Descriptors for

Pistacia spp.

(excluding *Pistacia vera* L.)

UNDER UTILIZED MEDITERRANEAN SPECIES

International Plant Genetic Resources Institute

IPGRI

IPGRI is a centre of the Consultative Group on International Agricultural Research (CGIAR)

List of Descriptors

Almond (revised) * (E)	1985
Apple (E)	1982
Apricot * (E)	1984
Avocado (E,S)	1995
Bambara groundnut (E)	1987
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
Cashew (E)	1986
Cherry * (E)	1985
Chickpea (E)	1993
Citrus (E)	1988
Coconut (E)	1992
Coffee (E,S,F) #	1996
Colocasia * (E)	1980
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
Kodo millet * (E)	1983
Lentil * (E)	1985
Lima bean * (E)	1982
Lupin * (E,S)	1981
Maize (E,S,F)	1991
Mango (E)	1989
Medicago (Annual) * (E,F)	1991
Mung bean * (E)	1980
Oat * (E)	1985
Oca * (S)	1982
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)	1982
Pigeonpea (E)	1993
Pineapple (E)	1991
Pistachio (E,F) #	1997
Plum * (E)	1985
Potato variety * (E)	1985
Quinua * (E)	1981
Rice * (E)	1980
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
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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Descriptors for
Pistacia spp.
(excluding *Pistacia vera* L.)

International Plant Genetic Resources Institute
IPGRI

The International Plant Genetic Resources Institute (IPGRI) is an autonomous international scientific organization, supported by the Consultative Group on International Agricultural Research (CGIAR). IPGRI's mandate is to advance the conservation and use of plant genetic resources for the benefit of present and future generations. IPGRI's headquarters is based in Rome, Italy, with offices in another 14 countries worldwide. It 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). The international status of IPGRI is conferred under an Establishment Agreement which, by January 1998, had been signed and ratified by the Governments of Algeria, Australia, Belgium, Benin, Bolivia, Brazil, Burkina Faso, Cameroon, Chile, China, Congo, Costa Rica, Côte d'Ivoire, Cyprus, Czech Republic, Denmark, Ecuador, Egypt, Greece, Guinea, Hungary, India, Indonesia, Iran, Israel, Italy, Jordan, Kenya, Malaysia, Mauritania, Morocco, Pakistan, Panama, Peru, Poland, Portugal, Romania, Russia, Senegal, Slovakia, Sudan, Switzerland, Syria, Tunisia, Turkey, Uganda and Ukraine.

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CONTENTS

PREFACE

Descriptors for *Pistacia* spp. (excluding *Pistacia vera* L.) was developed by Prof. Nurettin Kaska, University of Çukurova, Turkey, Ir Paul Van Mele, University of Ghent, Belgium and Dr Stefano Padulosi, IPGRI. A draft version prepared in the internationally accepted IPGRI format for Descriptor Lists was subsequently sent to a number of international experts for their comments and amendments. The names and addresses of those involved are given in 'Contributors'.

This publication was produced within the framework of the IPGRI Project on Conservation and Use of Underutilized Mediterranean Species (UMS) (URL: **http://cgiar.org /ipgri/ Regional/Europe/UMS**), an initiative supported by the Italian Government aiming at promoting better conservation and use of those crops indigenous to the Mediterranean region which have been neglected by science and scarcely safeguarded, in spite of their good economic potential.

IPGRI encourages the collecting of data for all five types of descriptors (see page 1, 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 definitive scheme, this format represents an important tool for a standardized characterization system and it is promoted by IPGRI throughout the world.

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 document 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.

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 into the IPGRI format, will produce a rapid, reliable and efficient means for information storage, retrieval and exchange, 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.

Annex I contains multicrop passport descriptors developed jointly by IPGRI and FAO, to provide consistent coding schemes for common passport descriptors across crops. These aim to be compatible with both future IPGRI crop descriptors lists and the FAO World Information and Early Warning System (WIEWS) on plant genetic resources.

Any suggestions for improvement on the Descriptor List for *Pistacia* will be highly appreciated by IPGRI.

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 the 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, they need special experimental designs and techniques to assess. Their assessment may also require complex biochemical or molecular characterization methods. This type 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.

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.

Highly discriminating descriptors are marked as highlighted text.

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) 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 9 (Biotic stress susceptibility), 1 = very low susceptibility and 9 = very high susceptibility;

(e) when a descriptor is scored using a 1-9 scale, such as in (d), '0' would be scored when (i) the character is not expressed; (ii) when 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

3	Toothed
5	Elliptic
7	Linear

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

Terminal leaflet

0	Absent
1 (or +)	Present

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

(h) 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;

(i) 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

1. Accession descriptors

1.1 Accession number

This number serves as a unique identifier for accessions and is assigned when an accession is entered into the 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).

1.1.1 Local plant number

This identifies a single plant within a population of plants having the same accession number. It may be any combination of plot identity, row number, or tree position within the row

1.2 Donor name

Name of institution or individual responsible for donating the germplasm

1.3 Donor number

Number assigned to an accession by the donor

1.4 Country where maintained

Name of the country in which the sample was collected. Use the three-letter abbreviations from the *International Standard (ISO) Codes for the representation of names of countries*, No. 3166, 4th edition. Copies of these are available from DIN: Deutsches Institut für Normung e.V., 10772 Berlin, Germany; Tel. +30-2601-369; Fax +30-2601-1231, Tlx. 184 273-din-d; Web site URL: http://www.din.de/set/de/DIN.

1.5 Site where maintained

Name of institution in which collection is maintained

1.6 Curator's name

Name of officer responsible for maintaining the genetic resources material held at the site specified in descriptor **1.5 Site where maintained**

1.7 Other number(s) associated with the accession

Any other identification number known to exist in other collections for this accession, e.g. USDA Plant Inventory number (not Collecting number, see descriptor **2.3**). Other numbers can be added as 1.7.3, etc.

1.7.1 Other number 1

1.7.2 Other number 2

1.8 Scientific name

1.8.1 Genus

1.8.2 Species

1.8.3 Subspecies

1.8.4 Botanical variety

1.9 Genetic origin

1 Open pollination
2 Artificial pollination
3 Clonal selection

1.10 Pedigree

Parentage or nomenclature, and designations assigned to breeders' material. For interspecific hybrids, the species should be designated as 'hybrid' and the parentage indicated here

1.10.1 Female parent

1.10.2 Male parent

1.11 Sex

1 Male
2 Female

1.12 Accession

1.12.1 Accession name

Either a registered or other formal designation given to the accession

1.12.2 Local language

Language in which the accession name is given

1.12.3 Year of release of the accession/year of registration

1.12.4 Translation/Transliteration

Provide translation of the local cultivar name into English

1.12.5 Synonyms

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

1.13 Acquisition date [YYYYMMDD]

Date on which the accession entered the collection

1.14 Type of material received

1 *In vitro* plant
2 Cutting
3 Seed
4 Bud
99 Other (e.g. more than one type, specify in descriptor **1.16 Notes**)

1.15 Accession size

Number of trees/shrubs of an accession or approximate number of seeds (if artificially pollinated) of an accession in the genebank

1.16 Notes

Any additional information may be specified here

2. Collecting descriptors

2.1 Collecting institute(s)

Institute(s) and people collecting/sponsoring the sample collection

2.2 Site number

Number assigned to the physical site by the collector

2.3 Collecting number

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. It should be unique and always accompany subsamples wherever they are sent.

2.4 Collecting date of original sample [YYYYMMDD]

2.5 Country of collecting

Name of the country in which the sample was collected. Use the three-letter abbreviations from the *International Standard (ISO) Codes for the representation of names of countries*, No. 3166, 4th Edition. Copies of these are available from DIN: Deutsches Institut für Normung e.V., 10772 Berlin, Germany; Tel. +30-2601-369; Fax +30-2601-1231, Tlx. 184 273-din-d; Web site URL: http://www.din.de/set/de/DIN.

