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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS GENEVA



HEMP

UPOV Code: CANNB_SAT

Cannabis sativa L.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from the Netherlands

to be considered by the

Technical Working Party for Agricultural Crops
at its thirty-seventh session, to be held in Nelspruit, South Africa, from July 14 to 18, 2008

Alternative Names:*

Botanical nameEnglishFrenchGermanSpanishCannabis sativa L.HempChanvreHanfCáñamo

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 Cannabis sativa 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 young plants or seeds.
- 2.3 The minimum quantity of plant material, to be supplied by the applicant, should be:

Vegetatively propagated varieties: 50 young (potted) plants (of commercial standards).

Seed propagated varieties: 500 grams of seed.

In the case of seed propagated hybrid varieties an additional 200 grams of seed of each parental component should be submitted.

- 2.4 In the case of seed, the seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority.
- 2.5 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease.
- 2.6 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

3.3.3 Type of plot for observation

The recommended type of plot in which to observe the characteristic is indicated by the following key in the second column of the Table of Characteristics:

A: field test (see 3.4)

B: seedling test (seed propagated varieties only)

C: special test: 5 potted plants (for vegetatively propagated varieties only) 14 hrs of dark conditions (under greenhouse conditions) for observations on time of maturity.

3.4 Test Design

- 3.4.1 In case of seed propagated (open pollinated or hybrid) varieties each test should be designed to result in a total of at least 200 plants, which should be divided between 2 replicates.
- 3.4.2 In the case of seed propagated inbred lines each test should be designed to result in a total of at least 100 plants, which should be divided between 2 replicates.
- 3.4.3 In case of vegetatively propagated varieties each test should be designed to result in a total of at least 40 plants.
- 3.4.4 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. As Hemp is very sensitive to environmental conditions, observations on border plants should be avoided.

3.5 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, all observations on single plants should be made on 40 plants (per replication) or parts taken from each of 40 plants (per replication) and any other observations 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.

To assess distinctness of hybrids, a pre-screening system on the basis of the parental lines and the formula may be established according to the following recommendations:

- (i) description of parental lines according to the Test Guidelines;
- (ii) check of the originality of the parental lines in comparison with the reference collection, based on the characteristics in Section 7 in order to screen the closest inbred lines;
- (iii) check of the originality of the hybrid formula in comparison with those of the hybrids in common knowledge, taking into account the closest inbred lines;
- (iv) assessment of the distinctness at the hybrid level of varieties with a similar formula.

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:

Male off-type plants may occur in seed propagated predominantly monoecious varieties. For seed propagated, predominantly monoecious varieties a maximum of 5% male plants is accepted.

Note: Hungary proposes a maximum of 15% male plants to be accepted. See also explanations Chapter 8.2 Ad 7

(a) Cross-pollinated varieties

For the assessment of uniformity of seed-propagated open-pollinated varieties the variability within the variety should not exceed the variability of comparable varieties already known.

(b) Hybrid varieties

For the assessment of uniformity of single hybrids a population standard of 2% with an acceptance probability of 95% should be applied. In the case of a sample size of 40 plants, 2 off-types are allowed.

(c) Inbred lines.

For the assessment of uniformity of inbred lines, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 100 plants, 3 off-types are allowed.

(d) Vegetatively propagated varieties

For the assessment of uniformity of vegetatively propagated varieties, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 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 or 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.

The following have been agreed as useful grouping characteristics:

- (a) Only seed-propagated varieties: Time of beginning of flowering (50% of plants with at least one male flower open) (characteristic 5)
- (b) <u>Varieties with female flowers only</u>: Time of beginning of flowering (50% of plants with at least one female flower open) (characteristic 6).
- (c) Plant: sex expression (characteristic 7)
- 5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction.
- 6. <u>Introduction to the Table of Characteristics</u>
- 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.

