

UPOV

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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

AGARICUS MUSHROOM *

UPOV Code: AGARI_ARV;
AGARI_BIS; AGARI_BIT*Agaricus arvensis* Schaeff.,
Agaricus bisporus (J.E. Lange) Imbach,
Agaricus bitorquis (Quel.) Sacc.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

*prepared by an expert from the European Community**to be considered by the
Technical Working Party for Vegetables
at its forty-third session, to be held in Beijing, from April 20 to 24, 2009*

Alternative Names: *

<i>Latin</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Agaricus arvensis</i> L., <i>Agaricus bisporus</i> L., <i>Agaricus bitorquis</i> L.	Agaricus Mushroom, Mushroom, Button Mushroom	Agaric des jachères, Champignon de Paris, Agaric des trottoirs	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 arvensis* L., *Agaricus bisporus* L., *Agaricus bitorquis* L. and other of the genus *Agaricus*.

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 as a pure culture on a suitable medium.

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

1 litre of spawn or 2 slant tubes containing a pure culture

2.4 If spawn is delivered it should be of a quality which ensures that all relevant characteristics of the variety will be expressed. In particular, mycelium on grain should be visible to the naked eye, the grain should not be colonized to such an extent that kernels stick together. The spawn should not be older than 6 months and having been stored under proper conditions (i.e. 2-4 °C).

2.5 If pure cultures are delivered, they must be shipped on slant agar tubes with appropriate medium such as PDA (peptose dextrose agar) or Malt extract agar. Tubes should be covered by cotton plugs or plastic caps allowing sterile air diffusion. Cultures should be fresh, i.e. not stored for longer than 2 weeks at low temperature.

2.6 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*

The minimum duration of tests should normally be two independent growing cycles. (see also: Additional information: Life cycle of *Agaricus* in Chapter 8.3)

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*

3.3.1 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.

3.3.2 The recommended method of observing the characteristic is indicated by the following key in the second column of the Table of Characteristics:

MG: single measurement of a group of plants or parts of plants

MS: measurement of a number of individual plants or parts of plants

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

VS: visual assessment by observation of individual plants or parts of plants.

3.4 *Test Design*

3.4.1 Each test should be designed to result in a total of at least 120 fruit bodies, which should preferably be divided between 6 replicates.

3.4.2 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.

3.5 *Number of Fruit Bodies / Parts of Fruit Bodies to be Examined*

Unless otherwise indicated, all observations should be made on 20 fruit bodies or parts taken from each of 20 fruit bodies per replicate.

3.6 *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.

4.2 *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, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 120 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 tested, either by growing a further generation, or by testing a new stock to ensure that it exhibits the same characteristics as those shown by the previous 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) Stipe: shape in longitudinal section (characteristic 5)
- (b) Cap: shape in longitudinal section (characteristic 11)
- (c) Cap: color (characteristic 14)
- (d) Open Cap: shape of central part of upper side (characteristic 19)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction.

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*

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.

6.3 *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*

(*) Asterisk characteristic – see Chapter 6.1.2

QL: Qualitative characteristic – see Chapter 6.3

QN: Quantitative characteristic – see Chapter 6.3

PQ: Pseudo-qualitative characteristic – see Chapter 6.3

MG, MS, VG, VS: See Chapter 3.3.2

(a)–(c) See Explanations on the Table of Characteristics in Chapter 8.1

(+) See Explanations on the Table of Characteristics in Chapter 8.2.

