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DESCRIPTORS FOR *VIGNA ACONITIFOLIA* AND *V. TRILOBATA*

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INTERNATIONAL BOARD FOR PLANT GENETIC RESOURCES

DESCRIPTORS FOR VIGNA ACONITIFOLIA AND V. TRILOBATA

IBPGR SECRETARIAT
Rome, 1985

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The International Board for Plant Genetic Resources (IBPGR) is an autonomous international scientific organization under the aegis of the Consultative Group on International Agricultural Research (CGIAR). The IBPGR was established by the CGIAR in 1974 and its Executive Secretariat is provided by the Food and Agriculture Organization of the United Nations. The basic function of the IBPGR is to promote and coordinate an international network of genetic resources centres to further the collection, conservation, documentation, evaluation and use of plant germplasm and thereby contribute to raising the standard of living and welfare of people throughout the world. The Consultative Group mobilizes financial support from its members to meet the budgetary requirements of the Board.

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PREFACE

This descriptor list for moth bean (*Vigna aconitifolia*) (Jacq.) Marechal and pillipesare bean (*V. trilobata*) (Linn) Verdecourt, is based upon a list prepared by T.A. Thomas of the National Bureau of Plant Genetic Resources (NBPGR), India. The IBPGR Ad Hoc Working Group on *Vigna* Species met in September 1981 and recommended that descriptors be published for the *Vigna* crops; the report of the meeting is published as AGPG:IBPGR/81/82.

This descriptor list has been prepared in an IBPGR standard format following advice on descriptors and descriptor states from the crop experts throughout the world. The IBPGR encourages the collection of data on the first four categories of this list: 1. Accession; 2. Collection; 3. and 4. Characterization and preliminary evaluation. The IBPGR endorses the information in categories 1-4 as the minimum that ideally should be available for any one accession. Other descriptors are given in categories 5 onwards that will enable the simple encoding of further characterization and evaluation data and which can serve as examples for the creation of additional descriptors in the IBPGR form by any user.

Although the suggested coding should not be regarded as the definitive scheme, this format has the full backing of the IBPGR and is promoted world-wide. The descriptor list given here provides an international format and thereby produces a universally understood 'language' for all plant genetic resources data. The adoption of this scheme for all data encoding, or at least the production of a transformation method to convert other schemes to the IBPGR format, will produce a rapid, reliable and efficient means for information storage, retrieval and communication. This will greatly assist the utilization of germplasm throughout the international plant genetic resources network. It is recommended, therefore, that information should be produced by closely following this descriptor list with regard to: ordering and numbering descriptors; using the descriptors specified; and using the descriptor states recommended.

Any suggestions for modifications will be welcomed by the IBPGR Secretariat, Rome.

DESCRIPTOR LIST FOR VIGNA ACONITIFOLIA AND V. TRILOBATA

The IBPGR now uses the following definitions in genetic resources documentation:

i) passport (accession identifiers and information recorded by collectors);

ii) characterization (consists of recording those characters which are highly heritable, can be easily seen by the eye and are expressed in all environments);

iii) preliminary evaluation (consists of recording a limited number of additional traits thought desirable by a consensus of users of the particular crop).

Characterization and preliminary evaluation will be the responsibility of the curators, while further characterization and evaluation should be carried out by the plant breeder. The data from further evaluation should be fed back to the curator who will maintain a data file.

The following internationally accepted norms for the scoring or coding of descriptor states should be followed as indicated below.

a) measurements are made in metric units;

b) many descriptors which are continuously variable are recorded on a 1-9 scale. 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 8. (Pest and disease susceptibility) 1 = extremely low susceptibility and 8 = high to extremely high susceptibility;

c) presence/absence of characters are scored as + (present and 0 (absent);

d) for descriptors which are not generally uniform throughout the accession (e.g. mixed collection, genetic segregation) mean and standard deviation could be reported where the descriptor is continuous or mean and 'x' where the descriptor is discontinuous;

e) when the descriptor is inapplicable, '0' is used as the descriptor value. For example, if an accession does not form flowers, 0 would be scored for the following descriptor:

Flower colour

1 White
2 Yellow
3 Red
4 Purple

f) blanks are used for information not yet available;

g) standard colour charts e.g. Royal Horticultural Society Colour Chart, Methuen Handbook of Colour, Munsell Color Charts for Plant Tissues are strongly recommended for all ungraded colour characters (the precise chart used should be specified in the NOTES descriptor, 11).

