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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
 GENEVA

DRAFT

HOP

UPOV Code: HUMUL_LUP

Humulus lupulus L.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from Germany

*to be considered by the Technical Working Party for Fruit Crops at its thirty-sixth session
 to be held in Kôfu, Japan, from September 5 to 9, 2005*

Alternative Names:*

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Humulus lupulus</i> L.	Hop	Houblon	Hopfen	Lúpulo

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 *Humulus lupulus* L.

2. Material Required

2.1 The competent authorities decide on the quantity and quality of the plant 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 dormant roots.

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

10 dormant roots.

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

2.5 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 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.

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.

3.3.1 Stage of development for the assessment

The optimum stage of development for the assessment of each characteristic is indicated by a number in the second column of the Table of Characteristics. The stages of development denoted by each number are described at the end of Chapter 8.

3.3.2 Type of observation

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

VG: visual assessment by a single observation of a group of 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 10 plants.

3.4.2 The design of the tests should be such that plants or parts of plants 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 Plants / Parts of Plants to be Examined*

Unless otherwise indicated, all observations should be made on 10 plants or parts taken from each of 10 plants.

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 10 plants, 1 off-type is 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 plant 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) Main shoot: anthocyanin coloration (characteristic 1)
- (b) Plant: growth type (characteristic 7)
- (c) Time of picking maturity of cones (characteristic 16)
- (d) Cone: degree of opening of bracts (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*

(*) Asterisked 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: single measurement of a group of plants or parts of plants – see Chapter 3.3.2

VG: visual assessment by a single observation of a group of plants or parts of plants – see Chapter 3.3.2

(a)-(b) 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. 37-38 Main shoot: (* VG anthocyanin (+) coloration			Haupttrieb: Anthocyanfärbung			
QN	absent or very weak		fehlend oder sehr gering		Late Cluster	1
	weak		gering		Willamette	3
	medium		mittel		Spalter	5
	strong		stark		Northern Brewer	7
	very strong		sehr stark		Wye Challenger	9
2. 37-38 Leaf: size of blade (* VG			Blatt: Größe der Spreite			
QN (a)	very small		sehr klein			1
	small		klein		First Gold	3
	medium		mittel		Northern Brewer	5
	large		groß		Nugget	7
	very large		sehr groß			9
3. 37-38 Leaf: blistering of (* VG upper side of blade			Blatt: Blasigkeit der Oberseite der Spreite			
QN (a)	absent or very weak		fehlend oder sehr gering			1
	weak		gering		Columbus	3
	medium		mittel		Perle	5
	strong		stark			7
	very strong		sehr stark			9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielsorten/ Variedades ejemplo	Note/ Nota
4.	37-38	Leaf: color of upper side of blade		Blatt: Farbe der Oberseite der Spreite		
PQ	(a)	yellow	gelb		Diva	1
		yellow green	gelbgrün		Comet	2
		green	grün		Brewers Gold, Wye Target	3
5	37-38	<u>Only green</u> varieties: Leaf: intensity of green color of upper side of blade		<u>Nur grüne Sorten:</u> Blatt: Intensität der Grünfärbung der Oberseite der Spreite		
(*)	VG					
QN	(a)	light	hell		Brewers Gold	3
		medium	mittel		Nugget	5
		dark	dunkel		Wye Target	7
6.	67	Time of flowering		Zeitpunkt der Blüte		
(*)	MG					
(+)						
QN		very early	sehr früh			1
		early	früh		Northern Brewer	3
		medium	mittel		Wye Target	5
		late	spät		Hersbrucker Spät	7
		very late	sehr spät			9
7.	87-89	Plant: growth type		Pflanze: Wuchstyp		
(*)	VG					
(+)						
PQ		dwarf	Zwerg		First Gold	1
		semi-dwarf	Halbzweig			2
		normal	Normal		Hallertauer Magnum	3

