IPGRI

Descriptors for

Melon

Cucumis melo L.

List of Descriptors

Allium (E,S)	2000
Almond (revised) * (E)	1985
Apple * (E)	1982
Apricot * (E)	1984
Avocado (E,S)	1995
Bambara groundnut (E,F)	2000
Banana (E,S,F)	1996
Barley (E)	1994
Beta (E)	1991
Black pepper (E,S)	1995
Brassica and *Raphanus* (E)	1990
Brassica campestris L. (E)	1987
Buckwheat (E)	1994
Capsicum * (E,S)	1995
Cardamom (E)	1994
Carrot (E,S,F)	1999
Cashew * (E)	1986
Cherry * (E)	1985
Chickpea (E)	1993
Citrus (E,F,S)	1999
Coconut (E)	1992
Coffee (E,S,F)	1996
Cotton * (Revised) (E)	1985
Cowpea * (E)	1983
Cultivated potato * (E)	1977
Echinochloa millet * (E)	1983
Eggplant (E,F)	1990
Faba bean * (E)	1985
Finger millet * (E)	1985
Forage grass * (E)	1985
Forage legumes * (E)	1984
Grapevine (E,S,F)	1997
Groundnut (E,S,F)	1992
Jackfruit (E)	2000
Kodo millet * (E)	1983
Lathyrus spp. (E)	2000
Lentil * (E)	1985
Lima bean * (E,P)	1982
Litchi	2002
Lupin * (E,S)	1981
Maize (E,S,F, P)	1991
Mango (E)	1989
Medicago (Annual) * (E,F)	1991
Mung bean * (E)	1980
Oat * (E)	1985
Oca * (S)	2001
Oil palm (E)	1989
Panicum miliaceum and *P. sumatrense* (E)	1985
Papaya (E)	1988
Peach * (E)	1985
Pear * (E)	1983
Pearl millet (E,F)	1993
Phaseolus acutifolius (E)	1985
Phaseolus coccineus * (E)	1983
Phaseolus vulgaris * (E,P)	1982
Pigeonpea (E)	1993
Pineapple (E)	1991
Pistacia (excluding *Pistacia vera*) (E)	1998
Pistachio (E,F,A,R)	1997
Plum * (E)	1985
Potato variety * (E)	1985
Quinua * (E)	1981
Rice * (E)	1980
Rocket (E,I)	1999
Rye and Triticale * (E)	1985
Safflower * (E)	1983
Sesame * (E)	1981
Setaria italica and *S. pumilia* (E)	1985
Sorghum (E,F)	1993
Soyabean * (E,C)	1984
Strawberry (E)	1986
Sunflower * (E)	1985
Sweet potato (E,S,F)	1991
Taro (E,F,S)	1999
Tea (E,S,F)	1997
Tomato (E, S, F)	1996
Tropical fruit * (E)	1980
Vigna aconitifolia and *V. trilobata* (E)	1985
Vigna mungo and *V. radiata* (Revised) * (E)	1985
Walnut (E)	1994
Wheat (Revised) * (E)	1985
Wheat and *Aegilops* * (E)	1978
White Clover (E)	1992
Winged Bean * (E)	1979
Xanthosoma * (E)	1989
Yam (E,S,F)	1997

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Cucumis melo L.

The International Plant Genetic Resources Institute (IPGRI) is an independent international scientific organization that seeks to advance the conservation and use of plant genetic diversity for the well-being of present and future generations. It is one of 16 Future Harvest Centres supported by the Consultative Group on International Agricultural Research (CGIAR), an association of public and private members who support efforts to mobilize cutting-edge science to reduce hunger and poverty, improve human nutrition and health, and protect the environment. IPGRI has its headquarters in Maccarese, near Rome, Italy, with offices in more than 20 other countries worldwide. The Institute operates through three programmes: (1) the Plant Genetic Resources Programme, (2) the CGIAR Genetic Resources Support Programme and (3) the International Network for the Improvement of Banana and Plantain (INIBAP).

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PREFACE

Descriptors for Melon (*Cucumis melo* L.) was developed by Torbjörn Kerje with the support of SIDA (Swedish International Development Cooperation Agency) under the supervision of Adriana Alercia and prepared in the internationally accepted IPGRI format for descriptor lists. This descriptor list is a revision of *Genetic Resources of Cucurbitaceae*, AGPG: IBPGR/82/48, 1983. A draft version of the revision was subsequently sent to a number of experts for their comments and amendments. Their amendments where used to produce the definitive list. The 1983 descriptor numbers are given in parentheses beside the present descriptors for cross-referencing purposes. A full list of the names and addresses of those involved is given in 'Contributors'.

Some of the descriptors have been added or modified according to the UPOV Technical Guideline for Melon (TG/104/04); the Cucurbit Genetics Cooperative's Descriptor List for Melon (2000) and GRIN's Descriptors (2000). Other resources taken into account are publications including characterization of melon (i.e. Gómez-Guillamón *et al*., 1985, 1998; JICA, 1995; Pitrat *et al.*, 2000). Torbjörn Kerje (IPGRI) did the primary work on the revision and update.

IPGRI encourages the collecting of data for all five types of descriptors (see Definitions and Use of Descriptors), whereby data from the first four categories – *Passport*, *Management*, *Environment and Site*, and *Characterization* – should be available for any accession. The number of descriptors selected in each of the categories will depend on the crop and their importance to the crop's description. Descriptors listed under *Evaluation* allow for a more extensive description of the accession, but generally require replicated trials over a period of time.

Although the suggested coding should not be regarded as the definite scheme, this format represents an important tool for standardized characterization system and it is prompted by IPGRI throughout the world.

This descriptor list provides an international format and thereby produces a universally understood "language" for plant genetic resources data. The adoption of this scheme for data encoding, or at least the production of a transformation method to convert other schemes to the IPGRI format, will produce a rapid, reliable and efficient means for information storage, retrieval and communication, and will assist with the utilization of germplasm. It is recommended, therefore, that information should be produced by closely following the descriptor list with regard to ordering and numbering descriptors, using the descriptors specified, and using the descriptor states recommended.

This descriptor list is intended to be comprehensive for the descriptors that it contains. This approach assists with the standardization of descriptor definitions. IPGRI does not, however, assume that each curator will characterize accessions of their collection utilizing all descriptors given. Descriptors should be used when they are useful to the curator for the management and maintenance of the collection and/or to the users of the plant genetic resources. However, highly discriminating descriptors are marked as highlighted text to facilitate selection of descriptors and are listed in Annex I.

Multi-crop passport descriptors were developed jointly by IPGRI and FAO to provide consistent coding schemes for common passport descriptors across crops. They are marked in the text as [MCPD]. Please note that owing to the generic nature of the multi-crop passport descriptors, not all descriptors states for a particular descriptor will be relevant to a specific crop. In Annex II, the reader will find the "Collecting form for melon" that will facilitate data collecting during field collecting.

Any suggestions for improvement of the Descriptors for melon will be highly appreciated by IPGRI.

AN INTRODUCTION TO MELON

The most common name used for *Cucumis melo* L. is melon. Other names include sweet melon, round melon, muskmelon, casaba, cantaloupe and winter melon (Nayar and Singh, 1998; Robinson and Decker-Walters, 1997). Melon was first described by Linné 1753 in *Species planetarum*. It is a member of the family Cucurbitaceae represented by some 118 genera and 825 species (Jeffrey, 1990). The family includes pumpkins, squashes, gourds, watermelon, loofah and several weeds. Melon is divided into two subspecies, *C. melo* ssp. *agrestis* and *C. melo* ssp. *melo*, differentiated by the pubescence on the female hypanthium. Ssp. *melo* has spreading hairs, and ssp. *agrestis* appressed hairs (Kirkbride, 1993).

Cucumis melo includes a wide range of cultivars. Although crosses outside the species are sterile, intraspecific crosses are generally fertile, resulting in a confusing range of variation (Purseglove, 1968).

Early taxonomic work including melon was made by Naudin (1859) and Coignaux (1881). However, these attempts, along with many more recent ones (Chacravarty, 1946, 1959, 1961, 1966, 1968; Berhaut, 1954, 1967, 1975; Meeuse, 1962; Jeffrey, 1967; Chacravarty and Jeffrey, 1980 etc.) failed in separating the cultivated species from wild species in accordance with the International Code of Nomenclature for Plants (Brickell *et al.*, 1980; Greuter *et al.*, 1988) and International Code of Nomenclature for Cultivated Plants (Trehane *et al.*, 1995). This has resulted in taxonomic confusion, hence, 522 synonyms of *C. melo* have been recognized by Kirkbride (1993). The taxonomy of the cultivars is complex and has only recently been reviewed and clarified by Pitrat *et al.* (2000). Kirkbride classified wild *Cucumis* in his monograph, 1993.

The origin of melon has also been disputed, since there are arguments for melon originating from either south Asia or Africa. South Asia does indeed have a high diversity of melon varieties, but all other *Cucumis* species with a chromosome number of n=12, except *C. hystrix*, originate from Africa and have been referred to as "the African group" (Kroon *et al.*, 1979). Of the 32 *Cucumis* species 31 have a chromosome number of n=12 (Kirkbride, 1993; Chen *et al.*, 1999). *C. sativus*, cucumber, a relative to *C. hystrix* is the only exception with n=7, and originates from Asia. New reviews of the origin of melon strongly indicate south and eastern Africa as the origin of melon (Mallick and Masui 1985; Kerje and Grum, 2000).

Melon has probably been cultivated in China since 2000 years BC (Keng, 1974) and many cultivars and high fruit diversity have evolved, as well as a worldwide spreading of the cultivated forms in the tropics and sub-tropics. It is mainly used as a fruit but immature fruits are used as a vegetable, seeds are edible and the roots can be used in medicine (Robinson and Decker Walters, 1997; Nayar and Sing, 1998). Wild inedible forms are mainly from Africa (Jeffry, 1980). China and USA have the highest production of melon.

Melon is easily spread into the wild as feral from cultivation. Natural habitats are near cultivated areas, townships and riverbeds. Melon is also found in very dry areas. The geographical distribution of wild melon is: Africa: Angola, Benin, Cameroon, Cape Verde Islands, Central African Republic, Chad, Côte d'Ivoire, Egypt, Ethiopia, Ghana, Guinea-Bissau, Kenya, Malawi, Maldives, Mali, Mozambique, Niger, Nigeria, Senegal, Seychelles, Somalia, South Africa, Sudan, Tanzania, Uganda, Zambia and Zimbabwe; Asia: Myanmar, China, India,

Iran, Japan, Korea, Nepal, Pakistan, Saudi Arabia, Sri Lanka, Thailand and Yemen, Malaysia, Indonesia, New Guinea, Philippines and Australia; Pacific: Fiji Islands, Guam, New Britain, Papua New Guinea, Samoa, Solomon Islands and Tonga. (Kirkbride, 1993)

Their fruits vary in size and shape but most varieties have round fruits, about 8-10 cm in diameter. The morphology of melon is remarkably stable for some characters of particular organs, but for others characteristics of the same organ the morphology of the same organ can be highly variable (Kirkbride, 1993).

