

UPOV

TG/HYPER-PER(proj.1)

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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

ST. JOHN'S WORT *

HYPER_PER

Hypericum perforatum 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 Vegetables (TWV) at its fortieth session, to be held in Guanajuato, Guanajuato State, Mexico, from June 12 to 16, 2006*

Alternative Names: *

| <i>Botanical name</i> | <i>English</i> | <i>French</i> | <i>German</i> | <i>Spanish</i> |
|--------------------------------|-----------------|---------------|---------------|----------------|
| <i>Hypericum perforatum</i> L. | St. John's Wort | Millepertuis | Johanniskraut | Hipericón |

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 seeds.

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

10 g.

NL to reduce the amount of seeds to 1 or 2 g

D to propose 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 after an establishment year.

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.

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 40 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 should be made on 40 plants or parts taken from each of 40 plants.

D: ...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*

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:

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 40 plants, 2 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:

Stem: number of flowering shoots (characteristic 4)

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 3.3.1

MS: measurement of a number of individual plants or parts of plants – see Chapter 3.3.1

VG: visual assessment by a single observation of a group of plants or parts of plants – see Chapter 3.3.1

VS: visual assessment by observation of individual plants or parts of plants – see Chapter 3.3.1

(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 Plant: height (*) | | | Pflanze: Höhe | | | |
| QN (a) | short | | kurz | | | 3 |
| | medium | | mittel | | Anthos, Topaz | 5 |
| | tall | | hoch | | Hyperiflor | 7 |
| D: to start with (a) and therefore change (a) and (b) | | | | | | |
| 2. VG Plant: number of stems (*) | | | Pflanze: Anzahl Stängel | | | |
| QN (b) | low | | gering | | Hyperivo (add.) | 3 |
| | medium | | mittel | | Anthos, Topaz | 5 |
| | high | | groß | | | 7 |
| PL: to read few and many instead of low and high | | | | | | |
| 3. MS Plant: height of underlined flowering level (+) | | | Pflanze: Höhe der Blütenzone | | | |
| QN (a) | short | | kurz | | | 3 |
| | medium | | mittel | | Anthos, Motiv (add.) | 5 |
| | long | | lang | | Topaz | 7 |

| | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|--------------------------------|------------|---|--------------------------|--|---|---------------|
| 4. | VG | Stem: number of flowering shoots | | Stängel: Anzahl blütenträgernder Seitentriebe | Hyperiflor | |
| Q^(*) (+) | (a) | few | gering | | Hyperiflor, Topaz (add.) | 3 |
| | | medium | mittel | | Vitan, Hyperixtrakt (add) | 5 |
| | | many | groß | | Hyperivo 7 Taubertal, Goldstern (ad) | 7 |
| 5. | VG | Stem: thickness | | Stängel: Dicke | | |
| Q^(*) | (b) | thin | dünn | | Goldstern (add.) | 3 |
| | | medium | mittel | | Vitan | 5 |
| | | thick | dick | | Hyperivo 7 | 7 |
| 6. | VG | Stem: anthocyanin coloration | | Stängel: Anthocyanfärbung | | |
| Q^(*) | (b) | absent or very weak | fehlend oder sehr gering | | Vitan (add.) | 1 |
| | | weak | gering | | Motiv, Topaz | 3 |
| | | medium | mittel | | Hyperixtrakt, Taubertal | 5 |
| | | strong | stark | | | 7 |
| | | very strong | sehr stark | | | 9 |
| 7. | MS | Leaf blade: length | | Blattspreite: Länge | | |
| Q^(*) | (b) | short | kurz | | | 3 |
| | | medium | mittel | | Hyperiflor, Topaz | 5 |
| | | strong | stark | | | 7 |
| 8. | MS | Leaf blade: width | | Blattspreite: Breite | | |
| Q^(*) | (b) | narrow | schmal | | Goldstern (add.) | 3 |
| | | medium | mittel | | Goldstern Topaz (add.) | 5 |
| | | broad | breit | | Hyperixtrakt | 7 |

| | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|------------|--|---------|--|---|---------------|
| 9. | MS | Leaf blade: ratio length/width | | Blattspreite: Verhältnis Länge/Breite | | |
| QN | (b) | small | klein | | | 3 |
| | | medium | mittel | | | 5 |
| | | large | groß | | | 7 |
| PL: to insert "Leaf blade: intensity of green color" 3 = light, 5 = medium, 7 = dark | | | | | | |
| CZ : to insert "Leaf blade: color" 3 = light green, 5 = medium green, 7 = dark green | | | | | | |
| 10. | VG | Leaf blade: dots (trans-lucent and/or black glands) | | Blattspreite: Punktierung (farblose und/oder schwarze Drüsen) | | |
| (+) | (b) | weak | gering | | Topaz | 3 |
| QN | | medium | mittel | | Hyperiktrakt Hyperivo 7 (add.) | 5 |
| | | strong | stark | | Anthos | 7 |
| P: to change "dots" into "dotting" | | | | | | |
| D: to add an asterisk; wording to change into "Leaf blade: frequency of oil glands" 3 = low, 5 =medium, 7 = high | | | | | | |
| 11. | MS | Flower: diameter | | Blüte: Durchmesser | | |
| QN | (a) | small | klein | | Uperikon | 3 |
| | | medium | mittel | | Anthos, Taubertal | 5 |
| | | large | groß | | | 7 |
| D: to add an asterisk | | | | | | |
| 12. | MS | Flower: length of petal | | Blüte: Länge des Kronblattes | | |
| QN | (a) | short | kurz | | | 3 |
| | | medium | mittel | | Hyperiflor (add.), Topaz | 5 |
| | | long | lang | | | 7 |

| | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|--|------------|---|------------|---|---|---------------|
| 13. | MS | Flower: width of petal | | Blüte: Breite des Kronblattes | | |
| QN | (a) | narrow | schmal | | | 3 |
| | | medium | mittel | | Anthos, Hyperiflor Hyperigold (add.) | 5 |
| | | broad | breit | | | 7 |
| 14. | MS | Flower: ratio length/width of petal | | Blüte: Verhältnis Länge/Breite des Kronblattes | | |
| QN | (a) | small | klein | | | 3 |
| | | medium | mittel | | Topaz | 5 |
| | | large | groß | | | 7 |
| 15. | VG | Flower: color | | Blüte: Farbe | | |
| QN | (a) | light yellow | hellgelb | | Anthos, Uperikon | 1 |
| | | dark yellow | dunkelgelb | | Hyperixtrakt, Topaz | 2 |
| D: to add a (+) | | | | | | |
| NL:proposal to change the wording into "Flower: color of corolla" | | | | | | |
| 16. | VG | Flower: conspicuousness of glandular streaks | | Blüte: Ausprägung der Drüsenstreifen | | |
| QN | (a) | weak | gering | | Vitan | 3 |
| | | medium | mittel | | Hyperiflor | 5 |
| | | strong | stark | | Motiv | 7 |
| NL: proposal to change the wording into "Flower: conspicuousness of glandular streaks on corolla" | | | | | | |

| | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---------------------------------------|----------|----------------------------------|---------|---|---------------|
| 17. VG (*) | Fruit: anthocyanin coloration | | Frucht: Anthocyanfärbung | | | |
| QN | absent or very weak | | fehlend oder sehr gering | | Topaz | 1 |
| | weak | | gering | | Uperikon | 3 |
| | medium | | mittel | | Hyperixtrakt | 5 |
| | strong | | stark | | Hyperimed Anthos (ad) | 7 |
| | very strong | | sehr stark | | | 9 |
| D: to add a (+) | | | | | | |
| 18. MG (*) | Time of beginning of flowering | | Zeitpunkt des Blühbeginns | | | |
| QN (b) | early | | früh | | Vitan | 3 |
| | medium | | mittel | | Motiv , Hyperiflor | 5 |
| | late | | spät | | Topaz | 7 |
| CZ: to add the characteristics "Time of full flowering" and "Time of fruit maturity" | | | | | | |

8. Explanations on the Table of 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 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.