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielsorten/ Variedades ejemplo	Note/ Nota
8. 87-89 Plant: shape (*) VG (+)			Pflanze: Wuchsform			
PQ	spindle-shaped		spindelförmig		Northern Brewer	1
	spindle-shaped to cylindrical		spindelförmig bis zylinderförmig		Hallertauer Taurus	2
	cylindrical		zylinderförmig		Hallertauer Magnum	3
	cylindrical to club-shaped		zylinderförmig bis keulenförmig		Willamette	4
	club-shaped		keulenförmig		Spalter Select	5
	cylindrical to conical		zylinderförmig bis kegelförmig		Galena	6
	conical		kegelförmig		Glacier	7
9. 87-89 Plant: volume of (*) VG head (+)			Pflanze: Kopfvolumen			
QN	very low		sehr gering		First Gold	1
	low		gering		Spalter	3
	medium		mittel		Saphir	5
	high		hoch		Nugget	7
	very high		sehr hoch		Spalter Select	9
10. 87-89 Side shoot from (*) VG middle third of plant: length			Seitentrieb aus dem mittleren Pflanzen- drittel: Länge			
QN	very short		sehr kurz			1
	short		kurz		First Gold	3
	medium		mittel		Northern Brewer	5
	long		lang		Tettnanger	7
	very long		sehr lang		Late Cluster	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
11. 87-89	Side shoot from		Seitentrieb aus dem			
(*) VG	upper third of plant:		oberen Pflanzen-			
	length		drittel: Länge			
QN	very short		sehr kurz			1
	short		kurz		Northern Brewer	3
	medium		mittel		Columbus	5
	long		lang		Brewers Gold	7
	very long		sehr lang			9
12. 87-89	Side shoot from		Seitentrieb aus dem			
(*) VG	middle third of		mittleren Pflanzen-			
(+)	plant: density of		drittel: Dichte der			
	leaves		Belaubung			
QN	very low		sehr gering			1
	low		gering			3
	medium		mittel		Fuggle	5
	high		hoch		Northern Brewer	7
	very high		sehr hoch			9
13. 87-89	Side shoot from		Seitentrieb aus dem			
(*) VG	middle third of		mittleren Pflanzen-			
(+)	plant: mean number		drittel: mittlere			
	of cones per node		Anzahl Zapfen je			
			Nodium			
QN	very few		sehr gering			1
	few		gering		Spalter	3
	medium		mittel		Hallertauer Merkur	5
	many		groß		Perle	7
	very many		sehr groß			9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielsorten/ Variedades ejemplo	Note/ Nota
14. 87-89 (*) VG (+)	Side shoot from middle third of plant: total number of cones		Seitentrieb aus dem mittleren Pflanzen- drittel: Gesamtzahl der Zapfen			
QN	very few		sehr gering			1
	few		gering		Herald	3
	medium		mittel		Hallertauer Magnum	5
	many		groß		Brewers Gold	7
	very many		sehr groß			9
15. 87-89 (*) VG (+)	Side shoot from upper third of plant: total number of cones		Seitentrieb aus dem oberen Pflanzen- drittel: Gesamtzahl der Zapfen			
QN	very few		sehr gering		Herald	1
	few		gering		Spalter	3
	medium		mittel		Tettnanger	5
	many		groß		Aurora	7
	very many		sehr groß		Hersbrucker Spät	9
16. 89 (*) MG (+)	Time of picking maturity of cones		Zeitpunkt der Pflückreife der Zapfen			
QN	very early		sehr früh			1
	early		früh		Northern Brewer	3
	medium		mittel		Hallertauer Merkur	5
	late		spät		Nugget	7
	very late		sehr spät			9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielsorten/ Variedades ejemplo	Note/ Nota
17. 89 (*) VG	Cone: size		Zapfen: Größe			
QN (b)	very small		sehr klein			1
	small		klein		Saphir	3
	medium		mittel		Hersbrucker Spät	5
	large		groß		Tettnanger	7
	very large		sehr groß			9
18. 89 (*) VG (+)	Cone: shape		Zapfen: Form			
PQ (b)	cylindrical		zylindrisch		Wye Target	1
	narrow ovoid		schmal eiförmig		Northern Brewer	2
	medium ovoid		mittel eiförmig		Nugget	3
	broad ovoid		breit eiförmig		Brewers Gold	4
	globose		kugelförmig			5
19. 89 (*) VG	Cone: degree of opening of bracts		Zapfen: Öffnungsgrad der Deckblätter			
QN (b)	closed		geschlossen		Wye Target	1
	slightly open		leicht geöffnet		Perle	2
	clearly open		deutlich geöffnet		Brewers Gold	3
20. 89 (*) VG	Cone: green color		Zapfen: Grünfärbung		Proposal from UK. To be checked by DE in 2005.	
QN (b)	light		hell		Admiral	3
	medium		mittel		Wye Challenger	5
	dark		dunkel		Wye Target	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielsorten/ Variedades ejemplo	Note/ Nota
21. (*)	89 VG		Zapfen: Dichte der Lupulindrüsen	<i>Proposal from UK. UK to provide explanation how to be observed. To be checked by DE in 2005.</i>		
QN (b)	very low		sehr gering			1
	low		gering		Spalter Select	3
	medium		mittel		Perle	5
	high		hoch		Wye Target	7
	very high		sehr hoch		Hallertauer Taurus	9
22. (*)	89 VG		Deckblatt: Größe			
QN (b)	very small		sehr klein			1
	small		klein		Saphir	3
	medium		mittel		Northern Brewer	5
	large		groß		Herald	7
	very large		sehr groß			9
23. (*)(+)	89 VG		Deckblatt: Verhältnis Breite/Länge			
QN (b)	small		klein			3
	medium		mittel		Aurora	5
	large		groß		Wye Target	7
24. (*)(+)	89 VG		Deckblatt: Länge der Spitze			
QN (b)	very short		sehr kurz			1
	short		kurz		Wye Target	3
	medium		mittel		Perle	5
	long		lang		Brewers Gold	7
	very long		sehr lang			9