Purseglove (1968) described *Cucumis melo* as follows: "A variable, trailing, softly hairy annual. Vines are monoecious or andro-monoecious. Root system large and superficial. Stems ridged or striate. Leaves orbicular or ovate to reniform, angled or shallowly 5-7 lobed, 8-5 cm in diameter, dentate, base cordate; petiole 4-10 cm long; tendrils simple. Flowers staminate and clustered, pistillate and solitary, or hermaphrodite, 1.2-3.0 cm in diameter, yellow, on short stout pedicles; calyx 5-lobed, 6-8 mm long; corolla deeply 5-partite, petals round, 2 cm long; stamens 3, free, connectives of anthers prolonged; pistil with 3-5 placentas and stigmas. Fruit very variable in size, shape and rind, globular or oblong, smooth or yellow-brown, or green, flesh yellow, pink or green, many seeded. Seeds whitish or buff, flat, smooth, 5-15 mm long. About 30 seeds per g."

The descriptors of melon can be used for cultivated varieties as well as wild accessions. They are, however not suitable for other *Cucumis* species like cucumber, or other cultivated cucurbits (i.e. watermelon, pumpkin, squash or kalebass) although many characters are very similar. In some cases they can provide guidelines.

DEFINITIONS AND USE OF THE DESCRIPTORS

IPGRI uses the following definitions in genetic resources documentation:

Passport descriptors: These provide the basic information used for the general management of the accession (including registration at the genebank and other identification information) and describe parameters that should be observed when the accession is originally collected.

Management descriptors: These provide the basis for the management of accessions in the genebank and assist with their multiplication and regeneration.

Environment and site descriptors: These describe the environmental and site-specific parameters that are important when characterization and evaluation trials are held. They can be important for the interpretation of the results of those trials. Site descriptors for germplasm collecting are also included here.

Characterization descriptors: These enable an easy and quick discrimination between phenotypes. They are generally highly heritable, can be easily seen by the eye and are equally expressed in all environments. In addition, these may include a limited number of additional traits thought desirable by a consensus of users of the particular crop.

Evaluation descriptors: The expression of many of the descriptors in this category will depend on the environment and, consequently, special experimental designs and techniques are needed to assess them. Their assessment may also require complex biochemical or molecular characterization methods. These types of descriptors include characters such as yield, agronomic performance, stress susceptibilities and biochemical and cytological traits. They are generally the most interesting traits in crop improvement.

Highly discriminating descriptors are indicated as highlighted text.

Characterization will normally be the responsibility of genebank curators, while evaluation will typically be carried out elsewhere (possibly by a multidisciplinary team of scientists). The evaluation data should be fed back to the genebank, which will maintain a data file.

The following internationally accepted norms for the scoring, coding and recording of descriptor states should be followed:

(a) the Système International d'Unités (SI) is used;

(b) the units to be applied are given in square brackets following the descriptor name;

(c) standard colour charts, e.g. Royal Horticultural Society Colour Chart, Methuen Handbook of Colour, or Munsell Color Chart for Plant Tissues, are strongly recommended for all ungraded colour characters (the precise chart used should be specified in the section where it is used);

(d) the three-letter abbreviations from the *International Standard (ISO) Codes for the representation of names of countries* is used;

(e) many quantitative characters which are continuously variable are recorded on a 1-9 scale, where:

1	Very low	6	Intermediate to high
2	Very low to low	7	High
3	Low	8	High to very high
4	Low to intermediate	9	Very high
5	Intermediate		

is the expression of a character. The authors of this list have sometimes described only a selection of the states, e.g. 3, 5 and 7 for such descriptors. Where this has occurred, the full range of codes is available for use by extension of the codes given or by interpolation between them, e.g. in Section 10 (Biotic stress susceptibility), 1 = very low susceptibility and 9 = very high susceptibility;

(f) when a descriptor is scored using a 1-9 scale, such as in (e), '0' would be scored when (i) the character is not expressed; (ii) a descriptor is inapplicable. In the following example, '0' will be recorded if an accession does not have a central leaf lobe:

Shape of central leaf lobe
1 Linear
2 Elliptic
3 Lanceolate

(g) absence/presence of characters is scored as in the following example:

Terminal leaflet
0 Absent
1 Present

(h) blanks are used for information not yet available;

(i) for accessions which are not generally uniform for a descriptor (e.g. mixed collection, genetic segregation), the mean and standard deviation could be reported where the descriptor is continuous. Where the descriptor is discontinuous, several codes in the order of frequency could be recorded; or other publicized methods can be utilized, such as Rana *et al*. (1991) or van Hintum (1993), that clearly state a method for scoring heterogeneous accessions;

(j) dates should be expressed numerically in the format YYYYMMDD, where

YYYY - 4 digits to represent the year
MM - 2 digits to represent the month
DD - 2 digits to represent the day.

PASSPORT

All descriptors listed under Passport, belonging to the multicrop passport descriptors category, are indicated in the text as [MCPD]

1. Accession descriptors

1.1 Institute code [MCPD]

Code of the institute where the accession is maintained. The codes consist of the 3-letter ISO 3166 country code of the country where the institute is located plus a number. The current set of Institute Codes is available from FAO website (**http://apps3.fao.org/wiews/**). If new Institute Codes are required, they can be generated online by national WIEWS administrators

1.2 Accession number (1.1) [MCPD]

This number serves as a unique identifier for accessions within a genebank collection, and is assigned when a sample is entered into the genebank collection. Once assigned this number should never be reassigned to another accession in the collection. Even if an accession is lost, its assigned number should never be re-used. Letters should be used before the number to identify the genebank or national system (e.g. IDG indicates an accession that comes from the genebank at Bari, Italy; CGN indicates an accession from the genebank at Wageningen, The Netherlands; PI indicates an accession within the USA system)

1.3 Donor institute code [MCPD]

Code for the donor institute. (See instructions under Institute Code, **1.1**)

1.4 Donor accession number (1.3) [MCPD]

Number assigned to an accession by the donor. (See instructions under Accession Number, **1.2**)

1.5 Other identification number(s) associated with the accession (1.4) [MCPD]

Any other identification (numbers) known to exist in other collections for this accession. Use the following system: INSTCODE:ACCENUMB;INSTCODE: ACCENUMB;… INSTCODE and ACCENUMB follow the standard described above and are separated by a colon. Pairs of INSTCODE and ACCENUMB are separated by a semicolon without space. When the institute is not known, the number should be preceded by a colon

1.6 Genus (1.5.1) [MCPD]

Genus name for taxon. Initial uppercase letter required

1.7 Species (1.5.2) [MCPD]

Specific epithet portion of the scientific name in lowercase letters. The abbreviation "sp." is allowed

1.7.1 Species authority [MCPD]

Provide the authority for the species names

1.8 Subtaxa (1.5.3) [MCPD]

Subtaxa can be used to store any additional taxonomic identifier. The following abbreviations are allowed: "subsp." (for subspecies); "convar." (for convariety); "var." (for variety); "f." (for form)

1.8.1 Subtaxa authority [MCPD]

Provide the subtaxa authority at the most detailed taxonomic level

1.9 Accession name [MCPD]

Either a registered or other formal designation given to the accession. First letter uppercase. Multiple names separated with semicolon without space

1.9.1 Synonyms

Include here any previous identification other than the current name. Collecting number or newly assigned station names are frequently used as identifiers

1.9.2 Common crop name [MCPD]

Name of the crop in colloquial language, preferably in English (i.e. 'malting barley', 'cauliflower', or 'white cabbage')

1.10 Ancestral data (1.6) [MCPD]

Information about pedigree or other description of ancestral information (i.e. parent variety in case of mutant or selection)

1.11 Accession size (1.9)

Approximate number or weight of seeds, tissue culture, etc. of an accession in the genebank

1.12 Type of material received

1 Seed
2 Plant (including seedlings)
3 Pollen
4 *In vitro* culture
99 Other (specify in descriptor **1.13 Remarks**)

1.13 Remarks

The Remarks field is used to add notes or to elaborate on descriptors with value "99" (=Other)

2. Collecting descriptors

2.1 Collecting institute(s) (2.2)

Name and address of the institute(s) and individual(s) collecting / sponsoring the collection of the sample(s)

2.2 Collecting institute code [MCPD]

Code of the institute (s) collecting the sample. If holding institute has collected the material, the collecting institute code should be the same as the holding institute code. (See instructions under Institute Code, **1.1**)

2.3 Collecting number (2.1) [MCPD]

Original number assigned by the collector(s) of the sample, normally composed of the name or initials of the collector(s) followed by a number. This item is essential for identifying duplicates held in different collections

2.4 Collecting date of sample [YYYYMMDD] (2.3) [MCPD]

Collecting date of the sample where YYYY is the year, MM is the month and DD is the day. Missing data (MM or DD) should be indicated by hyphens. Leading zeros are required

2.5 Country of origin (2.4) [MCPD]

Code of the country in which the sample was originally collected. Use the three-letter abbreviations from the *International Standard (ISO) Codes for the representation of names of countries*. The ISO 3166-1: Code List can be obtained from IPGRI [ipgri-mcpd@cgiar.org]

2.6 Province / State (2.5)

Name of the primary administrative subdivision of the country in which the sample was collected

2.7 Breeding institute code [MCPD]

Code of the institute that has bred the material. If the holding institute has bred the material, the breeding institute code should be the same as the holding institute

2.8 Location of collecting site (2.6) [MCPD]

Location information below the country level that describes where the accession was collected. This might include the distance in kilometers and direction from the nearest town, village or map grid reference point (e.g. 7 km south of Curitiba in the state of Parana)

2.9 Latitude of collecting site[1] (2.7) [MCPD]

Degree (2 digits), minutes (2 digits) and seconds (2 digits) followed by N (North) or S (South) (e.g. 103020S). Every missing digit (minutes or seconds) should be indicated with a hyphen. Leading zeros are required (e.g. 10----S; 011530N; 4531--S)

2.10 Longitude of collecting site[1] (2.8) [MCPD]

Degree (3 digits), minutes (2 digits) and seconds (2 digits) followed by E (East) or W (West) (e.g. 0762510W). Every missing digit (minutes or seconds) should be indicated with a hyphen. Leading zeros are required (e.g. 076 ----W)

2.11 Elevation of collecting site [m asl] (2.9) [MCPD]

Elevation of collecting site expressed in meters above sea level. Negative values are allowed

2.12 Collecting /acquisition source (2.10) [MCPD]

The coding scheme proposed can be used at 2 different levels of detail: either by using the general codes such as 10, 20, 30, 40 or by using more specific codes such as 11, 12 etc.

- 10 Wild habitat
  - 11 Forest/woodland
  - 12 Shrubland
  - 13 Grassland
  - 14 Desert/tundra
  - 15 Aquatic habitat
- 20 Farm or cultivated habitat
  - 21 Field
  - 22 Orchard
  - 23 Backyard, kitchen or home garden (urban, peri-urban or rural)
  - 24 Fallow land
  - 25 Pasture
  - 26 Farm store
  - 27 Threshing floor
  - 28 Park
- 30 Market or shop
- 40 Institute, Experimental station, Research organization, Genebank
- 50 Seed company
- 60 Weedy, disturbed or ruderal habitat
  - 61 Roadside
  - 62 Field margin
- 99 Other (specify in descriptor **2.22 Remarks**)

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1 To convert longitude and latitude in degrees (º), minutes (’), seconds (”), and a hemisphere (North or South and East or West) to decimal degrees, the following formula should be used:

dº m’ s” = h * (d + m / 60 + s / 3600)

where h=1 for the Northern and Eastern hemispheres and h=–1 for the Southern and Western hemispheres, i.e. 30º30’0” S = –30.5 and 30º15’55” N = 30.265.

2.13 Collecting source environment

Use descriptors 6.1.1 to 6.1.11 in section **6**

2.14 Biological status of sample (2.11) [MCPD]

The coding scheme proposed can be used at 3 different levels of detail: either by using the general codes such as 100, 200, 300, 400 or by using the more specific codes such as 110, 120 etc.