PASSPORT

1. ACCESSION DATA

1.1 ACCESSION NUMBER

This number serves as a unique identifier for accessions and is assigned by the curator when an accession is entered into his collection. Once assigned this number should never be reassigned to another accession in the collection. Even if an accession is lost, its assigned number is still not available for re-use. Letters should occur before the number to identify the genebank or national system (e.g. MG indicates an accession comes from the genebank at Bari, Italy; PI indicates an accession within the USA system)

1.2 DONOR NAME

Name of institution or individual responsible for donating the germplasm

1.3 DONOR IDENTIFICATION NUMBER

Number assigned to accession by the donor

1.4 OTHER NUMBERS ASSOCIATED WITH THE ACCESSION (other numbers can be added as 1.4.3 etc.)

Any other identification number known to exist in other collections for this accession, e.g. USDA Plant Inventory number (not collection number, see 2.1)

1.4.1 Other number 1

1.4.2 Other number 2

1.5 SCIENTIFIC NAME

1.5.1 Genus

1.5.2 Species

1.5.3 Subspecies

1.5.4 Botanical variety

1.6 PEDIGREE/CULTIVAR NAME

Nomenclature and designations assigned to breeder's material

1.7 ACQUISITION DATA

The month and year in which the accession entered the collection, expressed numerically, e.g. June = 06, 1981 = 81

1.7.1 Month

1.7.2 Year

1.8 DATE OF LAST REGENERATION OR MULTIPLICATION

The month and year expressed numerically, e.g. October = 10, 1978 = 78

1.8.1 Month

1.8.2 Year

1.9 ACCESSION SIZE

Approximate number of seeds of accession in collection

1.10 NUMBER OF TIMES ACCESSION REGENERATED

Number of regenerations or multiplications since original collection

2. COLLECTION DATA

2.1 COLLECTOR'S NUMBER

Original number assigned by collector 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 and should always accompany sub-samples wherever they are sent

2.2 COLLECTING INSTITUTE

Institute or person collecting/sponsoring the original sample

2.3 DATE OF COLLECTION OF ORIGINAL SAMPLE

Expressed numerically, e.g. March = 03, 1980 = 80

2.3.1 Month

2.3.2 Year

2.4 COUNTRY OF COLLECTION OR COUNTRY WHERE CULTIVAR/VARIETY BRED

Use the three letter abbreviations supported by the Statistical Office of the United Nations. Copies of these abbreviations are available from the IBPGR Secretariat and have been published in the FAO/IBPGR Plant Genetic Resources Newsletter number 49

2.5 PROVINCE/STATE

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

2.6 LOCATION OF COLLECTION SITE

Number of kilometres and direction from nearest town, village or map grid reference (e.g. TIMBUKTU7S means 7 km south of Timbuktu)

2.7 LATITUDE OF COLLECTION SITE

Degree and minutes followed by N (north) S (south), e.g. 1030S

2.8 LONGITUDE OF COLLECTION SITE

Degrees and minutes followed by E (east) or W (west), e.g. 7625W

2.9 ALTITUDE OF COLLECTION SITE

Elevation above sea level in metres

2.10 TOPOGRAPHY OF COLLECTION SITE

1 Plain
2 Undulating
3 Sand dunes
4 Hilly
5 Other (specify in the NOTES descriptor, 11)

2.11 COLLECTION SOURCE

1 Wild
2 Farm land
3 Farm store
4 Backyard
5 Village market
6 Commercial market
7 Institute
8 Other (specify in the NOTES descriptor, 11)

2.12 FREQUENCY AT COLLECTION SITE

1 Rare
3 Occasional
5 Frequent
7 Abundant
9 Highly abundant

2.13 STATUS OF SAMPLE

1 Wild
2 Weedy
3 Breeders' line
4 Primitive cultivar (landrace)
5 Advanced cultivar (bred)
6 Other (specify in the NOTES descriptor, 11)

2.14 HABIT

1 Annual
2 Perennial

2.15 LOCAL/VERNACULAR NAME

Name given by farmer to cultivar/landrace/weed

2.16 TYPE OF SAMPLE

1 Random (give approximate number of plants from which seeds collected)
2 Biased
3 Both

2.17 PHOTOGRAPH

Was a photograph taken of the accession or environment at collection site? If so, provide any identification number in the NOTES descriptor, 11.

0 No
+ Yes

2.18 SOIL TEXTURE AT COLLECTION SITE

1 Sandy
2 Loamy
3 Clay
4 Organic
5 Rocky

2.19 IF UNDER CULTIVATION: CROP

1 Monoculture
2 Mixed with cereals/millets (name the crop)
3 Mixed with other legumes (name the crop)
4 Mixed with other crops (specify in the NOTES descriptor, 11)

2.20 IF UNDER CULTIVATION: CULTURAL PRACTICE

Method of farming at the collection site

1 Dryland (rainfed)
2 Irrigated

2.21 IF UNDER CULTIVATION: DENSITY

3 Low
5 Medium
7 High

2.22 PESTS AND DISEASES OF SAMPLE

Specify the pests and diseases (section 8) and severity 1-9 scale

2.23 HERBARIUM SPECIMEN

Was a herbarium specimen collected? If so, provide any identification number in the NOTES descriptor, 11