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- 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: field testB: seedling test

C: special test on potted plants (14 hrs dark conditions)

(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. <u>Table of Characteristics/Tableau des caractères/Merkmalstabelle/Tabla de caracteres</u>

| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|----|---------|---|----------|---------|---------|---|---------------|
| 1. | VG B | Seedling: shape of cotyledon | | | | | |
| PQ | | narrow elliptic | | | | | 1 |
| | | elliptic | | | | | 2 |
| | | broad elliptic | | | | | 3 |
| 2. | VG B | Cotyledon: intensity of green color | | | | | |
| QN | | light | | | | | 3 |
| | | medium | | | | | 5 |
| | | dark | | | | | 7 |
| 3. | VG B | Seedling: anthocyanin coloration | | | | | |
| QL | | absent | | | | | 1 |
| | | present | | | | | 9 |
| 4. | VG B | Seedling: intensity of anthocyanin coloration | f | | | | |
| QN | | weak | | | | | 3 |
| | | medium | | | | | 5 |
| | | strong | | | | | 7 |

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| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|------------------|------------|--|----------|---------|---------|---|---------------|
| 5. (*) (+) | VG | Only seed- propagated varieties: Time of beginning of flowering (50% of plants with at least one male flower open) | | | | | |
| QN | | early | | | | | 3 |
| | | medium | | | | | 5 |
| | | late | | | | | 7 |
| 6. (*) | VG | Varieties with female flowers only: Time of beginning of flowering (50% of plants with at least one female flower open) | | | | | |
| QN | | early | | | | | 3 |
| | | medium | | | | | 5 |
| | | late | | | | | 7 |
| 7. (*) (+) | VG | Plant: sex expression | | | | | |
| QL | | predominantly monoecious | | | | | 1 |
| | | dioecious | | | | | 2 |
| | | female plants only | | | | | 3 |
| 8. | VG | Plant: number of primary lateral branches | | | | | |
| QN | (a) | absent or very few | | | | | 1 |
| | (b) | few | | | | | 3 |
| | | medium | | | | | 5 |
| | | many | | | | | 7 |

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| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|------------|------------|-------------------------------------|----------|---------|---------|---|---------------|
| 9. | MS | Stem: length of internode | | | | | |
| QN | (a) | short | | | | | 3 |
| | (b) | medium | | | | | 5 |
| | | long | | | | | 7 |
| 10. | VG | Stem: thickness | | | | | |
| QN | (a) | thin | | | | | 3 |
| | (b) | medium | | | | | 5 |
| | | thick | | | | | 7 |
| 11. | VG | Stem: number of rib | s | | | | |
| QN | (a) | few | | | | | 3 |
| | (b) | medium | | | | | 5 |
| | | many | | | | | 7 |
| 12. (*) | VG | Leaf: size | | | | | |
| QN | (a) | small | | | | | 3 |
| | (b) | medium | | | | | 5 |
| | | large | | | | | 7 |
| 13. | VG | Leaf: maximum number of leaflets or | n | | | | |
| (+) | | one petiole | | | | | |
| QN | (a) | few | | | | | 3 |
| | (b) | medium | | | | | 5 |
| | | many | | | | | 7 |
| 14. | MS | Central leaflet: length | | | | | |
| QN | (a) | short | | | | | 3 |
| | (b) | medium | | | | | 5 |
| | | long | | | | | 7 |

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| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|------------|------------|---|----------|---------|---------|---|---------------|
| 15. | MS | Central leaflet: wid | th | | | | |
| QN | (a) | narrow | | | | | 3 |
| | (b) | medium | | | | | 5 |
| | | broad | | | | | 7 |
| 16. | VG | Leaf: intensity of green color | | | | | |
| QN | (a) | light | | | | | 3 |
| | | medium | | | | | 5 |
| | | dark | | | | | 7 |
| 17. (*) | VG | Leaf: anthocyanin coloration | | | | | |
| QL | (a) | absent | | | | | 1 |
| | | present | | | | | 9 |
| 18. | VG | Leaf: intensity of anthocyanin coloration | | | | | |
| QN | (a) | very weak | | | | | 1 |
| | | weak | | | | | 3 |
| | | medium | | | | | 5 |
| | | strong | | | | | 7 |
| | | very strong | | | | | 9 |
| 19. (*) | VG | Petiole: anthocyanii coloration | n | | | | |
| QL | (a) | absent | | | | | 1 |
| | | present | | | | | 9 |

