

PNAAQ-921
IDN 36294

AGPG:IBPGR/83/11
April 1984

Replacing APPENDIX IV of
AGPE:IBPGR/77/19

INTERNATIONAL BOARD FOR PLANT GENETIC RESOURCES

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REVISED
BANANA DESCRIPTORS

000613

IBPGR Secretariat
Rome, 1984

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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, which was established by the CGIAR in 1974, is composed of its Chairman and 16 members; its Executive Secretariat is provided by the Food and Agriculture Organization of the United Nations. The basic function of the IBPGR is to promote 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

An IBPGR Working Group on Bananas met in Rome, October 1982, and requested that a revised descriptor list for Musa spp. be developed. Such a revised list is published here and is the work of Prof. N.W. Simmonds which is gratefully acknowledged. This revised list supersedes the preliminary list published in the Report of an earlier IBPGR Working Group on the genetic resources of Bananas and Plantains (AGPE:IBPGR/77/19). As descriptors for wild and cultivated Musa differ, Sections 4 and 6 are each repeated twice. In each case there is one set of descriptors for wild types and one for cultivated types.

This descriptor list has been prepared in an IBPGR standard format. 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 worldwide. 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.

REVISED DESCRIPTOR LIST FOR BANANA

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

- i) passport data (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. E.g. if an accession does not form flowers, an 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/}

1.5.1 Genus

1.5.2 Section

Wild plants only

1.5.3 Species

Wild plants only

1.5.4 Subspecies

Wild plants only

1.5.5 Cultivar group

Cultivars only. For instructions on determination of cultivar group refer to pp. 44-128 in Simmonds, N.W., 1966. Bananas. 2nd. ed. Longmans. London. See Figure 1 below for some characters which are important in determination of cultivar group. Fe'i bananas are recorded as 10 (FF) and are characterized by erect bunches and pink plant juice. The cultivar group should be recorded as blank if there is a substantial doubt as to assigning 1 to 11

1/ Subsection 1.5 covers both wild and cultivated bananas of the genus Musa (but not Ensete).

Item 1.5.1 is general and will always be Musa.

Items 1.5.2, 1.5.3 and 1.5.4 are relevant only for wild plants (e.g. Sect. Musa, species acuminata, subsp. malaccensis).

Item 1.5.5 applies only to cultivars and is the now generally used classification with the addition of several hybrid polyploid groups that are either known or expected to occur or to be bred; FF is an arbitrary new designation for the Fe'i bananas (Australimusa) which are diploid so far as is known.

- 1 AA
- 2 AAA
- 3 A₁AA
- 4 AB
- 5 AAB
- 6 ABB
- 7 AAAB
- 8 AABB
- 9 ABBB
- 10 FF
- 11 Other (specify in the NOTES
descriptor, 11)

1.6 PEDIGREE/CULTIVAR NAME

Nomenclature and designations assigned to breeders' material

1.7 ACQUISITION DATE

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

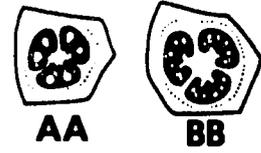
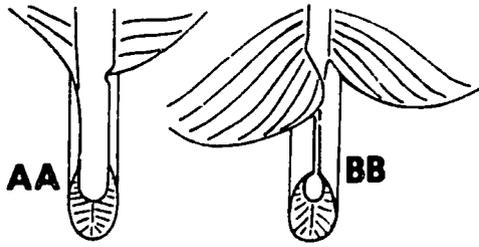
1.8 DATE OF LAST REGENERATION OR MULTIPLICATION