0 No
+ Yes

2.24 OTHER NOTES FROM COLLECTOR

Collectors will record ecological information. For cultivated crops, cultivation practices such as irrigation, season of sowing, etc. will be recorded. If possible the following should be obtained from records:

Average annual rainfall (mm)
Average annual maximum temperature in degrees Celcius
Average annual minimum temperature in degrees Celcius

CHARACTERIZATION AND PRELIMINARY EVALUATION

3. SITE DATA

3.1 COUNTRY OF CHARACTERIZATION AND PRELIMINARY EVAUATION

3.2 SITE (RESEARCH INSTITUTE)

3.3 NAME OF PERSON IN CHARGE OF CHARACTERIZATION

3.4 SOWING DATE

3.4.1 Day

3.4.2 Month

3.4.3 Year

3.5 HARVEST DATE

3.5.1 Day

3.5.2 Month

3.5.3 Year

3.6 POPULATION DENSITY

Number of plants per accession

4. PLANT DATA

4.1 VEGETATIVE

4.1.1 Growth habit

At first pod maturity

1 Erect (straight and prominent main stem with few ascending branches)

2 Semi-erect (main stem less prominent, branches perpendicular to main stem but do not touch)

3 Spreading (branches usually many and spread on the ground)

4 Semi-prostrate (main stem 20-30 centimetres above ground; with spreading branches, 1-4 metres long)

5 Prostrate (plant flat on ground with branches spreading several metres)

6 Climbing (erect with acute branches tending to be viny)

4.1.2 Growth pattern

1 Determinate (apical bud of main stem reproductive)

2 Indeterminate (apical bud of main stem active)

4.1.3 <u>Twining tendency</u>

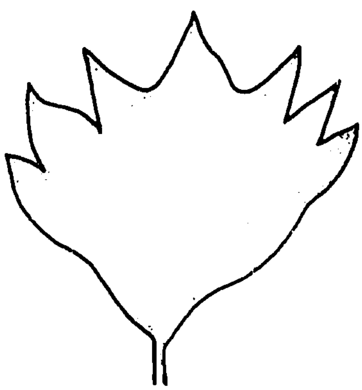
At first pod maturity

0 None
3 Slight
5 Moderate
7 Pronounced
8 Others (specify in the NOTES descriptor, 11)

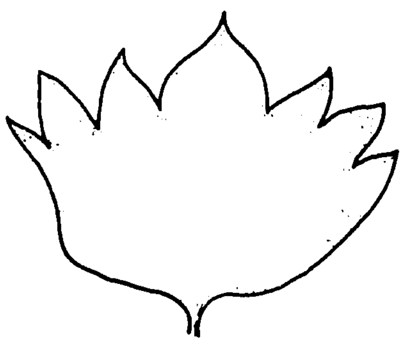
4.1.4 <u>Base of terminal leaflet of fifth fully opened leaf on main axis</u>

At first pod maturity (see Fig. 1)

1 Narrowly cuneate
2 Broadly cuneate
3 Other (specify in the NOTES descriptor, 11)



1 Narrowly cuneate



2 Broadly cuneate

Fig. 1. Terminal leaflet - base shape

4.1.5 Lobing of terminal leaflet

Recorded for the same leaf as in 4.1.4

At first pod maturity (see Figs. 2 and 3)