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| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|----------------|-----|--|----------|---------|---------|---|---------------|
| 20. (*) | VG | Petiole: intensity of anthocyanin coloration | | | | | |
| QN | (a) | very weak | | | | | 1 |
| | | weak | | | | | 3 |
| | | medium | | | | | 5 |
| | | strong | | | | | 7 |
| | | very strong | | | | | 9 |
| 21. | VG | Inflorescence: anthocyanin coloration of male flowers | | | | | |
| QN | (a) | absent or very weak | | | | | 1 |
| | | weak | | | | | 3 |
| | | medium | | | | | 5 |
| | | strong | | | | | 7 |
| | | very strong | | | | | 9 |
| 22. | MS | Plant: height (flowering plant including inflorescence) | | | | | |
| QN | (a) | short | | | | | 3 |
| | | medium | | | | | 5 |
| | | tall | | | | | 7 |
| 23. (*) | | Stem: color | | | | | |
| PQ | (a) | yellow | | | | | 1 |
| | | yellow green | | | | | 2 |
| | | light green | | | | | 3 |
| | | green | | | | | 4 |
| | | dark green | | | | | 5 |

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| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|-------------------|----|---|----------|---------|---------|---|---------------|
| 24. (*) (+) | | Time of maturity (50% of plants with at least one hard, dry seed) | | | | | |
| QN | | early | | | | | 3 |
| | | medium | | | | | 5 |
| | | late | | | | | 7 |
| 25. | VG | Seed: size | | | | | |
| QN | | very small | | | | | 1 |
| | | small | | | | | 3 |
| | | medium | | | | | 5 |
| | | large | | | | | 7 |
| | | very large | | | | | 9 |
| 26. | VG | Seed: color of testa | | | | | |
| PQ | | white | | | | | 1 |
| | | grey | | | | | 2 |
| | | beige | | | | | 3 |
| | | ochre-yellow | | | | | 4 |
| | | brown | | | | | 5 |
| | | purplish | | | | | 6 |
| 27. | VG | Seed: reticulation | | | | | |
| QN | | weak | | | | | 3 |
| | | medium | | | | | 5 |
| | | strong | | | | | 7 |

TG/CAN_SAT(proj.1) Hemp, 2008-06-06 - 15 -

| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|-----|----|-----------------------------|----------|---------|---------|---|---------------|
| 28. | VG | Seed: shape in lateral view | 1 | | | | |
| PQ | | narrow elliptic | | | | | 1 |
| | | ovate | | | | | 2 |
| | | broad ovate | | | | | 3 |
| | | semi broad elliptic | | | | | 4 |
| | | semi oblate | | | | | 5 |

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) Observations should be done at the time when plants are fully flowering (100% of plants with at least one male or female flower, which is usually about 2 weeks after the beginning of flowering as determined at characteristic 5 or 6).
- (b) Observations should be done on the middle third part of the plant.

8.2 Explanations for individual characteristics

Ad. 5: Only seed-propagated varieties: Time of beginning of flowering (50% of plants with at least one male flower)

First male flowers often appear from the axils of the leaves on the main stem.

Ad. 7: Plant: sex expression

Cannabis sativa L. is normally dioecious. Monoecious plants occasionally occur naturally but are specially created by breeding activity (Bócsa, 1998). Genetics of Sex expression is complex. Sex expression can be modified by environmental factors. Varieties are rarely 100% monoecious. Male off-type plants may occur for several generations segregating from breeders' seed. Predominantly monoecious varieties are varieties which do not contain more than 5% male plants.

