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DRAFT

AGARICUS

UPOV Code(s):

AGARI_BIS

Agaricus bisporus (Lange.) Sing.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

*prepared by experts from the European Union
to be considered by the
Technical Committee at its fifty-third session,
to be held in Geneva from April 3 to 5, 2017*

Disclaimer: this document does not represent UPOV policies or guidance

Alternative names:*

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Agaricus bisporus</i> (Lange.) Sing.	Mushroom	Champignon de couche	Champignon	Champiñón

The purpose of these guidelines ("Test Guidelines") is to elaborate the principles contained in the General Introduction (document TG/1/3), and its associated TGP documents, into detailed practical guidance for the harmonized examination of distinctness, uniformity and stability (DUS) and, in particular, to identify appropriate characteristics for the examination of DUS and production of harmonized variety descriptions.

ASSOCIATED DOCUMENTS

These Test Guidelines should be read in conjunction with the General Introduction and its associated TGP documents.

* These names were correct at the time of the introduction of these Test Guidelines but may be revised or updated. [Readers are advised to consult the UPOV Code, which can be found on the UPOV Website (www.upov.int), for the latest information.]

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Agaricus bisporus* (Lange.) Sing..

2. Material Required

2.1 The competent authorities decide on the quantity and quality of the material required for testing the variety and when and where it is to be delivered. Applicants submitting material from a State other than that in which the testing takes place must ensure that all customs formalities and phytosanitary requirements are complied with.

2.2 The material is to be supplied in the form of spawn or pure culture on a suitable medium.

2.3 The minimum quantity of material, to be supplied by the applicant, should be:

(a) 15 litres of spawn

or

(b) 2 slant tubes or agar plate (petri dish), containing a pure culture.

2.4 The material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease.

2.5 The 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 it has been treated, full details of the treatment must be given.

3. Method of Examination

3.1 *Number of Growing Cycles*

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

3.1.2 The two independent growing cycles should be in the form of two separate cultivations.

3.1.3 The growing cycle is considered to be from spawn inoculation until the end of the first flush. Extension of the cultivation period can be requested by the applicant if the distinctness can only be demonstrated in the second and/or third flush.

3.2 *Testing Place*

Tests are normally conducted at one place. In the case of tests conducted at more than one place, guidance is provided in TGP/9 "Examining Distinctness".

3.3 *Conditions for Conducting the Examination*

The tests should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination.

3.4 *Test Design*

3.4.1 The design of the tests should be such that fruit bodies or parts of fruit bodies may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle.

3.4.2 Each test should be designed to result in a total of at least 90 fruit bodies in the first flush, which should be divided equally over 3 replicates. 45 fruit bodies should be collected at stage 2 and 45 fruit bodies should be collected at stage 5 (see chapter 8.3).

3.4.3 A minimum growing surface per strain of 1m² is advised in order to obtain sufficient fruiting bodies in both stages.

3.5 *Additional Tests*

Additional tests, for examining relevant characteristics, may be established.

4. Assessment of Distinctness, Uniformity and Stability

4.1 *Distinctness*

4.1.1 General Recommendations

It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding distinctness. However, the following points are provided for elaboration or emphasis in these Test Guidelines.

4.1.2 Consistent Differences

The differences observed between varieties may be so clear that more than one growing cycle is not necessary. In addition, in some circumstances, the influence of the environment is not such that more than a single growing cycle is required to provide assurance that the differences observed between varieties are sufficiently consistent. One means of ensuring that a difference in a characteristic, observed in a growing trial, is sufficiently consistent is to examine the characteristic in at least two independent growing cycles.

4.1.3 Clear Differences

Determining whether a difference between two varieties is clear depends on many factors, and should consider, in particular, the type of expression of the characteristic being examined, i.e. whether it is expressed in a qualitative, quantitative, or pseudo-qualitative manner. Therefore, it is important that users of these Test Guidelines are familiar with the recommendations contained in the General Introduction prior to making decisions regarding distinctness.

4.1.4 Number of fruit bodies or parts of fruit bodies to be Examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single fruit bodies should be made on 90 fruit bodies or parts of fruit bodies taken from each of 90 fruit bodies and any other observations made on all fruit bodies in the test, disregarding any off-type fruit bodies.

