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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

CHINESE CHIVE

(*Allium tuberosum* Rottler ex Spreng)

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

Alternative Names: *

| <i>Latin</i> | <i>English</i> | <i>French</i> | <i>German</i> | <i>Spanish</i> |
|--|----------------|------------------|------------------|----------------|
| <i>Allium tuberosum</i> Rottler ex Spreng | Chinese Chive | Civette chinoise | Allium tuberosum | Civechino |

ASSOCIATED DOCUMENTS

These guidelines should be read in conjunction with document TG/1/3, "General Introduction to the Examination of Distinctness, Uniformity and Stability and the Development of Harmonized Descriptions of New Varieties of Plants" (hereinafter referred to as 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.]

| <u>TABLEOFCONTENTS</u> | <u>PAGE</u> |
|--|-------------|
| 1. SUBJECTOF THESEGUI DELINES..... | 3 |
| 2. MATERIALREQUIRED | 3 |
| 3. METHODOF EXAMINATION | 3 |
| 3.1 DurationofTests | 3 |
| 3.2 TestingPlace | 3 |
| 3.3 ConditionsforConductingtheExamination | 3 |
| 3.4 TestDesign | 4 |
| 3.5 NumberofPlants/PartsofPlantsto beExamined | 4 |
| 3.6 AdditionalTests | 4 |
| 4. ASSESSMENTOF DISTINCTNESS,UNIFORMITYANDSTABILITY | 4 |
| 4.1 Distinctness | 4 |
| 4.2 Uniformity | 4 |
| 4.3 Stability | 5 |
| 5. GROUPINGOF VARIETIES ANDORGANIZATION OF THEGROWINGTRIAL | 5 |
| 6. INTRODUCTIONTOTHE TABLEOF CHARACTERISTICS | 6 |
| 6.1 Categoriesof Characteristics | 6 |
| 6.2 StatesofExpressionandCorrespondingNotes | 6 |
| 6.3 TypesofExpression | 6 |
| 6.4 ExampleVarieties | 6 |
| 6.5 Legend | 6 |
| 7. TABLEOF CHARACTERISTICS | 7 |
| 8. EXPLANATIONS ONTHE TABLEOF CHARACTERISTICS..... | 11 |
| 8.1 Explanationscoveringseveralcharacteristics | 11 |
| 8.2 Explanationsforindividualcharacteristics | 12 |
| 9. LITERATURE..... | 14 |
| 10. TECHNICALQUESTIONNAIRE..... | 15 |

1. SubjectoftheseGuidelines

TheseTestGuidelinesapplytoallvarietiesof *Alliumtuberosum*RottlerexSpreng.

2. MaterialRequired

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 for seed -propagated varieties and in the form of seedlings for vegetatively propagated varieties.

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

for seed -propagated varieties: 20g of seed or 3,000 seeds;

for vegetatively propagated varieties: 100 seedlings.

2.4 In the case of seed -propagated varieties, 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.

2.5 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. MethodofExamination

3.1 *DurationofTests*

The minimum duration of tests should normally be two independent growing cycles.

3.2 *TestingPlace*

The tests should normally be conducted at one place. If any characteristics of the variety, which are relevant for the examination of DUS, cannot be seen at that place, the variety may be tested at an additional place.

3.3 *ConditionsforConductingtheExamination*

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.

3.4 *TestDesign*

3.4.1 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.

3.4.2 Each test should be designed to result in a total of at least 60 plants which should be divided between two or more replicates.

3.5 *Number of Plants/Parts of Plant to be Examined*

Unless otherwise indicated, all observations determined by measuring or counting should be made on 20 plants or part taken from each of 20 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 minimum duration of tests recommended in section 3.1 reflects, in general, the need to ensure that any differences in a characteristic are sufficiently consistent.

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 The assessment of uniformity for vegetatively propagated varieties should be made on the basis of the number of off-types. A population standard of 1% and an acceptance

probability of at least 95% should be applied. In the case of a sample size of 60 plants, 2 off-types are allowed.

4.2.3 For the assessment of uniformity of seed -propagated varieties, the recommendations in the General Introduction for the cross -pollinated or hybrid varieties should be followed, as appropriate.

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 materials supplied.

4.3.3 The stability of a hybrid variety may, in addition to an examination of the hybrid variety itself, also be assessed by examination of the uniformity and stability of its parent lines.

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 is 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 others 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 trials so that similar varieties are grouped together.

5.3 The following have been agreed as useful grouping characteristics:

- (a) Leaf: attitude (characteristic 4);
- (b) Leaf blade: width (characteristic 6);
- (c) Pseudo-stem: shape in cross section (characteristic 12).