100 Wild
- 110 Natural
- 120 Semi-natural/wild

200 Weedy

300 Traditional cultivar/landrace

400 Breeding/research material
- 410 Breeder's line
  - 411 Synthetic population
  - 412 Hybrid
  - 413 Founder stock/base population
  - 414 Inbred line (parent of hybrid cultivar)
  - 415 Segregating population
- 420 Mutant/genetic stock

500 Advanced/improved cultivar

999 Other (specify in descriptor **2.22 Remarks**)

2.15 Type of sample (2.15)

Form of plant material collected. If different types of material were collected from the same source, each sample type should be designated with a unique collecting number and a corresponding unique accession number

1 Seed
2 Vegetative
3 Pollen
4 Tissue culture
99 Other (specify in descriptor **2.22 Remarks**)

2.16 Number of plants sampled (2.13)

2.17 Occurrence of *Cucumis melo* species in sampling area

1 Rare
2 Occasional
3 Frequent
4 Abundant
99 Other (specify in descriptor **2.22 Remarks**)

2.18 Associated mycorrhizal fungi and/or rhizobium

Were root samples collected? If so specify which fungi were identified in the laboratory in descriptor **2.22 Remarks**

0 No
1 Yes

2.19 Ethnobotanical data

2.19.1 Ethnic group

Name of the ethnic group of the farmer donating the sample or of the people living in the area of collecting

2.19.2 Local/vernacular name (2.12)

Name given by farmer to crop and cultivar/landrace/clone/wild form. State local language and/or dialect if the ethnic group is not provided

2.19.2.1 Translation

Provide translation of the local name into English, if possible

2.19.3 Cultural data

Is there associated folklore with the collected melon type? If so, describe it briefly in descriptor **2.22 Remarks**

0 No
1 Yes

2.19.4 Plant uses

1 Food
2 Animal feed
3 Forage
4 Ornamental
5 Medicinal
99 Other (specify in descriptor **2.22 Remarks**)

2.19.5 Parts of the plant used

1 Whole plant
2 Seed
3 Foliage
4 Fruit
99 Other (specify in descriptor **2.22 Remarks**)

2.19.6 Frequency of seed use

1 Daily
2 Weekly
3 Occasional
99 Other (specify in descriptor 2.22 Remarks)

2.19.7 Frequency of forage use

1 Daily
2 Weekly
3 Occasional
99 Other (specify in descriptor **2.22 Remarks**)

2.19.8 Seed palatability

1 Poor taste
2 Acceptable taste
3 Good taste
99 Other (specify in descriptor **2.22 Remarks**)

2.19.9 Forage palatability

1 Poor taste
2 Acceptable taste
3 Good taste
99 Other (specify in descriptor **2.22 Remarks**)

2.19.10 Main cooking methods (seed only)

1 Boiling
2 Baking
3 Roasting
4 Snacks
99 Other (specify in descriptor **2.22 Remarks**)

2.19.11 Number of recipes

Records the number of recipes for each descriptor state of **2.19.10** as available

2.19.12 History of plant used (seed only)

1 Ancestral/indigenous
(always associated with the place and community)
2 Introduced (but in unknown distant past)
3 Introduced (time and introduction known)

2.19.13 Growing conditions

1 Wet land (flooded)
2 Wet land (raised beds)
3 Upland
4 Slopes
5 Natural swamp
6 Atoll (pits)
7 Relay crop (*utera* under rice field)
99 Other (specify in descriptor **2.22 Remarks**)

2.19.14 Cultural practices

2.19.14.1 Planting date [YYYYMMDD]

2.19.14.2 Harvest date [YYYYMMDD]

2.19.15 Cropping system

1 Monoculture
2 Intercropped (specify crop in descriptor **2.22 Remarks**)

2.19.16 Landrace popularity

Is the landrace/variety popular and widely grown? If yes, describe briefly why in descriptor **2.22 Remarks**

0 No
1 Yes

2.19.17 Market information

Specify if any premium price was assigned to this particular landrace/variety

0 No
1 Yes

2.19.17.1 Type of market

1 Local
2 National
3 International

2.19.18 Prevailing stresses

Information on associated biotic and abiotic stresses and the accession's reaction. Indicate if disease indexing was done at the time of collecting

2.19.19 Associated flora

Other dominant crop/plant species, found in and around the collecting site

2.20 Herbarium specimen (2.16)

Was a herbarium specimen collected? If so, provide an identification in the descriptor **2.22 Remarks**

0 No
1 Yes

2.21 Photograph (2.14)

Were photograph(s) taken of the accession or habitat at the time of collecting? If so, provide an identification number(s) in the descriptor **2.22 Remarks**

2.22 Remarks

Additional information recorded by the collector or any specific information in any state in any of the above descriptors

MANAGEMENT

3. Management descriptors

3.1 Accession number (Passport 1.2)

3.2 Population identification (Passport 2.3)
Collecting number pedigree, cultivar name etc., depending on the population type

3.3 Seed storage location identifier
(Building, room, shelf number/location in medium- and/or long-term storage)

3.4 Storage date [YYYYMMDD]

3.5 Seed germination at storage (initial) [%]

3.6 Date of last germination test [YYYYMMDD]

3.7 Seed germination at the last test [%]

3.8 Date of next test [YYYYMMDD]
Estimate date when the accession should next be tested

3.9 Seed moisture content at harvest [%]

3.10 Moisture content at storage (initial) [%]

3.11 Type of germplasm storage (1.11) [MCPD]
If germplasm is maintained under different types of storage, multiple choices are allowed, separated by a semicolon (e.g. 20;30). (Refer to FAO/IPGRI Genebank Standards 1994 for details on storage type)

- 10 Seed collection
  - 11 Short term
  - 12 Medium term
  - 13 Long term
- 20 Field collection
- 30 *In vitro* collection (Slow growth)
- 40 Cryopreserved collection
- 99 Other (elaborate in **3.12** Remarks)

3.12 Acquisition date [YYYYMMDD] (1.7) [MCPD]
Date on which the accession entered the collection where YYYY is the year, MM is the month and DD is the day. Missing data (MM or DD) should be indicated with hyphens. Leading zeros are required

3.13 Amount of seeds in storage [g or number] (Passport 1.9)

3.14 Location of safety duplicates [MCPD]
Code of the institute where a safety duplicate of the accession is maintained. See instructions under **1.1** Institute Code

3.15 Type of stored plant material
1 Seed
2 Vegetative
3 Tissue
4 Pollen
99 Other (specify in **descriptor 4.12 Notes**)

3.16 *In vitro* conservation

3.16.1 Type of explant
1 Apical or axillary meristem
2 Nodal cutting
3 Zygotic embryo
4 Seed
99 Other (specify in descriptors **4.12 Notes**)

3.16.2 Date of introduction *in vitro* [YYYYMMDD]

3.16.3 Type of subculture material
1 Axillary shoot
2 Callus
3 Cell suspension
4 Other (specify in descriptors **4.12 Notes**)

3.16.4 Regeneration process
1 Organogenesis
2 Somatic embryogenesis
4 Other (specify in descriptors **4.12 Notes**)

3.16.5 Number of genotypes introduced *in vitro*

3.16.6 Number of replicates per genotype

3.16.7 Last subculture date [YYYYMMDD]

3.16.8 Medium used at the last subculture

3.16.9 Number of plants at the last subculture

3.16.10 Location after the last subculture

3.16.11 Next subculture date [YYYYMMDD]

3.17 Cryopreservation

3.17.1 Type of material for cryopreservation

1 Seed
2 Zygotic embryo
3 Apex or axillary bud
4 Somatic embryo
5 Callus
6 Cell suspension
99 Other (specify in **4.12 Notes)**

3.17.2 Introduction date in liquid nitrogen [YYYYMMDD]

3.17.3 Number of samples introduced into liquid nitrogen

3.17.4 End of storage period [YYYYMMDD]

3.17.5 Number of samples taken from liquid nitrogen

3.17.6 Type of subcultured material for recovery

(After liquid nitrogen)

1 Seed
2 Zygotic embryo
3 Apex or axillary bud
4 Somatic embryo
5 Callus
6 Cell suspension
99 Other (specify in **4.12 Notes)**

3.17.7 Regeneration process

1 Organogenesis
2 Somatic embryogenesis
99 Other (specify in descriptor **4.12 Notes**)

3.17.8 Number of recovered samples

3.17.9 Location after the last subculture

4. Multiplication / regeneration descriptors

4.1 Accession number (Passport 1.2)

4.2 Population identification (Passport 2.3)
Collecting number, pedigree, cultivar name, etc., depending on the population type

4.3 Field plot number

4.4 Multiplication/regeneration site location

4.5 Collaborator

4.6 Planting date [YYYYMMDD]

4.7 Cultural practices

4.7.1 Distance between plants [cm]

4.7.2 Distance between rows [cm]

4.7.3 Fertilizer application
Specify types, doses, frequency of each and method of application

4.8 Plant/seedling vigour
Assessed at 45 days after emergence
3 Low
5 Medium
7 High

4.9 Number of plants established

4.10 Previous multiplication and/or regeneration

4.10.1 Location

4.10.2 Sowing/planting date [YYYYMMDD]

4.10.3 Plot number

4.11 Number of times accession regenerated (1.10)
Since the date of acquisition

4.12 Notes
Any additional information, including the information relating to method of isolation, selfing, sibbing etc. may be specified here

ENVIRONMENT AND SITE

5. Characterization and/or evaluation site descriptors

5.1 Country of characterization and/or evaluation (3.1)
(See instructions in descriptor **2.5 Country of origin**)

5.2 Site (research institute) (3.2)

5.2.1 Latitude

5.2.2 Longitude

5.2.3 Elevation [m asl]

5.2.4 Name and address of farm or institute

5.3 Evaluator's name and address (3.3)

5.4 Sowing date [YYYYMMDD] (3.4)

5.5 Harvest date [YYYYMMDD] (3.5)

5.6 Evaluation environment
Environment in which characterization/evaluation was carried out

1 Field
2 Screen house
3 Glasshouse
4 Laboratory
5 Other (specify in descriptor **5.15 Notes**)

5.7 Type of planting material

1 Seed
2 Tissue culture plantlet (specify)
3 Vegetative part
99 Other (specify in descriptors **5.15 Notes)**

5.8 Planting site in the field
Give block, strip and/or row/plot numbers as applicable, plants/plot, replication

5.9 Field spacing

5.9.1 Distance between plants in a row [cm]

5.9.2 Distance between rows [cm]

5.10 Seed germination [%]
Percentage of plants germinated

5.10.1 Days to germination [d]

5.11 Field establishment [%]
Percentage of plants established

5.11.1 Days to establishment [d]
Specify number of days from planting after which establishment is measured

5.12 Environmental characteristics of site
Use descriptors **6.1.1 to 6.1.11** in section 6

5.13 Fertilizer
Specify types used, doses, frequency of each and method of application

5.14 Plant protection
Specify pesticides used, doses, frequency of each and method of application

5.15 Notes
Any other site-specific information

6. Collecting and/or characterization/evaluation site environment descriptors

6.1 Site environment

6.1.1 Land element and position
Description of the geomorphology of the immediate surroundings of the site (adapted from FAO 1990). (See Fig. 1)