4.1.5 Method of Observation

The recommended method of observing the characteristic for the purposes of distinctness is indicated by the following key in the second column of the Table of Characteristics (see document TGP/9 "Examining Distinctness", Section 4 "Observation of characteristics"):

MG: single measurement of a group of fruit bodies or parts of fruit bodies

MS: measurement of a number of individual fruit bodies or parts of fruit bodies

VG: visual assessment by a single observation of a group of fruit bodies or parts of fruit bodies

VS: visual assessment by observation of individual fruit bodies or parts of fruit bodies

Type of observation: visual (V) or measurement (M)

"Visual" observation (V) is an observation made on the basis of the expert's judgment. For the purposes of this document, "visual" observation refers to the sensory observations of the experts and, therefore, also includes smell, taste and touch. Visual observation includes observations where the expert uses reference points (e.g. diagrams, example varieties, side-by-side comparison) or non-linear charts (e.g. color charts). Measurement (M) is an objective observation against a calibrated, linear scale e.g. using a ruler, weighing scales, colorimeter, dates, counts, etc.

Type of record: for a group of fruit bodies (G) or for single, individual fruit bodies (S)

For the purposes of distinctness, observations may be recorded as a single record for a group of fruit bodies or parts of fruit bodies (G), or may be recorded as records for a number of single, individual fruit bodies or parts of fruit bodies (S). In most cases, "G" provides a single record per variety and it is not possible or necessary to apply statistical methods in a fruit body-by-fruit body analysis for the assessment of distinctness.

In cases where more than one method of observing the characteristic is indicated in the Table of Characteristics (e.g. VG/MG), guidance on selecting an appropriate method is provided in document TGP/9, Section 4.2.

4.2 *Uniformity*

4.2.1 It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding uniformity. However, the following points are provided for elaboration or emphasis in these Test Guidelines:

4.2.2 For the assessment of uniformity of cross-pollinated varieties, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 90 fruit bodies, 3 off-types are allowed.

4.3 *Stability*

4.3.1 In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable.

4.3.2 Where appropriate, or in cases of doubt, stability may be further examined by testing a new stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied.

5. Grouping of Varieties and Organization of the Growing Trial

5.1 The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness are aided by the use of grouping characteristics.

5.2 Grouping characteristics are those in which the documented states of expression, even where produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctness; and (b) to organize the growing trial so that similar varieties are grouped together.

5.3 The following have been agreed as useful grouping characteristics:

- (a) Cap: color (characteristic 8)
- (b) Gills: color (characteristic 19)
- (c) Basidium: spores (characteristic 21)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction and document TGP/9 "Examining Distinctness".

6. Introduction to the Table of Characteristics

6.1 *Categories of Characteristics*

6.1.1 Standard Test Guidelines Characteristics

Standard Test Guidelines characteristics are those which are approved by UPOV for examination of DUS and from which members of the Union can select those suitable for their particular circumstances.

6.1.2 Asterisked Characteristics

Asterisked characteristics (denoted by *) are those included in the Test Guidelines which are important for the international harmonization of variety descriptions and should always be examined for DUS and included in the variety description by all members of the Union, except when the state of expression of a preceding characteristic or regional environmental conditions render this inappropriate.

6.2 *States of Expression and Corresponding Notes*

6.2.1 States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Each state of expression is allocated a corresponding numerical note for ease of recording of data and for the production and exchange of the description.

6.2.2 In the case of qualitative and pseudo-qualitative characteristics (see Chapter 6.3), all relevant states of expression are presented in the characteristic. However, in the case of quantitative characteristics with 5 or more states, an abbreviated scale may be used to minimize the size of the Table of Characteristics. For example, in the case of a quantitative characteristic with 9 states, the presentation of states of expression in the Test Guidelines may be abbreviated as follows:

<i>State</i>	<i>Note</i>
small	3
medium	5
large	7

However, it should be noted that all of the following 9 states of expression exist to describe varieties and should be used as appropriate:

<i>State</i>	<i>Note</i>
very small	1
very small to small	2
small	3
small to medium	4
medium	5
medium to large	6
large	7
large to very large	8
very large	9

6.2.3 Further explanation of the presentation of states of expression and notes is provided in document TGP/7 "Development of Test Guidelines".

6.3 *Types of Expression*

An explanation of the types of expression of characteristics (qualitative, quantitative and pseudo-qualitative) is provided in the General Introduction.

6.4 *Example Varieties*

Where appropriate, example varieties are provided to clarify the states of expression of each characteristic.

6.5 Legend

	English			français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1	2	3	4	5	6	7			
	Name of characteristics in English			Nom du caractère en français		Name des Merkmals auf Deutsch		Nombre del carácter en español	
	states of expression			types d'expression		Ausprägungsstufen		tipos de expresión	

- 1 Characteristic number
- 2 (*) Asterisked characteristic – see Chapter 6.1.2
- 3 Type of expression
 QL Qualitative characteristic – see Chapter 6.3
 QN Quantitative characteristic – see Chapter 6.3
 PQ Pseudo-qualitative characteristic – see Chapter 6.3
- 4 Method of observation (and type of plot, if applicable)
 MG, MS, VG, VS – see Chapter 4.1.5
- 5 (+) See Explanations on the Table of Characteristics in Chapter 8.2
- 6 (a)-(c) See Explanations on the Table of Characteristics in Chapter 8.1
- 7 Growth stage key See Explanations on the Table of Characteristics in Chapter 8

