Key access and utilization descriptors for cowpea genetic resources

This list consists of an initial set of characterization and evaluation descriptors for cowpea [*Vigna unguiculata* (L.) Walp.] genetic resources utilization. This strategic set of descriptors, together with passport data, will become the basis for the global accession level information portal being developed by Bioversity International with the financial support of the Global Crop Diversity Trust (GCDT). It will facilitate access to and utilization of cowpea accessions held in genebanks and does not preclude the addition of further descriptors, should data subsequently become available.

Based on the comprehensive list 'Descriptors for Cowpea' published by IBPGR (now Bioversity International) in 1983, the list was subsequently compared with a number of sources such as 'Descriptors for VIGNA' (USDA, ARS, GRIN), 'Cowpea [*Vigna unguiculata* (L.) Walp.] core collection defined by geographical, agronomical and botanical descriptors'[1] (IITA, 2006), and 'Descriptors for Characterization and Evaluation of Cowpea' (National Institute of Agrobiological Sciences, Genebank of Japan). The initial list was further refined during a crop-specific consultation meeting held at the National Bureau of Plant Genetic Resources (NBPGR, India) in June 2009. It involved several scientists from NBPGR and the Indian Agricultural Research Institute (IARI).

A worldwide distribution of experts was involved in an online survey to define a first priority set of descriptors to describe, to access and to utilize cowpea genetic resources. This key set was afterwards validated by a Core Advisory Group (see 'Contributors') led by Dr S. K. Mishra of NBPGR and Dr Christian Fatokun of IITA.

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

Numbers in parentheses on the right-hand side are the corresponding descriptor numbers listed in the 1983 publication. Descriptors with numbers ending in 'letters' are either modified or are new descriptors that were added during the development of the list below.

PLANT DATA

Growth habit (4.1.1)

Evaluated in the 6th week after sowing

1 Acute erect (branches form acute angles with main stem)
2 Erect (branching angle less acute than above)
3 Semi-erect (branches perpendicular to main stem, but do not touch the ground)
4 Intermediate (lower branches touch the ground)
5 Semi-prostrate (main stem reaches 20 or more centimetres)
6 Prostrate (plants flat on ground; branches spread several metres)
7 Climbing

1 V. Mahalakshmi, Q. Ng, M. Lawson and R. Ortiz, Plant Genetic Resources: Characterization and Utilization, Vol. 5, Issue 3, pp. 113-119, NIAB, 2007

Days to 50% flowering (4.2.1)
Number of days from sowing until 50% of the plants have begun to flower. Recorded for plants with the same sowing date at the same location each year

Pod length [cm] (4.2.7)
Average length of the 10 longest mature pods from 10 randomly selected plants

Days to pod maturity (4.2.X)
Number of days from sowing until 95% of the plants have mature pods

Testa texture (4.3.2)

1 Smooth
3 Smooth to rough
5 Rough (fine reticulation)
7 Rough to wrinkled
9 Wrinkled (coarse folds on the testa)

Eye colour (4.3.4)

0 Eye absent (white, cream)
1 Brown splash or gray
2 Tan brown
3 Red
4 Green
5 Blue to black
6 Blue to black spots or mottle
7 Speckled (even distribution of fine speckling)
8 Mottled (dark brown pigment typically absent around hilum)
9 Mottled and speckled
99 Other (specify in the descriptor **Notes**)

100-Seed weight [g] (4.3.5)
Weight of 100 seeds with 12% moisture content

Seed coat colour (4.3.X)
Recorded at maturity

1 White
2 Cream
3 Brown
4 Red
5 Purple
6 Black
99 Other (i.e. 'yellow' or 'blue', specify in the descriptor **Notes**)

Flower colour (6.2.2)

1 White
2 Violet
3 Mauve-pink
99 Other (specify in the descriptor **Notes**)

Number of pods per peduncle (6.2.8)

Recorded under total insect control. Average number of 10 randomly selected peduncles

Pod colour (6.2.12)

Of mature pod

1 Pale tan or straw
2 Dark tan
3 Dark brown
4 Black or dark purple
99 Other (specify in the descriptor **Notes**)

Seed protein content [%] (6.3.7)

ABIOTIC STRESSES

Drought (7.3)

BIOTIC STRESSES

Cowpea (yellow) mosaic virus (CPMV) (8.4.9)

NOTES

Any additional information may be specified here, particularly that referring to the category '99=Other' present in some of the descriptors above.

CONTRIBUTORS

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CORE ADVISORY GROUP

S. K. Mishra, National Bureau of Plant Genetic Resources (NBPGR), India
Christian Fatokun, International Institute of Tropical Agriculture (IITA), Nigeria
Ousmane Boukar, International Institute of Tropical Agriculture (IITA), Nigeria
Kaesel Jackson Damasceno e Silva, Center of Agriculture Research of MidNorth, Empresa Brasileira de Pesquisa Agropecuária (EMBRAPA), Brazil
Richard L. Fery, United States Department of Agriculture, Agricultural Research Service (USDA-ARS), US Vegetable Laboratory, USA
Ulrike Lohwasser, Leibniz Institute of Plant Genetics and Crop Plant Research, Germany
Yuji Niwa, Ministry of Agriculture, Forestry and Fisheries, Japan

REVIEWERS

Australia
Sally Dillon, Queensland Primary Industries and Fisheries

Austria
Wolfgang Kainz, Austrian Agency for Health and Food Safety (AGES)

India
C. Bharadwaj, Division of Genetics, Indian Agricultural Research Institute, Indian Council of Agricultural Research (IARI-ICAR)
S. R. Pandravada, National Bureau of Plant Genetic Resources (NBPGR), Regional Station, Hyderabd
J. C. Rana, National Bureau of Plant Genetic Resources (NBPGR), Regional Station, Phagli, Shimla

Italy
Valeria Negri, Applied Biology Department, University of Perugia

Nigeria
Remi Adeleke, International Institute of Tropical Agriculture (IITA)
Dominique Dumet, International Institute of Tropical Agriculture (IITA), Nigeria
Mohammad Faguji Ishiyaku, Institute for Agricultural Research, Ahmadu Bello University, Zaria

Russian Federation
Marina Burlyaeva, N. I. Vavilov Research Institute of Plant Industry (VIR)

Senegal
Ndiaga Cisse, Institut Sénégalais de Recherches Agricoles (ISRA)

Spain
Antonio M. De Ron, Misión Biológica de Galicia, Consejo Superior de Investigaciones Científicas (MBG-CSIC)

Taiwan

R. Srinivasan, Asian Vegetable Research and Development Center (AVRDC-The World Vegetable Center)

USA

Jeffrey Ehlers, University of California, Riverside

Robert Myers, Jefferson Institute

Gary Pederson, United States Department of Agriculture, Agricultural Research Service (USDA-ARS), Plant Genetic Resources Conservation Unit