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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

ST. JOHN'S WORT *

UPOV Code: HYPER_PER

Hypericum perforatum L.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

Alternative Names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Hypericum perforatum L.	St. John's Wort, Common St. John's Wort, Goat weed, Klamath weed, Tipton weed	Millepertuis	Johanniskraut	Hipericón, Hipérico, Hierba de San Juan, Corazoncillo

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 *Hypericum perforatum* 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 seed.

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

5 g.

The seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority. In cases where the seed is to be stored, the germination capacity should be as high as possible and should, be stated by the applicant.

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

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 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
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 60 plants, which should be divided between two or more replicates.

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 on single plants should be made on 20 plants or parts taken from each of 20 plants and any other observation should be made on all plants in the test.

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 2% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 60 plants, 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 seed 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 has been agreed as a useful grouping characteristic:

(a) Stem: number of flowering shoots (characteristic 4)
(b) Time of beginning of flowering (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, 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. (*)	**VG**	**Plant: number of stems**	**Plante : nombre de tiges**	**Pflanze: Anzahl Stängel**	**Planta: número de tallos**		
QN	**(a)**	few	petit	gering	bajo	Hyperivo	3
		medium	moyen	mittel	medio	Anthos, Topaz	5
		many	grand	groß	alto		7
2. (*)	**MG**	**Plant: height**	**Plante : hauteur**	**Pflanze: Höhe**	**Planta: altura**		
QN	**(b)**	short	basse	niedrig	baja		3
		medium	moyenne	mittel	media	Topaz	5
		tall	haute	hoch	alta	Hyperiflor	7
3. (+)	**MS**	**Plant: distance between highest and lowest flowers**	**Plante : espacement entre les fleurs les plus hautes et les fleurs les plus basses**	**Pflanze: Abstand zwischen höchsten und niedrigsten Blüten**	**Planta: distancia entre las flores más altas y las más bajas**		
QN	**(b)**	short	petit	gering	corta		3
		medium	moyen	mittel	media	Motiv	5
		long	grand	groß	larga	Topaz	7
4. (*) (+)	**VG**	**Stem: number of flowering shoots**	**Tige : nombre de rameaux florifères**	**Stängel: Anzahl blütentragender Seitentriebe**	**Tallo: número de tallos florales**		
QN	**(b)**	few	petit	gering	bajo	Hyperiflor, Topaz	3
		medium	moyen	mittel	medio	Hyperixtrakt	5
		many	grand	groß	alto	Goldstern, Taubertal	7
5.	**VG**	**Stem: thickness**	**Tige : grosseur**	**Stängel: Dicke**	**Tallo: espesor**		
QN	**(a)**	thin	mince	dünn	delgado	Goldstern	3
		medium	moyenne	mittel	medio	Vitan	5
		thick	épaisse	dick	grueso	Hyperivo 7	7

		English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
6.	**VG**	**Stem: anthocyanin coloration**	**Tige : pigmentation anthocyanique**	**Stängel: Anthocyan-färbung**	**Tallo: pigmentación antociánica**		
QN	**(a)**	absent or very weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil	Vitan	1
		weak	faible	gering	débil	Motiv, Topaz	3
		medium	moyenne	mittel	media	Hyperixtrakt, Taubertal	5
		strong	forte	stark	fuerte		7
		very strong	très forte	sehr stark	muy fuerte		9
7.	**MS**	**Leaf blade: length**	**Limbe : longueur**	**Blattspreite: Länge**	**Limbo: longitud**		
QN	**(a)**	short	court	kurz	corta		3
	(c)	medium	moyen	mittel	media	Hyperiflor, Topaz	5
		long	long	lang	larga		7
8.	**MS**	**Leaf blade: width**	**Limbe : largeur**	**Blattspreite: Breite**	**Limbo: anchura**		
QN	**(a)**	narrow	étroit	schmal	estrecha	Goldstern	3
	(c)	medium	moyen	mittel	media	Topaz	5
		broad	large	breit	ancha	Hyperixtrakt	7
9.	**MS**	**Leaf blade: ratio width/length**	**Limbe : rapport largeur/longueur**	**Blattspreite: Verhältnis Breite/ Länge**	**Limbo: relación anchura/longitud**		
QN	**(a)**	small	petit	klein	pequeña		3
	(c)	medium	moyen	mittel	media		5
		large	grand	groß	grande		7
10.	**VG**	**Leaf blade: intensity of green color**	**Limbe : intensité de la couleur verte**	**Blattspreite: Intensität der Grünfärbung**	**Limbo: intensidad del color verde**		
QN	**(a)**	light	claire	hell	clara		3
	(c)	medium	moyenne	mittel	media	Topaz	5
		dark	foncée	dunkel	oscura	Anthos	7