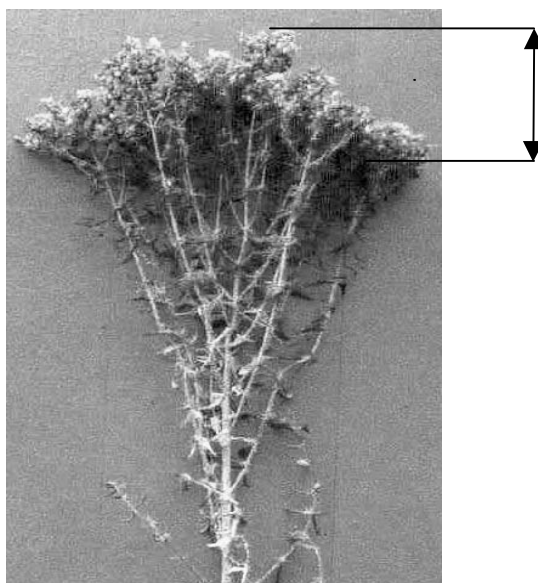
(b) The observations should be made at the beginning of flowering. The time of beginning of flowering of a variety has been reached when 10 % of the plants have at least one flower.

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

8.2 Explanations for individual characteristics

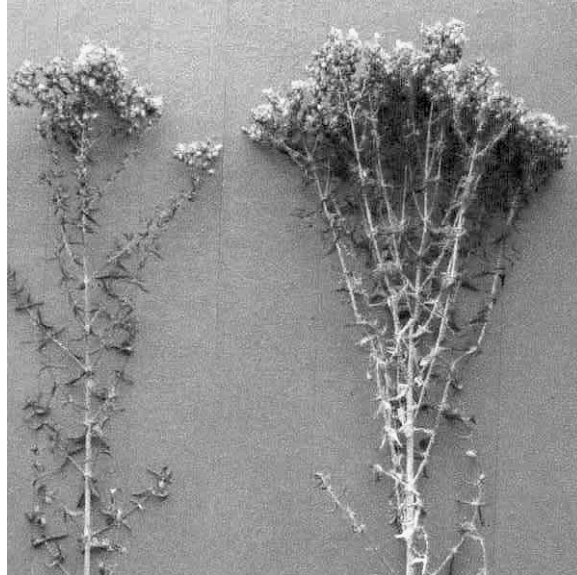
Ad. 3: Plant: height of flowering level

D: to add: The observation should be made on harvested parts of plants.



Ad. 4: Stem: number of flowering shoots

D: to add: The observation should be made on harvested parts of plants.

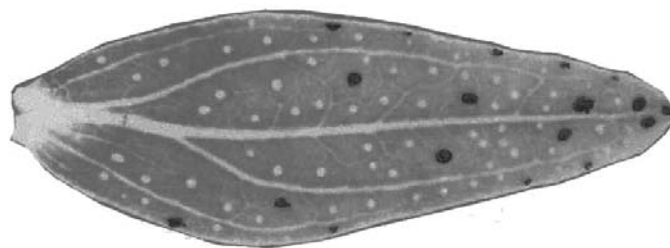


3
few

7
many

Ad. 10: Leaf blade: dots (translucent and/or black glands)

D: to add: The observation 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.



