

# Minimum list of descriptors for Coconut

This list consists of descriptors that are absolutely essential to describe a coconut accession. It is intended for coconut researchers and genebank curators, to enable them to describe coconut diversity using a standardized core set of descriptors and thus more easily exchange, compare, understand and use information about coconut genetic resources.

Based on the comprehensive Coconut Descriptors published by IPGRI (now Bioversity International) in 1995, this minimum list was developed in consultation with coconut experts worldwide, and then refined by a smaller group of experts led by CIRAD.

All the observations and measurements should be done according to the Stantech Manual (IPGRI-COGEN Manual on Standardized Research Techniques in Coconut Breeding) technical specifications, available from: [http://www.bioversityinternational.org/publications/Web\\_version/108/](http://www.bioversityinternational.org/publications/Web_version/108/)

A random sample of 30 normal palms should be taken. For quantitative descriptors, the values obtained are averaged and for qualitative ones the dominant types are listed.

Numbers in parentheses on the right-hand side are the corresponding section numbers in the 1995 descriptors.

All dates must be in the form YYYYMMDD, where YYYY is the year in full, MM is the month and DD is the day. Leading zeroes are required, and missing data must be indicated by hyphens, thus: 20071206; 197812--; 197806--; 1978----.

## ACCESSION DATA

### 1. Accession number (1.1)

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 re-assigned to another accession in the collection. Even if an accession is lost, its assigned number is not available for re-use. Letters should be used before the number to identify the genebank or national system (e.g. CGN indicates an accession from the genebank at Wageningen, The Netherlands; PI indicates an accession within the USA system; a prefix of IRGC indicates an accession from the genebank at IRRI).

### 2. Collecting site

#### 2.1 Latitude of collecting site<sup>1</sup> (2.9)

Degrees, minutes and seconds followed by N (north) or S (south) (e.g. 103015S). Missing data (minutes or seconds) should be indicated with hyphens (e.g. 10----S). Leading zeros are required.

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<sup>1</sup> To convert longitude and latitude in degrees (°), minutes (′), seconds (″), and a hemisphere (North or South and East or West) to decimal degrees, the following formula should be used:

$$d^{\circ} m' s'' = h * (d + m / 60 + s / 3600)$$

where h=1 for the Northern and Eastern hemispheres and -1 for the Southern and Western hemispheres. Thus 30°30'0" S = -30.5 and 30°15'55" N = 30.265.

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### 2.2 Longitude of collecting site<sup>1</sup> (2.10)

Degrees, minutes and seconds followed by E (east) or W (west) (e.g. 0762552W). Missing data (minutes or seconds) should be indicated with hyphens. Leading zeros are required (e.g. 076---W).

### 3. Acquisition date [YYYYMMDD] (1.13)

Date on which the accession entered the collection.

### 4. Field establishment date [YYYYMMDD]

### 5. Accession size (3.8)

The number of living palms for the accession at the last inventory date.

#### 5.1 Last inventory date [YYYYMMDD]

Date of the last counting of the number of living palms for the accession in the field.

### 6. Cultivar name (1.8)

Either a registered or other formal cultivar designation given to the accession.

### 7. Accepted abbreviation for the cultivar name (1.8.3)

### 8. Local or vernacular name (2.29)

Name given by farmer to crop and cultivar or landrace.

### 9. Category (= 'Type') (1.7.1)

- 1 Tall (*typica*)
- 2 Dwarf (*nana*)
- 3 Hybrid
- 9 Other (specify in the Notes descriptor)

### 10. Evaluator's name and address (3.3)

#### 10.1 Full name

#### 10.2 Address

#### 10.3 Country

## PLANT DATA

- 11. Stem morphology** (4.5)  
Measurements should be done at six and ten years after planting.
- 11.1 Stem girth at 20 cm above soil level [cm]** (4.5.1)
- 11.2 Stem girth at 1.5 m height [cm]** (4.5.2)
- 11.3 Stem height [cm]** (4.5.4)  
Measured from ground to oldest green leaf
- 11.3.1 Date [YYYYMMDD]**
- 11.3.2 Height [cm]**
- 11.4 Height between 11 leaf scars (ten internodes) [cm]** (4.5.9)  
Measure starting from 1.5 m from ground surface.
- 12. Inflorescence traits**
- 12.1 Pollination behaviour** (1.14)
- 1 Predominantly self-pollinated (generally dwarf varieties)
  - 2 Intermediate
  - 3 Predominantly out-crossing (generally tall varieties)
- 12.2 Number of female flowers** (4.8.13)
- 12.3 Number of spikelets**
- 13. Fruit**
- 13.1 Fruit colour of immature fruit** (4.9.3)
- 1 Yellow
  - 2 Yellow-red (Pale orange)
  - 3 Red-yellow (Orange)
  - 4 Red
  - 5 Red-green (Copper)
  - 6 Green-red (Bronze)
  - 7 Green
  - 8 Green-yellow (Pale-green)
  - 9 Yellow-green (Greenish yellow)
  - 10 Red-yellow-green (Brown)

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### 13.2 Fruit polar section shape (4.9.10)

- 1 Round
- 2 Egg-shaped
- 3 Pear-shaped
- 4 Elliptic

### 13.3 Nut (fruit without husk) appearance and shape (4.9.15)

- 1 Pointed
- 2 Ovoid
- 3 Almost round
- 4 Oblate

### 13.4 Fruit component analysis (FCA)

#### 13.4.1 Fruit weight [g]

Whole fruit (4.10.1)

#### 13.4.2 Husk weight [g]

#### 13.4.3 Nut weight [g]

Fruit without husk (4.10.2)

#### 13.4.4 Shell weight [g]

Nut without water and without endosperm (4.10.4)

#### 13.4.5 Water weight [g]

#### 13.4.6 Endosperm weight [g]

#### 13.4.7 Endosperm thickness [mm]

Measured on the equator of the nut (4.11.1)

## 14. Yield

14.1 Date observations began [YYYYMMDD] (4.12.1)

14.2 Date observations ended [YYYYMMDD] (4.12.2)

14.3 Number of bunches per palm per year (4.12.4)

14.4 Number of fruits harvested per palm per year (4.12.5)

14.5 Copra weight per nut [g] (4.12.7)

Calculated as: copra (g) = dry endosperm (g) \* 100/94

- 14.6 Dry meat oil content [%]** (4.13.1)  
Based on weight of oil extracted/total dry weight of the sample  $\times 100$   
(Soxhlet Method to be used).

## 15. Notes

Give all information useful for the characterization of the accession, including possible deviations from the Stantech Manual methods.

## CONTRIBUTORS

We are grateful to all the scientists and researchers who contributed to the development of this Minimum Descriptors List. CIRAD scientists provided scientific advice. The following Bioversity staff provided technical advice: Ms Adriana Alercia, who also guided the whole process; Drs Ramanatha Rao and Paul Quek; and Ms Elizabeth Arnaud. We thank Ms Zinnerah Binti Ahmad Jamil for providing technical support.

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