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

1.8.1 Month

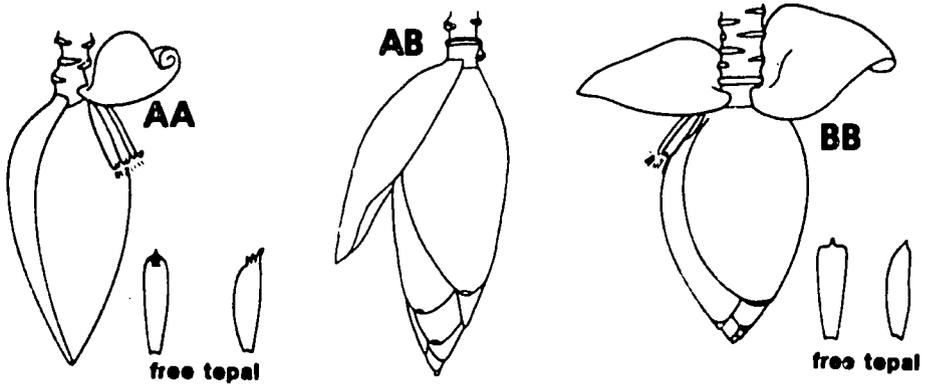
1.8.2 Year

Petiole

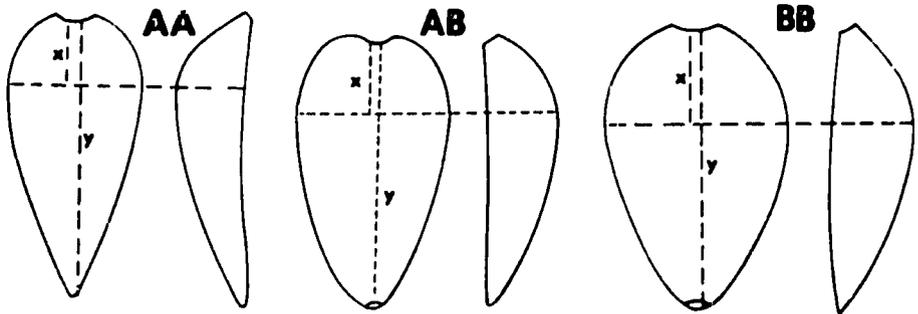


Ovule arrangement

Male bud



Male bract



Fruit

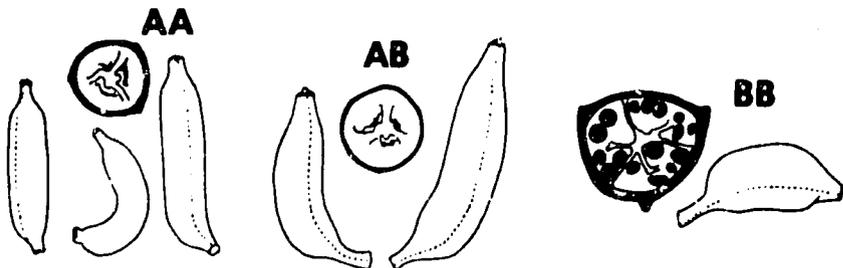


Figure 1. Characters important in determining cultivar group

1.9 ACCESSION SIZE

Approximate number of plants of accession in collection

1.10 NUMBER OF TIMES ACCESSION REGENERATED

Number of regenerations or multiplications since original collection

1.11 TYPE OF MAINTENANCE

- 1 Vegetative
- 2 Seed
- 3 Both
- 4 In vitro culture

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 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

Degrees and minutes followed by $\overline{\text{by}}$ N (north) or 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 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)

2.11 STATUS OF SAMPLE

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

2.12 LOCAL/VERNACULAR NAME

Name given by farmer to cultivar/landrace/weed

2.13 NUMBER OF PLANTS SAMPLED

Approximate number of plants collected in the field to produce this accession

2.14 PHOTOGRAPH

Was a photograph taken of the accession or environment at collection? If so, provide any identification number in the NOTES descriptor, I1

0 No
+ Yes

2.15 TYPE OF SAMPLE

1 Vegetative
2 Seed
3 Both

2.16 OTHER NOTES FROM COLLECTOR

Collectors will record ecological information. For cultivated crops, cultivation practices such as irrigation, season of sowing, etc. will be recorded

CHARACTERIZATION AND PRELIMINARY EVALUATION DATA

3. SITE DATA

3.1 COUNTRY OF CHARACTERIZATION AND PRELIMINARY EVALUATION

3.2 SITE (RESEARCH INSTITUTE)

3.3 NAME OF PERSON IN CHARGE OF CHARACTERIZATION

3.4 PLANTING 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

4. PLANT DATA FOR WILD SPECIES^{1/}

4.1 VEGETATIVE

4.1.1 Pseudostem height

From ground to point of flower emergence

- 3 Short (1.4 - 2.0 m)
- 5 Medium (2.7 - 3.3 m)
- 7 Tall (4.0 - 4.6 m)

4.1.2 Suckering

- 1 Sparse
- 2 Free
- 3 Stoloniferous

4.1.3 Red or purple pigmentation on pseudostem and foliage

- 0 None
- 3 Slight
- 5 Moderate
- 7 Extensive

4.1.4 Waxiness of pseudostem and foliage

- 0 None
- 3 Slight
- 5 Moderate
- 7 Extensive

^{1/} Note: Category 4 is given twice, first for wild species and then for cultivars, since somewhat different characters apply. Category 4 for cultivars begins on page 14.