0 Unlobed
3 Shallow
5 Intermediate
7 Deep
9 Very deep

4.1.6 Terminal leaflet tip shape

Recorded for the same leaf as in 4.1.4

1 Round
2 Sub-acute
3 Obtuse
4 Other (specify in the NOTES descriptor, 11)

4.1.7 Terminal leaflet lobe shape

1 Lanceolate
2 Broadly ovate
3 Ovate
4 Rhombic
5 Other (specify in the NOTES descriptor, 11)

4.1.8 Leaf pubescencc

0 Glabrous
3 Puberulent (sparsely pubescent)
5 Moderately pubescent
7 Densely pubescent

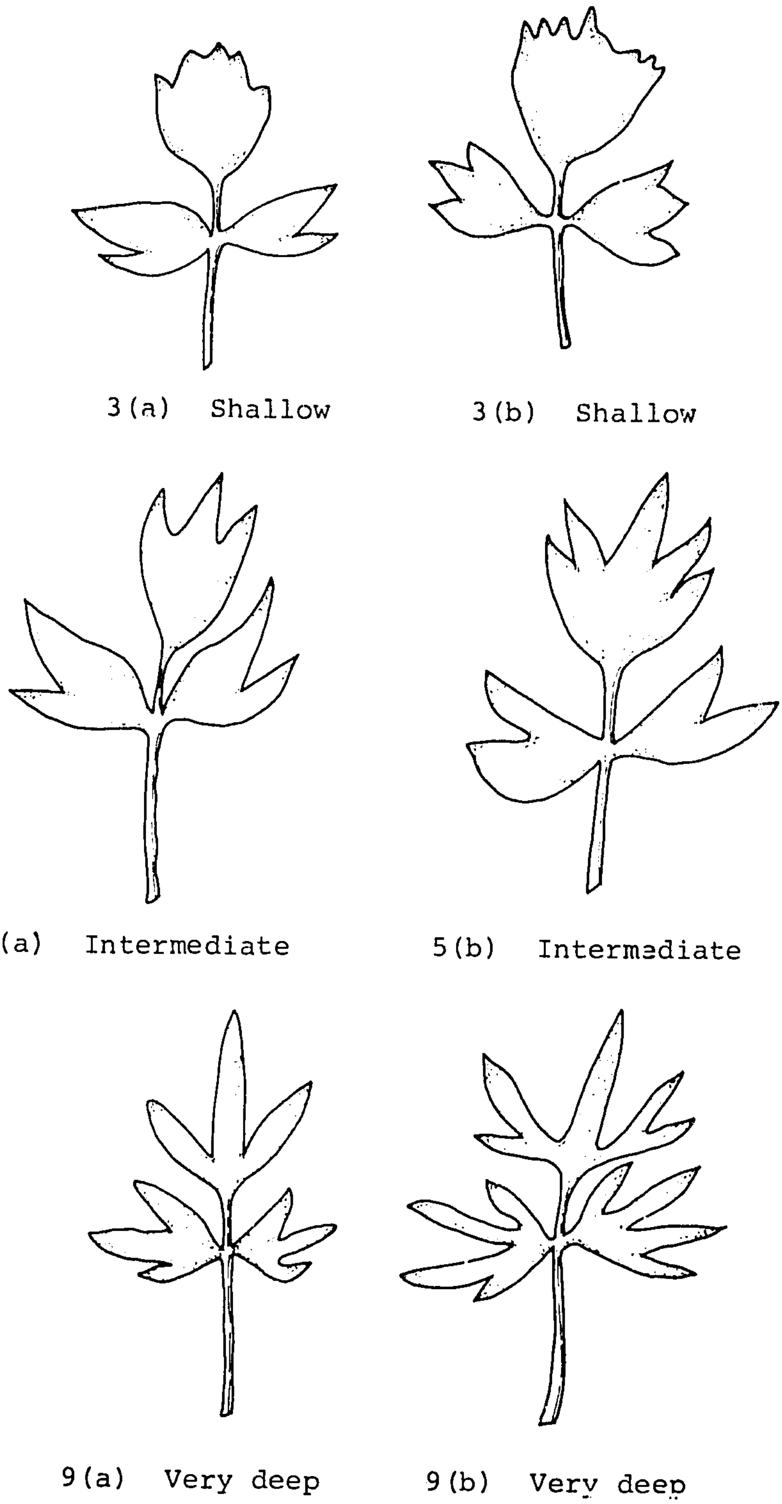
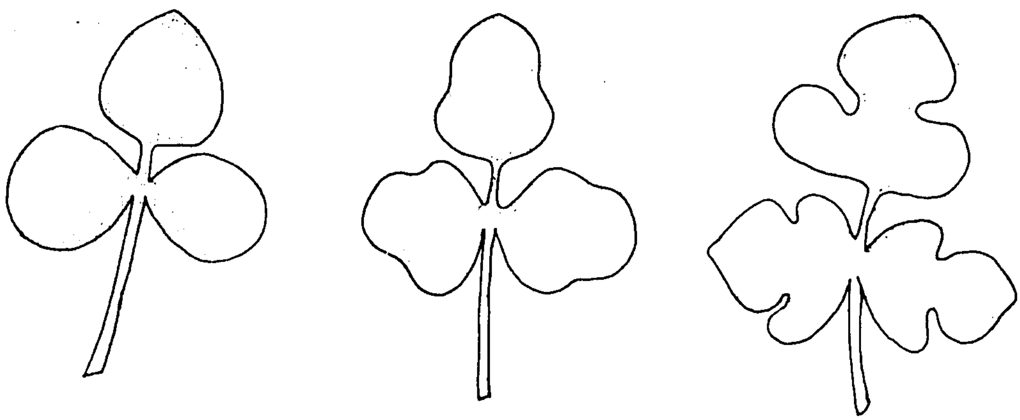