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

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
1. MG	Basidium: average number of spores					
(*)						
(+)						
QN	(b)	predominantly two			Broncoh, Horronda, Horwitu	2
		between 2 and 4				3
		predominantly four			Horbita, Horvensis	4
2. VG/ MS	Stipe: length					
(+)						
QN	(a)	short			Horwitu, Le Lion C9	3
		medium			Broncoh, Sylvan A15, Sylvan 737	5
		long			Somycel 53, Sylvan 512	7
3. VG/ MS	Stipe: diameter					
(+)						
QN	(a)	narrow			Somycel 91	3
		medium			Broncoh, Sylvan 512	5
		broad			Horronda, Horwitu, Le Lion C9, Sylvan A15, Sylvan 737	7
4. VG/ MS	Stipe: ratio length/diameter					
(+)						
QN	(a)	small				3
		medium			Le Lion C9, Sylvan A15, Sylvan 737	5
		large			Broncoh	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
5.	VG/ MS					
(*)	Stipe: shape in longitudinal section					
(+)						
QN	(a) rectangular				Horronda, Horvensis, Sylvan A15, Sylvan 737	1
	trapezoid				Horwitu	2
	bulbous					3
6.	VG					
(+)	Stipe: swollen base					
QN	(a) absent or very weak				Horronda	<u>1</u>
	weak					<u>3</u>
	medium					<u>5</u>
	strong					<u>7</u>
7.	VG					
(+)	Stipe: distance from base to veil remnant ring					
QN	(a) short				Le Lion C9	3
	medium				Broncoh, Horbita	5
	long				Horvensis	7
8.	VG/ MS					
(+)	Cap: height					
QN	(a) short					3
	medium				Broncoh, Sylvan A15, Sylvan 737	5
	tall				Sylvan 512, Sylvan 608	7
9.	VG/ MS					
(+)	Cap: diameter					
QN	(a) small				Commissaris Cremers	3
	medium				Broncoh, Sylvan 512	5
	large				Horronda, Sylvan A15, Sylvan 737	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
10.	VG/ MS	Cap: ratio height/diameter				
QN	(a)	small			Le Lion C9	3
		medium			Broncoh, Sylvan A15, Sylvan 737	5
		large			Sylvan 512	7
11.	VG	Cap: shape in longitudinal section				
(*)	(+)					
PQ	(a)	obovate			Horvensis	1
		circular			Commissaris Cremers, Horronda, Sylvan 512	2
		oblate			Broncoh, Horwitu, Sylvan A15, Sylvan 737	3
12.	VG/ MS	Cap: thickness in longitudinal section				
(+)						
QN	(a)	thin				3
		medium			Broncoh, Horronda	5
		thick			Commissaris Cremers, Sylvan A15, Sylvan 737	7
13.	VG	Cap: scaling				
(+)						
QN	(a)	absent or very low			Somycel 91, Royal 70, Royal 75	1
		low			Horronda, Le LionX13, Royal 24A, Sylvan 512	3
		medium			Horwitu	5
		high				7
		very high				9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
14.	VG					
	Cap: color					
	(*)					
PQ	(a)	white			Royal 75, Somycel 91, Sylvan A15, Sylvan 737, Sylvan 608	1
		yellowish white			Horvensis	2
		greyish white			Sylvan 512	3
		brown			B, 81, Broncoh, Le Lion C9, Sylvan 856	4
15.	VG					
	Gills: color at time of breaking of the veil					
	(+)					
PQ	(a)	orange			Horvensis	1
		light brown			Horronda, Horwitu	2
		dark brown			Broncoh	3
16.	MS	Open Cap: diameter				
	(+)					
QN	(b)	small			Le Lion X13, Royal 75	3
		medium			Royal 20A, Sylvan 512	5
		large			Broncoh, Sylvan A15, Sylvan 737	7
17.	MS	Open Cap: thickness				
	(+)					
QN	(b)	thin				3
		medium			Broncoh, Horwitu, Le Lion X13	5
		thick			Somycel 205, Sylvan A15, Sylvan 737	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
18.	VG					
(*)	Open Cap: margin					
(+)						
QN	(b) not frayed				Le Lion C9, Royal 26A	1 3
	partly frayed				Broncoh, Horwitu, Somycel 205	2 5
	frayed				Horronda	3 7
19.	VG					
(*)	Open Cap: shape of					
(+)	central part of					
	upper side					
QN	(b) rounded				Sylvan 512	1
	flat				Sylvan A15	2
	depressed				Broncoh	3
20.	VG					
(+)	Discoloration of					
	surface after					
	rubbing					
QN	(a) weak				Broncoh	3
	medium				Horbita, Sylvan A15, Sylvan 737, Sylvan 512	5
	strong					7
21.	MG					
	Flushing pattern:					
	time of first day of					
	harvest					
QN	(c) early				Euromycel 30	3
	medium				Le Lion C9	5
	late					7
22.	MG					
	Flushing pattern:					
	time of peak of first					
	flush					
QN	early				Euromycel 30	3
	medium				Le Lion C9	5
	late					7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
23. VG	Resistance to					
(+)	<i>Verticillium</i>					
	<i>fungicola</i> var.					
	<i>fungicola</i>					
QN	susceptible				Sylvan A15	1
	intermediate resistant				Le Lion C9	2
	resistant					3