4.1.5 Petiole margins

See Figure 2

- 1 Spreading
- 2 Erect
- 3 Enrolled

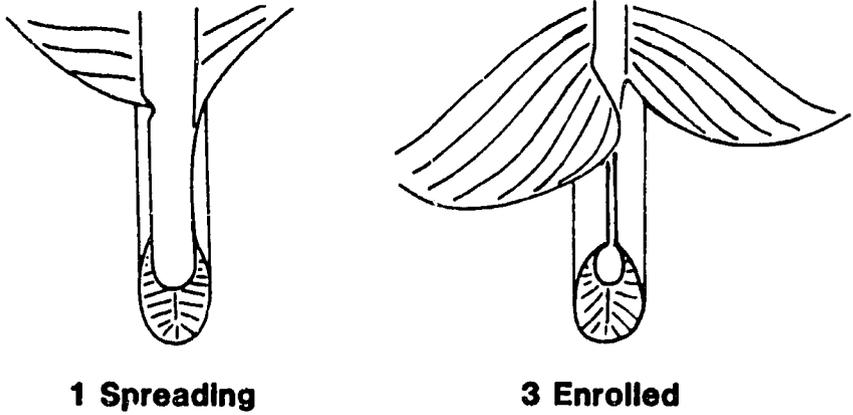


Figure 2. Petiole margins

4.1.6 Shape of lamina base

- 1 Cuneate
- 2 Rounded
- 3 Auriculate

4.2 INFLORESCENCE AND FRUIT

4.2.1 Angle of female inflorescence axis

- 3 Erect
- 5 Horizontal
- 7 Pendulous

4.2.2 Peduncle hairiness

- 0 Glabrous
- 3 Finely hairy
- 7 Coarsely hairy

4.2.3 Sex of basal flowers

Recorded for the basal fruit-forming flowers

- 1 Female only (male sterile)
- 2 Hermaphrodite (functional stamens)

4.2.4 Arrangement of basal flowers

- 1 Uniseriate
- 2 Biseriate

4.2.5 Number of fruit clusters (hands)

- 3 Few (6-7 hands)
- 5 Medium (8-9 hands)
- 7 Many (10-11 hands)

4.2.6 Fruit base insertion

- 0 Sessile (pedicel absent)
- 3 Short pedicellate
- 7 Long pedicellate

4.2.7 Fruit shape

The length/breadth ratio, excluding pedicel

- 3 Short (2-3)
- 5 Medium (4-5)
- 7 Long (6-7)

4.2.8 Fruit apex

- 1 Blunt
- 2 Somewhat constricted (bottle-necked)
- 3 Strongly constricted

4.2.9 Imbrication of male bud

- 1 Not imbricate
- 2 Somewhat imbricate
- 3 Strongly imbricate

4.2.10 Behaviour of male bracts

- 0 Not revolute
- + Revolute after opening

4.2.11 Colour of male bracts

- 1 Green to yellow
- 2 Yellow to bronze
- 3 Dull red
- 4 Bright red or pink
- 5 Dull purple
- 6 Bright purple or violet
- 7 Other (specify in the NOTES descriptor, 11)

4.2.12 Texture of male bracts

- 1 Dull or dull-corrugated
- 2 Smooth and shiny

4.2.13 Colour of compound tepal of male flower

- 1 Green
- 2 White
- 3 White tinged with yellow to orange and/or pink
- 4 Other (specify in the NOTES descriptor, 11)

