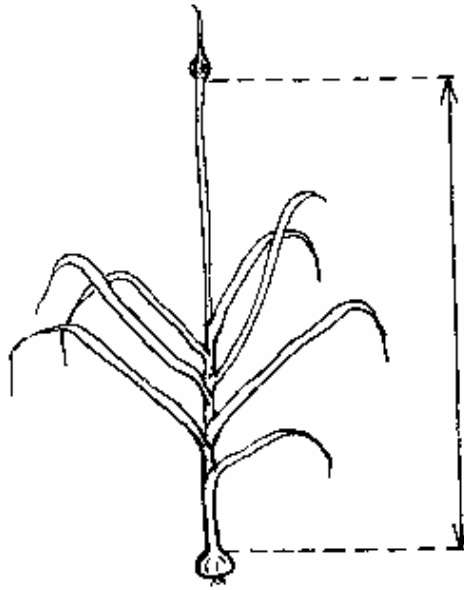


1
absent

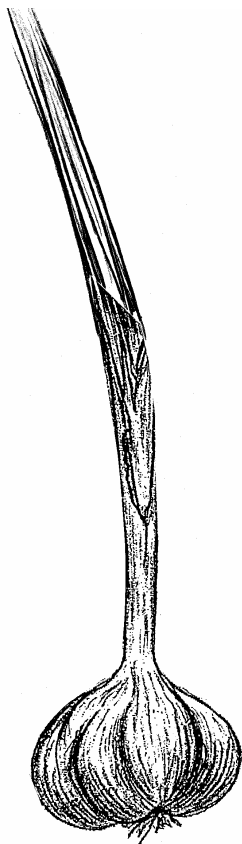


9
present

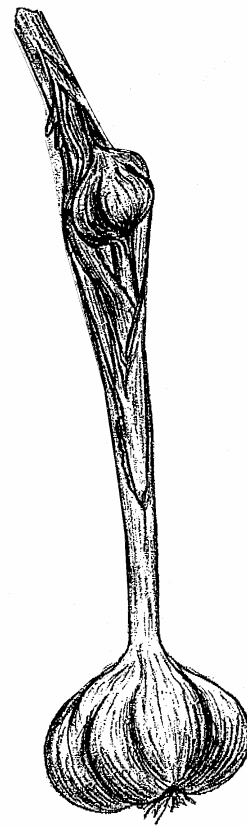
Ad.12:Floweringstem:length



Ad.13:Floweringstem :bulblets

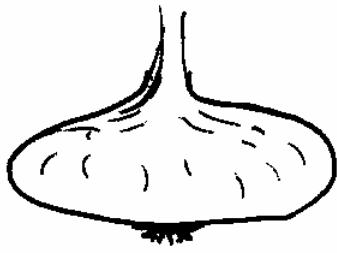


1
absent

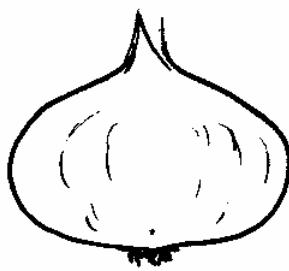


9
present

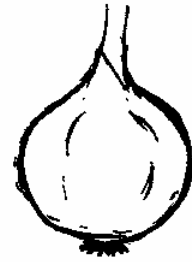
Ad.15:Bulb:shapeinlongitudinalsection



1
transversenarrowelliptic

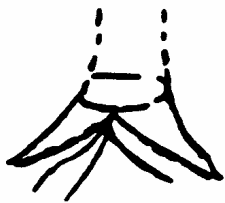


2
transversebroadelliptic



3
circular