<u>Note Ad 9</u>: Hungary proposes to do the observation on the upper two third part of the plant. Czech Republic: number of branches is highly influenced by plant density.

Ad 13: Leaf: maximum number of leaflets on one petiole

Observations should be done from the last opposite leaves on fully flowering plants

Note Ad. 23: Stem: color France uses three classes for Stem color: yellow, green and with anthocyanin.

Ad 24: Time of maturity (50% of plants with at least one hard, dry seed)

Time of maturity can be observed in the field (field test A), but some (late/very late) varieties require shorter days to complete their life cycle. The latter need to be tested for this characteristic under artificial light conditions (special test C).

Note Ad. 25: France proposes to change this characteristic (Seed size) into Thousand Seed Weight (TSW) and to indicate 5 classes: TSW < 14; 14 < TSW < 16; 16 < TSW < 18; 18 < TSW < 20 and TSW > 20 grams

Note Ad. 28: France uses only three classes for Seed shape in lateral view

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<u>Note Add:</u> France proposes to add THC to the Table of Characteristics (Char. 29): Content of THC with the following classes:

- Note 9

No regulatory (> 0.2 % of THC)

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9. <u>Literature</u>

Bócsa, I., 1998: Genetic Improvement : Conventional Approaches. In: Advances in Hemp Research. Paolo Ranalli (Ed.). Haworth Food Products Press, New York. 272 pp.

Clarke, R. C., 1998: Botany of the Genus *Cannabis*. In: Advances in Hemp Research. Paolo Ranalli (Ed.). Haworth Food Products Press, New York. 272 pp.

Meijer de, E., 1995: Fibre hemp cultivars : A survey of origin, ancestry, availability and brief agronomic characteristics. Journal of the International Hemp Association 2(2) : 66-73

Meijer de, E., 1998: Cannabis Germplasm Resources. In: Advances in Hemp Research. Paolo Ranalli (Ed.). Haworth Food Products Press, New York. 272 pp.

10. <u>Technical Questionnaire</u>

| TEC | HNICAL QUESTIONNAIR | E | Page {x} of {y} | Reference Number: |
|-----|--------------------------------------|-------|---|--|
| | | | | Application date: (not to be filled in by the applicant) |
| | | | INICAL QUESTIONN tion with an application | NAIRE on for plant breeders' rights |
| 1. | Subject of the Technical Q | uesti | ionnaire | |
| | 1.1 Botanical name | Ca | nnabis sativa L. | |
| | 1.2 Common name | He | mp | |
| | | | | |
| 2. | Applicant | | | |
| | Name | | | |
| | Address | | | |
| | | | | |
| | | | | |
| | Telephone No. | | | |
| | Fax No. | | | |
| | E-mail address | | | |
| | Breeder (if different from a | ıppli | cant) | |
| | | | | |
| 3. | Proposed denomination and | d bre | eeder's reference | |
| | Proposed denomination (if available) | | | |
| | Breeder's reference | | | |

| TECHNICAL QUESTIONNAIRE | | Reference Number: |
|-------------------------|------------------------|-------------------|
| | I Page Jy Lot Jy L | Reference Nilmber |
| TECHNICAL OULS HONNAINE | I I ago i A (OI i v (| Reference Number. |
| | | |

| [#] 4. | Info | rmation | rmation on the breeding scheme and propagation of the variety | | | | | | |
|-----------------|------|---------|--|-----|--|--|--|--|--|
| | 4.1 | Breedi | ing scheme | | | | | | |
| | | Variet | 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.