4.3 SEED

4.3.1 Seed shape

- 1 Globose
- 2 Flattened to angular
- 3 Barrel or top-shaped

4. PLANT DATA FOR CULTIVARS^{1/} 2/

4.1 VEGETATIVE

4.1.1 Pseudostem height

From ground to point of flower emergence

- 3 Short (1.8 - 2.0 m)
- 5 Medium (2.4 - 2.6 m)
- 7 Tall (3.0 - 3.2 m)

4.1.2 Pseudostem blotching

Presence of black or brown areas

- 0 None
- 3 Slight
- 5 Moderate
- 7 Extensive

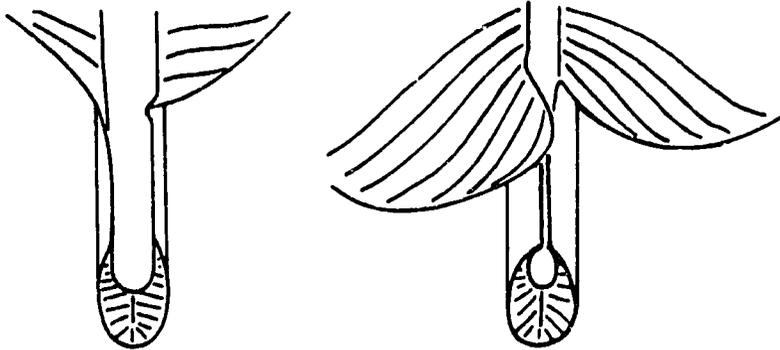
1/ Note: This minimal list of descriptors under Category 4 for cultivars is a compromise between characters diagnostic of the cultivar group (e.g. AA, see 1.5.5) and characters diagnostic of clones. "Easy" characters have been preferred, so ploidy has been excluded on the grounds that a chromosome count, if available, appears later and a visual judgement (see 6.1.1 for cultivars) requires a good deal of experience if it is to be reliable.

2/ Category 4 for wild species begins on page 10.

4.1.3 Petiole margins

See Figure 3

- 1 Spreading
- 2 Erect
- 3 Enrolled



1 Spreading

3 Enrolled

Figure 3. Petiole margins

4.2 INFLORESCENCE AND FRUIT

4.2.1 Angle of female inflorescence axis

- 3 Erect
- 5 Horizontal
- 7 Pendulous

4.2.2 Peduncle hairiness

- 0 Glabrous
- 3 Finely hairy
- 7 Coarsely hairy

4.2.3 Number of fruit clusters (hands)

- 3 Few (6-7 hands)
- 5 Medium (8-9 hands)
- 7 Many (10-11 hands)

4.2.4 Fruit base insertion

- 0 Sessile (pedicel absent)
- 3 Short pedicellate
- 7 Long pedicellate

4.2.5 Fruit shape

The length/breadth ratio, excluding pedicel

- 3 Short (2-3 mm)
- 5 Medium (4-5 mm)
- 7 Long (6-7 mm)

4.2.6 Nature of fruit flesh

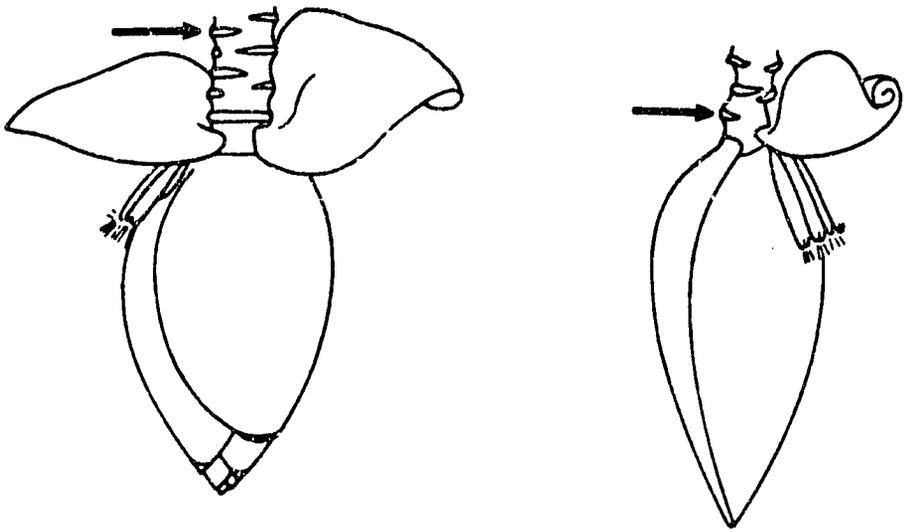
Recorded for ripe fruit

- 1 Sweet and aromatic
- 2 Sweet and acid
- 3 Starchy and acid
- 4 Other (specify in the NOTES descriptor, 11)