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

6. IntroductiontotheTableofCharacteristics

6.1 *CategoriesofCharacteristics*

6.1.1 StandardTestGuidelinesCharacteristics

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 AsteriskedCharacteristics

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 *StatesofExpressionandCorrespondingNotes*

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 *TypesofExpression*

An explanation of the types of expression of characteristics (qualitative, quantitative and pseudo-qualitative) is provided in the General Introduction.

6.4 *ExampleVarieties*

Where appropriate, example varieties are provided to clarify the states of expression of each characteristic.

6.5 *Legend*

(*) Asterisked characteristic –see Section 6.1.2

(a)-(b) See Explanations on the Table of Characteristics in Chapter 8, Section 8.1

(+) See Explanations on the Table of Characteristics in Chapter 8, Section 8.2

7. Table of Characteristics/Tableau des caractères/Merkmalstabelle/Tablades caracteres

| English | français | Deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
|--|--|--|---|--|---------------|
| 1. (a) Plant:height (* (+) | Plante:hauteur | Pflanze:Höhe | Planta:altura | | |
| short | basse | niedrig | baja | | 3 |
| medium | moyenne | mittel | media | Gurinberuto | 5 |
| tall | haute | hoch | alta | Wandag urinberuto | 7 |
| 2. (a) <u>Seed-propagated varieties only</u>:Plant: number of tillers | <u>Variétés à reproduction sexuée seulement</u>:Plante: nombre de tiges | <u>Nur samenvermehrte Sorten</u>:Pflanze: Anzahl Seitentriebe | <u>Sólo variedades de reproducción sexual</u>:Planta: número de hijuelos | | |
| few | petit | gering | bajo | Tairyou | 3 |
| medium | moyen | mittel | medio | Wandag urinberuto | 5 |
| many | grand | groß | alto | Gurinberuto | 7 |
| 3. (a) Plant:number of flowering stems | Plante:nombre de tiges florales | Pflanze:Anzahl Blütentriebe | Planta:número de tallos florales | | |
| few | petit | gering | bajo | | 3 |
| medium | moyen | mittel | medio | Gurinberuto | 5 |
| many | grand | groß | alto | Tendaporu | 7 |
| 4. (a) Leaf:attitude (* (+) | Feuille:port | Blatt:Haltung | Hoja:porte | | |
| erect | dressé | aufrecht | erecto | Tairyou | 1 |
| erect to semi-erect | dressé à demi-dressé | aufrecht bis halbaufrecht | erecto a semi erecto | Daiyamondo beruto | 2 |
| semi-erect | demi-dressé | halbaufrecht | semi erecto | Gurinberuto | 3 |
| semi-erect to horizontal | demi-dressé à horizontal | halbaufrecht bis waagrecht | semi erecto a horizontal | Kuraunberuto | 4 |
| horizontal | horizontal | waagrecht | horizontal | Tendaporu | 5 |

| English | français | Deutsch | español | Example Varieties Exemples Beispielssorten Variedadesejemplo | Note/ Nota |
|-------------------------|---|---|--|---|----------------|
| 5. (*) (+) | Leafblade:length | Limbe:longueur | Blattspreite:Länge | Limbo:longitud | |
| short | court | kurz | corto | | 3 |
| medium | moyen | mittel | medio | Gurinberuto | 5 |
| long | long | lang | largo | Kuraunberuto | 7 |
| 6. (*) (+) | Leafblade:width | Limbe:largeur | Blattspreite:Breite | Limbo:anchura | |
| narrow | étroit | schmal | estrecho | Tendaporu | 3 |
| medium | moyen | mittel | medio | Gurinberuto | 5 |
| broad | large | breit | ancho | Tairyou | 7 |
| 7. | Leafblade:intensity ofgreencolor | Limbe:intensitéde lacouleurverte | Blattspreite: Intensitätder Grünfärbung | Limbo:intensidad delcolorverde | |
| | light | claire | hell | claro | Tairyou 3 |
| | medium | moyenne | mittel | medio | Gurinberuto 5 |
| | dark | foncée | dunkel | oscuro | Kuraunberuto 7 |
| 8. | Leafblade: glossiness | Limbe:brillance | Blattspreite:Glanz | Limbo:brillo | |
| | weak | faible | gering | débil | Tendaporu 3 |
| | medium | moyenne | mittel | medio | Gurinberuto 5 |
| | strong | forte | stark | fuerte | Tairyou 7 |
| 9. | Leafblade: thickness | Limbe:épaisseur | Blattspreite:Dicke | Limbo:grosor | |
| | thin | fine | dünn | delgado | 3 |
| | medium | moyenne | mittel | medio | Gurinberuto 5 |
| | thick | épaisse | dick | grueso | Tairyou 7 |