8. Explanations on the Table of Characteristics8.1 *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) Leaves: All observations on leaves should be made on fully developed leaves of the main shoot.
- (b) Cones and bracts: All observations on cones and bracts should be made on fully developed cones of the largest third of cones from the head of plant (upper fifth of the plant).

8.2 *Explanations for individual characteristics*Ad. 1: Main shoot: anthocyanin coloration

In the case of normal growth type observation should be done when the main shoots have reached 75%-100% of top wire height of about 7 m. Semi-dwarfs and dwarfs should be observed at a corresponding stage of development.

Ad. 6: Time of flowering

Approximately 70% of flowers open (50% of plants).

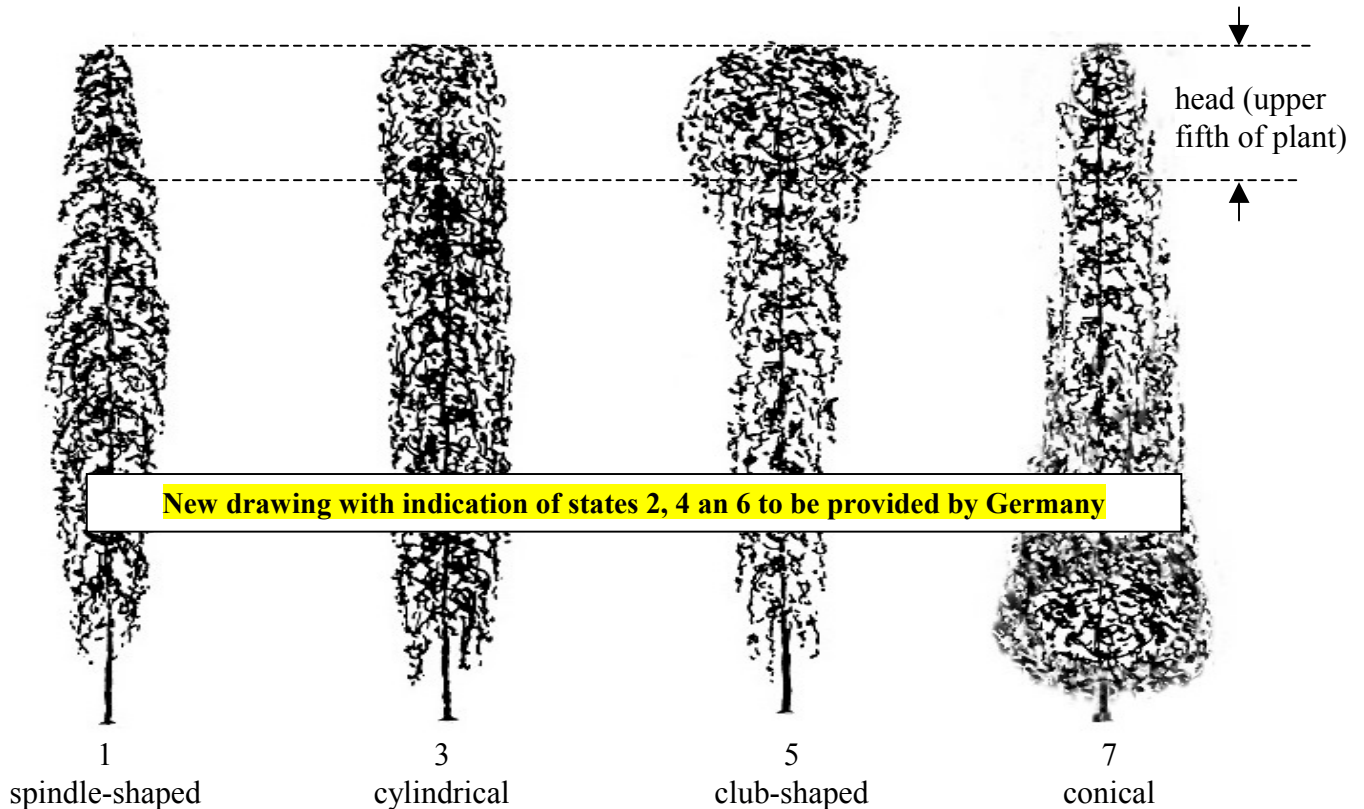
Ad. 7: Plant: growth type

	dwarf	semidwarf	normal
plant length	up to approximately 4,5 m	about 5,5 m	more than 6,0 m