1 Plain level
2 Escarpment
3 Interfluve
4 Valley
5 Valley floor
6 Channel
7 Levee
8 Terrace
9 Floodplain
10 Lagoon
11 Pan
12 Caldera
13 Open depression
14 Closed depression
15 Dune
16 Longitudinal dune
17 Interdunal depression
18 Mangrove
19 Upper slope
20 Midslope
21 Lower slope
22 Ridge
23 Sea coast
24 Beachridge
25 Rounded summit
26 Summit
27 Coral atoll
28 Drainage line (bottom position in flat or almost-flat terrain)
29 Coral reef
99 Other (specify in appropriate section's **Remarks**)

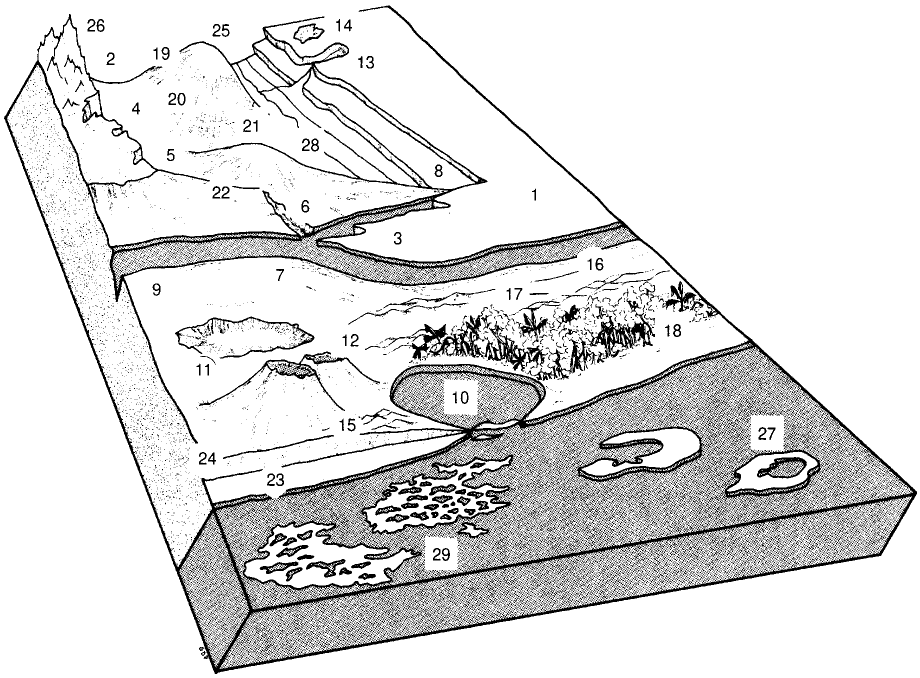

Fig. 1. Land element and position

6.1.2 Slope [º]

Estimated slope of the site

6.1.3 Slope aspect

The direction that the slope faces. Describe the direction with symbols N, S, E, W (e.g. a slope that faces a southwestern direction has an aspect of SW)

6.1.4 Higher level landform (general physiographic features)

The landform refers to the shape of the land surface in the area in which the site is located (adapted from FAO 1990)

1 Plain
2 Basin
3 Valley
4 Plateau
5 Upland
6 Hill
7 Mountain

6.1.5 Soil drainage

(Adapted from FAO 1990)

3 Poorly drained
5 Moderately drained
7 Well drained

6.1.6 Soil fertility

General assessment of the soil fertility based on existing vegetation

3 Low
5 Moderate
7 High

6.1.7 Soil texture classes

(Adapted from FAO 1990)

For convenience in determining the texture classes of the following list, particle size classes are given for each of the fine earth fraction listed below. (See Fig. 2)

1 Clay
2 Loam
3 Clay loam
4 Silt
5 Silty clay
6 Silty clay loam
7 Silt loam
8 Sandy clay
9 Sandy clay loam
10 Sandy loam
11 Fine sandy loam
12 Coarse sandy loam
13 Loamy sand
14 Loamy very fine sand
15 Loamy fine sand
16 Loamy coarse sand
17 Very fine sand
18 Fine sand
19 Medium sand
20 Coarse sand
21 Sand, unsorted
22 Sand, unspecified

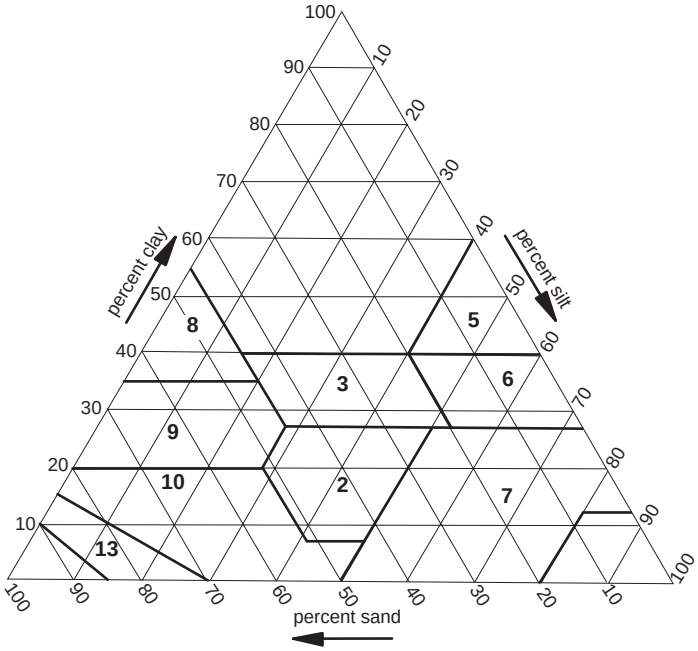

Fig.2. Soil texture classes

6.1.8 Soil taxonomic classification

As detailed a classification as possible should be given. This may be taken from a soil survey map. State class (e.g. Alfisols, Spodosols, Vertisols etc.)

6.1.9 Water availability

1 Rainfed
2 Irrigated
3 Flooded
4 River banks
5 Sea coast
99 Other (specify in appropriate section's **Remarks**)

6.1.10 Rainfall [mm]

Provide either the monthly or the annual mean (state number of recorded years)

6.1.11 Temperature [°C]

Provide either the monthly or the annual mean

6.2 Remarks

Provide here any additional information related to the site (i.e. if data collected refers to collecting or to characterization/evaluation sites)

CHARACTERIZATION

7. Plant descriptors

For all quantitative descriptors (metric traits), record the average of at least five measurements per individual accession, unless otherwise specified. If the characterization is combined with multiplication, at least 25 plants per accession should be planted (Jim McCreight, pers. comm.). Each accession has to be characterized separately. Most of the observations should be made at maximum vegetative growth state (at 50% flowering), unless otherwise specified. If fewer than ten accessions are being characterized, specify in descriptor **7.9 Notes**. To simplify characterization a minimum number of measurements, preferably on different plants, are indicated as '*n*', i.e. (*n*=5). If not indicated the minimum is five.

For accessions exhibiting variability for a descriptor, each type should be recorded along with a frequency (% of total). For example: Accession A may have 50% globular fruit, 35% elongate fruit, and 15% scallop fruit. This same accession may also have 70% smooth, and 30% netted fruit. If several colours apply to one accession, record frequency of colours under descriptor **7.9 Notes**.

To make the colour recording simple, only the main colours are listed. If colour charts are used, specify in descriptor **7.9 Notes**

7.1 Vegetative characters

7.1.1 Epicotyl colour

Recorded when the cotyledons are fully opened and the terminal bud is around 5 mm in size. (*n*=10)

1 Light green
2 Green
3 Green-purple
4 Purple
99 Other (specify in descriptor **7.9 Notes**)

7.1.2 Hypocotyl colour

Recorded when the seedling primary leaves are fully opened and the terminal bud is around 5 mm in size. (*n*=10)

1 Light green
2 Green
3 Green-purple
4 Purple
99 Other (specify in descriptor **7.9 Notes**)

7.1.3 Hypocotyl length

Measured at the time of expansion of cotyledon. (*n*=20)

3 Short
5 Medium
7 Long

7.1.4 Hypocotyl diameter [mm]
Measured at the time of first true leaf full expansion. (*n*=20)

7.1.5 Hypocotyl pubescence
(*n*=20)

0 Absent
1 Present

7.1.6 Cotyledon ratio [L/W]
Length divided by width of fully expanded cotyledon leaf. (*n*=20)

7.1.7 Cotyledon bitterness

0 Non-bitter
1 Bitter

7.1.8 Seedling vigour
Recorded 20 days after emergence. (*n*=20)

3 Poor
5 Intermediate
7 Vigorous

7.1.9 Plant growth rate – stage I
Recorded during emergence to flowering initiation

3 Low
5 Medium
7 High

7.1.10 Plant growth rate – stage II
Recorded after flowering initiation

3 Low
5 Medium
7 High

7.1.11 Plant growth habit (4.1.1)
Recorded at the beginning of the flowering period

1 Compact (shortened internode length between 0.5 and 2.5 cm, bush habit)
2 Dwarf (internode length 4-6 cm, short in height, rarely exceeds 1 m)
3 Determinate (vining habit in which ends of branches terminate in cluster of flowers or leaves, such plants stop growing during growing season
4 Indeterminate (vining habit, in which branches continue to grow throughout growing season)
5 Multilateral (many branches)
99 Other (specify in descriptor **7.9 Notes**)

7.1.12 Plant size

3 Small (<1 m^3)
5 Intermediate (1-3 m^3)
7 Large (>3 m^3)

7.2 Stem characters

7.2.1 Number of nodes

Recorded on the main branch up to and including 1st tendril

3 Few
5 Medium
7 Many

7.2.2 Internode length (6.1.7)

Average internode length of the 10 – 15th node on the main vine

1 Very short (approx. 1 cm)
2 Short (approx. 5 cm)
3 Short-Intermediate
(approx. 5 cm as a young plant – then intermediate)
4 Intermediate (approx. 10 cm)
5 Long (approx. 15 cm)

7.2.3 Number of nodes to the first fruit

Count the total number of nodes to the first fruit position on the main branch

7.2.4 Stem colour

Recorded at 50% flowering. (*n*=10)

1 Yellow
2 Light green
3 Green
4 Dark-green
99 Other (specify in descriptor **7.9 Notes**)

7.2.5 Stem thickness [mm]

Measured at the middle of the main vein at 50% flowering between 10th and 11th nodes. (*n*=20)

7.2.6 Stem hairs [mm]

7.3 Branch characters

7.3.1 Plant branches

Number of branches from each rootstock. Count only flowering or fruit bearing branches

7.3.2 Primary branch length

3 Short
5 Intermediate
7 Long

7.4 Root characters

7.4.1 Root length

3 Short
5 Intermediate
7 Long

7.4.2 Root branching

3 Poor
5 Intermediate
7 High

7.5 Leaf characters

7.5.1 Leaf shape (6.1.1)

Observe fully expanded leaf in the middle of plant. (See Fig. 3)

1 Entire
2 Trilobate
3 Pentalobate
4 3-palmately lobed
5 5-palmately lobed
99 Other (specify in descriptor **7.9 Notes**)