2.6 Province/State

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

2.7 Department/County

Name of the secondary administrative subdivision (within a Province/State) of the country in which the sample was collected

2.8 Location of collecting site

Distance in kilometers and direction from the nearest town, village or map grid reference point (e.g. CURITIBA 7S means 7 km south of Curitiba)

2.9 Latitude of collecting site

Degrees and minutes followed by N (North) or S (South) (e.g. 1030S). Missing data (minutes) should be indicated with hyphen (e.g. 10—S).

2.10 Longitude of collecting site

Degrees and minutes followed by E (East) or W (West) (e.g. 07625W). Missing data (minutes) should be indicated with hyphen (e.g. 076—W).

2.11 Elevation of collecting site [m asl]

2.12 Collecting source

- 0 Unknown
- 1 Wild habitat
  - 1.1 Forest/woodland
  - 1.2 Shrubland
  - 1.3 Grasslands
  - 1.4 Desert/tundra
- 2 Farm
  - 2.1 Field
  - 2.2 Orchard
  - 2.3 Garden
  - 2.4 Fallow
  - 2.5 Pasture
  - 2.6 Store
- 3 Market
  - 3.1 Town
  - 3.2 Village
  - 3.3 Urban area (around city)
  - 3.4 Other exchange system
- 4 Institute/Research organization
- 99 Other (specify in descriptor **2.25 Collector's notes**)

2.13 Type of sample

Form of sample 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 Vegetative
2 Seed
3 Pollen
4 Tissue culture

2.14 Status of sample

0 Unknown
1 Wild
2 Weedy
3 Traditional cultivar/Landrace
4 Breeders line
5 Advanced cultivar
99 Other (specify in descriptor **2.25 Collector's notes**)

2.15 Uses of the accession

1 Nut production
2 Clonal rootstock
3 Seedling rootstock
4 Pollinator
5 Medicinal
6 Forage
7 Wood/timber
99 Other (specify in descriptor **2.25 Collector's notes**)

2.16 Ethnic group

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

2.17 Local/vernacular name

Name given by farmer to crop and cultivar/landrace/weed. State language and dialect if the ethnic group is not provided

2.18 Collecting site population structure

2.18.1 Number of trees sampled

2.18.2 Frequency of species at collecting site

1 Rare
3 Occasional
5 Frequent
7 Abundant
9 Very abundant

2.18.3 Associated flora

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

2.18.4 Associated mycorrhizal fungi

Were root samples collected? If so, specify which fungi were identified in the laboratory in descriptor **2.25 Collector's notes.**

0 No
1 Yes

2.19 Herbarium specimen

Was a herbarium specimen collected? If so, provide an identification number and indicate in which place (herbarium) the *Pistacia* specimen was deposited, in descriptor 2.25 Collector's notes.

0 No
1 Yes

2.20 Photograph

Was a photograph(s) taken of the accession or habitat at the time of collecting? If so, provide an identification number(s) in descriptor **2.25 Collector's notes.**

0 No
1 Yes

2.21 Collecting source environment

Use descriptors **5.1.1 to 5.1.21** in section 5

2.22 Cultural methods

2.22.1 Cropping system

1 Monoculture (specify spacing)
2 Intercropping (specify spacing and type of intercrop)
3 Agropastoralism (specify type of animals)
4 Natural cropping (i.e. wild *Pistacia* species topworked with cultivar)

2.22.2 Propagation method

Method used to produce trees/shrubs

1 Seed
2 Grafted (specify species, hybrid and/or clone used as rootstock)
3 Tissue culture

2.22.3 Irrigation

1 Rain-fed
2 Irrigated (specify average annual amount of water supplied per hectare)
3 Run-off
4 River banks
99 Other (specify in descriptor **2.25 Collector's notes**)

2.23 Plant population density

Visual assessment. Quantify plants per hectare

2.24 Prevailing stresses

General information on associated abiotic and biotic stresses and the accession's reaction. Please refer to specific sections

2.25 Collector's notes

Additional information recorded by the collector (e.g. assessment of genetic erosion) or any specific information on any state in any of the above descriptors

MANAGEMENT

3. Orchard management descriptors

3.1 Accession number (Passport 1.1)

3.1.1 Local plant number (Passport 1.1.1)

This identifies a single plant within a population of plants having the same accession number. It may be any combination of plot identity, row number, or tree position within the row

3.2 Accession orchard location

Enter separate block designations, row numbers and tree numbers within the row for each duplicate tree of each accession if each tree is not identified with a unique local plant number (see descriptor **3.1.1**)

3.2.1 Block designation

3.2.2 Row number

3.2.3 Tree number within the row

3.3 Propagation method

Method used to produce trees

1 Seed
2 Grafted (specify method used in descriptor **3.10 Notes**)
3 Tissue culture
4 Seedling

3.4 Scion compatibility

Indicate the name of the cultivar grafted in descriptor **3.10 Notes**

3.4.1 Grafting establishment [%]

Percentage of grafts that were successful

3.5 Planting year [YYYY]

Specify year tree was planted in the orchard

3.6 Regeneration year [YYYY]

Year (estimate) tree should be propagated for regeneration

3.7 Date of last regeneration or multiplication [YYYYMMDD]

Primary method of regeneration is propagation of clonal material

3.8 Number of times accession regenerated

Since the date of acquisition

3.9 Type of maintenance

1 Vegetative in the field
2 Vegetative in tissue culture
3 Pollen
4 Seed
99 Other (e.g. more than one type, specify in descriptor **3.10 Notes**)

3.10 Notes

Any additional information may be specified here

ENVIRONMENT AND SITE

4. Characterization and/or evaluation site descriptors

4.1 Country of characterization and/or evaluation

(See instructions in descriptor **2.5 Country of collecting**)

4.2 Site (research institute)

4.2.1 Latitude

Degrees and minutes followed by N (North) or S (South) (e.g. 1030S). Missing data (minutes) should be indicated with hyphen (e.g. 10—S).

4.2.2 Longitude

Degrees and minutes followed by E (East) or W (West) (e.g. 07625 W). Missing data (minutes) should be indicated with hyphen (e.g. 076—W).

4.2.3 Elevation [m asl]

4.2.4 Name of farm or institute

4.3 Evaluator's name and address

4.4 Sowing or grafting date [YYYYMMDD]

4.5 Evaluation environment

Environment in which characterization/evaluation was carried out

1 Field
2 Screenhouse
3 Glasshouse
4 Laboratory
99 Other (specify in descriptor **4.14 Notes**)

4.6 Condition of tree

Choose the one condition that best fits the accession at the time of characterization/evaluation

1 Dying
2 Old - declining
3 Mature - diseased
4 Mature - non-vigorous
5 Mature - vigorous
6 Young (not yet bearing)
7 Healthy - cropping poorly
8 Healthy - cropping well

4.7 Seed germination [d]
Number of days to 50% germination

4.8 Field establishment [d]
Number of days to 50% field establishment

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

4.10 Field spacing
4.10.1 Distance between trees in a row [m]
4.10.2 Distance between rows [m]

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

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

4.13 Environmental characteristics of site
Use descriptors **5.1.1 to 5.1.22** in section 5

4.14 Notes
Any other site-specific information

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

5.1 Site environment
5.1.1 Topography
This refers to the profile in elevation of the land surface on a broad scale. The reference is FAO (1990)

1	Flat	0 - 0.5%
2	Almost flat	0.6 - 2.9%
3	Gently undulating	3 - 5.9%
4	Undulating	6 - 10.9%
5	Rolling	11 - 15.9%
6	Hilly	16 - 30%
7	Steeply dissected	>30%, moderate elevation range
8	Mountainous	>30%, great elevation range (>300 m)
99	Other	(specify in appropriate section's Notes)

5.1.2 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

5.1.3 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 Beach
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 Notes)

5.1.4 Slope [°]

Estimated slope of the site

5.1.5 Slope aspect

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

5.1.6 Crop agriculture

(Adapted from FAO 1990)

5.1.6.1 Tree and shrub cropping

1 Non-irrigated tree crop cultivation
2 Irrigated tree crop cultivation
3 Non-irrigated shrub crop cultivation
4 Irrigated shrub crop cultivation