4.2.7 Bract scars on male axis

See Figure 4

- 0 Male buds absent
- 3 Low, not prominent
- 5 Intermediate
- 7 Prominent



3 Low, not prominent

7 Prominent

Figure 4. Bract scars on male axis

4.2.8 Imbrication of male bud

- 0 Male buds absent
- 1 Convolute, not imbricate
- 2 Somewhat imbricate
- 3 Strongly imbricate

4.2.9 Behaviour of male bracts

- 0 Male buds absent
- 1 Not reflexed and not revolute
- 2 Reflexed but not revolute
- 3 Revolute
- 4 Other (specify in the NOTES descriptor, 11)

4.2.10 Persistence of male bracts

- 0 Deciduous (not persistent)
- + Persistent (drying off on the male axis)

4.2.11 Shape of male bracts

See Figure 5

- 0 Male buds absent
- 3 Lanceolate (broadest < 0.28 of length from base)
- 5 Intermediate (broadest $0.28-0.30$ of length from base)
- 7 Ovate (broadest > 0.30 of length from base)

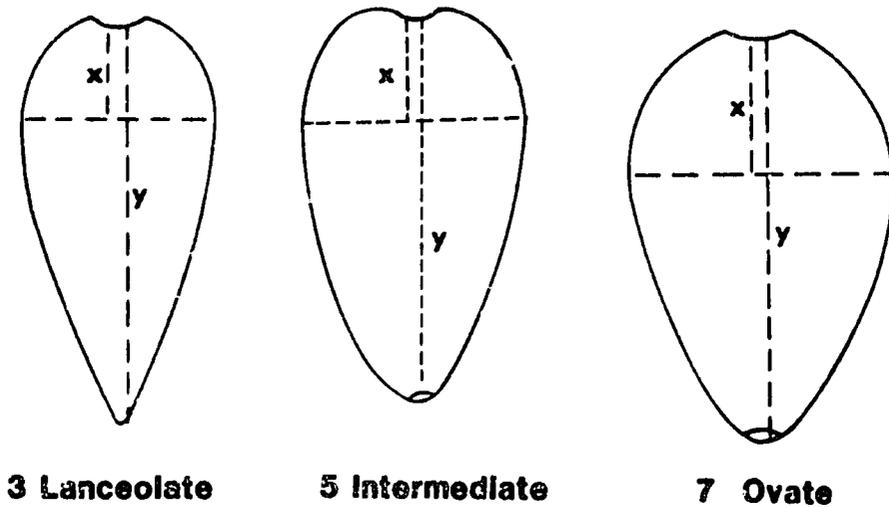


Figure 5. Shape of male bracts

4.2.12 Apex of male bracts

See Figure 6

- 0 Male buds absent
- 3 Acute
- 5 Intermediate
- 7 Obtuse

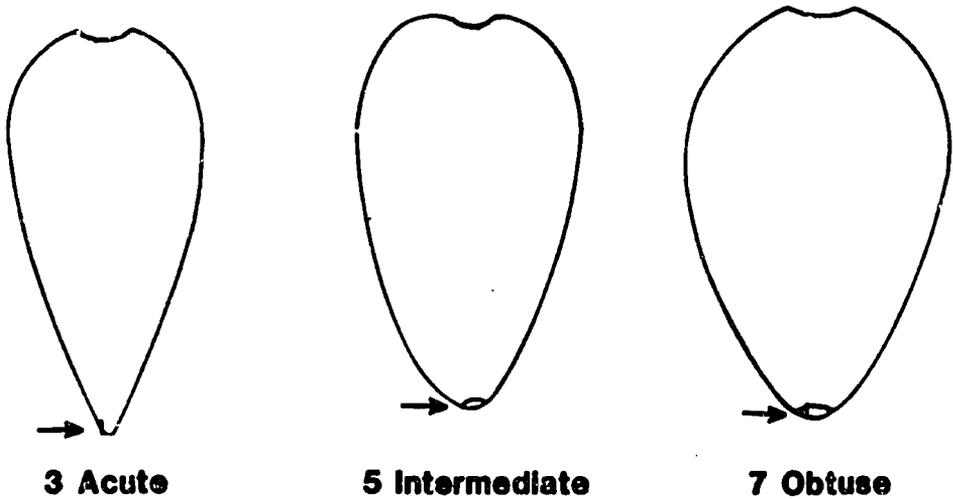


Figure 6. Apex of male bracts

4.2.13 Internal colour of male bracts

- 0 Male buds absent
- 1 Pale pink or purple fading towards base
- 3 Bright crimson continuous to base
- 4 Yellow to bronze
- 5 Other (specify in the NOTES descriptor, 11)

4.2.14 Male flower colour

- 0 Male flowers absent
- 1 Creamy white
- 2 Light pink tinge
- 3 Strong pink flush
- 4 Yellow to orange tips on compound tepal
- 5 Other (specify in the NOTES descriptor, 11)

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 PLANTING 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