| English | français | Deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
|---------------------------|---|--|---|--|---------------------|
| 10. | Leafblade: droopingoftip | Limbe:inclinaison del'extrémité | Blattspreite: Überhängender Spitze | Limbo:curvatura delápice | |
| | weak | faible | gering | débil | Wandag urinberuto 3 |
| | medium | moyenne | mittel | media | Gurinberuto 5 |
| | strong | forte | stark | fuerte | Kuraunberuto 7 |
| 11. | Leafblade:bloom | Limbe:pruine | Blattspreite: Bereifung | Limbo:pruína | |
| | few | faible | gering | escasa | Tairyou 3 |
| | medium | moyenne | mittel | media | Gurinberuto 5 |
| | many | forte | stark | abundante | Oobananyounira 7 |
| 12. (* (+) | Pseudo-stem:shape incrosssection | Faussetige:forme delasection transversale | Pseudotrieb:Form imQuerschnitt | Pseudotallo:forma ensección transversal | |
| | round | arrondie | rund | redonda | Gurinberuto 1 |
| | oval | ovale | eiförmig | oval | Wandag urinberuto 2 |
| 13. (* (+) | Pseudo-stem:length | Faussetige: longueur | Pseudotrieb:Länge | Pseudotallo: longitud | |
| | short | courte | kurz | corto | 3 |
| | medium | moyenne | mittel | medio | Gurinberuto 5 |
| | long | longue | lang | largo | Kuraunberuto 7 |
| 14. (* (+) | Pseudo-stem: maximumwidth | Faussetige:largeur maximale | Pseudotrieb: maximaleBreite | Pseudotallo: anchuramáxima | |
| | narrow | étroite | schmal | estrecho | 3 |
| | medium | moyenne | mittel | medio | Gurinberuto 5 |
| | broad | large | breit | ancho | Kuraunberuto 7 |
| 15. (* | Pseudo-stem: predominantcolor | Faussetige:couleur prédominante | Pseudotrieb: überwiegendeFarbe | Pseudotallo:color predominante | |
| | white | blanc | weiß | blanco | Kuraunberuto 1 |
| | greenish | verdâtre | grünlich | verdoso | Gurinberuto 2 |

| English | français | Deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
|--|---|--|---|--|---------------|
| 16. Pseudo-stem: number of leaves | Faussetige: nombre de feuilles | Pseudotrieb: Anzahl Blätter | Pseudotallo: número de hojas | | |
| few | petit | gering | bajo | Tendaporu | 3 |
| medium | moyen | mittel | medio | Gurinberuto | 5 |
| many | grand | groß | alto | | 7 |
| 17. (b) Flowering stem : length | Tigeflorale: longueur | Blütentrieb: Länge | Tallofloral: longitud | | |
| short | courte | kurz | corto | | 3 |
| medium | moyenne | mittel | medio | Tendaporu | 5 |
| long | longue | lang | largo | Wandag urinberuto | 7 |
| 18. (b) Flowering stem : diameter | Tigeflorale: diamètre | Blütentrieb: Durchmesser | Tallofloral: diámetro | | |
| small | petit | klein | pequeño | | 3 |
| medium | moyen | mittel | medio | Tendaporu | 5 |
| large | grand | groß | grande | Wandag urinberuto | 7 |
| 19. (*) Time of bolting | Époque de montaison | Zeitpunkt des Schossens | Época de brotación | | |
| early | précoce | früh | temprana | Tendaporu | 3 |
| medium | moyenne | mittel | media | Gurinberuto | 5 |
| late | tardive | spät | tardía | | 7 |