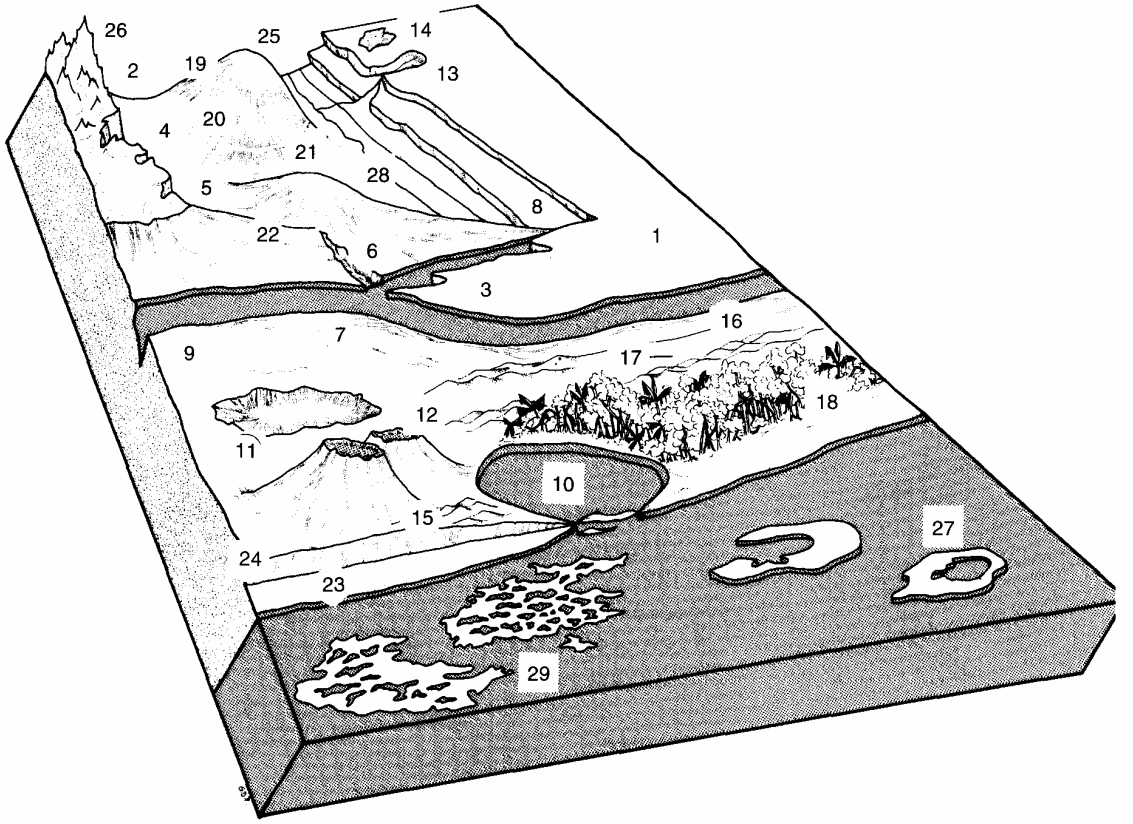

Fig. 1. Land element and position

5.1.7 Overall vegetation surrounding and at the site

(Adapted from FAO 1990)

1	Grassland	(Grasses, subordinate forbs, no woody species)
2	Forbland	(Herbaceous plants predominant)
3	Forest	(Continuous tree layer, crowns overlapping, large number of tree and shrub species in distinct layers)
4	Woodland	(Continuous tree layer, crowns usually not touching, understorey may be present)
5	Shrubland	(Continuous layer of shrubs, crowns touching)
6	Savanna	(Grasses with a discontinuous layer of trees or shrubs)
99	Other	(specify in appropriate section's Notes)

5.1.8 Soil parent material

(Adapted from FAO 1990)

Two lists of examples of parent material and rock are given below. The reliability of the geological information and the knowledge of the local lithology will determine whether a general or a specific definition of the parent material can be given. Saprolite is used if the *in situ* weathered material is thoroughly decomposed, clay-rich but still showing rock structure. Alluvial deposits and colluvium derived from a single rock type may be further specified by that rock type.

5.1.8.1 Unconsolidated material

1	Aeolian deposits (unspecified)	10	Volcanic ash
2	Aeolian sand	11	Loess
3	Littoral deposits	12	Pyroclastic deposits
4	Lagoonal deposits	13	Glacial deposits
5	Marine deposits	14	Organic deposits
6	Lacustrine deposits	15	Colluvial deposits
7	Fluvial deposits	16	*In situ* weathered
8	Alluvial deposits	17	Saprolite
9	Unconsolidated (unspecified)	99	Other (specify in appropriate section's Notes)

5.1.8.2 Rock type

(Adapted from FAO 1990)

1	Acid igneous/ metamorphic rock	16	Limestone
2	Granite	17	Dolomite
3	Gneiss	18	Sandstone
4	Granite/gneiss	19	Quartzitic sandstone
5	Quartzite	20	Shale
6	Schist	21	Marl
7	Andesite	22	Travertine
8	Diorite	23	Conglomerate
9	Basic igneous/ metamorphic rock	24	Siltstone
		25	Tuff
10	Ultra basic rock	26	Pyroclastic rock
11	Gabbro	27	Evaporite
12	Basalt	28	Gypsum rock
13	Dolerite	99	Other (specify in appropriate section's Notes)
14	Volcanic rock		
15	Sedimentary rock	0	Not known

5.1.9 Stoniness/rockiness/hardpan/cementation

1 Tillage unaffected
2 Tillage affected
3 Tillage difficult
4 Tillage impossible
5 Essentially paved

5.1.10 Soil drainage

(Adapted from FAO 1990)

3 Poorly drained
5 Moderately drained
7 Well drained

5.1.11 Soil salinity

1 <160 ppm dissolved salts
2 160 - 240 ppm
3 241 - 480 ppm
4 >480 ppm

5.1.12 Soil depth to groundwater table

(Adapted from FAO 1990)

The depth to the groundwater table, if present, as well as an estimate of the approximate annual fluctuation, should be given. The maximum rise of the groundwater table can be inferred approximately from changes in profile colour in many, but not all, soils.

1 0 - 25 cm
2 25.1 - 50 cm
3 50.1 - 100 cm
4 100.1 - 150 cm
5 >150 cm

5.1.13 Soil matrix colour

(Adapted from FAO 1990)

The colour of the soil matrix material in the root zone around the accession is recorded in the moist condition (or both dry and moist conditions, if possible) using the notation for hue, value and chroma as given in the Munsell Soil Color Charts (Munsell Color 1975). If there is no dominant soil matrix colour, the horizon is described as mottled and two or more colours are given and should be registered under uniform conditions. Early morning and late evening readings are not accurate. Provide depth of measurement (cm). If colour chart is not available, the following states may be used:

1 White
2 Red
3 Reddish
4 Yellowish red
5 Brown
6 Brownish
7 Reddish brown
8 Yellowish brown
9 Yellow
10 Reddish yellow
11 Greenish, green
12 Grey
13 Greyish
14 Blue
15 Bluish-black
16 Black

5.1.14 Soil pH

Actual value of the soil within the following root depths around the accession

5.1.14.1 pH at 10-15 cm
5.1.14.2 pH at 16-30 cm
5.1.14.3 pH at 31-60 cm
5.1.14.4 pH at 61-90 cm

5.1.15 Soil erosion

3 Low
5 Intermediate
7 High

5.1.16 Rock fragments

(Adapted from FAO 1990)

Large rock and mineral fragments (>2 mm) are described according to abundance

1 0 - 2%
2 2.1 - 5%
3 5.1 - 15%
4 15.1 - 40%
5 40.1 - 80%
6 >80%

5.1.17 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 fractions 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