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

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1.	QN	VG	(+)				
	Mycelium: density		Mycélium : densité	Myzel: Dichte	Micelio: densidad		
	weak		faible	gering	débil	J10263	1
	medium		moyenne	mittel	media	Sylvan A15, Horronda	2
	strong		forte	stark	fuerte	Brawn, Heirloom	3
2.	QN	VG	(+)				
	Number of pins		Nombre de tiges	Anzahl Knoten	Número de primordios		
	few		petit	gering	bajo	Horronda	3
	medium		moyen	mittel	medio	Amycel 2400	5
	many		grand	groß	alto	Sylvan A15, Horwitu	7
3. (*)	QN	MG	(+)	2			
	Time of beginning of harvest		Époque de début de récolte	Zeitpunkt des Erntebeginns	Época de comienzo de la cosecha		
	early		précoce	früh	temprana	Brawn, Euromycel 30	3
	medium		moyenne	mittel	intermedia	Sylvan A15, Amycel 2400	5
	late		tardive	spät	tardía	Euromycel 58	7
4. (*)	QN	MG	(+)	2			
	Time of peak of first flush		Époque du pic de la première période de pousse	Zeitpunkt des Höhepunktes des ersten Austriebs	Momento álgido del primer brote		
	early		précoce	früh	temprano	Heirloom	3
	medium		moyenne	mittel	intermedio	Sylvan A15, Amycel 2400	5
	late		tardive	spät	tardío	Brawn, Euromycel 58	7

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
5. (*)	QN	MS/VG	(a), (c)		2			
	Stipe: length		Stipe : longueur		Stiel: Länge	Pie: longitud		
	short		court		kurz	corto	Brawn	3
	medium		moyen		mittel	mediano	Broncoh, Sylvan A15	5
	long		long		lang	largo	Amycel 2400, Horwitu	7
6. (*)	QN	MS/VG	(+)	(a)	2			
	Stipe: diameter		Stipe : diamètre		Stiel: Durchmesser	Pie: diámetro		
	narrow		petit		schmal	estrecho	Somycel 53	3
	medium		moyen		mittel	mediano	Brawn, Broncoh	5
	broad		grand		breit	ancho	Horronda	7
7. (*)	QN	MS/VG	(+)		2			
	Stipe: ratio length/diameter		Stipe : rapport longueur/diamètre		Stiel: Verhältnis Länge/Durchmesser	Pie: relación longitud/diámetro		
	low		petit		gering	baja	Brawn	3
	medium		moyen		mittel	media	Sylvan A15	5
	high		grand		hoch	alta	Somycel 53	7
8. (*)	PQ	VG			2			
	Cap: color		Chapeau : couleur		Hut: Farbe	Sombrero: color		
	white		blanc		weiß	blanco	Sylvan A15	1
	greyish white		blanc grisâtre		gräulichweiß	blanco grisáceo	Somycel 76	2
	brown		marron		braun	marrón	Amycel 2400	3