Fig. 2. <u>Vigna aconitifolia</u>: lobing of terminal leaf



0 Unlobed 3. Shallow 7. Deep

Fig. 3. Vigna trilobata: lobing of terminal leaflet

4.1.9 Petiole colour at leaf blade joint

1 Green
2 Green-purple
3 Purple
4 Dark purple
5 Other (specify in the NOTES descriptor, 11)

4.1.10 Petiole pubescence

0 Glabrous
3 Pubescent
5 Moderately pubescent
7 Densely pubescent

4.2 INFLORESCENCE AND FRUIT

4.2.1 Days to flowering

From sowing to stage when 50% of plants have begun to flower

4.2.2 Raceme position

At first pod maturity

1 Mostly above canopy
2 In upper canopy
3 Throughout canopy

4.2.3 Days to first pod maturity

From sowing to stage when 50% of plants have mature pods

4.2.4 Number of pods per plant

Mean number of pods from 10 randomly selected plants

4.2.5 Number of pods per peduncle

Mean number of pods from 10 randomly selected peduncles

4.2.6 Pod attachment to peduncle

When pods are full grown

1 Erect
2 Horizontal
3 Horizontal-pendent
4 Pendent
5 Other (specify in the NOTES descriptor, 11)

4.2.7 Immature pod colour

1 Pale green
2 Light green
3 Intermediate green
4 Dark green
5 Green-purple
6 Light purple
7 Intermediate purple
8 Other (specify in the NOTES descriptor, 11)

4.2.8 Pod pubescence

When first pod changes colour

0 Glabrous
3 Puberulent (sparsely pubescent)
5 Moderately pubescent
7 Densely pubescent

4.2.9 Pod curvature

Of mature pods

0 Straight
3 Slightly curved
7 Curved (sickle shaped)

4.2.10 Pod length

In centimetres. Mean of 10 randomly selected mature pods

4.2.11 Mature pod colour

1 White
2 Cream
3 Light brown
4 Brown
5 Dark brown
6 Other

4.2.12 Pod shattering in the field

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

4.2.13 Days taken to pod maturity

1 Very early
2 Early
3 Medium
4 Late
5 Very late

4.3 SEED

4.3.1 Number of seeds per pod

Mean number for 10 randomly selected plants (10 pods per plant)

4.3.2 Seed shape

At full maturity

1 Globose
2 Ovoid
3 Narrowly ellipsoid (elongated)
4 Cubical to oblong
5 Kidney shaped
6 Drum shaped
7 Other (specify in the NOTES descriptor, 11)

4.3.3 Seed colour

If mottled record background colour. At full maturity

Vigna aconitifolia

1 White
2 Cream
3 Light brown
4 Intermediate brown
5 Dark brown
6 Grey
7 Mottled grey
8 Mottled brown
9 Mottled cream
10 Other (specify in the NOTES descriptor, 11)

Vigna trilobata

1 Light brown
2 Brown
3 Dark brown
4 Mottled brown
5 Black
6 Mottled black
7 Other (specify in the NOTES descriptor, 11)

4.3.4 Seed weight

Weight of 100 randomly selected mature seeds in grams

4.3.5 Seed filling

3 Poor
5 Medium
7 Good
9 Very good

4.3.6 Seed size

3 Small
5 Medium
7 Bold

4.3.7 Hilum shape

1 Plain
2 Concave
3 Other

FURTHER CHARACTERIZATION AND EVALUATION

5. SITE DATA

5.1 COUNTRY OF FURTHER CHARACTERIZATION AND EVALUATION

5.2 SITE (RESEARCH INSTITUTE)

5.3 NAME OF PERSON IN CHARGE OF EVALUATION

5.4 SOWING DATE

5.4.1 Day

5.4.2 Month

5.4.3 Year

5.5 HARVEST DATE

5.5.1 Day

5.5.2 Month

5.5.3 Year

5.6 POPULATION DENSITY

Number of plants per accession

6. PLANT DATA

6.1 VEGETATIVE

6.1.1 Days to emergence

From sowing to 50% seedling emergence

6.1.2 Seedling vigour

At 15 days after emergence

3 Poor
5 Intermediate
7 Vigorous
9 Very vigorous

6.1.3 Hypocotyl colour

At 10 days after emergence

1 Light green
2 Green
3 Green-purple
4 Purple
5 Mixed
6 Other (specify in the NOTES descriptor, 11)

6.1.4 Hypocotyl length

Mean of 10 plants in centimetres

6.1.5 Attachment of primary leaves

Two leaf stage. Primary leaves ar*ᶜ* the first two post-cotyledonary leaves and occur as a pair