8. Explanations on the Table of Characteristics

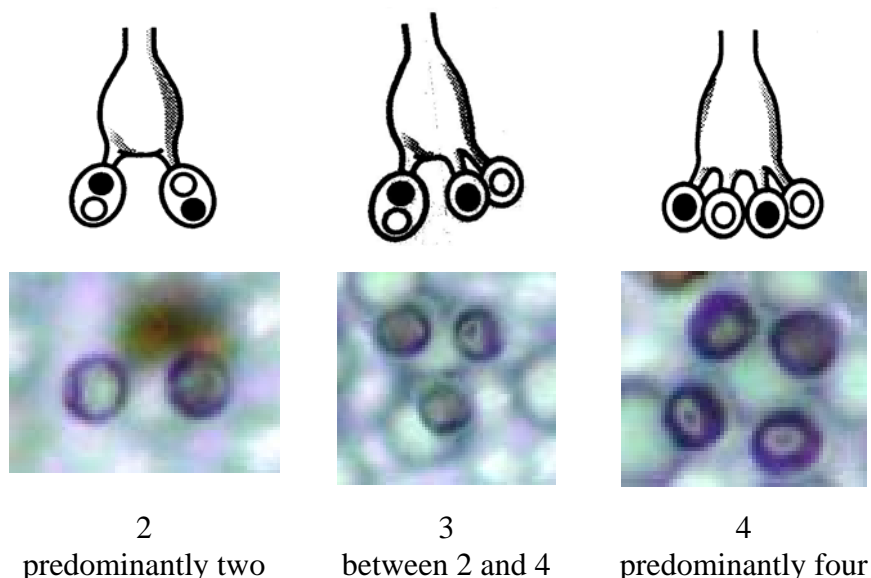
8.1 *Explanations covering several characteristics*

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

- (a) Stipe, cap and gills: Unless otherwise indicated, all characteristics of the fruit bodies, the cap, the stipe and the gills should be recorded at harvest maturity (button stage 1, 2 and 3 [see annex page] hand picked mushrooms; freshly harvested).
- (b) Open cap: The characteristics of the open cap should be recorded as soon as the cap is fully spread (and not postponed until later date). Records should preferably be made from first and second flush; the third flush may give some additional information.
- (c) Flushing pattern: To be expressed in term of number of days after casing. Varieties harvested less than 19 days after casing can be considered as early, and those more than 22 days after casing can be considered as late.

8.2 *Explanations for individual characteristics*

Ad. 1: Basidium: average number of spores



The average number of spores per basidium (or ASN) is calculated as follows:

$$\text{ASN} = (300 + \text{TSC} - \text{BSC}) / 100,$$

Where BSC is the percentage of bisporic basidia and TSC is the percentage of tetrasporic basidia. BSC and TSC are based on counts of basidia on lamellar surface of fresh material on dry mount under light microscope (x400).

Preponderantly bisporic strains have an ASN value of predominately two (<2.5).

Preponderantly tetrasporic strains have an ASN value of predominately four (>3.5). In cases where the ASN value falls between 2.5 and 3.5, the predominantly bisporic trait (ASN <2.5)

would better correspond to strains that do not bear major genetic determinants of the tetrasporic trait, deriving from the tetrasporic botanical varieties.