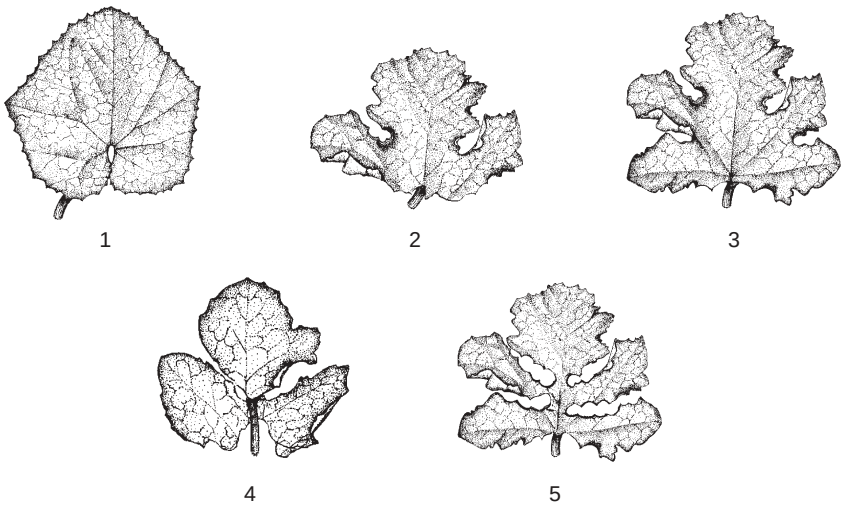

Fig. 3. Leaf shape

7.5.2 Leaf outline

1 Broadly ovate
2 Very broadly ovate
99 Other (specify in descriptor **7.9 Notes**)

7.5.3 Leaf base shape

1 Cordate
2 Acute (rare in some Australian plants)
99 Other (specify in descriptor **7.9 Notes**)

7.5.4 Leaf lobes (6.1.2)

Examine fully expanded leaf in the middle of plant. (See Fig. 4.), (*n*=10)

3 Shallow
5 Intermediate
7 Deep

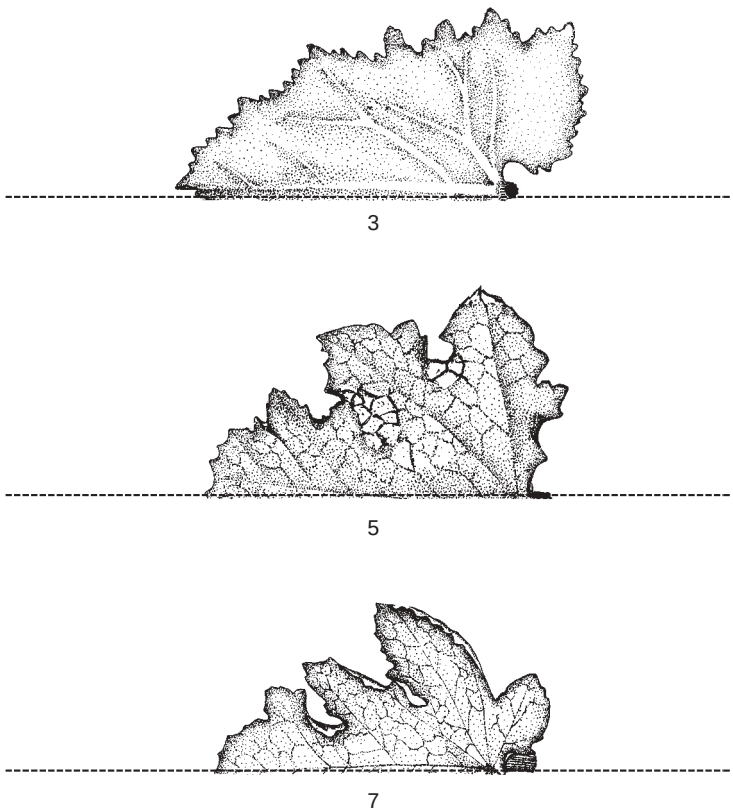

Fig. 4. Leaf lobes

7.5.5 Central leaf lobe shape

1 Broadly ovate
2 Shallowly oblong
3 Narrowly oblong
4 Elliptic (rarely)
99 Other (specify in descriptor **7.9 Notes**)

7.5.6 Central leaf lobe secondary lobation

0 Entire
1 Pinnatifid (short lateral secondary lobes)

7.5.7 Leaf margin dentation

3 Weak
5 Intermediate
7 Strong

7.5.8 Leaf margin undulation

3 Weak
5 Intermediate
7 Strong

7.5.9 Leaf pubescence density – adaxial (6.1.5)

The upper surface of the leaf

3 Sparse
5 Intermediate
7 Dense

7.5.10 Leaf pubescence density – abaxial (6.1.5)

The lower surface of a leaf

3 Sparse
5 Intermediate
7 Dense

7.5.11 Pubescence on leaf margin

3 Sparse
5 Intermediate
7 Dense

7.5.12 Leaf pubescence type (6.1.6)

3 Soft
5 Intermediate
7 Hard

7.5.13 Leaf blade blistering

3 Weak
5 Intermediate
7 Strong

7.5.14 Leaf colour (6.1.3)

(*n*=10)

1 Light green
2 Green
3 Dark green
4 Variable (specify in descriptor **7.9 Notes**)
99 Other (specify in descriptor **7.9 Notes**)

7.5.15 Leaf glossiness

3 Glossy
5 Intermediate
7 Dull

7.5.16 Prominence of leaf vein

0 Absent
1 Present

7.5.17 Pigmentation of leaf vein

0 Absent
1 Present

7.5.18 Leaf size (6.1.4)

Average of the 10-15th true leaves on the main vine is measured. Size to be compared with that typical for crop type. Specify reference type in descriptor **7.9 Notes**

1 Small (approx. <40 cm^2)
2 Intermediate (approx. 40-70 cm^2)
3 Large (approx. >70 cm^2)

7.5.19 Leaf ratio

Leaf length divided by leaf width. Measure leaves in the middle of the main branch. (*n*=10)

7.5.20 Leaf petiole length

Measured from the base to the point where leaf intersects petiole

3 Short (approx. 3 cm)
5 Medium (approx. 10 cm)
7 Long (approx. 15 cm)

7.5.21 Leaf petiole hairiness

1 Sparsely hispid
2 Hispid
3 Hispidulous
4 Retrorse strigose
5 Lanate (rarely)
99 Other (specify in descriptor **7.9 Notes**)

7.5.22 Leaf petiole colour

1 Light green
2 Green
3 Dark green
4 Green-purple
99 Other (specify in descriptor **7.9 Notes**)

7.5.23 Leaf petiole attitude

1 Erect
2 Semi-erect
3 Horizontal

7.5.24 Leaf tendrils (6.1.8)

1 Short
2 Medium
3 Long
99 Other (specify in descriptor **7.9 Notes**)

7.5.25 Top leaves – petiole end

1 Tendril subulate
2 Tendrils simple
3 Tendrils compound
99 Other (specify in descriptor **7.9 Notes**)

7.5.26 Lower leaves – petiole end

1 Tendril simple
2 Tendrils bifid
99 Other (specify in descriptor **7.9 Notes**)

7.5.27 Leaf persistence

Recorded when 80% of the fruits have reached maturity

3 Low
5 Moderate
7 High

7.5.28 Leaf senescence

Recorded when 80% of the fruits reach maturity

3 Slight visual senescence
5 Moderate senescence
7 Conspicuous concurrent senescence

7.6 Inflorescence characters

7.6.1 Sex type (4.2.1)

To be observed on main stem at first fruit set.

		Same plant
1	Monoecious	male and female
2	Andromonoecious	male/female and male
3	Gynoecious	female
4	Male sterile	
5	Female sterile	
99	Other (specify in descriptor **7.9 Notes**)	

7.6.2 Male fertility

0 No pollen in male or perfect flowers
1 Pollen in male or perfect flowers

7.6.3 Ratio female/male flowers

1 Only female
2 Mostly female
3 Equal female/male
4 Mostly male
5 Only male
99 Other (specify in descriptor **7.9 Notes)**

7.6.4 Earliness of male flower

3 Early
5 Intermediate
7 Late

7.6.5 Earliness of female flower

3 Early
5 Intermediate
7 Late

7.6.6 Days to first flowering [d]

Number of days from sowing to when the first flower opens

7.6.7 Days to 50% flowering [d]

Number of days from sowing to stage when 50% of plants in one accession have begun to flower

7.6.8 Peduncle length [cm]

Measured as the mean length of randomly chosen peduncles at maturity

7.6.9 Flower bud shape

Just before opening

1 Globular
2 Intermediate
3 Long
99 Other (specify in descriptor **7.9 Notes**)

7.6.10 Flower bud size

Just before opening.

3 Small
5 Medium
7 Large

7.6.11 Flower size

3 Small
5 Medium
7 Large

7.6.12 Mean length of standard petal [cm]

Measured on randomly selected, fully expanded flowers

7.6.13 Mean width of standard petal [cm]

Measured on randomly selected, fully expanded flowers

7.6.14 Flower colour (6.2.1)

Score on fresh, open flower petals for score standard. (n=10)

1 White-yellow
2 Yellow-cream
3 Yellow
4 Dark-yellow
5 Orange (common)
6 Green
99 Other (specify in descriptor **7.9 Notes**)

7.6.15 Sepal size

Applies especially for Eastern Asian accessions

1 Small (normal)
2 Leaf like

7.6.16 Ovary pubescence length [cm] (4.2.2)

(*n*=10)

1 Short (<1 cm)
2 Intermediate (1-5 cm)
3 Long (>5 cm)

7.6.17 Ovary pubescence type

Observed on youngest fruits

1 Spreading hairs (ssp. *melo*)
2 Apressed hairs (ssp. *agrestis*)

7.6.18 Ovary shape

(*n*=10)

1 Flat
2 Round
3 Long
4 Very long

7.7 Fruit characteristics

Unless specified, fruit characters should be measured when fruits are ripe, but not overripe

7.7.1 Fruit shape (4.2.3)

(See Fig. 5.), (*n*=10)

1 Globular (round)
2 Flattened
3 Oblate
4 Elliptical
5 Pyriform (pear-like)
6 Ovate
7 Acorn
8 Elongate
9 Scallop (like a scallop shell)
99 Other (specify in descriptor **7.9 Notes**)

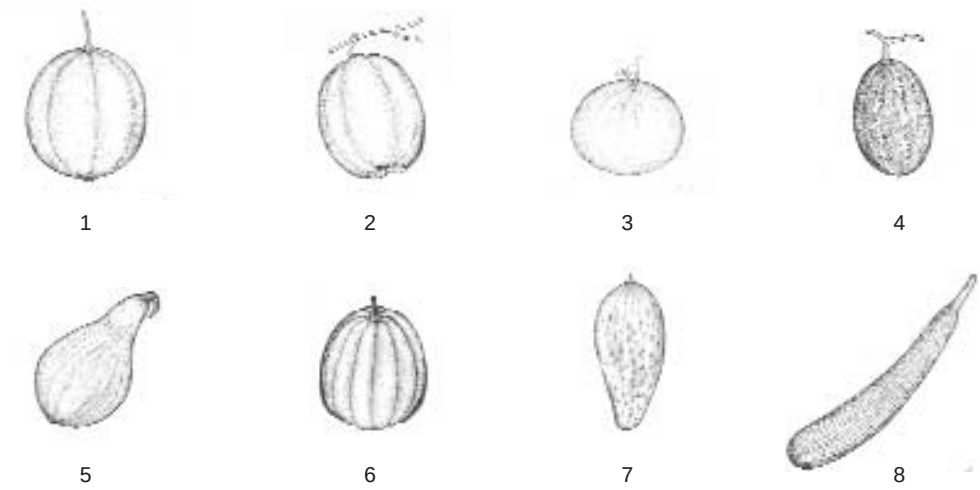

Fig. 5. Fruit shape

7.7.2 Fruit size

To be compared with that typical for crop type. Figures in brackets are reference values. Average values (n=10)