1 Sessile
2 Subsessile
3 Petiolate

6.1.6 Primary leaf shape

1 Ovate
2 Ovate-lanceolate
3 Lanceolate
4 Other (specify in the NOTES descriptor, 11)

6.1.7 Primary leaf length

In millimetres

6.1.8 Primary leaf width

Maximum width in millimetres

6.1.9 Colour of primary leaf petiole

1 Green
2 Purplish green
3 Other (specify in the NOTES descriptor, 11)

6.1.10 Length of primary leaf petiole

In millimetres

6.1.11 Length of first node

From ground level to primary leaf pair, in millimetres

6.1.12 Leaf colour

Of trifoliate leaves at 50% flowering

1 Light green
2 Green
3 Dark green
4 Purplish green
5 Purple
6 Other (specify in the NOTES descriptor, 11)

6.1.13 Prominence of leaf vein

0 Not prominent
+ Prominent

6.1.14 Pigmentation of leaf vein

0 Not pigmented
+ Pigmented

6.1.15 Leafiness

At 50% flowering

3 Sparse
5 Intermediate
7 Abundant

6.1.16 Number of lobes of terminal leaflet

Recorded for the fully opened fifth leaf from the apex of the main stem

2 Two to four
3 Five
4 Six to nine
5 Other (specify in the NOTES descriptor, 11)

6.1.17 Terminal leaflet length

Recorded for the same leaf as in 6.1.16

3 Short
5 Intermediate
7 Long

6.1.18 Terminal leaflet width

Maximum width recorded in millimetres for the same leaf as in 6.1.16

3 Narrow
5 Intermediate
7 Broad

6.1.19 Colour of petiole base

Recorded for the same leaf as in 6.1.16

1 Green
2 Purplish green
3 Purple
4 Dark purple
5 Other (specify in the NOTES descriptor, 11)

6.1.20 Petiole length

Recorded for the same leaf as in 6.1.16

3 Short
5 Medium
7 Long

6.1.21 Colour at leaf axil

Recorded for the same leaf as in 6.1.16

1 Light green
2 Green
3 Purplish green
4 Purple
5 Dark purple
6 Other (specify in the NOTES descriptor, 11)

6.1.22 Petiolule colour

Recorded for the same leaf as in 6.1.16. Terminal and lateral petiolules

1 Green
2 Purplish green
3 Purple
5 Dark purple
6 Other (specify in the NOTES descriptor, 11)

6.1.23 Terminal petiolule length

Recorded for the same leaf as in 6.1.16 in millimetres

3 Short
5 Medium
7 Long

6.1.24 Stipule size

3 Small
5 Medium
7 Large

6.1.25 Stipule shape

1 Ovate
2 Lanceolate
3 Other (specify in the NOTES descriptor, 11)

6.1.26 Ligule

0 Absent
+ Present

6.1.27 Leaf senescence

At 50% of pods maturity

0 No visible senescence
3 Slight visible senescence
5 Moderate senescence
7 Conspicuous concurrent senescence

6.1.28 Stem colour

At 50% flowering

1 Light green
2 Green
3 Purplish green
4 Purple
5 Dark purple
6 Other (specify in the NOTES descriptor, 11)

6.1.29 Stem thickness

Measured at fifth node from base of main stem at 50% maturity in millimetres

6.1.30 Stem pubescence

Of main stem at 50% flowering

0 Glabrous
3 Puberulent (sparsely pubescent)
5 Moderately pubescent
7 Highly pubescent

6.1.31 Stem hair colour

Colour of pubescence on main stem at 50% flowering

0 Hairs absent (stem glabrous)
1 Green
2 Purple
3 Brown
4 Other (specify in the NOTES descriptor, 11)

6.1.32 Number of primary branches

At first pod maturity. Count only pod-bearing branches whose origin is in the leaf axils on the main stem.

6.1.33 Branch length

Length of longest primary branch in centimetres at first maturity

6.1.34 Number of secondary branches

At first pod maturity. Count only branches attached on primary branches

6.1.35 Number of tertiary branches

At first pod maturity count only branches coming out of secondary branches

6.1.36 Branching pattern

Position from which branches originate on main stem. At first pod maturity

1 Basal
2 Central
3 Top
4 All over

6.1.37 Plant height

Mean of 10 randomly selected plants in centimetres at maturity

6.1.38 Nodulation

At 50% flowering

0 None
3 Poor
5 Medium
7 Heavy

6.1.39 Yield per plant

Mean weight of seeds in grams of 10 randomly selected plants

6.2 INFLORESCENCE AND FRUIT

6.2.1 First pod-bearing node

The node number starting from the unifoliate (primary leaf) node on the main stem