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
9. (*)	QN VG		2			
	<u>Only varieties with brown cap:</u> Cap: intensity of color	<u>Seulement les variétés à chapeau marron :</u> Chapeau : intensité de la couleur	<u>Nur Sorten mit braunem Hut:</u> Hut: Intensität der Farbe	<u>Solo variedades con sombrero marrón:</u> Sombrero: intensidad del color		
	very light	très claire	sehr hell	muy claro	Broncoh, J10263	1
	light	claire	hell	claro	Amycel 2400	3
	medium	moyenne	mittel	intermedio	Heirloom	5
	dark	foncée	dunkel	oscuro	Brawn	7
	very dark	très foncée	sehr dunkel	muy oscuro	BP-1	9
10.	QL VG	(+)	2			
	<u>Only varieties with brown cap:</u> Stipe: color	<u>Seulement les variétés à chapeau marron :</u> Stipe : couleur	<u>Nur Sorten mit braunem Hut:</u> Stiel: Farbe	<u>Solo variedades con sombrero marrón:</u> Pie: color		
	white	blanc	weiß	blanco	Brawn, Heirloom	1
	greyish white	blanc grisâtre	gräulichweiß	blanco grisáceo	Amycel 2400	2
11.	QL VG	(+)	2			
	Stipe: oxidation at cutting edge	Stipe : oxydation du bord coupé	Stiel: Oxidation an der Schnittkante	Pie: oxidación del borde de la superficie de corte		
	absent	absente	fehlend	ausente	Sylvan A15	1
	present	présente	vorhanden	presente	Somycel 53, Heirloom	9
12. (*)	QN MS/VG	(a), (c)	2			
	Cap: height	Chapeau : hauteur	Hut: Höhe	Sombrero: altura		
	short	court	niedrig	bajo	J10263	3
	medium	moyen	mittel	mediano	Brawn, Sylvan A15	5
	tall	haut	hoch	alto	Euromycel 58	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
13. (*)	QN MS/VG	(a), (c)	2			
	Cap: diameter	Chapeau : diamètre	Hut: Durchmesser	Sombrero: diámetro		
	small	petit	klein	pequeño	Horwitu	3
	medium	moyen	mittel	mediano	Broncoh	5
	large	grand	groß	grande	Sylvan A15, Heirloom	7
14. (*)	QN MS/VG	(+)	2			
	Cap: ratio height/diameter	Chapeau : rapport hauteur/diamètre	Hut: Verhältnis Höhe/Durchmesser	Sombrero: relación altura/diámetro		
	low	petit	gering	baja	Somycel 76	3
	medium	moyen	mittel	media	Broncoh, Sylvan A15	5
	high	grand	hoch	alta	Heirloom	7
15.	QL VG	(+)	2			
	<u>Only varieties with brown cap:</u> Cap: shade of scales compared to surface	<u>Seulement les variétés à chapeau marron :</u> Chapeau : ton des écailles par rapport à la surface	<u>Nur Sorten mit braunem Hut:</u> Hut: Schattierung der Schuppen im Vergleich zur Oberfläche	<u>Solo variedades con sombrero marrón:</u> Sombrero: tono de las escamas en comparación con la superficie		
	lighter	plus clair	heller	más claro	Amycel 2400, Heirloom	1
	darker	plus foncé	dunkler	más oscuro		9
16. (*)	QN MS/VG	(a), (c)	2			
	Cap: thickness in longitudinal section	Chapeau : épaisseur en section longitudinale	Hut: Dicke im Längsschnitt	Sombrero: grosor en sección longitudinal		
	thin	fin	dünn	delgado	J10263	3
	medium	moyen	mittel	medio	Broncoh, Horronda	5
	thick	épais	dick	grueso	Sylvan A15	7

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
17. (*)	QN	VG	(+)	2			
	Cap: scaling	Chapeau : écailles	Hut: Beschuppung	Sombrero: presencia de escamas			
	absent or very weak	absentes ou très peu nombreuses	fehlend oder sehr gering	nula o muy escasa	Somycel 53		1
	weak	peu nombreuses	gering	escasa	Horwitu		3
	medium	moyennement nombreuses	mittel	mediana	Horronda, Heirloom		5
	strong	nombreuses	stark	abundante	Somycel 76		7
	very strong	très nombreuses	sehr stark	muy abundante	Broncoh		9
18.	QN	VG	(+)	2			
	Cap: thickness of veil	Chapeau : épaisseur du voile	Hut: Dicke des Velums	Sombrero: grosor del velo			
	thin	fin	dünn	delgado	J10263		1
	medium	moyen	mittel	medio			2
	thick	épais	dick	grueso	Sylvan A15, Horronda		3
19. (*)	PQ	VG		3			
	Gills: color	Lamelles : couleur	Lamellen: Farbe	Laminillas: color			
	pink	rose	pink	rosa	BP-1		1
	light brown	marron clair	hellbraun	marrón claro	Horwitu, Horronda		2
	dark brown	marron foncé	dunkelbraun	marrón oscuro	Broncoh		3
20.	QL	VG	(+)	3			
	<u>Only varieties with brown cap: Veil: annulus color</u>	<u>Seulement les variétés à chapeau marron : Voile : couleur de l'anneau</u>	<u>Nur Sorten mit braunem Hut: Velum: Farbe der Manschette</u>	<u>Solo variedades con sombrero marrón: Velo: color del anillo</u>			
	white	blanc	weiß	blanco	Amycel 2400, Sylvan 800		1
	brown	marron	braun	marrón	Brawn, Heirloom		2

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
21. (*)	QL	VG	(+)	3			
	Basidium: spores		Basidiome : spores	Basidie: Sporen	Basidio: esporas		
	absent		absentes	fehlend	ausentes	J10263	1
	present		présentes	vorhanden	presentes	Sylvan A15	9
22.	QN	MG		4			
	Time of cap opening		Époque d'ouverture du chapeau	Zeitpunkt der Hutöffnung	Época de apertura del sombrero		
	early		précoce	früh	temprana	Horwitu	3
	medium		moyenne	mittel	intermedia	Sylvan A15, Amycel 2400	5
	late		tardive	spät	tardía	Brawn, Heirloom	7
23. (*)	QN	VG	(b)	5			
	Open cap: stipe distance from base to annulus		Chapeau ouvert : Stipe : distance de la base à l'anneau	Offener Hut: Stielabstand von Basis zu Manschette	Sombrero abierto: distancia desde la base del pie al anillo		
	short		courte	niedrig	corta	Amycel 2400	3
	medium		moyenne	mittel	mediana	Broncoh	5
	long		longue	lang	larga	Horwitu	7
24. (*)	QN	MS/VG	(b)	5			
	Open cap: diameter		Chapeau ouvert : diamètre	Offener Hut: Durchmesser	Sombrero abierto: diámetro		
	small		petit	klein	pequeño	Horwitu	3
	medium		moyen	mittel	mediano	Broncoh, Sylvan A15	5
	large		grand	groß	grande	Amycel 2400, Heirloom	7