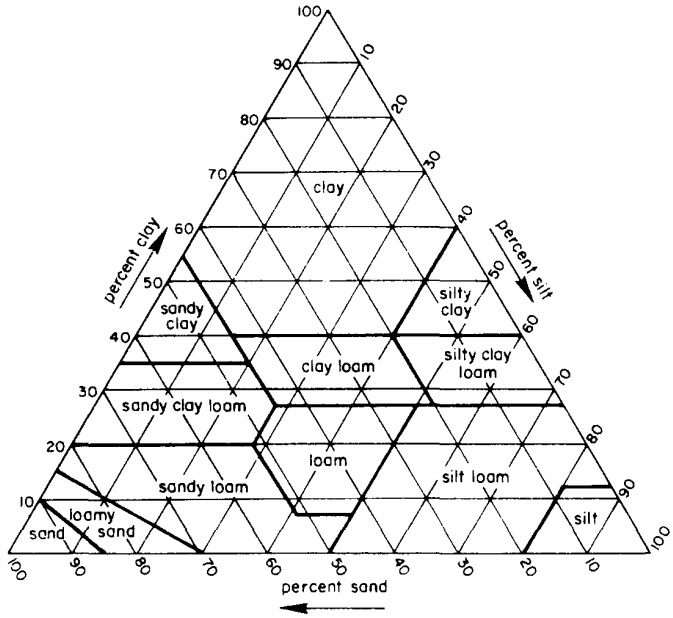

Fig. 2. Soil texture classes

5.1.17.1 Soil particle size classes

(Adapted from FAO 1990)

1	Clay	< 2 µm
2	Fine silt	2 - 20 µm
3	Coarse silt	21 - 63 µm
4	Very fine sand	64 - 125 µm
5	Fine sand	126 - 200 µm
6	Medium sand	201 - 630 µm
7	Coarse sand	631 - 1250 µm
8	Very coarse sand	1251 - 2000 µm

5.1.18 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.).

5.1.19 Water availability

1 Rain-fed
2 Irrigated
3 Flooded
4 River banks
5 Sea coast
99 Other (specify in appropriate section's Notes)

5.1.20 Soil fertility

General assessment of the soil fertility based on existing vegetation

3 Low
5 Moderate
7 High

5.1.21 Climate of the site

Should be assessed as close to the site as possible

5.1.21.1 Temperature [°C]

Provide either the diurnal (mean, maximum, minimum) or the seasonal (mean, maximum, minimum)

5.1.21.2 Rainfall [mm]

Annual average (state number of recorded years)

5.1.21.3 Wind [m/s]

Annual average (state number of years recorded)

5.1.21.3.1 Frequency of typhoons or hurricane force winds

3 Low
5 Intermediate
7 High

5.1.21.3.2 Date of most recent typhoons or hurricane force winds [YYYYMMDD]

5.1.21.3.3 Annual maximum wind velocity [m/s]

5.1.21.4 Frost

5.1.21.4.1 Date of most recent frost [YYYYMMDD]

5.1.21.4.2 Minimum temperature [°C]

Specify seasonal average and minimum survival temperature

5.1.21.4.3 Duration of temperature below 0°C [d]

5.1.21.5 Relative humidity

5.1.21.5.1 Relative humidity diurnal range [%]

5.1.21.5.2 Relative humidity seasonal range [%]

5.1.21.6 Light

3 Shady
7 Sunny

5.1.21.7 Daylength [h]

Provide either the monthly (mean, maximum, minimum) or the seasonal (mean, maximum, minimum)

5.1.22 Other

(Specify in appropriate section's Notes)

CHARACTERIZATION

6. Plant descriptors

Average of at least two 'on-years' (production years) data, unless otherwise stated

6.1 Growth descriptors

6.1.1 Seedling height [cm]

Measure the height from soil to tip of stem, on 1-year and 2-year-old seedlings

6.1.2 Seedling diameter [cm]

Measured on the stem of 1-year and 2-year-old seedlings at 10 cm from soil

6.1.3 Tree/shrub vigour

3 Low
5 Intermediate
7 High

6.1.4 Growth habit

1 Tree with single trunk
2 Tree much branched from base
3 Shrub

6.1.5 Branching habit

3 Sparse
5 Intermediate
7 Dense

6.1.6 Trunk colour

1 White
2 Grey brownish
3 Grey
4 Light red
99 Other (specify in descriptor **6.7 Notes**)

6.2 Leaf descriptors

For the following descriptors, average of 20 fully expanded representative leaves, collected from different trees when shoots are lignified. Do not select leaves that are out of the ordinary due to disease, nutritional imbalances and excessive vigour. For qualitative characteristics, indicate the predominant one

6.2.1 Leaf length [cm]

Measured from the base of petiole to the tip of terminal leaflet. (See Fig. 3)

6.2.2 Leaf width [cm]

Measured at the widest part. (See Fig. 3)

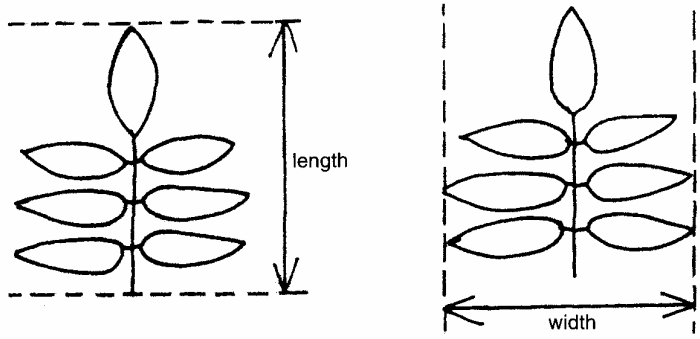

Fig. 3. Leaf length and width

6.2.3 Leaf rachis wing

(See Fig. 4)

0 Absent
1 Present in leaf rachis only
2 Present in both leaf rachis and petiole

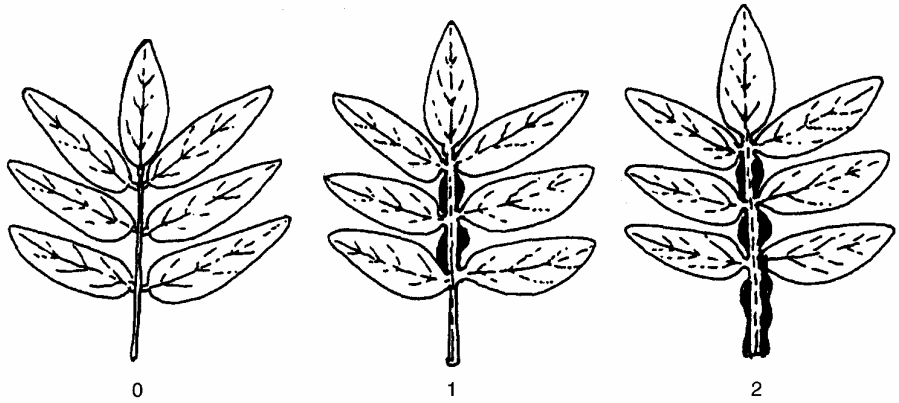

Fig. 4. Leaf rachis wing

6.2.4 Terminal leaflet

(See Fig. 5)

0 Absent (even pinnate leaf)
1(+) Present (odd pinnate leaf)

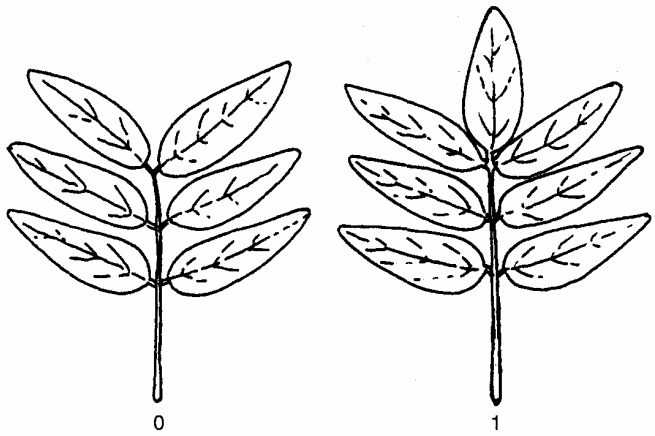

Fig. 5. Terminal leaflet

6.2.5 Terminal leaflet size

1 Smaller than lateral ones
2 As large as lateral ones
3 Larger than lateral ones

6.2.6 Terminal leaflet length [cm]

(See Fig. 6)

6.2.7 Terminal leaflet width [cm]

(See Fig. 6)