8. ExplanationsontheTableofCharacteristics

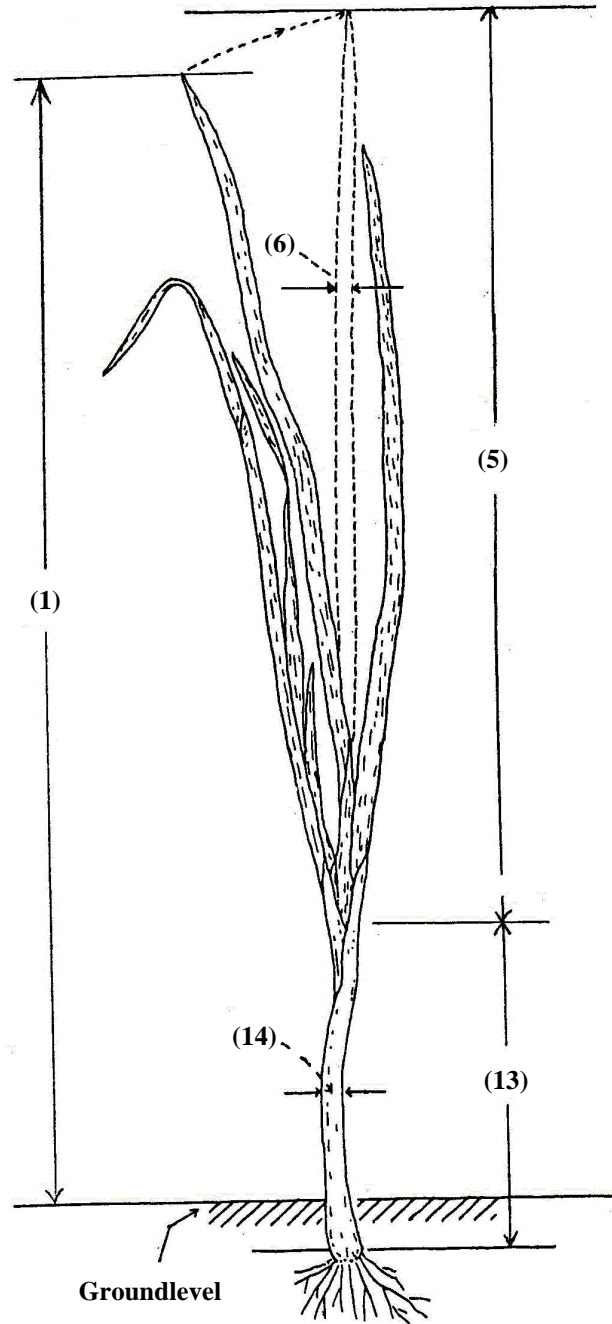
8.1 *Explanationscoveringseveralcharacteristics*

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

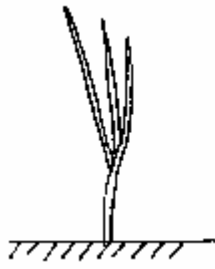
- (a) Plantandlea f: Observations on the plant and leaf should be made at harvest maturity.
- (b) Floweringstem: Observations on the flowering stem should be made at time of full flowering.

8.2 Explanationsforindividualcharacteristics

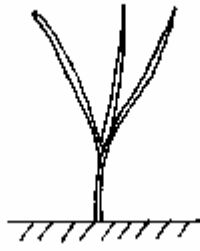
Ads.1,5,6,13and14:Plant :height(1);Leafblade:lengthandwidth(5+6);Pseudo-stem: lengthandmaximumwidth(13+14)



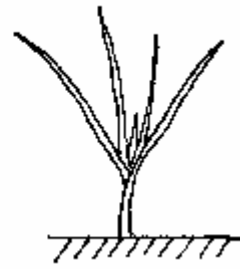
Ad.4:Plant:growthhabit



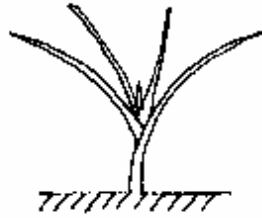
1
erect



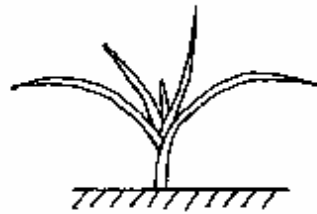
2
erectosemi -erect



3
semi-erect



4
semi-erecttohorizonta l

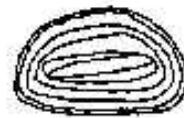


5
horizontal

Ad.12:Pseudo -stem:shapeincrosssection



1
round



2
oval

9. Literature

Anonym. "Standard Tables of Food Composition for Japan", Japan Scientific Agency, 1984.

Aoba, T. and Iwasaki, T. : "Studies on the ecological characteristics of Chinese chive", II. Differentiation and development of inflorescences, *Agric. Hortic.*, 45, 845, 1970.

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Nakamura, E. : "Allium-minor vegetables," in *CRC Handbook of Flowering*, Helevy, A., H. Ed., CRC Press, Boca Raton, FL, 1985, 410.

Saito, S. and Takahashi, Y. : "Effect of vinyl covering on the growth, quality and chemical composition in vegetables. Effect on growth, sugar and chlorophyll contents of the Chinese chives," *J. Agric. Sci.*, 29, 122, 1984.

Saito, S. and Takama, F. : "Effect of vinyl covering on the growth, quality and chemical composition in vegetables : IV. Effect on the quality and volatile aroma component of the Chinese chives," *J. Agric. Sci.*, 29, 177, 1976.