		English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
11. (*) (+)	**VG**	**Leaf blade: number of translucent oil glands**	**Limbe : nombre de glandes à huile transparentes**	**Blattspreite: Anzahl farbloser Öldrüsen**	**Limbo: número de glándulas oleaginosas translúcidas**		
QN	**(a)**	few	petit	gering	bajo	Topaz	3
	(c)	medium	moyen	mittel	medio	Hyperivo 7	5
		many	grand	groß	alto	Anthos	7
12. (*)	**MS**	**Flower: diameter**	**Fleur : diamètre**	**Blüte: Durchmesser**	**Flor: diámetro**		
QN	**(b)**	small	petit	klein	pequeño	Uperikon	3
		medium	moyen	mittel	medio	Anthos, Taubertal	5
		large	grand	groß	grande		7
13.	**MS**	**Flower: length of petal**	**Fleur : longueur du pétale**	**Blüte: Länge des Kronblattes**	**Flor: longitud del pétalo**		
QN	**(b)**	short	court	kurz	corta		3
		medium	moyen	mittel	media	Hyperiflor, Topaz	5
		long	long	lang	larga		7
14.	**MS**	**Flower: width of petal**	**Fleur : largeur du pétale**	**Blüte: Breite des Kronblattes**	**Flor: anchura del pétalo**		
QN	**(b)**	narrow	étroit	schmal	estrecha		3
		medium	moyen	mittel	media	Anthos, Hyperigold	5
		broad	large	breit	ancha		7
15.	**MS**	**Flower: ratio length/width of petal**	**Fleur : rapport longueur/largeur du pétale**	**Blüte: Verhältnis Länge/Breite des Kronblattes**	**Flor: relación longitud/anchura del pétalo**		
QN	**(b)**	small	petit	klein	pequeña		3
		medium	moyen	mittel	media	Topaz	5
		large	grand	groß	grande		7

		English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
16. (+)	**VG**	**Flower: intensity of yellow color**	**Fleur : intensité de la couleur jaune**	**Blüte: Intensität der gelben Farbe**	**Flor: intensidad del color amarillo**		
QN		light	claire	hell	clara	Anthos, Uperikon	1
		medium	moyenne	mittel	media		2
		dark	foncée	dunkel	oscura	Hyperixtrakt, Topaz	3
17. (*) (+)	**VG**	**Flower: conspicuousness of glandular streaks**	**Fleur : netteté des rayures glandulaires**	**Blüte: Ausprägung der Drüsenstreifen**	**Flor: visibilidad de las líneas glandulares**		
QN	**(b)**	weak	faible	gering	débil	Vitan	3
		medium	moyenne	mittel	media	Hyperiflor	5
		strong	forte	stark	fuerte	Motiv	7
18. (*) (+)	**VG**	**Fruit: anthocyanin coloration**	**Fruit : pigmentation anthocyanique**	**Frucht: Anthocyanfärbung**	**Fruto: pigmentación antociánica**		
QN		weak	faible	gering	débil	Uperikon	3
		medium	moyenne	mittel	media	Hyperixtrakt	5
		strong	forte	stark	fuerte	Anthos	7
19. (*) (+)	**MG**	**Time of beginning of flowering**	**Époque de début de floraison**	**Zeitpunkt des Blühbeginns**	**Época de inicio de la floración**		
QN		early	précoce	früh	temprana	Vitan	3
		medium	moyenne	mittel	media	Hyperiflor	5
		late	tardive	spät	tardía	Topaz	7

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) The observations should be made at the beginning of flowering (see Ad. 19).

(b) The observations should be made at the time of full flowering. The time of full flowering of a variety has been reached when approximately 80% of the flowers are open and approximately 20% of the buds are visible.

(c) All observations on the leaf should be made on leaves taken from the middle of the stem.

8.2 Explanations for individual characteristics

Ad. 3: Plant: distance between highest and lowest flowers

Observations should be made on cut plants.