Ad.17:Bulb:positionofclovesattipofbulb



1
inserted



2
atsamelevel



3
exerted

Ad.19:Bulb:shapeofbase



1
recessed

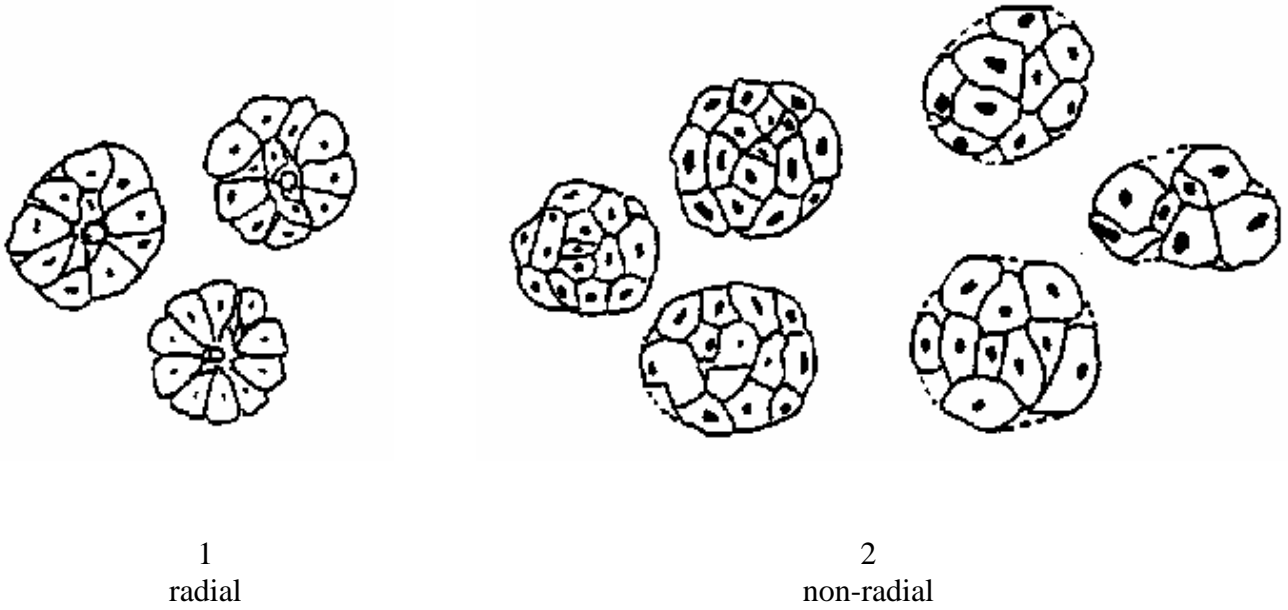


2
flat

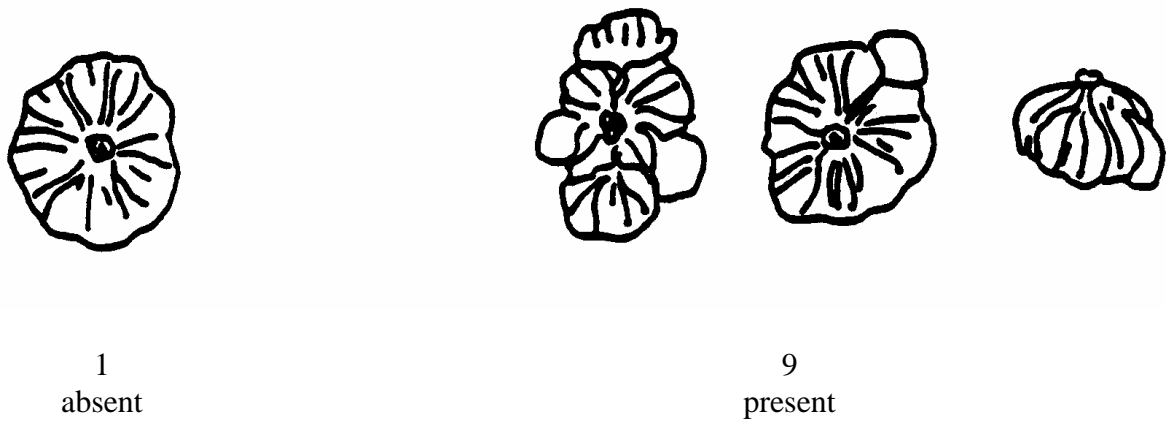


3
rounded

Ad.26:Bulb:distributionofcloves



Ad.27:Bulb:externalcloves



Ad.34:Endofdormancyofcloveinbulb

After harvest, bulbs are stored in a room at an optimum temperature (20°C to 25°C) without being split into cloves. The end of dormancy is evaluated by observing the percentage of sprouted bulbs.