| | | - 21 - | | | | | |
|---------------------------------|---|---|------------------|-----|--|--|--|
| TECHNICAL (| QUESTIONNAIRE | Page {x} of {y} | Reference Number | er: | | | |
| 4.2 Method of | propagating the varie | ety | | | | | |
| 4.2.1 Seed-propagated varieties | | | | | | | |
| | (a) Self-pollinatio | n |] |] | | | |
| | (b) Cross-pollination (i) population (ii) synthetic v | 1 |] | | | | |
| | (c) Hybrid | | [|] | | | |
| | (d) Other (please provide | e details) |] | 1 | | | |
| 4.2.2 | Vegetatively propaga | ated varieties | | | | | |
| | (a) cuttings | |] |] | | | |
| | (b) in vitro propag | ation |] |] | | | |
| | (c) other [state me | ethod] | | | | | |
| 4.2.3 | Other (please provide detail | ils) |] |] | | | |
| | | oduction scheme for t details of all the paren | | | | | |
| Single Hyl | brid | | | | | | |
| (fe | (female parent) x (male parent) | | | | | | |
| Three-Way Hybrid | | | | | | | |
| (fe | emale line) x (| male line) | | | | | |
| | => single hybrid use | ed as female parent x | (male parent |) | | | |
| and should ident | ify in particular: | | | | | | |
| | male sterile lines atenance system of ma | ale sterile lines. | | | | | |

| 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).

| COITE | esponds). | | |
|----------------|---|-----------|------|
| | Characteristics Example | Varieties | Note |
| 5.1 (5) | Only seed-propagated varieties: Time of beginning of flowering (50% of plants with at least one male flower open) | | |
| | early | | 3[] |
| | medium | | 5[] |
| | late | | 7[] |
| 5.2 (6) | <u>Varieties with female flowers only</u> : Time of beginning of flowering (50% of plants with at least one female flower open) | | |
| | early | | 3[] |
| | medium | | 5[] |
| | late | | 7[] |
| 5.3 (7) | Plant: sex expression | | |
| | predominantly monoecious | | 1[] |
| | dioecious | | 2[] |
| | female plants only | | 3[] |
| 5.4 (24) | Time of maturity (50% of plants with at least one hard, dry seed) | | |
| | early | | 3[] |
| | medium | | 5[] |
| | late | | 7[] |

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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 | Characteri | ` ′ | | the expression | Describe the | |
| variety(ies) similar to | which your | | 1 1 | | expression of the | |
| your candidate variety | variety diffe similar var | | | e similar lety(ies) | characteristic(s) for your candidate variety | |
| Example | Plant: h | eight | sh | ort | tall | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 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 deta | nils) | | | | | |
| 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 | | | | | | |
| | Main use | | | | | | |
| | (a) bast fibre and (b) oil seed (c) pharmaceution (d) other (please providence) | | [] [] [] | | | | |
| 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. | Info | mation on plant material to be examined or submi | itted for exa | nmination | | | |
| 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. | | | | | | | |
| reque treatr | ession est suc nent r | plant material should not have undergone any to of the characteristics of the variety, unless the theorem. If the plant material has undergone must be given. In this respect, please indicate belomaterial to be examined has been subjected to: | e competen such treatn | nt authorities nent, full det | allow or ails of the | | |
| | (a) | Microorganisms (e.g. virus, bacteria, phytoplasm | na) | Yes [] | No [] | | |
| | (b) | Chemical treatment (e.g. growth retardant, pestic | eide) | Yes [] | No [] | | |
| | (c) | Tissue culture | | Yes [] | No [] | | |
| | (d) | Other factors | | Yes [] | No [] | | |
| | Please provide details for where you have indicated "yes". | | | | | | |
| | | | | | | | |
| 9.3 Has the plant material to be examined been tested for the presence of virus or other pathogens? | | | | | | | |
| | Yes | [] | | | | | |
| | (| please provide details as specified by the Authorit | ty) | | | | |
| | No | [] | | | | | |
| 10. I hereby declare that, to the best of my knowledge, the information provided in this form is correct: | | | | | | | |
| | Appl | icant's name | | | | | |
| | Signa | nture | Date | | | | |