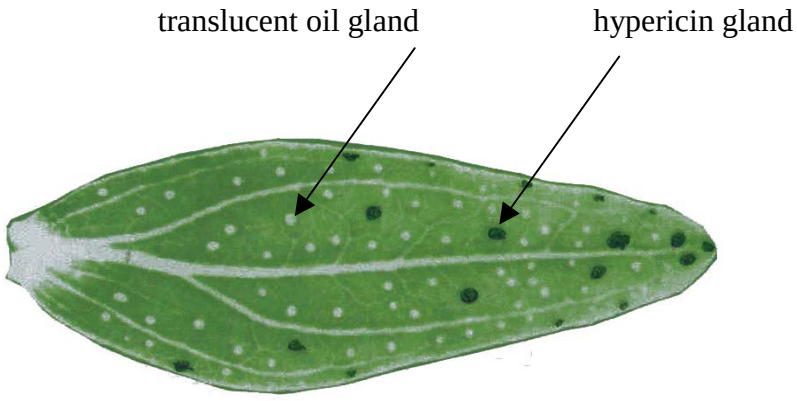
Ad. 4: Stem: number of flowering shoots

Observations should be made on cut plants.

3	7
few	many

Ad. 11: Leaf blade: number of translucent oil glands

Observations should be made on the lower side of the leaf. The translucent glands containing essential oil can be observed when holding the leaf against the light. The dark glands contain hypericin.

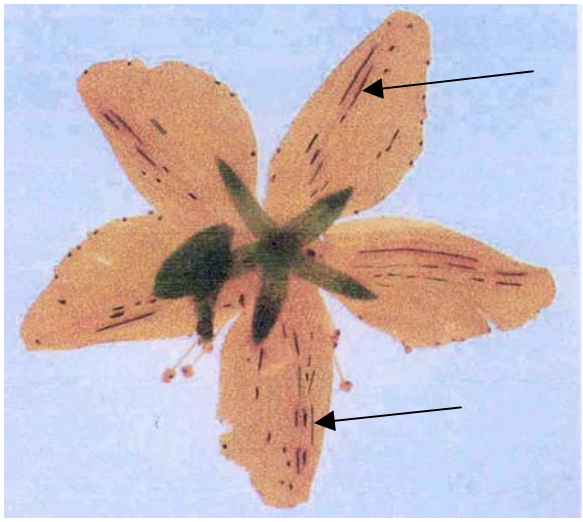


Ad. 16: Flower: intensity of yellow color

Observations should be made at the beginning of the full flowering stage.

Ad. 17: Flower: conspicuousness of glandular streaks

The observation should be made on the lower side of the flower.



Ad. 18: Fruit: anthocyanin coloration

The observation should be made at the time of fruit maturity. Maturity of the fruits of a variety is reached when nearly all fruits are formed and only a few flowers remain.

Ad. 19: Time of beginning of flowering

The time of beginning of flowering has been reached when 10% of the plants have at least one flower.

9. Literature

Dachler, M., Pelzmann, H., 1999: "Arznei- und Gewürzpflanzen", Österreichischer Agrarverlag, Klosterneuburg, AT.

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	*Hypericum perforatum* L.
1.2 Common names	St. John's Wort

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:

[#]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:

4.2 Method of propagating the variety

4.2.1 Seed-propagated varieties

(a) Self-pollination [ ]

(b) Cross-pollination
(i) population [ ]
(ii) synthetic variety [ ]

(c) Hybrid [ ]

4.2.2 Other [ ]
(please provide details)

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

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 (2)	**Plant: height**		
	short		3[ ]
	medium	Topaz	5[ ]
	tall	Hyperiflor	7[ ]
5.2 (4)	**Stem: number of flowering shoots**		
	few	Hyperiflor, Topaz	3[ ]
	medium	Hyperixtract	5[ ]
	many	Goldstern, Taubertal	7[ ]
5.3 (11)	**Leaf blade: number of translucent oil glands**		
	few	Topaz	3[ ]
	medium	Hyperivo 7	5[ ]
	many	Anthos	7[ ]
5.4 (12)	**Flower: diameter**		
	small	Uperikon	3[ ]
	medium	Anthos, Taubertal	5[ ]
	large		7[ ]
5.5 (19)	**Time of beginning of flowering**		
	early	Vitan	3[ ]
	medium	Hyperiflor	5[ ]
	late	Topaz	7[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

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
Example	*Flower: diameter*	*small*	*large*

Comments:

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

[#]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

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.

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

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 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, 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]