IX. Literature

Brand,R.,“L’Ail,unesevenceàpartdanslesAllium”,LaLettre des Ressources Génétiques Végétales,n° 9,octobre1996,pp. 11-16.

Messiaen, C.M., “6 La variabilité chez l’Ail”, La Lettre des Ressources Génétiques Végétales,n° 9,octobre1996,pp. 7-10.

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	<p><i>Allium sativum</i> L. GARLIC</p>
2. Applicant (Name and address)	
3. Proposed denomination or breeder's reference	

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

4.1 Origin

- (a) natural clone
 - (b) clone from *invitro* culture
 - (c) clone from seedlings
 - (d) others (please indicate)
-

4.2 Mode of propagation

- (a) vegetatively propagated variety
 - (b) others (please indicate)
-

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 Foliage: attitude (2)		
erect	Jolimont	1[]
erect to semi-erect	Printanor	2[]
semi-erect	Jardinor	3[]
5.2 Leaf: green color (3)		
light		3[]
medium	Messidrome	5[]
dark	Germidour	7[]

Characteristics	Example Varieties	Note
5.3 Pseudostem:floweringstem (10)		
absent	Germidour	1[]
present	RosedeLautrec	9[]
5.4 Bulb:size (14)		
small	Fructidor	3[]
medium	Printanor	5[]
large	Messidrome	7[]
5.5 Bulb:shapeinlongitudinalsection (15)		
transversenarrowelliptic	Sprint	1[]
transversebroadelliptic	Germidour	2[]
circular	DeRoumanie	3[]
5.6 Bulb:groundcolorofdryexternalscales (21)		
white	Printanor,Ramses	1[]
yellowishwhite	VigorMax,VigorSupreme	2[]
reddishwhite	Germidour	3[]
5.7 Bulb:extern alcloves (27)		
absent	Sprint,Sultop	1[]
present	BlancdeBeaumont,Morasol	9[]
5.8 Clove:size (28)		
small	RosedeLautrec	3[]
medium	Printanor	5[]
large	Germidour	7[]

Characteristics	Example Varieties	Note
5.9 Clove:colorofscale (29)		
white	Ramses	1[]
cream	Messidrome	2[]
pink	Printanor	3[]
purple	Morasol,Sprint	4[]
brown	Corail	5[]
5.10 Clove:colorofflesh (32)		
white	Printanor	1[]
yellowish	Germidour	2[]
5.11 Timeofharvestmaturity (33)		
veryearly	Ramses	1[]
early	Sprint	3[]
medium	Germidour,Messidrome	5[]
late	Printanor	7[]
verylate	Gayant	9[]
5.12 Endofdormancyofcloveinbulb (34)		
veryearly	Ramses	1[]
early	Sprint	3[]
medium	RosedeLautrec	5[]
late	Fructidor	7[]
verylate	Gayant	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.

7. Additional information which may help to distinguish the variety

7.1 Resistances to pests and diseases

7.2 Special conditions for the examination of the variety

7.3 Type

Long-day type	Autumn	<input type="checkbox"/>
Short-day type	Spring	<input type="checkbox"/>

7.4 Other information

8. Authorizationforrelease

(a) Does the variety require prior authorization for rel ease under legislation concerningtheprotectionoftheenvironment,humanandanimalhealth?

Yes No

(b) Hassuchauthorizationbeenobtained?

Yes No

Iftheanswertothatquestionisyes,pleaseattachacopyofsuchanauthorizat ion.

[Endofdocument]