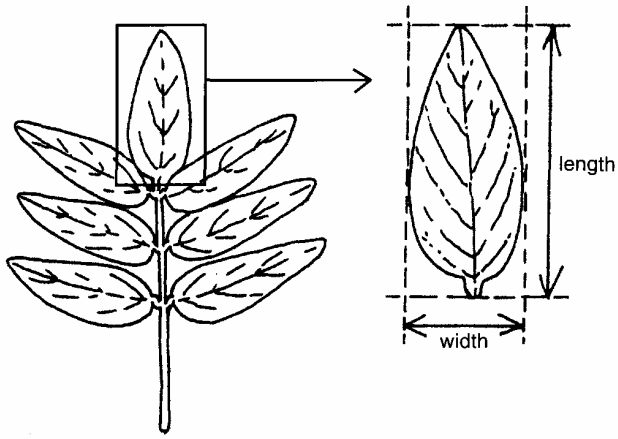

Fig. 6. Terminal leaflet length and width

6.2.8 Terminal leaflet length/width ratio

6.2.9 Number of pairs of leaflets

6.2.10 Terminal leaflet shape

(See Fig. 7)

1 Lanceolate
2 Ovate
3 Ovate-oblong
4 Oblong
5 Elliptic
6 Narrow elliptic
99 Other (specify in descriptor **6.7 Notes**)

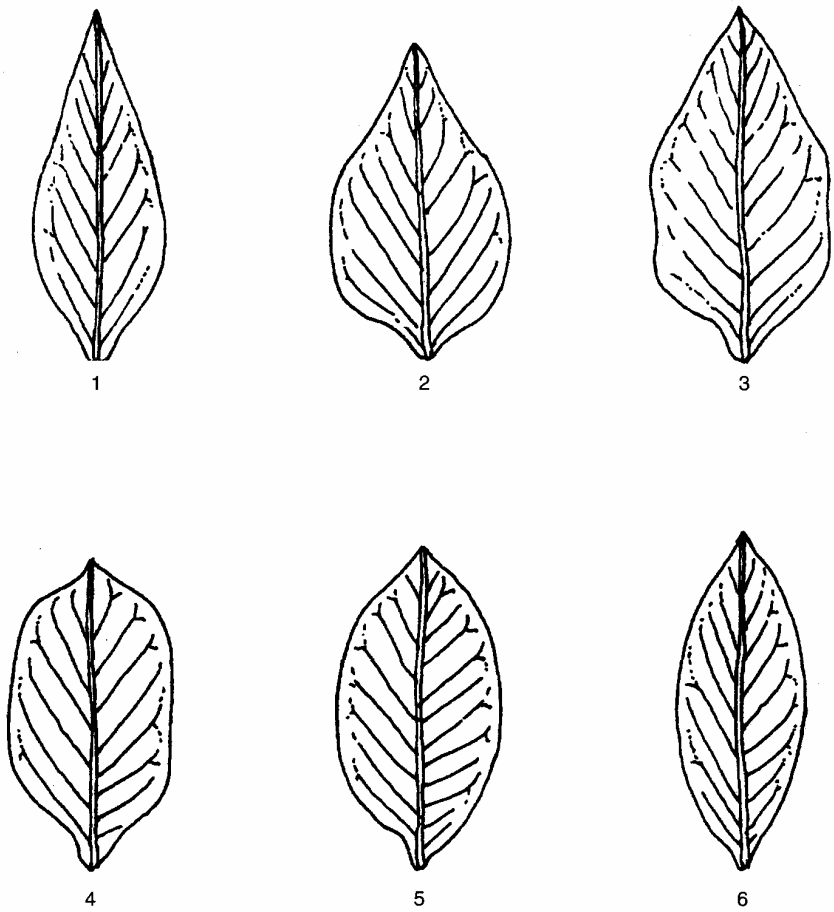

Fig. 7. Terminal leaflet shape

6.2.11 Terminal leaflet apex shape

(See Fig. 8)

1 Mucronulate
2 Acuminate
3 Mucronate
4 Caudate
5 Cuspidate
6 Acute
7 Obtuse
8 Retuse
9 Emarginate

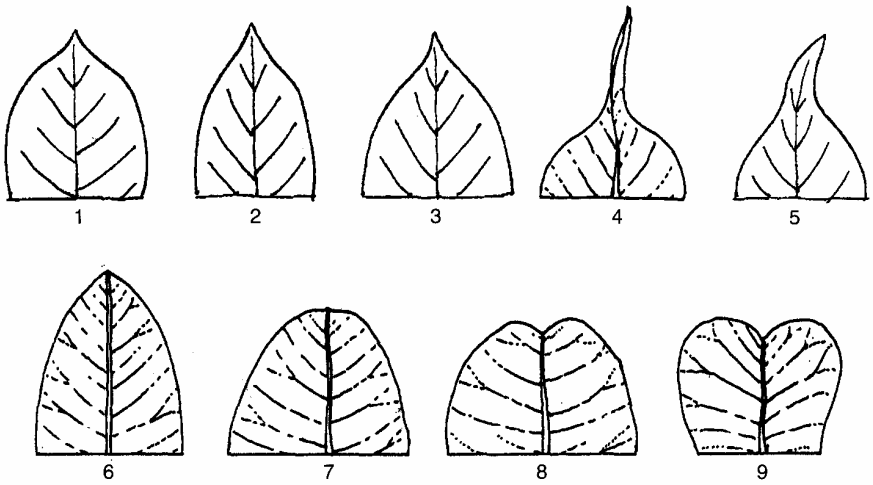

Fig. 8. Terminal leaflet apex shape

6.2.12 Leaf texture

1 Leathery
2 Membranaceous

6.2.13 Leaf waxiness

0 Absent
1(+) Present

6.2.14 Petiole shape

(See Fig. 9)

1 Flattened
2 Rounded
3 Rounded straight adaxially

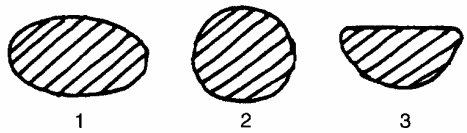

Fig. 9. Petiole shape in transversal section

6.2.15 Petiole length [mm]

6.2.16 Leaf colour

Observe at adaxial side, when shoot is woody, before fruits are mature

1 Light green
2 Green
3 Dark green
99 Other (specify in descriptor **6.7 Notes**)

6.2.17 Leaf thickness [µm]

Measure with a micrometer

6.2.18 Leaf indumentum

1 Glabrous
2 Hairy

6.2.19 Leaflet margin

1 Entire
2 Wavy

6.2.20 Leaflet margin ciliation

0 Absent
1(+) Present

6.2.21 Resin smell

Detect the smell after crushing a leaf

3 Weak
5 Intermediate
7 Strong

6.3 Bud and bark descriptors

6.3.1 Current year shoot colour

Observe when fruits are mature

1 Light brown
2 Brown
3 Dark Brown
99 Other (specify in descriptor **6.7 Notes**)

6.3.2 Scaffold branch colour

1 Brownish
2 Brownish grey
3 Grey
99 Other (specify in descriptor **6.7 Notes**)

6.3.3 Lenticel distribution on scaffold branches

3 Sparse
5 Intermediate
7 Dense

6.3.4 Indumentum in vegetative terminal bud

1 Glabrous
2 Hairy

6.3.5 Length of vegetative terminal bud [mm]
(See Fig. 10)

6.3.6 Width of vegetative terminal bud [mm]
(See Fig. 10)

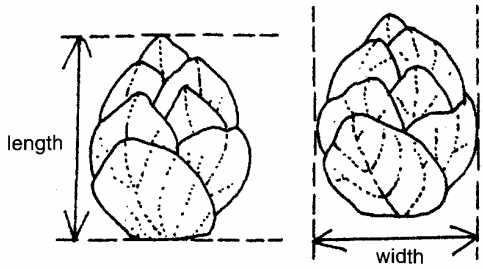

Fig. 10. Terminal bud length and width

6.3.7 Number of scales in vegetative terminal bud

To facilitate counting it is suggested to dry the buds and then soak them in water for some time to allow scales to separate

6.3.8 Arrangement of scales in vegetative terminal bud

1 Opposite
2 Alternate
3 Spiral

6.3.9 Cracks on trunk bark

0 Absent
1(+) Present

6.3.9.1 Shape of cracks on trunk bark

1 Square
2 Rectangular
99 Other (specify in descriptor **6.7 Notes**)

6.3.10 Leaf galls

0 Absent
1(+) Present

6.3.10.1 Type of galls

1 Horn-like
2 Branched dendron
3 Rounded
99 Other (specify in descriptor **6.7 Notes**)

6.4 Inflorescence and fruiting habit

Average over at least 2 years, where applicable.

