Key access and utilization descriptors for Coconut genetic resources

This list consists of an initial set of characterization and evaluation descriptors for coconut utilization. This strategic set of descriptors, together with passport data, will become the basis for the global accession level information system being developed by the Bioversity-led project, Global Information on Germplasm Accessions (GIGA). It will facilitate access to and utilization of coconut accessions held in genebanks and does not preclude the addition of further descriptors, should data subsequently become available.

Based on the comprehensive List of 'Descriptors for Coconut (*Cocos nucifera* L.)' (IPGRI, 1995), and on the 'Minimum List of descriptors for Coconut' (Bioversity International, 2008), this first set of descriptors for coconut utilization was developed in consultation with coconut experts worldwide, and further refined by a Core Advisory Group (see 'Contributors').

This minimal list defines a first priority set of characteristics and traits to describe, access and utilize *Cocos* genetic resources, particularly those related to biotic and abiotic stresses. A worldwide distribution of experts involved in the survey was assured and the list was afterwards validated by a group of scientists from CIRAD.

Biotic and abiotic stresses included in the list were chosen because of their wide geographic occurrence and significant economic impact at the global level.

All the observations and measurements should be done according to the Stantech Manual (IPGRI-COGENT Manual on Standardized Research Techniques in Coconut Breeding) technical specifications, available from: 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.

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----.

Numbers in parentheses on the right-hand side are the corresponding descriptor numbers listed in the 1995 descriptors. Descriptors with numbers ending in 'X' are new descriptors that were added during the development of the List below.

PLANT DATA

Stem morphology

Measurements should be done at six and ten years after planting

Stem girth at 20 cm above soil level [cm] (4.5.1)

Stem girth at 1.5 m height [cm] (4.5.2)

Stem height [cm] (4.5.4)
Measured from ground to oldest green leaf

Date [YYYYMMDD] (4.5.4.1)

Height [cm] (4.5.4.2)

Height between 11 leaf scars (ten internodes) [cm] (4.5.9)
Measure starting from 1.5 m from ground surface

Inflorescence traits

Pollination behaviour (1.14)
1 Predominantly self-pollinated (generally dwarf varieties)
2 Intermediate
3 Predominantly out-crossing (generally tall varieties)

Number of female flowers (4.8.13)

Number of spikelets (4.8.X)

Fruit

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)

Fruit polar section shape (4.9.10)
1 Round
2 Egg-shaped
3 Pear-shaped
4 Elliptic

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

1 Pointed
2 Ovoid
3 Almost round
4 Oblate

Fruit component analysis (FCA)

Fruit weight [g] (4.10.1)
Whole fruit

Husk weight [g] (4.10.Xa)

Nut weight [g] (4.10.2)
Fruit without husk

Shell weight [g] (4.10.4)
Nut without water and without endosperm

Water weight [g] (4.10.Xb)

Endosperm weight [g] (4.11.X)

Endosperm thickness [mm] (4.11.1)
Measured on the equator of the nut

Yield

Date observations began [YYYYMMDD] (4.12.1)

Date observations ended [YYYYMMDD] (4.12.2)

Number of bunches per palm per year (4.12.4)

Number of fruits harvested per palm per year (4.12.5)

Copra weight per nut [g] (4.12.7)
Calculated as: copra (g) = dry endosperm (g) * 100/94

Dry meat oil content [%] (4.13.1)
Based on weight of oil extracted/total dry weight of the sample × 100
(Soxhlet Method to be used)

Abiotic stresses

Drought (7.3)

Strong winds (7.X)
Coded on a 1-9 resistance scale, as follows:

1 Very low
3 Low
5 Intermediate
7 High
9 Very high

Biotic stresses

Bud rot *(Phytophthora* spp.*)* (8.1.2)

Coconut foliar decay virus (CFDV) (8.2.1)

Lethal yellowing* (8.6.1)

Rhinoceros beetle *(Oryctes rhinoceros)* (8.7.34)

Notes
Any additional information may be specified here, including possible deviations from the Stantech Manual methods.

CONTRIBUTORS
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* Also known, in other countries, as Cape Saint Paul Wilt Disease (CSPW), Kaincopé Disease, Awka Disease, Kribi Disease, Lethal Disease.

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