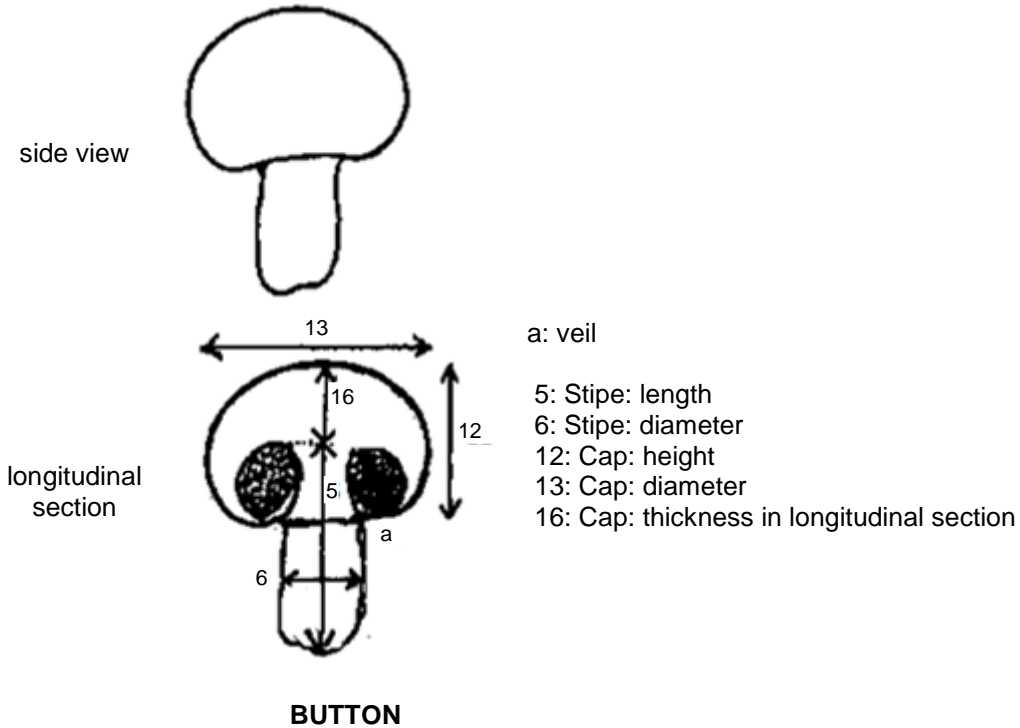
	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
25. (*)	QN	MS/VG	(b)	5			
	Open cap: thickness	Chapeau ouvert : épaisseur	Offener Hut: Dicke	Sombrero abierto: grosor			
	thin	fin	dünn	delgado		J10263	3
	medium	moyen	mittel	medio		Sylvan A15, Horwitu	5
	thick	épais	dick	grueso		Brawn, Heirloom	7
26. (*)	QN	VG	(+)	5			
	Open cap: fraying of margin	Chapeau ouvert : effilochage du bord	Offener Hut: Ausfransen des Randes	Sombrero abierto: deshilachado del borde			
	absent or weak	absent ou faible	fehlend oder gering	ausente o leve		Amycel 2400, J10263	1
	moderate	modéré	mäßig	moderado		Broncoh, Horwitu	2
	strong	prononcé	stark	intenso		ML0406	3
27. (*)	PQ	VG	(+)	5			
	Open cap: shape of central part of upper side	Chapeau ouvert : forme de la partie centrale de la face supérieure	Offener Hut: Form des mittleren Teils der Oberseite	Sombrero abierto: forma de la parte central de la cara superior			
	rounded	arrondie	abgerundet	redondeada		Euromycel 58, ML1496	1
	plane	plane	eben	plana		Heirloom	2
	depressed	déprimée	eingesenkt	deprimida		Broncoh	3