There is a clear correlation between internode length and plant length.

Ad. 8: Plant: shape

Ad. 9: Plant: volume of head



“Plant: volume of head” is related to “Plant: shape” but there is also clear variation of head volume within the same shape. The same volume of head can be observed in combination with different shapes. Therefore both characteristics should be observed.

Ad. 12: Side shoot from middle third of plant: density of leaves

Observation in the middle third of side shoots. The total appearance of leaves of the side shoots should be observed without considering number and size of leaves separately.

Ad. 13: Side shoot from middle third of plant: mean number of cones per node

Ad. 14: Side shoot from middle third of plant: total number of cones

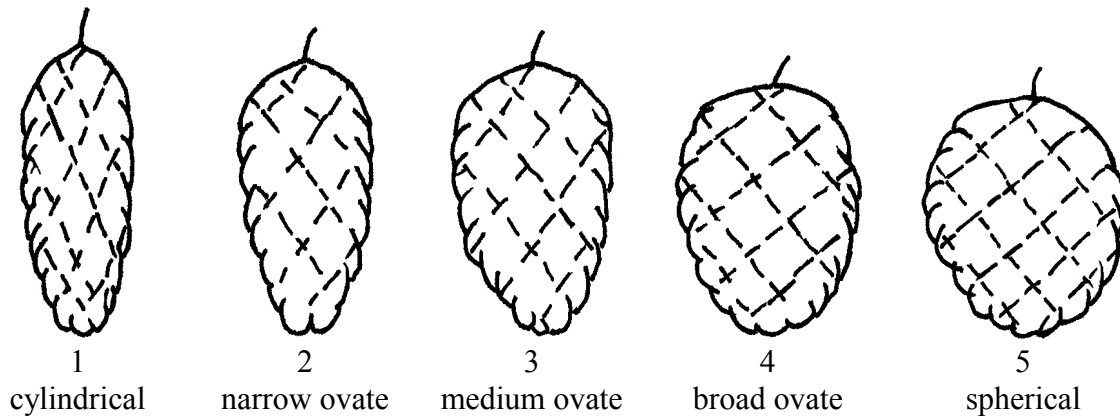
Ad. 15: Side shoot from upper third of plant: total number of cones