6.2.2 Calyx colour

1 Light green
2 Green
3 Dark green
4 Purplish green
5 Other (specify in the NOTES descriptor, 11)

6.2.3 Corolla colour

Colour of wings and standard of freshly opened flowers

1 Light yellow
2 Deep yellow
3 Yellowish green
4 Other (specify in the NOTES descriptor, 11)

6.2.4 Flower bud size

Just before opening

3 Small
5 Medium
7 Large

6.2.5 Ovary hairiness

At 50% maturity

0 Glabrous
3 Slightly hirsute
5 Hirsute
7 Densely hirsute

6.2.6 Stigma shape

At 50% maturity

1 Flat
2 Round
3 Other (specify in the NOTES descriptor, 11)

6.2.7 Stigma beard

At 50% maturity

0 Absent (not bearded)
+ Present (bearded on lower side)

6.2.8 Bracteole size

At 50% maturity

3 Small
5 Intermediate
7 Large

6.2.9 Bracteole shape

At 50% maturity

1 Linear
2 Lanceolate
3 Other (specify in the NOTES descriptor, 11)

6.2.10 Bracteole margin

At 50% maturity

0 Nonciliate
+ Ciliate (conspicuous marginal trichomes present)

6.2.11 Photoperiodic sensitivity

0 Insensitive
3 Slightly sensitive
5 Moderately sensitive
7 Sensitive
9 Highly sensitive

6.2.12 Flowering period

3 Asynchronous
5 Intermediate
7 Synchronous

6.2.13 Number of flowers per raceme

Mean of five randomly selected racemes at first maturity

6.2.14 Fruit-setting capacity

Percentage of flowers that set pods at first maturity

6.2.15 Peduncle colour

At first maturity

1 Green
2 Green-purplish green
3 Purple
4 Dark purple
5 Other (specify in the NOTES descriptor, 11)

6.2.16 Peduncle pubescence

At first maturity

0 Glabrous
3 Puberulent (sparsely pubescent)
5 Moderately pubescent
7 Highly pubescent

6.2.17 Peduncle length

Mean of five randomly selected peduncles at first maturity

3 Short
5 Intermediate
7 Long

6.2.18 Number of pod-bearing peduncles

Number of peduncles having at least one fully grown pod at harvest including both main stem and branches

6.2.19 Number of pods per peduncle

Mean from five randomly selected peduncles

6.2.20 Colour of suture of immature pod

At first maturity

1 Light green
2 Intermediate green
3 Dark green
4 Purplish green
5 Purple
6 Dark purple
7 Other (specify in the NOTES descriptor, 11)

6.2.21 Immature pod pigmentation pattern

Pattern of pigmentation on green pod at first maturity

0 None
1 Tip pigmented
2 Sutures pigmented
3 Valves pigmented
4 Splashes of pigment
5 Uniformly pigmented
6 Other (specify in the NOTES descriptor, 11)

6.2.22 Mature pod colour

At full maturity

1 White
2 Straw
3 Buff
4 Tan
5 Light brown
6 Dark brown
7 Black
8 Other (specify in the NOTES descriptor, 11)

6.2.23 Pod cross-section

Of mature green pod. At first maturity

1 Semi-flat
2 Round
3 Other (specify in the NOTES descriptor, 11)

6.2.24 Pod beak shape

At full maturity

1 Pointed
2 Blunt
3 Other (specify in the NOTES descriptor, 11)

6.2.25 Pod filling

At full maturity

1 Poor
3 Loose
5 Intermediate
7 Crowded

6.2.26 Constriction of pod between seeds

At 50% maturity

0 Absent
3 Slight
7 Pronounced

6.2.27 Number of seeds per pod

Mean of pods taken from 10 randomly selected plants

6.2.28 Days to full maturity

Days taken from sowing to complete maturity in all plants

6.3 SEED CHARACTERISTICS

6.3.1 Mottling on seed

At full maturity

0 Absent
3 Slight
5 Intermediate
7 Heavy

6.3.2 Lustre on seed surface

0 Absent (dull)
+ Present (shiny)

6.3.3 Hilum

At full maturity

1 Concave
2 Plain
3 Convex

6.3.4 Hilum length

At full maturity, measured in millimetres

3 Short
5 Intermediate
7 Long

6.3.5 Shelling percentage

Seed weight divided by pod weight, multiplied by 100; based on minimum of 100 pods

6.3.6 Seed weight per plant

Mean seed weight of 10 plants in grams

6.3.7 <u>Harvest index</u>

Ratio of total grain yield to total biomass. Mean from five randomly selected plants

6.3.8 <u>Protein content</u>

Percentage on dry seed weight basis

6.3.9 <u>Tryptophane content</u>

6.3.10 <u>Methionine content</u>

6.3.11 <u>Lysine content</u>

6.3.12 <u>Total carbohydrate content</u>

6.3.13 <u>Sugar content</u>

6.3.14 <u>Fat content</u>

6.3.15 <u>Calcium content</u>

6.3.16 <u>Phosphorus content</u>

6.3.17 <u>Iron content</u>

6.3.18 <u>Ash content</u>

7. STRESS SUSCEPTIBILITY

Evaluated under defined conditions. Scored on a 1-9 scale, where:

3 Low susceptibility (high tolerance)
5 Medium susceptibility
7 High susceptibility

7.1 LOW TEMPERATURE

Measured as reduction in general vigour and productivity after being continuously exposed to an average temperature of 15°C for at least 15 days. Evaluated at full maturity

7.2 HIGH TEMPERATURE

Measured as yield reduction when continuously exposed to average of 40°C during the flowering period

7.3 DROUGHT

At full maturity

7.4 HIGH SOIL MOISTURE

At full maturity

7.5 SALINITY

At full maturity

7.6 SOIL ACIDITY

At full maturity

8. PEST AND DISEASE SUSCEPTIBILITY

Scored for natural or artificial infection or infestation on a 1-9 scale, where:

3 Low susceptibility
5 Medium susceptibility
7 High susceptibility

8.1 PESTS

8.1.1 *Alcidodes leucogrammus* (Striped bean weevils)

8.1.2 *Amsacta spp.* (Hairy caterpillars)

8.1.3 *Aphis craccivora* (Aphids)

8.1.4 *Aproaerema modicella* (Leaf minor)

8.1.5 *Bemisia tabaci (Gennadius)* (Whitefly)

8.1.6 *Callosobruchus spp.* (Bruchids)

8.1.7 *Chauliopss fallax* Scott (Bug)

8.1.8 *Corynea spp.* (Blister beetles)

8.1.9 *Cydia ptychora* (Pod borer)

8.1.10 *Diacrisia oblique* (Wlk.) (Bihar hairy caterpillar)

8.1.11 *Enpoasca spp.* (Leafhoppers)

8.1.12 *Gracillaridae* (Leaf blotch miners)

8.1.13 *Madurasia obscurella* (Leaf beetle)

8.1.14 *Maruca testulalis* (Geyer) (Legume pod borer)

8.1.15 *Mylabris spp.* (Blister beetles)

8.1.16 *Nezara virdula* (Green stick bug)

8.1.17 *Ootheca spp.* (Foliage beetles)

8.1.18 *Ophiomyia phaseli* (Tryon) (Beanfly)

8.1.19 *Spodoptera spp.* (Leaf caterpillars)

8.1.20 *Heterodera spp.* (Cyst nematodes)

8.1.21 <u>Meloidogyne spp.</u> (Root-knot nematodes)

8.1.22 <u>Pratylenchus spp.</u> (Lesion nematodes)

8.1.23 <u>Rotylenchulus spp.</u>(Leniform nematodes)

8.1.24 <u>Others</u> (specify in the NOTES descriptor, 11)

8.2 FUNGI

8.2.1 <u>Ascochyta phaselorum</u> Sacc. (Ascochyta blight)

8.2.2 <u>Cereospora spp.</u>

8.2.3 <u>Colletotrichum lindemuthianum</u> (Sacc. & Magh.) Br. & Cav. (Anthracnose)

8.2.4 <u>Diplodia spp.</u> (Pod rot)

8.2.5 <u>Elsinoe phaseoli</u> (Scab)

8.2.6 <u>Erysiphe polygoni</u> (Powdery mildew)

8.2.7 <u>Fusarium oxysporum</u> (Fusarium wilt)

8.2.8 <u>F. solani</u> (Fusarium collar and stem rot)

8.2.9 <u>Macrophomina phaseolina</u> (Charcoal rot)

8.2.10 <u>Phytophthora spp.</u> (Phytophthora stem rot)

8.2.11 <u>Protomycopsis phaseoli</u> (Leaf smut)

8.2.12 <u>Pythium aphanidermatum</u> (Edson) Fitz. (Pythium stem rot)

8.2.13 <u>Pythium aphanidermatum</u> (Edson) Fitz. (Seedling mortality)

8.2.14 <u>Rhizoctonia solani</u> Kuehn (<u>Thanatephorus cucumeris</u> (Frank) Donk) (Seedling mortality)

8.2.15 Sclerotium rolfsii Sacc. (Corticium rolfsii Curzi) (Sclerotium stem rot)

8.2.16 Septoria vignae (Septoria leaf spot)

8.2.17 Sphaerotheca macularis (Wallr. Fr.) Lind (Powdery mildew)

8.2.18 Uromyces sp. (Rust)

8.2.19 Verticullium albo-atrum (Verticillium wilt)

8.2.20 Others (specify in the NOTES descriptor, 11)

8.3 BACTERIA

8.3.1 Pseudomonas phaseolicola (Burkh.) Dowson (Halo blight)

8.3.2 Xanthomonas phaseoli (E.F.Sm.) Dowson (Bacterial blight)

8.3.3 Xanthomonas vignicola Burkh (Blight and Canker)

8.3.4 Others (specify in the NOTES descriptor, 11)

8.4 VIRUS AND MYCOPLASMA

8.4.1 Aphid borne mosaic virus

8.4.2 Bean common mosaic virus

8.4.3 Bean yellow mosaic virus

8.4.4 Cucumber mosaic virus

8.4.5 Golden mosaic

8.4.6 Leaf curl disease

8.4.7 Mottle virus

8.4.8 Ringspot virus

8.4.9 Southern bean mosaic

8.4.10 Yellow mottle virus

8.4.11 Witches' broom disease

8.4.12 Others (specify in the NOTES descriptor, 11)

9. ALLOENZYME COMPOSITION

This may prove to be a useful tool for identifying duplicate accessions.

10. CYTOLOGICAL CHARACTERS AND IDENTIFIED GENES

11. NOTES

Give additional information where the descriptor state is noted as 'others' as, for example, in descriptors 2.10, 4.1.6, etc. Also include here any further relevant information