Ad. 2: Stipe: length

Ad. 3: Stipe: diameter

Ad. 7: Stipe: distance from base to veil remnant ring

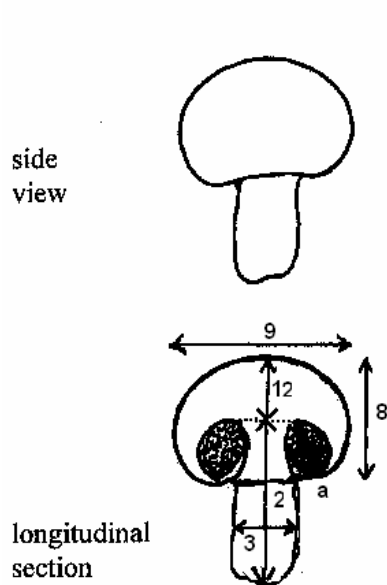
Ad. 8: Cap: height

Ad. 9: Cap: diameter

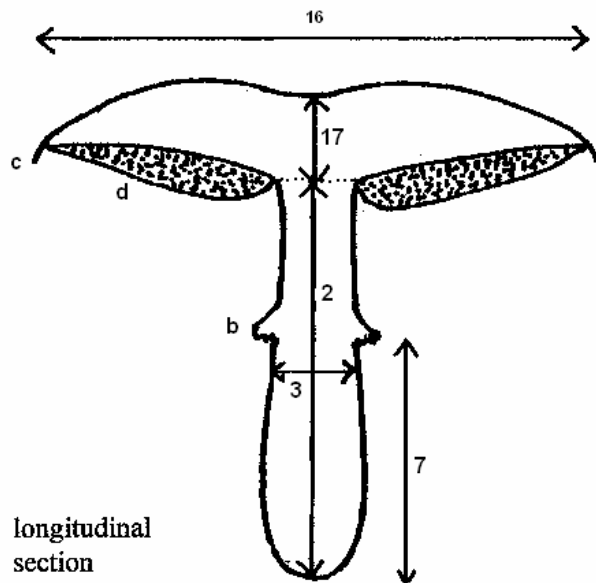
Ad. 12: Cap: thickness in longitudinal section

Ad. 16: Open Cap: diameter

Ad. 17: Open Cap: thickness



BUTTON



FLAT / FULLY SPREAD

Explanation:

2: Stipe: length

3: Stipe: diameter

7: Stipe: distance from base to veil remnant ring

8: Cap: height

9: Cap: diameter

12: Cap: thickness in longitudinal section

16: Open cap: diameter

18: Open cap: thickness

a: veil

b: veil remnant ring

c: cap border

d: gills

Ad. 5: Stipe: shape in longitudinal section



1
rectangular



2
trapezoidal



3
bulbous

Ad. 6: Stipe: swollen base



1
absent or very weak

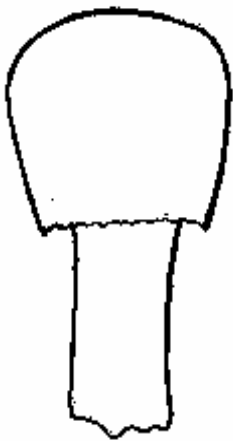


3
weak

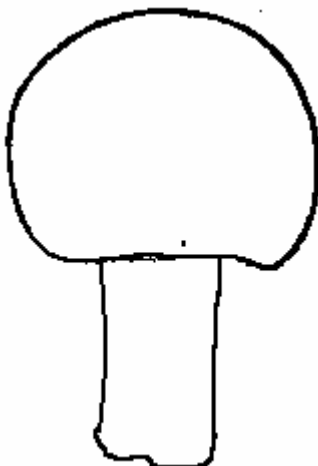
5
medium

7
strong

Ad. 11: Cap: shape in longitudinal section



1
obovate



2
circular



3
oblate

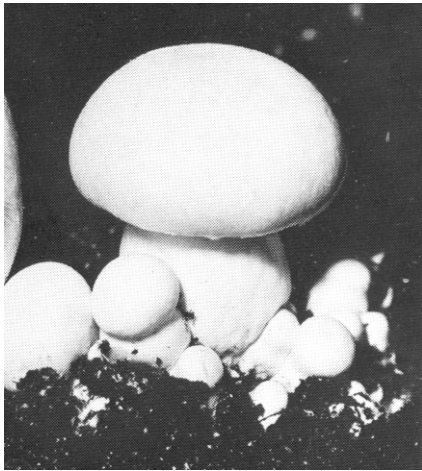
Ad. 13: Cap: scaling

The relative humidity has to be 85-88%. Too low a relative humidity combined with high air speed leads to scale formation on the cap; the formation of scales means that the mycelium has broken and if growing conditions become favorable once more, bacterial contamination can appear.

Scaliness is a trait that can vary according to:

- stage: button stage is smoother than older stages, so the best stage for observation is stage 2 (veil closed);
- environmental conditions: the trait is longer when relative humidity is low or air speed is too high (except if scales are absent – i.e. for smooth hybrids), so conditions to meet for the observation are those of production (RH: 90-95%);
- flushes: the first flush is more scaly than the second and third ones (except if scales are absent – i.e. for smooth hybrids), so the observation should be done at least for the first flush.