1 Very small (<100 g)
2 Very small to small (approx. 200 g)
3 Small (approx. 450 g)
4 Small to intermediate (approx. 800 g)
5 Intermediate (approx. 1200 g)
6 Intermediate to large (approx. 1600 g)
7 Large (approx. 2000 g)
8 Large to very large (approx. 2600 g)
9 Very large (>3000 g)

7.7.3 Fruit length/width ratio [L/W]

The length from stem end to blossom end of the fruit divided by the width at the broadest point. (n=10)

7.7.4 Fruit size variability (6.2.5)

To be compared with that typical for crop type. Measure weight and score standard deviation as frequency of mean weight. (n=10)

1 Low (<10%)
2 Intermediate (10-25%)
3 High (>25%)

7.7.5 Time of maturity (4.1.2)

1 Early (<70 days)
2 Intermediate (70-90 days)
3 Late (91-110 days)
4 Very late (>110 days)

7.7.6 Days to first mature fruit [d]

Number of days from sowing to first mature fruit

7.7.7 Maturation period [d]

Number of days from first flowering to first mature fruit

7.7.8 Total fruit weight per plant [kg]

7.7.9 Second fruit cycle

Regeneration of flowers / fruits after harvest

0 Absent
1 Present

7.7.10 Predominant fruit skin colour (4.2.5)

Predominant colour is the colour, which covers the largest surface area of the fruit. In case the two colours have the same surface area the lighter colour will be considered the predominant one. (*n*=10)

1 White
2 Light-yellow
3 Cream
4 Pale green
5 Green
6 Dark green
7 Blackish-green
8 Orange
9 Brown
10 Grey
99 Other (specify in descriptor **7.9 Notes**)

7.7.11 Secondary fruit skin colour (4.2.6)

Secondary colour is the colour that covers the second largest area of the fruit. In case two colours have the same surface area the lighter colour will be considered the predominant one. (*n*=10)

1 White
2 Light-yellow
3 Cream
4 Pale green
5 Green
6 Dark green
7 Blackish-green
7 Orange
8 Brown
9 Grey
99 Other (specify in descriptor **7.9 Notes**)

7.7.12 Primary colour of immature fruit

1 Light green
2 Intermediate
3 Dark green

7.7.13 Secondary colour of immature fruit

0 No secondary colour
1 Light green
2 Intermediate
3 Dark green

7.7.14 Fruit skin glossiness

3 Dull
5 Intermediate
7 Glossy

7.7.15 Secondary skin colour pattern (4.2.7)

Design produced by secondary skin colour. (See Fig. 6.), (*n*=10)

0 No secondary skin colour
1 Speckled (spots <0.5 cm)
2 Spotted, blotchy (spots >0.5 cm)
3 Striped (bands that run from peduncle to blossom scar)
4 Short streaked (elongated marks that are continuous from one end the other and <4 cm in length
5 Long streaked (as 4 but >4 cm)
99 Other (specify in descriptor **7.9 Notes**)

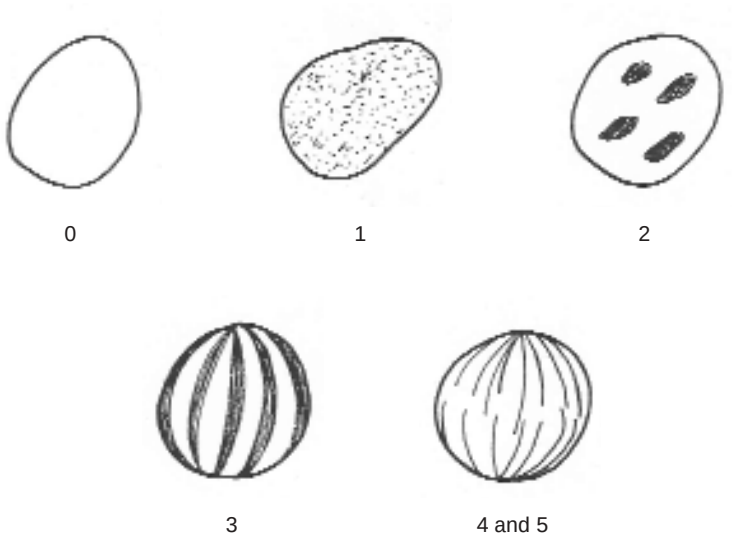

Fig. 6. Secondary skin colour pattern

7.7.16	**Fruit surface**	(4.2.8)

(*n*=10)

1 Smooth
2 Grainy
3 Finely wrinkled
4 Deeply wrinkled
5 Shallowly wavy
6 Rare warts
7 Numerous warts
8 Lightly corked/netted
9 Heavily corked/netted
10 Sutures
99 Other (specify in descriptor **7.9 Notes**)

7.7.17	**Fruit corking/netting distribution**	(6.2.8)

3 Partially covers fruit
5 Intermediate
7 Fully covers fruit

7.7.18 Fruit corking/netting intensity (6.2.7)

3 Superficial
5 Intermediate
7 Pronounced

7.7.19 Fruit corking/netting pattern (6.2.10)

1 Longitudinal
2 Transverse
3 Netted
4 Dotted
99 Other (specify in descriptor **7.9 Notes**)

7.7.20 Fruit skin hairiness

1 Very short (velvet, peach like)
2 Intermediate
3 Long (>1 cm)

7.7.21 Fruit ribbing (4.2.4)

3 Superficial
5 Intermediate
7 Deep

7.7.22 Shape of fruit ribs

1 Obtuse
2 Intermediate
3 Acute

7.7.23 Fruit vein tracks

0 Absent
1 Present

7.7.24 Vein track colour

1 White
2 Green
3 Yellow
4 Other

7.7.25 Blossom scar appearance (4.2.10)

Clearness of abscission layer of flowers

1 Obscure
2 Intermediate
3 Conspicuous

7.7.26 Blossom scar size

3 Small
5 Intermediate
7 Large

7.7.27 Blossom end shape

Observed at the blossom end

1 Depressed
2 Flattened
3 Rounded
4 Pointed
99 Other (specify in descriptor **7.9 Notes**)

7.7.28 Stem end shape

1 Depressed
2 Flattened
3 Rounded
4 Pointed
99 Other (specify in descriptor **7.9 Notes**)

7.7.29 Fruit stem/peduncle colour

(*n*=10)

1 White
2 Light green
3 Medium green
4 Dark green
5 Yellow
6 Pink-red
99 Other (specify in descriptor **7.9 Notes**)

7.7.30 Fruit stem/peduncle length

3 Short
5 Intermediate
7 Long

7.7.31 Diameter of peduncle

To be measured 1 cm from fruit. (*n*=10)

3 Small
5 Intermediate
7 Large

7.7.32 Fruit abscission (4.2.9)

1 Abscises when ripe
2 Abscises when over-ripe

7.7.33 Separation of peduncle from fruit (6.2.2)

3 Easy
5 Intermediate
7 Difficult

7.7.34 Fruit splitting/cracking habit (6.2.11)

1 Superficial (<1 mm)
2 Intermediate (1-3 mm)
3 Deep (>3 mm)

7.7.35 Fruit splitting/cracking frequency

Frequency of cracking of fruits in the field in a scale from 0 to 100%

3 Low
5 Intermediate
7 High

7.7.36 Fruit storage ability (6.2.24)

In room temperature and dry conditions

1 Low (approx. 1 week)
2 Intermediate (approx. 1 month)
3 High (approx. 3 months)

7.7.37 Fruit skin index [%] (6.2.15)

Expressed as the rind thickness percentage in relation to whole width

7.7.38 Skin hardness on fruit (6.2.13)

Specify the technique used in descriptor **7.9 Notes**

3 Soft
5 Intermediate
7 Hard

7.7.39 Internal colour of skin (6.2.16)

(n=10)

1 White
2 Green
3 Yellow
4 Orange (yellow-red)
5 Salmon (pink-red)
99 Other (specify in descriptor **7.9 Notes**)

7.7.40 Main colour of flesh (4.2.14)
(*n*=10)

1 White
2 Yellow
3 Cream
4 Pale green
5 Green
6 Pale orange
6 Orange (yellow-red)
7 Salmon (pink-red)
99 Other (specify in descriptor **7.9 Notes**)

7.7.41 Flesh colour of outer layer
(*n*=10)

1 White
2 Yellow
3 Cream
4 Light green
5 Green
6 Orange (yellow-red)
7 Salmon (pink-red)
99 Other (specify in descriptor **7.9 Notes**)

7.7.42 Flesh colour intensity (6.2.18)

3 Light
5 Intermediate
7 Dark

7.7.43 Flesh texture (4.2.16)
To be measured at maximum fruit diameter. (*n*=10)

1 Smooth–firm
2 Grainy–firm
3 Soft–spongy
4 Mealy
5 Fibrous–gelatinous
6 Fibrous–dry

7.7.44 Flesh index [%]
Calculated on the fruit cross- section as the flesh length percentage in relation to width

7.7.45 Flesh flavour (6.2.23)
If refractometer reading is preferred specify method in descriptor **7.9 Notes**. (*n*=10)
3 Insipid
5 Intermediate
7 Sweet

7.7.46 Flesh bitterness
(*n*=10)
3 Low bitterness
5 Intermediate
7 High bitterness

7.7.47 Flesh acidity
(*n*=10)
3 Low acidity
5 Intermediate
7 High acidity

7.7.48 Flesh moisture (6.2.19)
(*n*=10)
3 Low
5 Intermediate
7 High

7.7.49 Separation of seed and placenta from flesh (6.2.22)
(*n*=10)
3 Easy
5 Intermediate
7 Difficult

7.7.50 Flesh thickness [mm] (4.2.15)
Measured at maximum fruit diameter. (*n*=10)

7.7.51 Flesh dry matter (6.2.20)
(*n*=10)
3 Low (10-15%)
5 Intermediate (20-26%)
7 High (30-35%)

7.7.52 Number of placentas
1 Three
2 Five
99 Other (specify in descriptor **7.70 Notes**)

7.7.53 Placenta colour (4.2.17)

Colour in the seed bearing compartments (cavities/loculi) of the fruit. (*n*=10)

1 White
2 Green
3 Yellow
4 Orange (yellow-red)
5 Salmon (pink-red)
99 Other (specify in descriptor **7.9 Notes**)

7.7.54 Placenta diameter [mm]

Measured at maximum fruit diameter

7.7.55 Cavity diameter [mm] (6.2.17)

Cavity is the seed bearing compartments of the placenta.