Number of cones on side shoots can vary within plants. Therefore side shoots from the middle and the upper third of plant should be considered separately (char. 14 and 15). In addition, a different number of cones per node can be observed (char. 13). The mean number of cones per node should be assessed in the middle part of side shoots from the middle third of plant.

Ad 16: Time of picking maturity of cones

Observation when almost all cones have reached the final degree of opening of bracts and have produced golden lupulin and fully developed aroma. The cones rustle when lightly pressed between fingers.

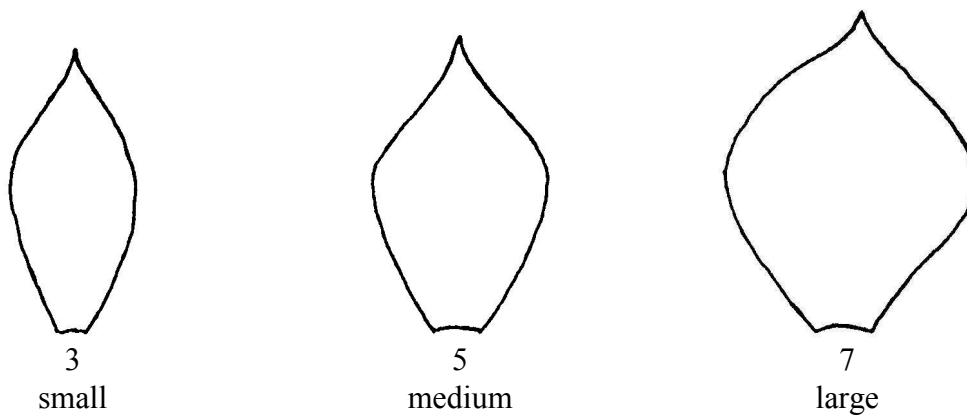
Ad. 18: Cone: shape



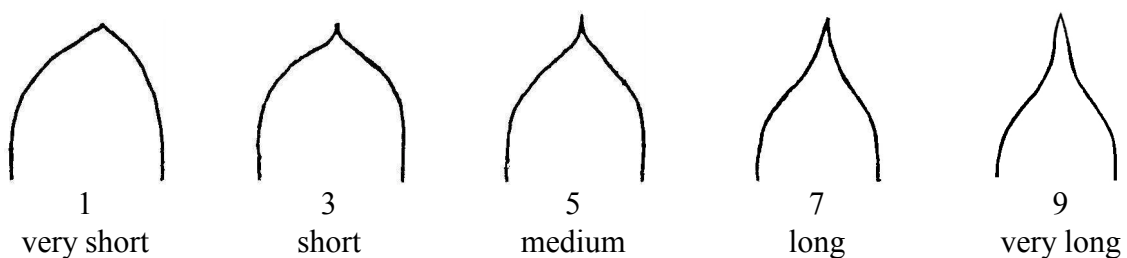
Ad. 21: Cone: density of resin glands

Explanation still to be developed.

Ad. 23: Bract: ratio width/length



Ad. 24: Bract: length of tip



8.3. *Phenological growth stages and BBCH-identification keys of Humulus lupulus L. (Meier, 1997)*