It should be noted that the side of the cap is more scaly than the top.



1
absent of very low



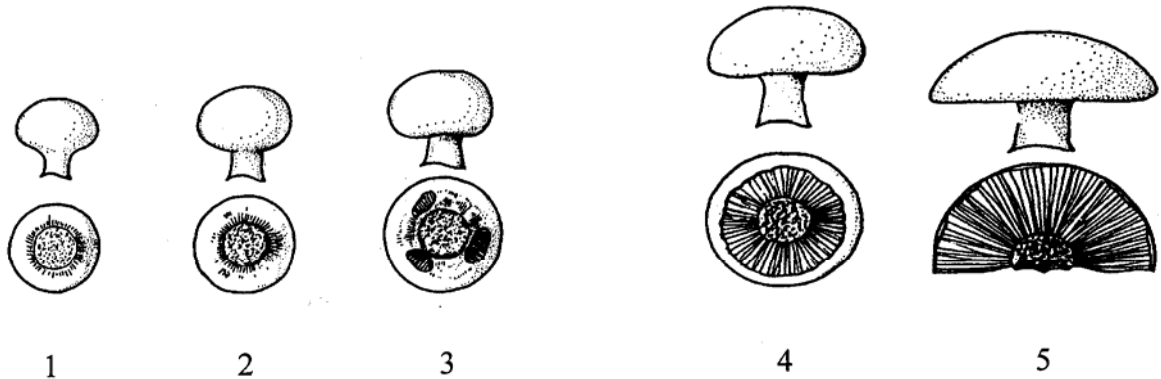
9
very high

Ad. 15: Gills: color at time of breaking of the veil

Ad. 18: Open Cap: margin

Characteristic 15 should be observed at veil breaking and not after, since otherwise all spores will become brown.

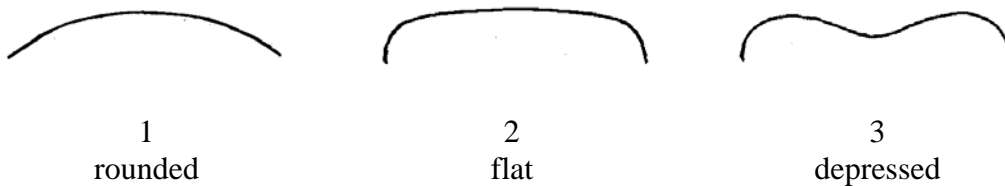
Characteristic 18 should be observed when the cap opens. One part of the veils remain attached on the cap border, and another part attached to the stipe. The way the veil breaks and remains attached to the cap and/or the stipe is responsible for the appearance of the margin.



Explanation: 1, 2 and 3 - button stage
 1 and 2 - veil closed
 3 - veil breaking

4 - opening / gills visible
 5 - fully open / flat stage

Ad. 19: Open Cap: shape of central part of upper side



Ad. 20: Discoloration of surface after rubbing

Should be observed before the breaking of the veil, 10 minutes after rubbing 10 mushrooms

Ad. 23: Resistance to *Verticillium fungicola* var. *fungicola*

The fungal pathogen (*Verticillium fungicola* = *Lecanicillium fungicola*) affects the morphogenesis of fruiting bodies in its fungal host.

Infection is manifested in three types of symptoms, (i) an undifferentiated, non-necrotic spherical mass (dry bubble) in place of the sporophore, (ii) mushrooms with a bent and/or split stipe (blowout) and (iii) superficial cinnamon-brown lesions of the mushroom cap (spotty cap)

Sometimes, diseased mushrooms of morphology between bubble and stipe blowout exhibiting abortive lamellae are observed. Sporophores with stipe blowout can show both healthy-looking and diseased parts, mature and abortive lamellae. Tissue discoloration is currently observed but it does not affect some diseased mushrooms.