7.7.56 Empty cavity

3 Marginal
5 Intermediate
7 Large

7.7.57 Bitterness of immature fruit (6.2.3)

Recorded 1-2 weeks after pollination. (*n*=10)

3 Low
5 Intermediate
7 High

7.7.58 Bitterness of mature fruit

(*n*=10)

3 Low
5 Intermediate
7 High

7.7.59 External aroma (6.2.12)

At blossom end. (*n*=10)

0 Absent
1 Present

7.7.60 Internal aroma (6.2.14)

0 Absent
1 Present

7.7.61 Amount of placental tissue (6.2.21)

Amount of tissue in which the seeds are contained. (*n*=5)

1 Low (<10 vol.%)
2 Intermediate (10–25 vol.%)
3 High (>25 vol.%)

7.8 Seed characteristics

7.8.1 Seed size (4.3.2)

(*n*=50)

1 Very small (<5 mm)
2 Small (5-8 mm)
3 Intermediate (9-12 mm)
4 Large (13-16 mm)
5 Very large (> 16 mm)

7.8.2 Seed shape (6.3.2)

(See Fig. 7.) (*n*=50)

1 Roundish (length/width <2.0)
2 Elliptical (length/width between 2.1 and 2.5)
3 Oval (length/width >2.5)
4 Triangular
5 Pinonet type (like pine seeds)
99 Other (i.e. 'deformed', specify in descriptor **7.9 Notes**)

7.8.3 Seed wing

Rarely in some Australian plants

0 Unwinged
1 Transversely oblong
2 Truncate at apex

7.8.4 Seed shape at hilum end

(*n*=50)

1 Sharply pointed
2 Bluntly pointed

7.8.5 Predominant seed coat colour (4.3.1)

(*n*=10)

1 White
2 Yellow-white
3 Cream yellow
4 Yellow
5 Light brown or tan
6 Brown
99 Other (specify in descriptor **7.9 Notes**)

7.8.6 Seed coat surface
(*n*=10)

1 Smooth
2 Tubercular

7.8.7 Seed coat pattern
(*n*=50)

1 Marbled
2 Dotted
3 Streaked
4 Mixture (any combination of 1, 2 and 3)
99 Other (specify in descriptor **7.9 Notes**)

7.8.7 Seed surface glossiness
(*n*=10)

3 Dull
5 Intermediate
7 Glossy

7.8.8 Number of seeds per fruit (6.3.1)
(*n*=10)

1 Low (<10)
2 Intermediate (10-100)
3 High (>100)

7.8.9 100-seed weight [g] (6.3.3)
Weight of 100 randomly selected mature seeds at 8-10% (air-dry) seed moisture content

7.8.10 Seed volume [cm^3]
Recorded on the basis of 94% ethanol displaced by 100 seeds

7.8.11 Seed yield per plant
Recorded as mean weight of seeds on five randomly selected plants

7.9 Notes
Any additional information, especially in the category of "Other" under various descriptors above may be specified here

EVALUATION

Many characters under Characterization can be used under Evaluation but with different methods i.e. using RHS Colour Charts, under strict controlled environmental conditions or with specific chemical applications. To avoid duplication, these characters are not duplicated under Evaluation but can be specified under descriptors **Notes** under respective section

8. Plant descriptors

8.1 Agronomic characters

8.1.1 Yield [kg/ha]
Mature fruits

8.1.2 Biological yield per plant [g]
Yield of dried, mature plants after harvest

8.1.3 Duration of vegetation period [d] (5.6)

8.1.4 Number of fruits per plant (6.2.4)
Count only mature fruits. Actual number as a mean of five plants

8.1.5 Fruit size variability
Specify method used in **8.5 Notes**

8.1.6 Main vine length [cm]

8.1.7 Days to ripening [d]
From pollination to mature fruit

8.1.8 Fruit length [cm] (4.2.11)
Measured at seed harvest maturity

8.1.9 Fruit width [cm] (4.2.12)
To be measured at seed harvest maturity

8.1.10 Fruit weight [g] (4.2.13)

8.1.11 Fruit volume (6.2.6)
Specify which methods is used in descriptor **8.5 Notes**

8.1.12 Parthenocarpy
Fruiting of plants which has not been pollinated or otherwise fertilized

8.1.13 Sex type
Specify sex type and conditions affecting the sex type as detailed as possible. Unstable, environmentally or chemically affected sex types are: gynomonoecious, hermaphroditic, androecious and dioecious

8.1.14 Germination [%]

8.1.15 Optimal pH range
pH range where no clear deficiencies are noticed

8.1.16 Response to fertilizer [g/m³]
Specify optimal N, P and K doses in descriptor **8.5 Notes**

8.1.17 Optimal temperature range [°C]

8.1.18 Minimum germination temperature [°C]

8.2 Quality characters

8.2.1 Oil content of seeds [g/100g DW]

8.2.2 Protein content of seeds [g/100g DW]

8.2.3 Amino acid composition [µg/g DW]
Estimate essential amino acids in seed sample

8.2.4 Sugar content of fruits [g/100g DW]

8.2.5 Soluble solids [%]
Measured in a homogenized sample of flesh and recorded as percentage solids read directly from a Brix Scale superimposed over the refractive index scale

8.2.6 Firmness of flesh
Specify method used in descriptor **8.5 Notes**

8.2.7 Quantity of fibers in flesh [g/100g DW]
Specify method used in descriptor **8.5 Notes**

8.3 Chemical analysis

8.3.1 Dry matter content of fruits [g/100g DM]

8.3.2 Vitamin content in fruits
Indicate if vitamin C, A, D etc. in descriptor **8.5 Notes**

8.3.3 Micronutrients content

Indicate if manganese, copper, zinc etc. in descriptor **8.5 Notes**

8.5 Notes

Specify here any other additional information

9. Abiotic stress susceptibility

Scored under artificial and/or natural conditions, which should be clearly specified. These are coded on a susceptibility scale from 1 to 9, viz.:

1 Very low or no visible sign of susceptibility
3 Low
5 Intermediate
7 High
9 Very high

9.1 Temperature stress

9.1.1 High temperature (7.2)

Yellow leaf margins, light green or yellow leaves, flower and fruit abortion, sex expression change from pistillate to laminate or other symptoms. Specify in descriptor **9.15 Notes**

9.1.2 Low temperature (7.1)

White areas on cotyledons, white or light brown margins on fully expanded leaves, necrotic lesions or other symptoms. Specify in descriptor **9.15 Notes**

9.2 Moisture stress

9.2.1 Water excess (7.4)

Aerial roots above water line or other symptoms. Specify in descriptor **9.15 Notes**

9.2.2 Water deficit (7.3)

Pillowy fruit development or other symptoms. Specify in descriptor **9.15 Notes**

9.3 Nutritional disorders

Cause	Disorder	Visible growth stage
1 Calcium deficiency	Blossom-end rot	When developing fruits
2 Manganese toxicity	Crown leaves pale green cast	Shortly before harvest
3 Magnesium deficiency	Crown leaves grey green discoloration of interveinal tissue	Beginning of fruit enlargement
4 Molybdenum deficiency		Just after transplanting to field

5 Other (specify in descriptor **9.15 Notes**)

9.4 Bitter fruit
Production of cucurbitacin in fruits caused by cross-pollination with other cultivars

9.5 Measles
Superficial green small water-soaked spots on fruit surface

9.6 Pollination problems
Nubbing, crookeds, and constrictions on fruits

9.7 Herbicide injury

9.8 Air pollution injury

9.9 Reaction to soil salinity (7.6)

9.10 Reaction to high soil acidity (7.7)
(pH <4.5)

9.11 Reaction to alkalinity

9.12 Reaction to shade

9.13 Reaction to constant winds

9.14 Reaction to high humidity (7.5)

9.15 Notes
Specify any additional information here

10. Biotic stress susceptibility
In each case, it is important to state the origin of the infestation or infection, i.e. natural, field inoculation, and laboratory. Also specify the causal organism and the corresponding symptoms. Record such information in descriptor **10.8. Notes**. These are coded on a susceptibility scale from 1 to 9, viz.:

1 Very low or no visible signs of susceptibility
3 Low
5 Intermediate
7 High
9 Very high

10.1 Insects and mites
(n=20)

	Causal organism	Common name
10.1.1	*Acalymma trivittatum* (Mannerheim)	Western striped cucumber beetle
10.1.2	*Acalymma vittatum* (Fabricius)	Striped cucumber beetle
10.1.3	*Anasa tristis* (De Geer)	Squash bug
10.1.4	*Aphis craccivora* (Koch.)	Cowpea aphid
10.1.5	*Aphis gossypii* (Glover)[2]	Melon aphid
10.1.6	*Bemisia argentifolii*[2] (Bellows & Perring)	Silver leaf whitefly
10.1.7	*Bemisia tabaci*[2] (Gennadinus)	Sweet potato whitefly
10.1.8	*Blapstinus* spp.	Darkling ground beetle
10.1.9	*Dacus* spp.[2]	Fruit fly
10.1.10	*Diabrotica balteata* (Lac.)	Banded cucumber beetle
10.1.11	*Diabrotica undecimpunctata* (Mann.)	Western spotted cucumber beetle
10.1.12	*Diabrotica undecimpuncta howardi* (Barber)	Spotted cucumber beetle
10.1.13	*Diabrotica virgifera*	Western corn root worm
10.1.14	*Diaphania hyalinata*[2]	Melon worm
10.1.15	*Diaphania nitidalis*[2] (Stoll)	Pickleworm
10.1.16	*Empoasca abrupta* (De Long)	Leaf hopper 1
10.1.17	*Empoasca arida* (De Long)	Leaf hopper 2
10.1.18	*Empoasca solana* (De Long)	Leaf hopper 3
10.1.19	*Frankliniella occidentalis* (Pergande)	Flower trips
10.1.20	*Liriomyza* spp.[2] (*L. sativae* (Blanchard), *L. trifolii* (Burgess), and others)	Leaf miner
10.1.21	*Melittia cucurbitae* (Harris)	Squash vine borer
10.1.22	*Myzus persicae* (Sulzer)	Green peach aphid
10.1.23	*Petrobia latens* (Muller)	Brown wheat mite
10.1.24	*Tetranychus atlanticus* (McGregor)	Atlantic spider mite
10.1.25	*Tetranychus cinnabarinus* (Boisduval)	Carmine spider mite
10.1.26	*Tetranychus desertorum* (Banks)	Desert spider mite
10.1.27	*Tetranychus pacificus*	Pacific spider mite
10.1.28	*Tetranychus urticae* (Koch)	Two spotted spider mite
10.1.29	*Thrips palmi* (Karny)	Melon trips
10.1.30	*Thrips tabaci* (Lindeman)	Onion trips
10.1.31	*Trialeurodes vaporariorum* (Westwood)[2]	Greenhouse white fly

10.2 Nematodes

10.2.1	*Meloidogyne* spp.	Root-knot nematode
10.2.2	*Pratylenchus penetrans*	Root lesion nematode
10.2.3	*Rotylenchulus reniformis* (Linford & Oliveira)	Reniform nematode

2 Insect resistance has been described

10.3 Fungi

(*n*=10)

10.3.1	*Altenaria alternata* (Keissler) (syn. *A. tenuis* (Nees))	Alternaria rot[3]
10.3.2	*Alternaria alternata* (Keissler) f. sp. *cucurbitae* (Vakalounakis)	Alternaria leaf spot
10.3.3	*Alternaria cucumerina* (Ellis & Everh.) (syn. *C.lagenarium* (Pass.)	Alternaria leaf blight
10.3.4	*Acremonium* sp.	Acremonium hypocotyl rot
10.3.5	*Cercospora melonis* (Cooke)	Cercospora melonis
10.3.6	*Cercospora citrullina* (Cooke)	Cercospora leaf spot
10.3.7	*Cladosporium cucumerinum*	Scab[3]
10.3.8	*Colletotrichum orbiculare* (Berk. & Mont.) (syn. *C. lagenarium* (Pass.))	Anthracnose, race 1
10.3.9	*Colletotrichum lagenarium* (Pass)	Antracnose, race 2
10.3.10	*Corynespora cassiicola* (Berk & M.A. Curtis)	Target leaf spot
10.3.11	*Diaporthe melonis*	Purple stem[3]
10.3.12	*Didymella bryoniae* (Auersw.) (syn. *Mycosphaerella melonis* (Pass.))	Gummy stem blight
10.3.13	*Erysiphe cichoracearum* (D.C.) (also caused by *Sphaerotheca fuliginea*)	Powdery mildew 1
10.3.14	*Fusarium oxysporum* (Schlechtend) f. sp. *melonis* (Leach & Currence)	Fusarium rot[3]
10.3.15	*Fusarium oxysporum* (Schlechtend) f. sp. *melonis* (Leach & Currence)	Fusarium wilt
10.3.16	*Fusarium solani* (Synder & Hansen)	Fusarium foot rot[3]
10.3.17	*Fusarium* spp.	Acremonium hypocoyyl rot, Fusarium rot[3]
10.3.18	*Lasidiplodia theobromae* (Pat.) (syn. *Macrophomina phaseolina*	Lasiodiplodia decline Charcoal rot
10.3.19	*Monosporascus cannonballus* (Pollack & Uecker)	Monosporascus cannonballus
10.3.20	*Myrothecium roridum* (Rode)	Crater rot[3]
10.3.21	*Penicillium* spp.	Blue mold[3]
10.3.22	*Phomopsis cucurbitae* (McKeen)	Phomopsis black rot[3]
10.3.23	*Phyllosticta cucurbitacearum* (Sacc.)	Phyllosticta cucurbitacearum
10.3.24	*Phytophthora capsici* (Leonian)	Phytophthora crown and root rot[3]