6. PLANT DATA FOR WILD SPECIES^{1/}

6.1 VEGETATIVE

6.1.1 Colour of pseudostem and foliage

Record of background colour if red or purple pigments are present

- 1 Green
- 2 Yellow tones present
- 3 Other (specify in the NOTES descriptor, 11)

^{1/} Note: Category 6 is given twice, first for wild species and then for cultivars, since somewhat different characters apply. Category 6 for cultivars begins on page 25.

6.1.2 Pseudostem blotching

Presence of black or brown areas

- 0 None
- 3 Slight
- 5 Moderate
- 7 Extensive

6.1.3 Petiole base

- 1 Spreading
- 2 Clasping
- 3 Corrugated

6.1.4 Bases of lamina halves

- 1 Equal
- 2 Subequal
- 3 Markedly unequal

6.2 INFLORESCENCE AND FRUIT

6.2.1 Angle of male inflorescence axis

- 3 Erect
- 5 Horizontal
- 7 Pendulous

6.2.2 Arrangement of ovules in locul

See Figure 7

- 1 Two-rowed
- 2 Erratic (two and four-rowed)
- 3 Four-rowed (more or less)
- 4 Other (specify in the NOTES descriptor, 11)

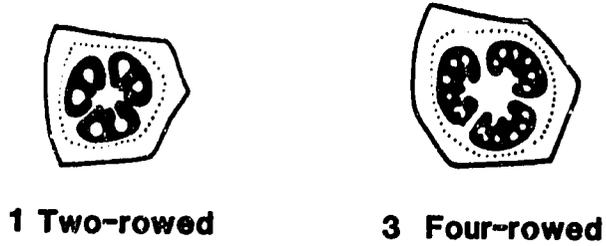


Figure 7. Arrangement of ovules in loculus

6.2.3 Number of fruit per cluster (hand)

- 3 Few (7-9 fruit)
- 5 Medium (12-14 fruit)
- 7 Many (17-19 fruit)

6.2.4 Shape of fruit cross-section

See Figure 8

- 1 Smoothly rounded
- 2 Somewhat angular
- 3 Strongly angular (ribbed)



Figure 8. Shape of fruit cross-section

6.2.5 Colour of immature fruit skin

- 1 Green
- 2 Pink
- 3 Other (specify in the NOTES descriptor, 11)

6.2.6 Texture of immature fruit skin

- 1 Glabrous
- 2 Glaucous
- 3 Hairy

6.2.7 Dehiscence of ripe fruit

- 0 Indehiscent
- + Dehiscent (by longitudinal splitting)