6.4.1 Reference standard

Indicate which cultivar has been used for the following descriptors, where applicable

6.4.2 Flowering precocity

Specify number of years from Graft or Seed to first flower (i.e. 4 G indicates first flower produced 4 years from graft establishment)

6.4.2.1 Years before (-) or after (+) reference standard

6.4.3 Inflorescence bud weight [DW g]

Average of 20 buds collected at harvest time and dried in a ventilated oven at 60°C for 24 hours

6.4.4 Inflorescence bud colour

Evaluated at harvest time

1 Reddish brown
2 Light brown
3 Brown
4 Dark brown
99 Other (specify in descriptor **6.7 Notes**)

6.4.5 Inflorescence bud indumentum

1 Glabrous
2 Hairy

6.4.6 Inflorescence bud shape

(See Fig. 11)

1 Broadly ovate
2 Narrowly ovate
3 Conical

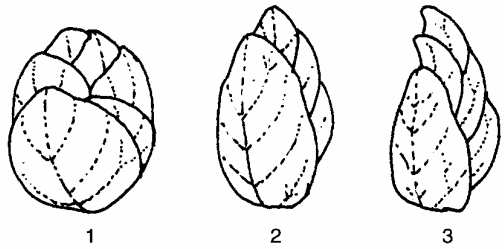

Fig. 11. Inflorescence bud shape

6.4.7 Inflorescence bud: number of scales

To facilitate counting, it is suggested to dry the buds and then soak them in water for some time to allow separation of scales

6.4.8 Inflorescence bud: arrangement of scales

1 Opposite
2 Alternate
3 Spiral

6.4.9 Inflorescence abundance

Rate in relation to reference standard of same age

3 Sparse
5 Intermediate
7 Dense

6.4.10 Inflorescence type

1 Panicle
2 Fasciculate raceme

6.4.11 Inflorescence colour

1 Yellow greenish
2 Yellow
3 Brown yellowish
99 Other (specify in descriptor **6.7 Notes**)

6.4.12 Stigma colour

1 Light cream
2 Cream
3 Dark cream
4 Light red
5 Red
99 Other (specify in descriptor **6.7 Notes**)

6.4.13 Male inflorescence cluster colour

1 Brown reddish
2 Red
3 Green reddish
4 Green
99 Other (specify in descriptor **6.7 Notes**)

6.4.14 Inflorescence rachis length [cm]

Average of 20 inflorescences at the end of flowering period. Measurements should be carried out on the first three apical inflorescences from different branches

6.4.15 Number of primary lateral inflorescence branches

Average of 20 inflorescences at the end of flowering period. Measurements should be carried out on the first three apical inflorescences from different branches

6.5 Fruit

6.5.1 Number of fruits per infructescence

Measurements should be carried out on the first three apical infructescences from different branches

6.5.2 Hull tip

Record when fruits are mature

0 Absent
1(+) Present

6.5.3 Hull consistency

Evaluate when fruits are mature

1 Juicy
2 Dry

6.5.4 Hull wrinkles

Record when fruits are dry

1 Longitudinal
2 Reticulate
99 Other (specify in descriptor **6.7 Notes**)

6.5.5 Fruit length [mm]
Record on the first three apical infructescences from different branches. Average of 20 nuts, measured from most distant points along main seed axis. (See Fig. 12)

6.5.6 Fruit width [mm]
Measurements should be carried out on first three apical infructescences from different branches. Average of 20 nuts, measured from the widest points perpendicular to main seed axis. (See Fig. 12)

6.5.7 Fruit thickness [mm]
Record at the widest part perpendicular to suture on the first three apical infructescences from different branches. (See Fig. 12)

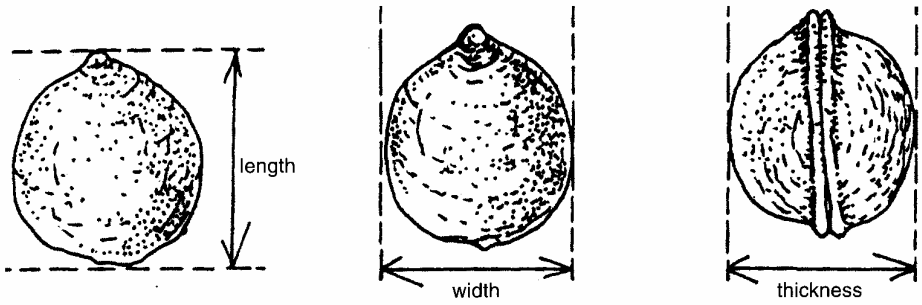

Fig. 12. Fruit length, width and thickness

6.5.8 Fruit shape
(See Fig. 13)

1 Globular
2 Globular lenticular
3 Obovoid globular
4 Obovoid
99 Other (specify in descriptor **6.7 Notes**)

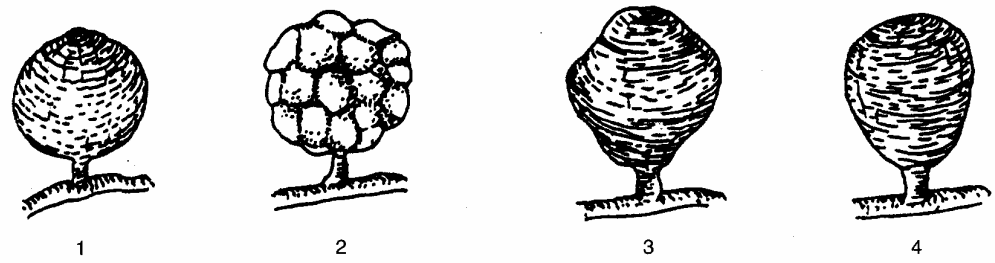

Fig. 13. Fruit shape

6.5.9 Fruit weight [DW g]

Average of 20 healthy fruits dried in oven at 60°C for 48 hours

6.5.10 Fruit colour after maturation

1 Blue
2 Greenish blue
3 Green
4 Dark green
99 Other (specify in descriptor **6.7 Notes**)

6.5.11 Endocarp (shell) thickness [mm]

Measure with a micrometer

6.6 Phenology descriptors

If available, use reference standard specified in descriptor 6.4.1

6.6.1 Date of vegetative bud break [YYYYMMDD]

Record when more than 50% of terminal buds have enlarged and the bud scales have split exposing the green of the leaves inside

6.6. Days of vegetative bud break before (-) or after (+) reference standard [d]

6.6.3 Days of inflorescence bud break before (-) or after (+) vegetative bud break [d]

6.6.4 Peak bloom date [YYYYMMDD]

Record when 70% of flowers are opened

6.6.4.1 Days before (-) or after (+) reference standard [d]

6.6.5 Defoliation date [YYYYMMDD]

Record when trees are completely defoliated

6.6.5.1 Days before (-) or after (+) reference standard [d]

6.7 Notes

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

EVALUATION

7. Plant descriptors

7.1 Root development

3 Weak
5 Medium
7 Strong

7.2 Budding age

Specify years after seedling or *in vitro* establishment at which the tree is ready for grafting

7.3 Effect of rootstock on scion vigour

3 Weak
5 Medium
7 Strong

7.4 Effect of rootstock on yield

3 Weak
5 Medium
7 Strong

7.5 Pollen

7.5.1 Normal pollen [%]

Incidence of normal grains (normal pollen grains are those ± equiassic[1] and having an acceptable number and disposition of apertures)

7.5.2 Pollen deformed and/or aborted [%]

Incidence of deformed and/or aborted pollen grains

7.5.3 Ratio of normal/aborted pollen grains

Ratio of the percentages of normal pollen grains over those deformed/aborted

7.5.4 Pollen vitality

Intensity of pollen grain colour after being stained with proline

1 Scarcely coloured
2 Intensively coloured

7.5.5 Pollen fertility

Intensity of pollen grain colour after being stained with fluorescein

1 Scarcely coloured
2 Intensively coloured

---

[1] Having equatorial and polar axes of the same length.