3 Fruit rot

10.3.25	*Phytophthora* spp.	Seedling blight 2, Damping-off, Root rot
10.3.26	*Phoma terrestis* (E.M. Hans.)	Pink root
10.3.27	*Phomopsis cucurbitae*	Phomopsis black rot[2]
10.3.28	*Pseudoperonspora cubensis* (Berk. & M.A. Curtis)	Downy mildew
10.3.29	*Pytium irregulare* (Buis)	Seedling blight 1
10.3.30	*Pytium ultimum*	Seedling blight 1
10.3.31	*Pytium aphanidermatum* (Edson)	Seedling blight 1
10.3.32	*Pytium myriotylum*	Seedling blight 1
10.3.33	*Pytium* spp.	Pytium fruit rot[3]
10.3.34	*Rhizoctonia solani* (Kühn)	Seedling blight 3[3], Belly rot[3]
10.3.35	*Rhizopus stolonifer* (Ehrenb.) (formerly *Rhizopus nigricans* (Ehrenb.))	Rhizopus soft rot[3]
10.3.36	*Sclerotinia sclerotinium* (Lib.)	Scerotinia rot, white mold[3]
10.3.37	*Sclerotium rolfsii* (Sacc.)	Southern blight[3]
10.3.38	*Septoria cucurbitacearum* (Sacc.)	Septoria leaf spot
10.3.39	*Sphaerotheca fuliginea* (Schlechtend) (also caused by *Erysiphe cichoracearum* (D.C.))	Powdery mildew 1
10.3.40	*Stemphylium cucurbitacearum* (Osner)	Stemphylium
10.3.41	*Verticillium dahliae* (Kleb.)	Verticillium wilt

10.4 Bacteria

10.4.1	*Erwinia* sp.	Bacterial rind necrosis
10.4.2	*Erwini ananas* (Serrano)	Bacterial brown spot[3]
10.4.3	*Erwinia tracheiphila* (Smith)	Bacterial wilt
10.4.4	*Pseudomonas pseudoalcaligenes* (Steiner) subsp. *citruli* (Schaad *et al*.)	Bacterial fruit blotch
10.4.5	*Pseudomonas syringae* pv. *lachrymans* (Smith and Bryan)	Angular leaf spot

10.5 Viruses

	Virus or viroids	**Abbreviation**	**Vector**
10.5.1	Beet pseudo-yellows (syn. Melon yellows, Cucumber yellows)	BPSYV	Whiteflies
10.5.2	Bryonia mottle	BrMV	Aphids
10.5.3	Cucumber green mottle mosaic	CGMMV	not known
10.5.4	Cucumber mosaic	CMV	Aphids
10.5.5	Cucurbit aphid-borne yellows	CABYV	Aphids
10.5.6	Cucurbit leaf crumple	CuLCrV (new)	
10.5.7	Cucurbit yellow stunting disorder	CYSDV	Whiteflies

10.5.8	Lettuce infectious yellows	LIYV	Whiteflies
10.5.9	Melon necrotic spot	MNSV	Fungi
10.5.10	Melon rugose mosaic	MRMV	Beetles
10.5.11	Melon veinbanding mosaic	MVbMV	Aphids
10.5.12	Muskmelon vein necrosis	MVNV	Aphids
10.5.13	Ourmia melon	OuMV	
10.5.14	Papaya ringspot – type W	PRSV-W (formerly WMV-1)	Aphids
10.5.15	Squash mosaic	SqMV	Beetles
10.5.16	Tomato ringspot	TmRSV, TRSV	Nematodes
10.5.17	Watermelon curly mottle virus	WCMoV	Whiteflies
10.5.18	Watermelon clorotic stunt	WCSV	Whiteflies
10.5.19	Watermelon mosaic	WMV (formerly WMV-2)	Aphids
10.5.20	Watermelon mosaic Morocco	WMMV	Aphids
10.5.21	Zucchini yellow fleck	ZYFV	Aphids
10.5.22	Zucchini yellow mosaic	ZYMV	Aphids

10.6 Parasitic seed plants

	Causal organism	Common name
10.6.1	*Cuscuta*	Dodder

10.7 Disease of undertemined etiology

10.7.1 Unknown Crown blight of melons

10.8 Notes

Specify here any additional information

11. Biochemical markers

Specify methods used and cite references

11.1 Isozymes

For each enzyme, indicate the tissue analyzed and the zymogram type. A particular enzyme can be recorded as 11.1.1; 11.1.2, etc. Examples include: 6-phosphogluconate dehydrogenase (CSATPGD); glucosephosphate isomerase (CSATGPI); malic dehydrogenase (CSATMDH); peptidase with leucyl-alanine (CSATPEPLA); peroxidase (CSAPER). For a complete list see Cucurbit Crop Germplasm Committee at URL: **http://genome.cornell.edu/cgc/groups.htm**

12. Molecular markers

Describe any specific discrimination or useful trait for this accession. Report probe-enzyme combination analyzed. Below are listed some of the some of the methods used for melon. See also Cucurbit Genetics Cooperative, URL: **http://genome.cornell.edu/cgc/genes.htm**

12.1 Randomly amplified polymorphic DNA (RAPD)

Accurately report experimental conditions and molecular size of products (used for nuclear genomes)

12.2 Restriction fragment length polymorphism (RFLP)

Report probe/enzyme combination (approach can be used for nuclear, chloroplast or mitochondrial genomes)

12.3 Amplified fragment length polymorphism (AFLP)

Report primer pair combinations and accurate molecular size of products (used for nuclear genomes)

12.4 Simple sequence repeat (SSR)

12.5 Other molecular markers

13. Cytological characters

13.1 Chromosome number

13.2 Ploidy level

(2*x*, 3*x*, 4*x*, etc.)

13.3 Meiosis chromosome associations

Average of 50 microspore mother cells, observed during metaphase 1

13.4 Other cytological characters

14. Identified genes (10)

Describe any known specific mutant present in the accession. For a complete list of identified genes see Cucurbit Genetics Cooperative, URL: **http://genome.cornell.edu/cgc**

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ANNEX I: List of minimum highly discriminating descriptors for melon

Descriptor IPGRI	
Number	**Name**
7.1.8	Seedling vigour
7.1.11	Plant growth habit
7.2.2	Internode length
7.3.1	Plant branches
7.5.1	Leaf shape
7.5.4	Leaf lobes
7.5.5	Central leaf lobe shape
7.5.14	Leaf colour
7.5.21	Leaf petiole hairiness
7.5.27	Leaf persistence
7.5.28	Leaf senescence
7.6.1	Sex type
7.6.7	Days to 50% flowering [d]
7.6.14	Flower colour
7.6.16	Ovary pubescence length [cm]
7.6.17	Ovary pubescence type
7.7.1	Fruit shape
7.7.3	Fruit length/width ratio [L/W]
7.7.5	Time of maturity
7.7.10	Predominant fruit skin colour
7.7.11	Secondary fruit skin colour
7.7.15	Secondary skin colour pattern
7.7.16	Fruit surface
7.7.58	Bitterness of mature fruit
7.8.1	Seed size
7.8.2	Seed shape
7.8.9	100-seed weight [g]

Annex II. COLLECTING FORM for melon

==========

SAMPLE IDENTIFICATION

COLLECTING INSTITUTE (2.1):

COLLECTING No. (2.3): PHOTOGRAPH No. (2.21)

COLLECTING DATE OF SAMPLE [YYYYMMDD] (2.4):

SPECIES (1.7): SUBTAXA (1.8)

==========

COLLECTING SITE LOCATION

COUNTRY OF ORIGIN (2.5): PROVINCE/STATE (2.6):

LOCATION (2.8): km: direction: from:

LATITUDE (2.9): LONGITUDE (2.10) ELEVATION (2.11): m asl

==========

COLLECTING SITE ENVIRONMENT

COLLECTING/ACQUISITION SOURCE (2.12):

10 Wild habitat 20 Farm or cultivated habitat 30 Market or shop
40 Institute/Exp. station/Research Organization/Genebank 50 Seed company
60 Weedy, disturbed or ruderal habitat 99 Other (specify):

HIGHER LEVEL LANDFORM (6.1.4)

1 Plain 2 Basin 3 Valley 4 Plateau 5 Upland 6 Hill 7 Mountain

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SLOPE [°] (6.1.2): SLOPE ASPECT (6.1.3): (code N,S,E,W)

SOIL FERTILITY (6.1.6): (code: 3=Low; 5=Moderate; 7=High)

SOIL TEXTURE CLASSES (6.1.7): State class (e.g. Clay, Loam, Silt)

SOIL TAXONOMIC CLASSIFICATION (6.1.8): State class (e.g. Alfisols, Spodosol, Vertisols)

WATER AVAILABILITY (6.1.9):

1 Rain-fed 2 Irrigated 3 Flooded
4 River banks 5 Sea coast 99 Other (specify):

RAINFALL (6.1.10): Annual mean: |___| mm

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly mean [mm]:	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|

TEMPERATURE (6.1.12): Seasonal mean: |___| °C

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly mean [mm]:	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|

==========

SAMPLE

BIOLOGICAL STATUS OF SAMPLE (2.14):

100 Wild 200 Weedy 300 Traditional cultivar/Landrace
400 Breedling/Research material 500 Advanced/improved cultivar 999 Other (specify):

TYPE OF SAMPLE (2.15):

1 Seed 2 Vegetative 3 Pollen 4 Tissue culture 99 Other (specify)

NUMBER OF PLANTS SAMPLED (2.16):

PREVAILING STRESSES (2.19.18):
Mention the types of major stresses, i.e. abiotic (drought), biotic (pests, diseases, etc.)

==========

ETHNOBOTANICAL DATA

LOCAL/VERNACULAR NAME (2.19.2)

ETHNIC GROUP (2.19.1):

PLANT USES (2.19.4):
1 Food 2 Animal feed 3 Forage 4 Ornamental 5 Medicinal 99 Other (specify):

Frequency of seed use (2.19.6):
1 Daily 2 Weekly 3 Occasional 99 Other (specify):

==========

CHARACTERIZATION

Plant growth habit (7.1.11):
Stem internode length (7.2.2):
Leaf shape (7.5.1):
Central leaf lobe shape (7.5.5):
Leaf colour (7.5.14):
Leaf petiole length (7.5.20):
Leaf petiole hairiness (7.5.21):
Sex type (7.6.1):
Ovary pubescence type (7.6.17):
Fruit shape (7.7.1):
Predominant fruit skin colour (7.7.10):
Secondary skin colour pattern (7.7.15):
Fruit surface (7.7.16):

==========

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