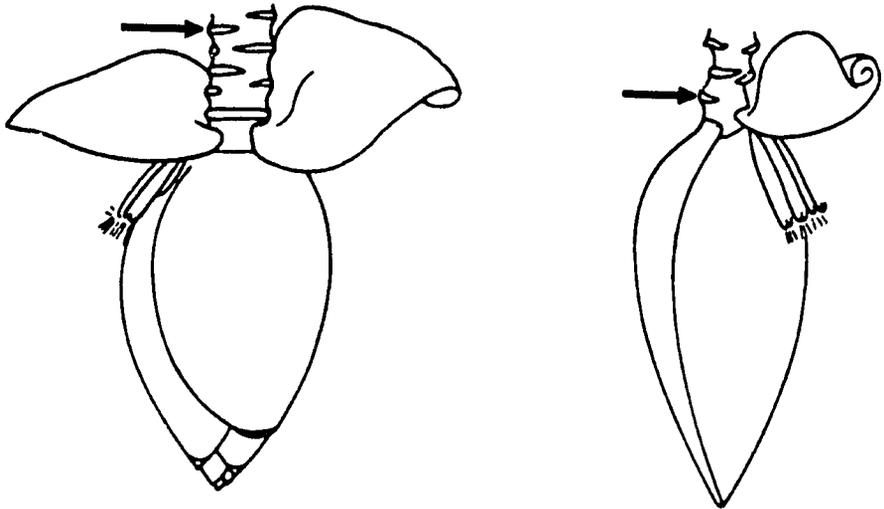
6.2.8 Colour of ripe fruit skin

- 1 Green
- 2 Green-yellow
- 3 Yellow
- 4 Orange
- 5 Other (specify in the NOTES descriptor, 11)

6.2.9 Bract scars on male axis

See Figure 9

- 3 Low, not prominent
- 5 Intermediate
- 7 Prominent



3 Low, not prominent

7 Prominent

Figure 9. Bract scars on male axis

6.2.10 Shape of male bud

- 1 Narrow-lanceolate
- 2 Lanceolate
- 3 Ovate

6.2.11 Apex of male bud

- 1 Blunt
- 2 Acute

6.2.12 Waxiness of male bracts

- 0 None
- 3 Slight
- 5 Medium
- 7 Heavy

6.2.13 Arrangement of male flowers

- 1 Uniseriate
- 2 Biseriate

6.2.14 Tepal size on male flowers

- 3 Free tepal less than two-thirds as long as compound tepal
- 5 Free tepal two-thirds as long as compound tepal
- 7 Free tepal more than two-thirds as long as compound tepal

6.3 SEED

6.3.1 Seed size

Measured as mean diameter

- 3 Small (4-5 mm)
- 5 Medium (6-7 mm)
- 7 Large (8-9 mm)

6. PLANT DATA FOR CULTIVARS ^{1/}

6.1 VEGETATIVE

6.1.1 Ploidy

Based on visual judgement. Record as blank if unknown

	<u>Eumusa cultivars</u>	<u>Fe'i cultivars</u>
1 Diploid	Plants slim, leaves stiff and rather erect	Plants robust
2 Triploid	Plants more robust, leaves more drooping	-
3 Tetraploid	Plants more robust, leaves even more drooping and tending to break near base of lamina	-

1/ Category 6 for wild species begins on page 20.

6.1.2 Suckering

- 3 Open (stems erect)
- 5 Intermediate
- 7 Dense (stems divergent)

6.1.3 Red or purple pigmentation on pseudostem and foliage

- 0 None
- 3 Slight
- 5 Moderate
- 7 Extensive

6.1.4 Waxiness of pseudostem and foliage

- 0 None
- 3 Slight
- 5 Moderate
- 7 Heavy

6.1.5 Shape of lamina base

- 1 Cuneate
- 2 Rounded
- 3 Auriculate

6.1.6 Lamina shape

The length/breadth ratio

- 3 Short (2.2 - 2.4)
- 5 Medium (2.7 - 2.9)
- 7 Long (3.2 - 3.4)

6.1.7 Plant juice colour

- 1 Watery or white
- 2 Pink

6.2 INFLORESCENCE AND FRUIT

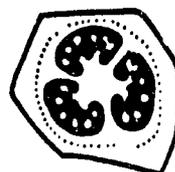
6.2.1 Arrangement of ovules in loculus

See Figure 10

- 1 Two-rowed
- 2 Erratic (two- and four-rowed)
- 3 Four-rowed (more or less)
- 4 Other (specify in the NOTES descriptor, 11)



1 Two-rowed



3 Four-rowed

Figure 10. Arrangement of ovules in loculus

6.2.2 Fruit apex

- 1 Blunt
- 2 Somewhat constricted (bottle-necked)
- 3 Strongly constricted

6.2.3 Shape of fruit cross-section

See Figure 11

- 1 Smoothly rounded
- 2 Somewhat angular
- 3 Strongly angular (ribbed)