<i>Code</i>	<i>Description</i>
Principal growth stage 0	Sprouting
00	Dormancy: Rootstock without shoots (uncut)
01	Dormancy: Rootstock without shoots (cut)
07	Rootstock with shoots (uncut)
08	Beginning of shoot-growth (rootstock cut)
09	Emergence: First shoots emerge at the soil surface
Principal growth stage 1	Leaf development
11	First pair of leaves unfolded
12	Second pair of leaves unfolded (Beginning of twining)
	stages continuous till ...
19	Nine and more pairs of leaves unfolded
Principal growth stage 2	Formation of side shoots
21	First pair of side shoots visible
22	Second pair of side shoots visible
	stages continuous till ...
29	Nine and more pairs of side shoots visible (secondary side shoots occur)
Principal growth stage 3	Elongation of bines
31	Bines have reached 10 % of top wire height
32	Bines have reached 20 % of top wire height
	stages continuous till ...
38	Plants have reached the top wire
39	End of bine elongation
Principal growth stage 4	-
Principal growth stage 5	Inflorescence emergence
51	Inflorescence buds visible
55	Inflorescence buds enlarged
Principal growth stage 6	Flowering
61	Beginning of flowering: about 10 % of flowers open
65	Full flowering: about 50 % of flowers open
69	End of flowering
Principal growth stage 7	Development of cones
71	Beginning of cone development: 10 % of inflorescences are cones
75	Cone development half way: All cones are visible, cones are soft, stigmas still present
79	Cone development complete: Cones have reached full size
Principal growth stage 8	Maturity of cones
81	Beginning of maturity: 10 % of cones are compact
85	Advanced maturity: 50 % of cones are compact
87	70 % of cones are compact
89	Cones ripe for picking: cones closed; lupulin golden; aroma potential fully developed
Principal growth stage 9	Senescence, entry into dormancy
92	Overripeness: Cones yellow-brown discoloured, aroma deterioration
97	Dormancy: leaves and stems dead

9. Literature

Meier, U. (Editor), 1997: Growth Stages of Mono- and Dicotyledonous Plants. BBCH-Monograph. Blackwell Wissenschafts-Verlag, Berlin, Wien.

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*

1.2 *Common Name*

2. Applicant

Name

Address

Telephone No.

Fax No.

E-mail address

Breeder (if different from applicant)

3. Proposed denomination and breeder's reference

Proposed denomination
(if available)

Breeder's reference

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)

4.2 Method of propagating the variety

#

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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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 Main shoot: anthocyanin coloration (1)		
absent or very weak	Late Cluster	1[]
weak	Willamette	3[]
medium	Spalter	5[]
strong	Northern Brewer	7[]
very strong	Wye Challenger	9[]
5.2 Plant: growth type (7)		
dwarf	First Gold	1[]
semi-dwarf		2[]
normal	Hallertauer Magnum	3[]
5.3 Side shoot from middle third of plant: length (10)		
very short		1[]
short	First Gold	3[]
medium	Northern Brewer	5[]
long	Tettnanger	7[]
very long	Late Cluster	9[]
5.4 Side shoot from upper third of plant: total number of cones (15)		
very few	Herald	1[]
few	Spalter	3[]
medium	Tettnanger	5[]
many	Aurora	7[]
very many	Hersbrucker Spät	9[]

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Characteristics	Example Varieties	Note
5.5 Time of picking maturity of cones (16)		
very early		1[]
early	Northern Brewer	3[]
medium	Hallertauer Merkur	5[]
late	Nugget	7[]
very late		9[]
5.6 Cone: size (17)		
very small		1[]
small	Saphir	3[]
medium	Hersbrucker Spät	5[]
large	Tettnanger	7[]
very large		9[]
5.7 Cone: degree of opening of bracts (19)		
closed	Wye Target	1[]
slightly open	Perle	2[]
clearly open	Brewers Gold	3[]
5.8 Bract: length of tip (24)		
very short		1[]
short	Wye Target	3[]
medium	Perle	5[]
long	Brewers Gold	7[]
very long		9[]

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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
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 Type of use of variety

Aroma []
Bitter []
High alpha []
Ornamental []
other (please specify) []

.....

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.

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) | Yes [] | No [] |
| (b) Chemical treatment (e.g. growth retardant or pesticide) | Yes [] | No [] |
| (c) Tissue culture | Yes [] | No [] |
| (d) Other factors | Yes [] | No [] |

Please provide details of 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]