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Saito, S., Takama, F. and Mayama, S.: "Effect of vinyl covering on the growth, quality and chemical compositions in vegetables : III. Effect on the texture of the sweet pepper fruit and Chinese chive," *J. Agric. Sci.*, 20, 231, 1976.

Shogakukan, 1991 : "The Grand Dictionary of Horticulture, 3," 484- 485.

Takama, F. and Saito, S.: "Studies on the storage of the vegetables and fruits : II. Total carotenoid contents of sweet pepper, leek and parsley," *J. Agric. Sci.*, 19, 11, 1974.

Watanabe, H. : "Studies on the differentiation and bolting of Welsh onion varieties," *Stud. Inst., Hortic. Kyoto Univ.*, 7, 101, 1955.

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10. TechnicalQuestionnaire

| | | |
|---|--|---|
| TECHNICALQUESTIONNAIRE | Page{x}of{y} | ReferenceNumber: |
| | | Applicationdate: (nottobefilledinbytheapplicant) |
| TECHNICALQUESTIONNAIRE tobecompletedinconnectionwithanapplicationforplantbreeders'rights | | |
| 1. SubjectoftheTechnicalQuestionnaire | | |
| 1.1 LatinName | <input type="text" value="Alliumtuberosum RottlerexSpreng"/> | |
| 1.2 CommonName | <input type="text" value="ChineseChive"/> | |
| 2. Applicant | | |
| Name | <input type="text"/> | |
| Address | <input type="text"/> | |
| TelephoneNo. | <input type="text"/> | |
| FaxNo. | <input type="text"/> | |
| E-mailaddress | <input type="text"/> | |
| Breeder(ifdifferentfromapplicant) | <input type="text"/> | |
| 3. Proposeddenominationandbreeder'sreference | | |
| Proposeddeno mination (ifavailable) | <input type="text"/> | |
| Breeder'sreference | <input type="text"/> | |

| | | |
|------------------------|--------------|------------------|
| TECHNICALQUESTIONNAIRE | Page{x}of{y} | ReferenceNumber: |
|------------------------|--------------|------------------|

4. Informationonthebreedingschemeandpropagationofthevariety

4.1 BreedingScheme

Varietyresultingfrom:

4.1.1 Crossing

(a) controlledcross
(pleasestateparentvarieties)

(b) partiallyunknowncross
(pleasestateknownparentvariety(ies))

(c) totallyunknowncross

4.1.2 Mutation
(pleasestateparentvariety)

4.1.3 Discovery
(pleasestatewhere,whenandhowdeveloped)

4.1.4 Other
(pleaseprovidedetails)

4.2 MethodofPropagatingtheVariety

4.2.1 Seed-propagatedvarieties

(a) Self-pollination

(b) Cross-pollination
(i) population
(ii) syntheticvariety

(c) Hybrid
(seebelow)

(d) Other
(pleaseprovidedetails)

4.2.2 Vegetativelypropagatedvarieties

(a) cuttings

(b) *invitro* propagation

(c) other(statemethod)

| | | |
|------------------------|-----------------|------------------|
| TECHNICALQUESTIONNAIRE | Page {x} of {y} | ReferenceNumber: |
|------------------------|-----------------|------------------|

In the case of hybrid varieties the production scheme for the hybrid should be provided on a separate sheet. This should provide details of all the lines required for propagating the hybrid, e.g.

Single Hybrid (SH)
 (...female parent...) x (...male parent...)

Three-Way Hybrid (3WH)
 (...female line...) x (...male line...)
 => single hybrid used as female parent x (...male parent...)

and should identify in particular: (a) any male sterile lines
 (b) maintenance system of male sterile lines.

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 Leaf: attitude (4) | | |
| erect | Tairyou | 1[] |
| erect to semi-erect | Daiyamondo beruto | 2[] |
| semi-erect | Grinberuto | 3[] |
| semi-erect to horizontal | Kuraunberuto | 4[] |
| horizontal | Tendaporu | 5[] |
| 5.2 Leafblade: width (6) | | |
| narrow | Tendaporu | 3[] |
| medium | Grinberuto | 5[] |
| broad | Tairyou | 7[] |

| | | |
|------------------------|--------------|------------------|
| TECHNICALQUESTIONNAIRE | Page{x}of{y} | ReferenceNumber: |
|------------------------|--------------|------------------|

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 Special conditions for the examination of the variety

7.2.1 Are there any special conditions for growing the variety or conducting the examination?

Yes No

7.2.2 If yes, please give 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.

9. 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]