8. Explanations on the Table of Characteristics

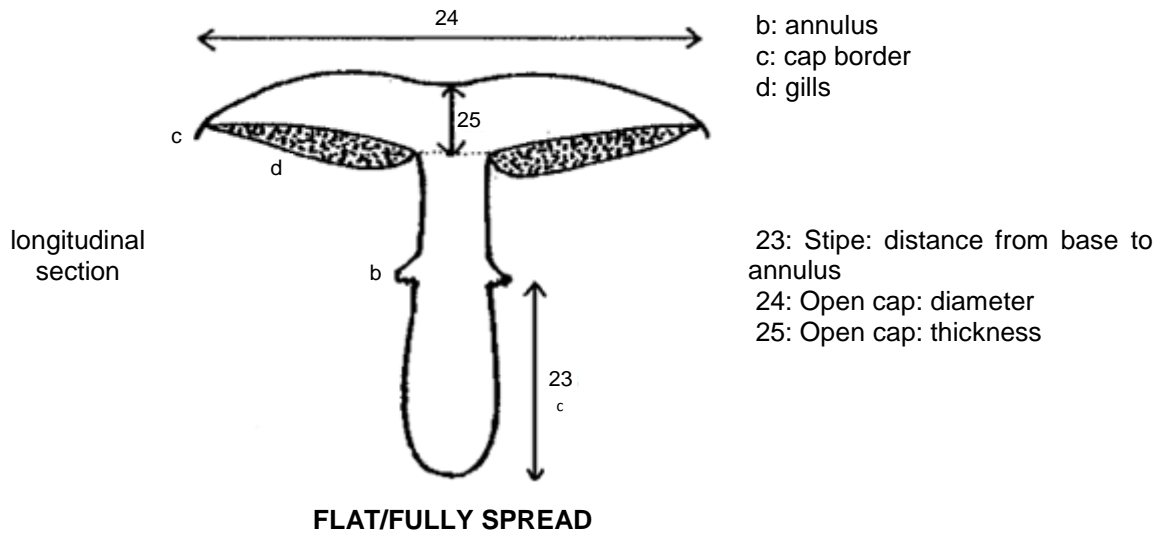
8.1 *Explanations covering several characteristics*

Characteristics containing the following key in the second column of the Table of Characteristics should be examined as indicated below:

(a)



(b)



(c) The fruit bodies observed at growth stage 2 should be cut longitudinally.

8.2 Explanations for individual characteristics

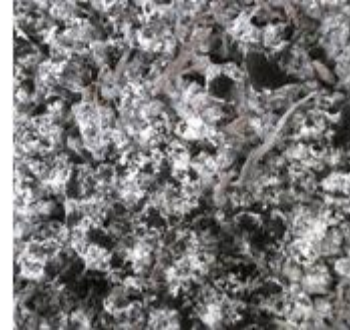
Ad. 1: Mycelium: density



1
weak



2
medium



3
strong

Ad. 2: Number of pins

A pin is a young primordial fruit body. The number of pins larger than 3 mm is visually observed 4 days after aeration.

Ad. 3: Time of beginning of harvest

The time of beginning of harvest is reached when more than 5 fruit bodies in the first flush have reached growth stage 2.

Ad. 4: Time of peak of first flush

The dates of harvest of fruit bodies at growth stage 2 are recorded. The time of the peak of the first flush is the time at which the largest number of fruit bodies is harvested.

Ad. 6: Stipe: diameter

To be observed in the middle of the stipe.

Ad. 7: Stipe: ratio length/diameter



3
low



5
medium



7
high

Ad. 10: Only varieties with brown cap: Stipe: color

The stipe color is observed at harvest.

Ad. 11: Stipe: oxidation at cutting edge

The stipes are cut transversally in the middle. Oxidation of the cutting edge should be observed 2 to 10 minutes after cutting.