7.6 Notes
Specify here any additional information

8. 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:

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

8.1 Low temperature
8.1.1 Susceptibility to frost damage in spring

8.2 High temperature
8.2.1 Sunburn susceptibility of trunk

8.3 Salinity

8.4 Nutritional deficiency
1 Nitrogen
2 Phosphorus
3 Potassium
4 Boron
5 Zinc
6 Copper
99 Other (specify in descriptor **8.8 Notes**)

8.5 Mineral toxicity
1 Boron
2 Zinc
3 Chloride
4 Copper
5 Calcium
99 Other (specify in descriptor **8.8 Notes**)

8.6 Waterlogging

8.7 Drought

8.8 Notes
Specify here any additional information

9. Biotic stress susceptibility

In each case, it is important to state the origin of the infestation or infection, i.e. natural, field inoculation, laboratory. Record such information in descriptor 9.3 Notes. 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

Organisms marked here with an asterisk (*) are those found to be of major importance in recent literature sources such as Kaska *et al.* (1995) among others.

Causal organism		Common name
9.1 Nematodes		
9.1.1	*Heterodera mediterranea*, Heterodera marioni**	Cyst nematode
9.1.2	*Meloidogyne* spp.*	Root knot nematode
9.1.3	*Pratylenchus hamatus*, P. neglectus**	Root lesion nematode
9.1.4	*Xiphinema* spp.*	Dagger nematode
9.2 Fungi		
9.2.1	*Alternaria alternata**	Alternaria late blight
9.2.2	*Armillaria mellea**	Armillaria root rot
9.2.3	*Aspergillus flavus, A. niger, A. parasiticus*	Aspergillus mold
9.2.4	*Aspergillus niger*	Aspergillus mold
9.2.5	*Aspergillus parasiticus*	Aspergillus mold
9.2.4	*Botryosphaeria obtusa**	Stem canker
9.2.5	*Botryotinia fuckeliana** (syn. *Botrytis cinerea*)	Botrytis blossom and shoot blight
9.2.6	*Cenangium vagabundum**	
9.2.7	*Cytospora terebinthi**	Gum canker
9.2.8	*Fusarium* spp.*	Root and stem rot
9.2.9	*Paecilomyces variotii**	Die-back of young shoots
9.2.10	*Phytophthora* spp.*	Gommosis, crown and root rot
9.2.11	*Phyllosticta terebinthi*, P. lentisci**	
9.2.12	*Penicillium* spp.	
9.2.13	*Schyzophyllum commune**	Schyzophyllum wood decay
9.2.14	*Sclerotinia sclerotiorum**	Sclerotinia shoot blight
9.2.15	*Septoria* spp.*	Septoria leaf and fruit spot
9.2.16	*Sphaerella pistaciae**	
9.2.17	*Uromyces terebinthi** (syn. *Pileolaria terebinthi*)	Rust
9.2.18	*Verticillium albo-atrum*, V. dahliae**	Verticillium wilt

9.3 Notes

Specify here any additional information

10. Biochemical markers

10.1 Isozyme

For each enzyme, indicate the tissue analyzed and the zymogram type. A particular enzyme can be recorded as 10.1.1; 10.1.2, etc. according to the international nomenclature system for enzymes

10.2 Other biochemical markers

(e.g. Flavonoid and polyphenol profiles)

11. Molecular markers

Describe any specific discriminating or useful trait for this accession. Report probe-enzyme combination analyzed. Below are listed some of the basic methods most commonly used

11.1 Restriction fragment length polymorphism (RFLP)

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

11.2 Amplified fragment length polymorphism (AFLP)

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

11.3 DNA amplification fingerprinting (DAF); random amplified polymorphic DNA (RAPD); AP-PCR

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

11.4 Sequence-tagged microsatellites (STMS)

Report primer sequences, and accurate product sizes (can be used for nuclear or chloroplast genomes)

11.5 PCR-sequencing

Report PCR primer sequences, and derived nucleotide sequence (can be used for single copy nuclear, chloroplast or mitochondrial genomes)

11.6 Other molecular markers

12. Cytological characters

12.1 Somatic chromosome number

12.2 Ploidy level

(2x, 3x, 4x)

12.3 Other cytological characters

13. Identified genes

Describe any known specific mutant present in the accession

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Ms Adriana Alercia supervised and coordinated the production of the text up to the pre-publication stage and provided technical expertise. Ms Helen Thompson assisted with word-processing of the text. Ms Linda Sears edited the text, and Ms Patrizia Tazza designed the cover illustration, some figures of the text and prepared the layout. Dr S. Padulosi drew some of the illustrations. Mr Paul Stapleton managed the production of the publication. Ir Tom Hazekamp provided scientific direction and supervised the overall process.

Annex I. Multicrop Passport Descriptors

This list of multicrop passport descriptors has been developed jointly by IPGRI and FAO to provide consistent coding schemes for common passport descriptors across crops. These descriptors aim to be compatible with future IPGRI crop descriptor lists and with the descriptors to be used for the FAO World Information and Early Warning System (WIEWS) on plant genetic resources.

The list should NOT be regarded as a minimum descriptor list, since many additional passport descriptors are essential for the description of crops and need to be recorded. This document lists an initial set of common passport descriptors at the multicrop level. At a later stage the list could be expanded with additional multicrop descriptors. For example, descriptors dealing with the use of germplasm are currently not included, but their suitability for inclusion at the multicrop level will be investigated. Future expansion could even result in the development of more specialized lists of common descriptors at the crop group level.

Printed here is the latest version of the list (1997) which contains two sections. The latter one (FAO WIEWS DESCRIPTORS) lists a number of optional descriptors used in the FAO WIEWS. The list provides descriptions of content and coding schemes, but also provides *suggested* fieldnames (in parentheses) that can assist in the computerized exchange of this type of data.

MULTICROP PASSPORT DESCRIPTORS
1. Institute code **(INSTCODE)** 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 number or an acronym as specified in the Institute database that will be made available by FAO. Preliminary codes (i.e. codes not yet incorporated in the FAO Institute database) start with an asterisk followed by a 3-letter ISO 3166 country code and an acronym.
2. Accession number **(ACCENUMB)** This number serves as a unique identifier for accessions and is assigned when an accession is entered into the 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 reused. 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).
3. Collecting number **(COLLNUMB)** 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. It should be unique and always accompany subsamples wherever they are sent.
4. Genus **(GENUS)** Genus name for taxon. Initial uppercase letter required.
5. Species **(SPECIES)** Specific epithet portion of the scientific name in lowercase letters plus authority[1]. Following abbreviation is allowed: "sp."
6. Subtaxa **(SUBTAXA)** Subtaxa can be used to store any additional taxonomic identifier plus authority[1]. Following abbreviations are allowed: "ssp." (for subspecies); "var." (for variety); "convar." (for convariety); "f." (for form).
7. Accession name **(ACCNAME)** Either a registered or other formal designation given to the accession. First letter uppercase. Multiple names separated with semicolon.
8. Country of origin **(ORIGCTY)** Name of the country in which the sample was originally collected or derived. Use the ISO 3166 extended codes, (i.e. current and old 3 letter ISO 3166 country codes)
9. Location of collecting site **(COLLSITE)** Location information below the country level that describes where the accession was collected starting with the most detailed information. Might include the distance in kilometers and direction from the nearest town, village or map grid reference point, (e.g. CURITIBA 7S, PARANA means 7 km south of Curitiba in the state of Parana)
10. Latitude of collecting site **(LATITUDE)** Degrees and minutes followed by N (North) or S (South) (e.g. 1030S). Missing data (minutes) should be indicated with hyphen (e.g. 10—S).