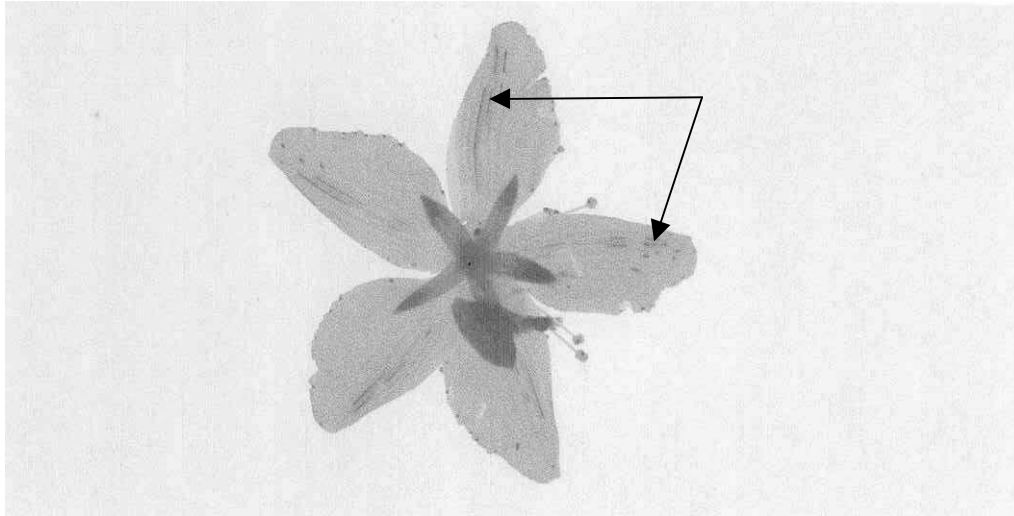
D: to add

Ad. 15: Flower color

The observation should be made at the beginning of the full flowering stage as the color of aging flowers turns to dark yellow.

Ad. 16: Flower: conspicuousness of glandular streaks

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



Ad. 17: 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 few flowers are to be observed.

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 | <input type="text" value="Hypericum perforatum L."/> | |
| 1.2 Common name | <input type="text" value="ST. JOHN'S WORT"/> | |
| 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: |
|---|-----------------|-------------------|
| <p>#4. Information on the breeding scheme and propagation of the variety</p> <p>4.1 Breeding scheme</p> <p>Variety resulting from:</p> <p>4.1.1 Crossing</p> <p>(a) controlled cross [] (please state parent varieties)</p> <p>(b) partially known cross [] (please state known parent variety(ies))</p> <p>(c) unknown cross []</p> <p>4.1.2 Mutation [] (please state parent variety)</p> <p>4.1.3 Discovery and development [] (please state where and when discovered and how developed)</p> <p>4.1.4 Other [] (please provide details)</p> | | |

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: |
|---|-----------------|-------------------|
| <p>4.2 Method of propagating the variety</p> <p>4.2.1 Seed-propagated varieties</p> <p>(a) Self-pollination []</p> <p>(b) Cross-pollination (i) population [] (ii) synthetic variety []</p> <p>(c) Hybrid []</p> <p>(d) Other [] (please provide details)”</p> | | |

| 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 Plant: height (1) | | |
| short | | 3[] |
| medium | Anthos , Topaz | 5[] |
| tall | Hyperiflor | 7[] |
| 5.2 Stem: number of flowering shoots (4) | | |
| few | Hyperiflor, Topaz (add.) | 3[] |
| medium | Vitan , Hyperixtract (add.) | 5[] |
| many | Hyperivo 7 Goldstern (ad), Taubertal | 7[] |
| 5.3 Leaf blade: dots (translucent and/or black glands) (10) | | |
| weak | Topaz | 3[] |
| medium | Hyperixtrakt Hyperivo 7 (add.) | 5[] |
| strong | Anthos | 7[] |
| 5.4 Flower: diameter (11) | | |
| small | Uperikon | 3[] |
| medium | Anthos, Taubertal | 5[] |
| large | | 7[] |
| 5.5 Time of beginning of flowering (18) | | |
| early | Vitan | 3[] |
| medium | Motiv , Hyperiflor | 5[] |
| late | Topaz | 7[] |

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>Flower: diameter</i> | <i>small</i> | <i>large</i> |
| | | | |
| | | | |
| | | | |
| Comments: | | | |

#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.

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]