Ad. 14: Cap: ratio height/diameter



3
low



5
medium

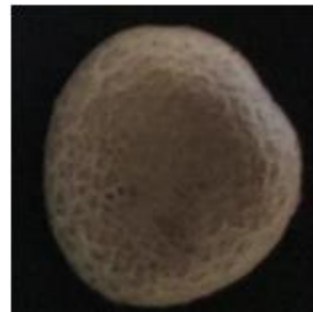


7
high

Ad. 15: Only varieties with brown cap: Cap: shade of scales compared to surface



1
lighter



9
darker

Ad. 17: Cap: scaling



1
absent or very weak



3
weak



5
medium



7
strong

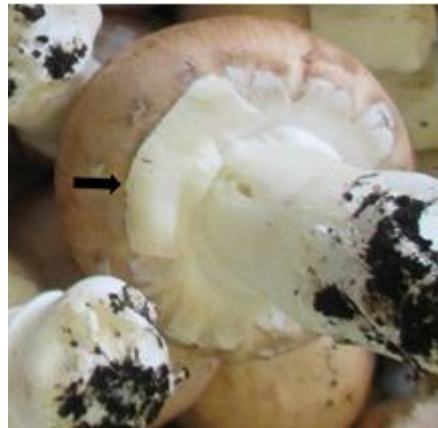


9
very strong

Ad. 18: Cap: thickness of veil



1
thin



3
thick

Ad. 20: Only varieties with brown cap: Veil: annulus color



1
white



2
brown

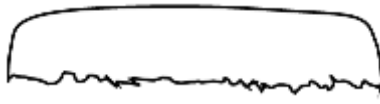
Ad. 21: Basidium: spores

To be observed by making a sporeprint according to the methodology described by Singer (1986). If spores are formed, a sporeprint can be obtained by allowing a stage 3 fruiting body to ripen at room temperature above a sheet of white paper, which is placed below the gills. Spores of a fungal body fall onto the surface of the paper underneath. Presence of spores is revealed after two days, when a clear black-brown print on the paper has been obtained.

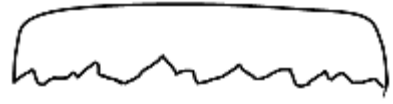
Ad. 26: Open cap: fraying of margin



1
absent or weak



2
moderate

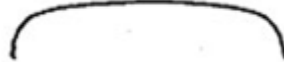


3
strong

Ad. 27: Open cap: shape of central part of upper side



1
rounded



2
plane

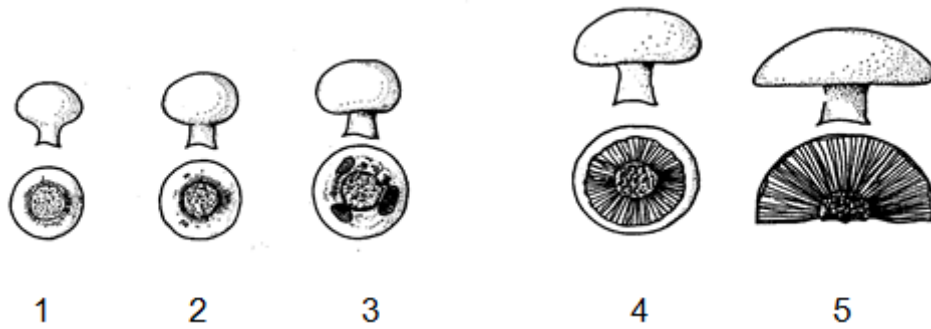


3
depressed

8.3

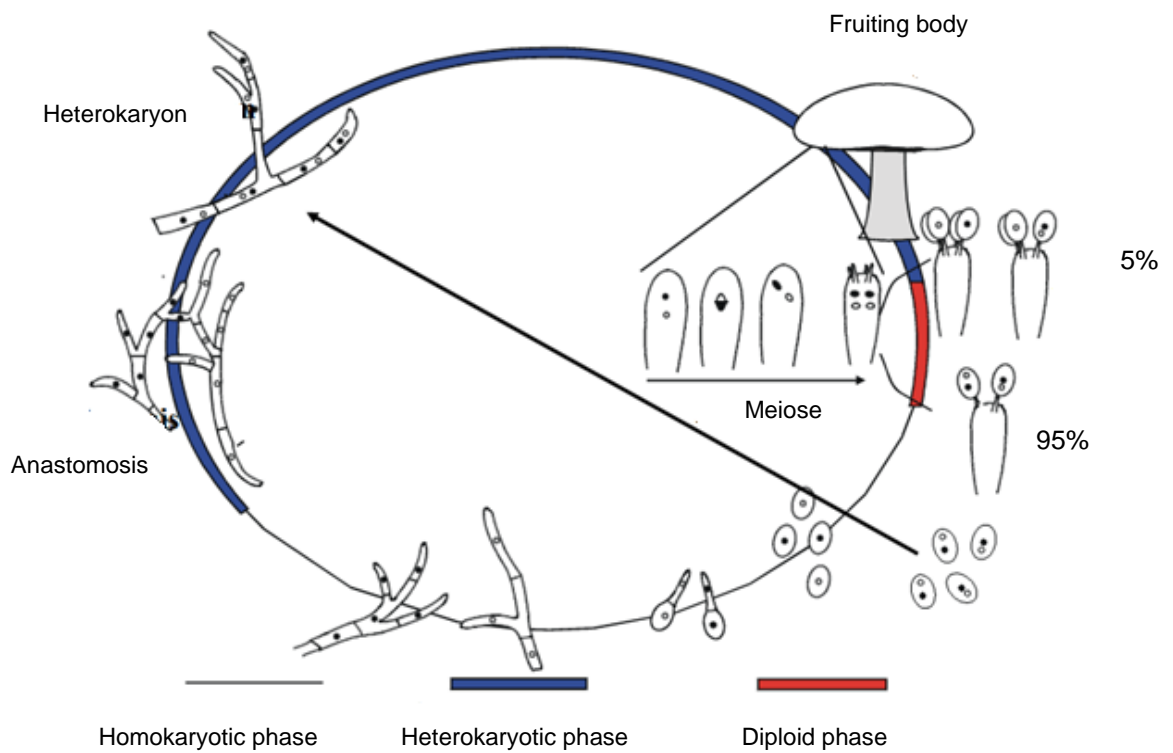
Growth Stages and life cycle of *Agaricus bisporus*