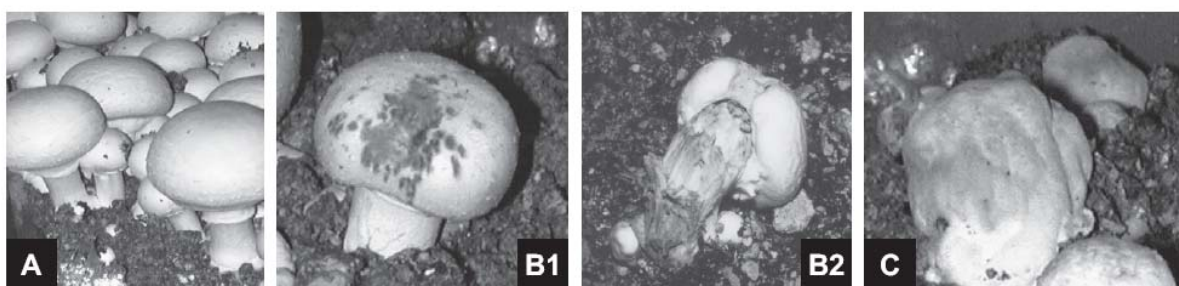


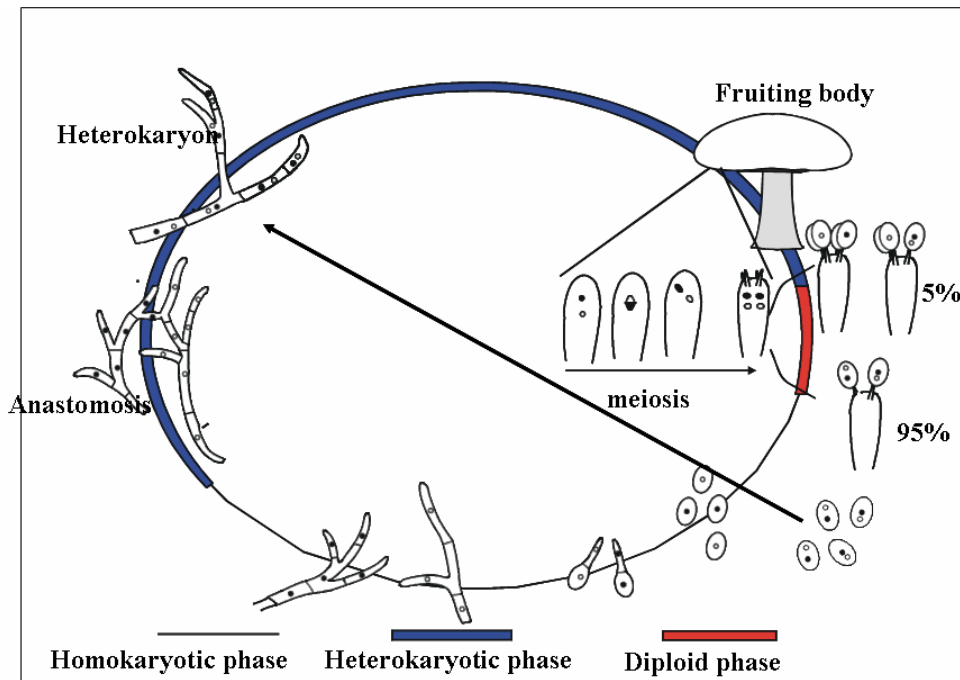
Fig 1 – Fruit-bodies assigned to the three groups defined at harvest. (A) Healthy-looking sporophore, (B) diseased sporophores (B1: spotty cap, B2: stipe blowout), (C) bubble.

Resistance tests:

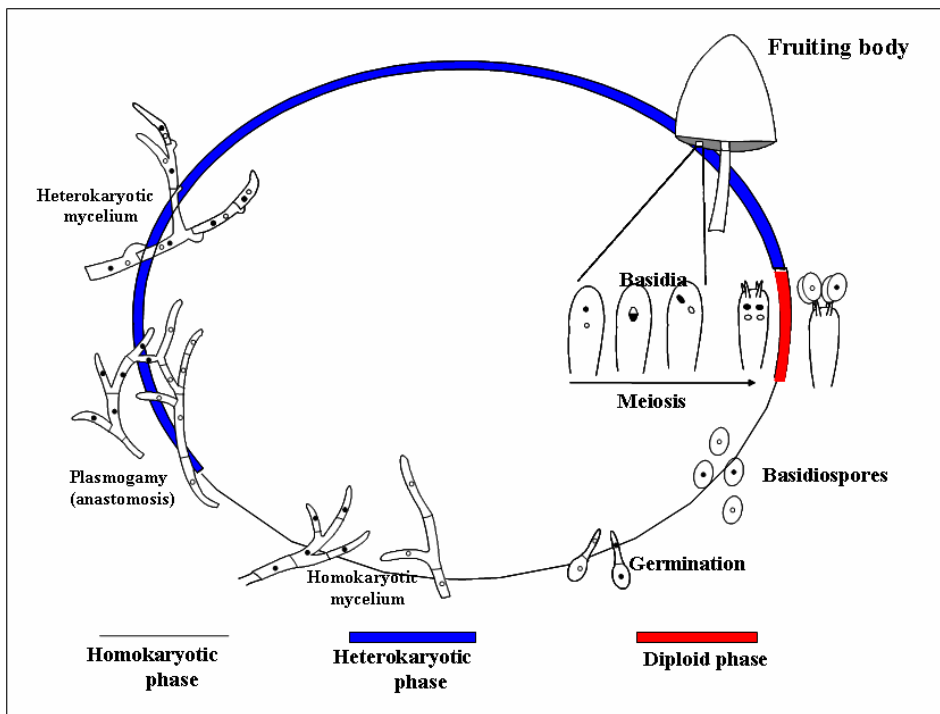
Nine days after casing, temperature in the cultivation room is decreased to 16 °C. A conidial suspension of *V. fungicola* is prepared using three-week-old cultures on malt-agar medium and sprayed on the top of the casing layer 11 days after casing at a concentration of 10^6 conidia per m^2 [10]. Mushrooms are harvested for 4 weeks and the weights and numbers of healthy or affected mushrooms are recorded. The level of resistance is quantified as the percentage of the harvested mushrooms that present symptoms.

A strain of *Agaricus* having a significant level of resistance to *V. fungicola* is a strain in which the outcome of the interactions with the pathogen was less frequently the development of a dry bubble in place of a normal fruit body than in a strain with a higher susceptibility level.

8.3 Additional information: Life cycle of *Agaricus bisporus* L.



Life cycle of *Agaricus bisporus* var. *bisporus* L.



Life cycle of *Agaricus bitorquis* L.

9. Literature

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Vooren, J.G. van de, Polder, G. & Heijden, G.W.A.M. van der, 1992: Identification of Mushroom Cultivars Using Image Analysis. *Transactions of the ASAE* 35-1: 347-350.

10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
		Application date: (not to be filled in by the applicant)
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 arvensis Schaeff.
Agaricus bisporus (J.E. Lange) Imbach
Agaricus bitorquis (Quel.) Sacc.
Other (please state)"/>	
1.2 Common Name	<input type="text" value="Agaricus Mushroom"/>	
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"/>	

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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)

4.2 Method of propagating the variety

4.2.1 Vegetative propagation

(a) cuttings

(b) *in vitro* propagation

(c) other (state method)

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

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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 Basidium: average number of spores (1)		
predominantly two	Broncoh, Horronda, Horwitu	2[]
between 2 and 4		3[]
predominantly four	Horbita, Horvensis	4[]
5.2 Stipe: shape in longitudinal section (5)		
rectangular	Horronda, Horvensis, Sylvan A15, Sylvan 737	1[]
trapezoid	Horwitu	2[]
bulbous		3 []
5.3 Cap: shape in longitudinal section (11)		
obovate	Horvensis	1[]
circular	Commissaris Cremers, Horronda, Sylvan 512	2[]
oblate	Broncoh, Horwitu, Sylvan A15, Sylvan 737	3[]
5.4 Cap: color (14)		
white	Royal 75, Somycel 91, Sylvan A15, Sylvan 737, Sylvan 608	1[]
yellowish white	Horvensis	2[]
greyish white	Sylvan 512	3[]
brown	B, 81, Broncoh, Le Lion C9, Sylvan 856	4[]

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Characteristics	Example Varieties	Note
5.5 (19) Open Cap: shape of central part of upper side		
rounded	Sylvan 512	1[]
flat	Sylvan A15	2[]
depressed	Broncoh	3[]

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
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<i>Example</i>	<i>[to be provided]</i>
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Comments:

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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 Resistance to pests and diseases

	susceptible	intermediate resistance	resistant	not tested
a) Resistance to <i>Verticillium fungicola</i> var. <i>fungicola</i>	[]	[]	[]	[]

b) Other (please specify)

7.4 Other information

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.

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

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9. Information on plant 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 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 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".

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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]