[1] Authority is only provided at the most detailed taxonomic level

11. Longitude of collecting site (LONGITUDE)

Degrees and minutes followed by E (East) or W (West) (e.g. 07625W). Missing data (minutes) should be indicated with hyphen (e.g. 076—W).

12. Elevation of collecting site [m asl] (ELEVATION)

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

13. Collecting date of original sample [YYYYMMDD] (COLLDATE)

Collecting date of the original sample where YYYY is the year, MM is the month and DD is the day.

14. Status of sample (SAMPSTAT)

1	Wild	0	Unknown
2	Weedy		
3	Traditional cultivar/Landrace	99	Other (Elaborate in REMARKS field)
4	Breeder's line		
5	Advanced cultivar		

15. Collecting source (COLLSRC)

The coding scheme proposed can be used at 2 different levels of detail: Either by using the global codes such as 1, 2, 3, 4 or by using the more detailed coding such as 1.1, 1.2, 1.3 etc.

1	Wild habitat	2	Farm	3	Market	4	Institute/ Research organization
1.1	Forest/ woodland	2.1	Field	3.1	Town		
		2.2	Orchard	3.2	Village		
1.2	Shrubland	2.3	Garden	3.3	Urban	0	Unknown
1.3	Grassland	2.4	Fallow	3.4	Other ex-		
1.4	Desert/ tundra	2.5	Pasture		change system	99	Other (Elaborate in REMARKS field)
		2.6	Store				

16. Donor institute code (DONORCODE)

Code for the donor institute. The codes consist of the 3-letter ISO 3166 country code of the country where the institute is located plus number or an acronym as specified in the Institute database that will be made available by FAO. Preliminary codes (i.e. codes not yet incorporated in the FAO Institute database) start with an asterisk followed by a 3-letter ISO 3166 country code and an acronym.

17. Donor number (DONORNUMB)

Number assigned to an accession by the donor. 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)

18. Other number(s) associated with the accession (OTHERNUMB)

Any other identification number known to exist in other collections for this accession. 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). Multiple numbers can be added and should be separated with a semicolon.

19. Remarks (REMARKS)

The remarks field is used to add notes or to elaborate on descriptors with value "99" (=Other). Prefix remarks with the field name they refer to and a colon (e.g. COLLSRC: roadside). Separate remarks referring to different fields are separated by semicolons.

FAO WIEWS DESCRIPTORS	
1. Location of safety duplicates	**(DUPLSITE)**
Code of the institute where a safety duplicate of the accession is maintained. The codes consist of 3-letter ISO 3166 country code of the country where the institute is located plus number or an acronym as specified in the Institute database that will be made available by FAO. Preliminary codes (i.e. codes not yet incorporated in the FAO Institute database) start with an asterisk followed by a 3-letter ISO 3166 country code and an acronym. Multiple numbers can be added and should be separated with a semicolon.	
2. Availability of passport data	**(PASSAVAIL)**
(i.e. in addition to what has been provided)	
0 Not available	
1 Available	
3. Availability of characterization data	**(CHARAVAIL)**
0 Not available	
1 Available	
4. Availability of evaluation data	**(EVALAVAIL)**
0 Not available	
1 Available	
5. Acquisition type of the accession	**(ACQTYPE)**
1 Collected/bred originally by the institute	
2 Collected/bred originally by joint mission/institution	
3 Received as a secondary repository	
6. Type of storage	**(STORTYPE)**
Maintenance type of germplasm. If germplasm is maintained under different types of storage, multiple choices are allowed, separated by a semicolon (e.g. 2;3). (Refer to FAO/IPGRI Genebank Standards 1994 for details on storage type)	
1 Short-term	99 Other (elaborate in REMARKS field)
2 Medium-term	
3 Long-term	
4 *In vitro* collection	
5 Field genebank collection	
6 Cryopreserved	

Please forward your feedback on the use of this list to:
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COLLECTING FORM for *Pistacia* spp. (excluding *Pistacia vera* L.)

ACCESSION No. (1.1):

COLLECTING INSTITUTE/NAME(S) (2.1):

ACCESSION IDENTIFICATION

COLLECTING No. (2.3): |___|___|___|___|___|___|___|
PHOTOGRAPH No. (2.20): |___|___|___|___|___|___|___|

COLLECTING DATE (YYYYMMDD) (2.4): |___|___| |___|___| |___|___|___|___|

SPECIES (1.8.2): SUBSPECIES (1.8.3):

SEX (1.11): 1 Male 2 Female

LOCAL/VERNACULAR NAME (2.17):

ETHNIC GROUP (2.16):

LOCAL LANGUAGE (1.12.2):

ORCHARD MANAGEMENT

ACCESSION NUMBER (3.1):

TYPE OF MAINTENANCE (3.9):
1 Vegetative in the field 2 Vegetative in tissue culture 3 Pollen 4 Seed
99 Other (specify):

CHARACTERIZATION

GROWTH DESCRIPTORS (6.1)
Growth habit (6.1.4):
1 Tree with single trunk 2 Tree much branched from base 3 Shrub

LEAF DESCRIPTORS (6.2)
Leaf length [cm] (6.2.1):
Leaf width [cm] (6.2.2):
Leaf rachis wing (6.2.3):
0 Absent
1 Present in leaf rachis only
2 Present in leaf rachis and petiole
Terminal leaflet (6.2.4):
0 Absent (even pinnate leaf)
1(+) Present (odd pinnate leaf)
Terminal leaflet length [cm] (6.2.6):
Terminal leaflet width [cm] (6.2.7):
Number of pairs of leaflets (6.2.9):
Terminal leaflet shape (6.2.10):
1 Lanceolate
2 Ovate
3 Ovate-oblong
4 Oblong
5 Elliptic
6 Narrow elliptic
99 Other (specify)

FRUIT (6.5)
Fruit shape (6.5.8):
1. Globular 2. Globular lenticular 3. Obovoid globular 4. Obovoid
99. Other (specify)

SAMPLE

TYPE OF SAMPLE (2.13):
1 Vegetative 2 Seed 3 Pollen 4 Tissue culture

STATUS OF SAMPLE (2.14):
0 Unknown 1 Wild 2 Weedy 3 Traditional cultivar/Landrace
4 Breeders line 5 Advanced cultivar 99 Other (specify):

USES OF THE ACCESSION FRUIT (2.15)
1 Nut production 2 Clonal rootstock 3 Seedling rootstock 4 Pollinator
5 Medicinal 6 Forage 7 Wood/timber 99 Other (specify):

PREVAILING STRESSES (2.24):
Mention the types of major stresses, i.e. abiotic (drought), biotic (insects, fungi, etc.)

==========

COLLECTING SITE LOCATION

SITE No. (2.2): |___|___|___|___|___|___|___| COUNTRY (2.5): |___|___|___|

PROVINCE/STATE (2.6): DEPARTMENT/COUNTY (2.7):

LOCATION (2.8): km: |___|___| direction: |___|___|___| from:

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

==========

ACCESSION AND COLLECTING SITE ENVIRONMENT

COLLECTING SOURCE (2.12):
0 Unknown 1 Wild habitat 2 Farm 3 Market 4 Institute/Research organization 99 Other (specify):

HIGHER LEVEL LANDFORM (5.1.2):
1 Plain 2 Basin 3 Valley 4 Plateau 5 Upland 6 Hill 7 Mountain

---

SLOPE [°](5.1.4):
SOIL FERTILITY (5.1.20): |___| (code: 3=Low; 5=Moderate; 7=High)

SOIL TEXTURE CLASSES (5.1.17): State class (e.g. Clay, Loam, Silt)

SOIL TAXONOMIC CLASSIFICATION (5.1.18): State class (e.g. Alfisols, Spodosols, Vertisols)

WATER AVAILABILITY (5.1.19):
1 Rain-fed 2 Irrigated 3 Flooded 4 River banks 5 Sea coast
99 Other (specify):

RAINFALL (5.1.21.2): Annual mean: |_____| mm

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

TEMPERATURE (5.1.21.1) Annual mean: |_____| °C

Seasonal mean [°C]:	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|	|___|

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