Growth Stages



- Explanation:
- 1, 2 and 3 - button stage
 - 1 and 2 - veil closed
 - 3 - veil breaking
 - 4 - opening/gills visible
 - 5 - fully open/flat stage

Life cycle of *Agaricus bisporus*



9. Literature

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10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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	Application date: (not to be filled in by the applicant)
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TECHNICAL QUESTIONNAIRE
to be completed in connection with an application for plant breeders' rights

1.	Subject of the Technical Questionnaire	
1.1	Botanical name	<input type="text" value="Agaricus bisporus (Lange.) Sing."/>
1.2	Common name	<input type="text" value="Agaricus"/>
2.	Applicant	
	Name	<input type="text"/>
	Address	<input type="text"/>
	Telephone No.	<input type="text"/>
	Fax No.	<input type="text"/>
	E-mail address	<input type="text"/>
	Breeder (if different from applicant)	<input type="text"/>
3.	Proposed denomination and breeder's reference	
	Proposed denomination (if available)	<input type="text"/>
	Breeder's reference	<input type="text"/>

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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#4. Information on the breeding scheme and propagation of the variety

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

(a) controlled cross []
(please state parent varieties)

(b) partially known cross []
(please state known parent variety(ies))

(c) unknown cross []

4.1.2 Mutation []
(please state parent variety)

4.1.3 Discovery and development []
(please state where and when discovered and how developed)

4.1.4 Other []
(please provide details)

Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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4.2	Method of propagating the variety	
4.2.1	Vegetative propagation	
(a)	<i>In vitro</i> propagation	[]
(b)	Other (state method)	[]
	<input type="text"/>	
4.2.2	Other (Please provide details)	[]
	<input type="text"/>	

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).

Characteristics	Example Varieties	Note
5.1 Time of peak of first flush (4)		
very early		1 []
very early to early		2 []
early	Heirloom	3 []
early to medium		4 []
medium	Amycel 2400, Sylvan A15	5 []
medium to lated		6 []
late	Brawn, Euromycel 58	7 []
late to very late		8 []
very late		9 []
5.2 Cap: color (8)		
white	Sylvan A15	1 []
greyish white	Somycel 76	2 []
brown	Amycel 2400	3 []
5.3 Cap: diameter (13)		
very small		1 []
very small to small		2 []
small	Horwitu	3 []
small to medium		4 []
medium	Broncoh	5 []
medium to large		6 []
large	Heirloom, Sylvan A15	7 []
large to very large		8 []
very large		9 []
5.4 Gills: color (19)		
pink	BP-1	1 []
light brown	Horronda, Horwitu	2 []
dark brown	Broncoh	3 []
5.5 Basidium: spores (21)		
absent	J10263	1 []
present	Sylvan A15	9 []

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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6. Similar varieties and differences from these varieties

Please use the following table and box for comments to provide information on how your candidate variety differs from the variety (or varieties) which, to the best of your knowledge, is (or are) most similar. This information may help the examination authority to conduct its examination of distinctness in a more efficient way.

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the similar variety(ies)	Describe the expression of the characteristic(s) for your candidate variety
<i>Example</i>	<i>Cap: color</i>	<i>greyish white</i>	<i>brown</i>

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Comments:

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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#7.	Additional information which may help in the examination of the variety	
7.1	In addition to the information provided in sections 5 and 6, are there any additional characteristics which may help to distinguish the variety?	
	Yes []	No []
	(If yes, please provide details)	
7.2	Are there any special conditions for growing the variety or conducting the examination?	
	Yes []	No []
	(If yes, please provide details)	
7.3	Other information	

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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8. Authorization for release

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

Yes [] No []

(b) Has such authorization been obtained?

Yes [] No []

If the answer to (b) is yes, please attach a copy of the authorization.

9. Information on material to be examined or submitted for examination

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 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 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 material to be examined has been subjected to:

(a) Microorganisms (e.g. virus, bacteria, phytoplasma)	Yes []	No []
(b) Chemical treatment (e.g. growth retardant, pesticide)	Yes []	No []
(c) Tissue culture	Yes []	No []
(d) Other factors	Yes []	No []

Please provide details for where you have indicated "yes".

.....

10. I hereby declare that, to the best of my knowledge, the information provided in this form is correct:

Applicant's name

Signature Date

[End of document]