1 Smoothly rounded



2 Somewhat angular



3 Strongly angular

Figure 11. Shape of fruit cross-section

6.2.4 Colour of ripe fruit flesh

- 1 Creamy
- 2 Yellow
- 3 Orange-yellow
- 4 Other (specify in the NOTES descriptor, 11)

6.2.5 Male axis

- 0 Absent
- + Present

6.2.6 Angle of male inflorescence axis

- 0 Male axis absent
- 3 Erect
- 5 Horizontal
- 7 Pendulous

6.2.7 External colour of male bracts

- 0 Male buds absent
- 1 Green to yellow
- 2 Red to purple
- 3 Brown-bronze
- 4 Other (specify in the NOTES descriptor, 11)

6.2.8 Texture of male bracts

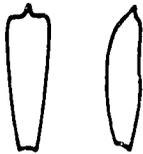
- 1 Dull or dull-corrugated
- 2 Smooth and shiny

6.2.9 Corrugation of free tepal

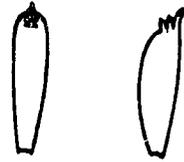
See Figure 12

Recorded for the male flower

- 0 Male flowers absent
- 1 Not corrugated
- 2 Slightly corrugated
- 3 Markedly corrugated below the tip



1 Not corrugated



3 Markedly corrugated

Figure 12. Corrugation of free tepal

6.2.10 Stigma colour

Recorded for the male flower

- 0 Male flowers absent
- 1 Cream or pale yellow or pale pink
- 2 Strong orange-yellow
- 3 Other (specify in the NOTES descriptor, 11)

6.2.11 Fertility of male flowers

- 0 Pollen sterile or male flowers absent
- + Pollen fertile

6.3 SEED

6.3.1 Seediness

- 0 Seedless (seeds never present)
- + Seeds present

7. STRESS SUSCEPTIBILITY

Scored on 1-9 scale, where

- 3 Low susceptibility
- 5 Medium susceptibility
- 7 High susceptibility

7.1 LOW TEMPERATURE

7.2 HIGH TEMPERATURE

7.3 DROUGHT

7.4 HIGH SOIL MOISTURE

8. PEST AND DISEASE SUSCEPTIBILITY

Scored on a 1-9 scale, where

- 3 Low susceptibility
- 5 Medium susceptibility
- 7 High susceptibility

8.1 PESTS

- 8.1.1 Cosmopolites sordidus Banana weevil
(Germ.)
- 8.1.2 Radopholus similis Burrowing nematode
(Cobb) Thorne
- 8.1.3 Other (specify in the NOTES descriptor, 11)

8.2 FUNGI

- 8.2.1 Fusarium oxysporium Panama wilt,
f. cubense Banana wilt
(E.F. Sm.) Snyder & Hansen
- 8.2.2 Mycosphaerella musicola Leaf spot,
Leach Sigatoka disease

8.2.3 Mycosphaerella fijiensis Black leaf streak,
Leach Black Sigatoka disease

8.2.4 Other (specify in the NCTES descriptor, 11)

8.3 BACTERIA

8.3.1 Pseudomonas solanacearum Moko disease,
E.F. Sm. (strain) Bacterial wilt

8.3.2 Other (specify in the NOTES descriptor, 11)

8.4 VIRUS

8.4.1 Banana bunchy top virus (BBTV)

8.4.2 Other (specify in the NOTES descriptor, 11)

9. ALLOENZYME CONSTITUTION

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

10. CYTOLOGICAL CHARACTERS AND IDENTIFIED GENES

Chromosome number will be recorded here only when it has been determined for the accession in question. Often, of course, chromosome number will be implicit in identification under 1.5 above: an evident wild Musa violascens can only have $2n = 20$; and an obvious plantain cultivar (AAB) $2n = 33$

11. NOTES

Give additional information where the descriptor state is noted as 'Other' as, for example, in descriptors 2.10, 2.11, etc. Also include here any further relevant information. The agricultural and/or scientific importance of the accession, such as domination by a cultivar of a local market or appearance of the accession in breeding pedigrees, will be recorded here