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**REVISED
DESCRIPTORS
for WHEAT**

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INTERNATIONAL BOARD FOR PLANT GENETIC RESOURCES

REVISED DESCRIPTORS FOR WHEAT

IBPGR SECRETARIAT
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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 15 members; its Executive Secretariat is provided by the Food and Agriculture Organization of the United Nations. The basic function of the IBPGR, as defined by the Consultative Group, 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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CONTENTS

	<u>Page</u>
PREFACE	v
REVISED DESCRIPTOR LIST FOR WHEAT	1
APPENDIX - LIST OF PARTICIPANTS	11

PREFACE

When the IBPGR Wheat Advisory Committee met for the first time in 1976 it was suggested that a Working Group on wheat descriptors should be appointed by the IBPGR. This group met in April 1977 and drew up a list for wheat and Aegilops which was published in March 1978. At the same time an international pilot wheat evaluation programme, using the published descriptors, was initiated. The results of the programme were analysed and considered by the Wheat Advisory Committee at its third meeting in January 1981 at the Centro Internacional de Mejoramiento de Maíz y Trigo (CIMMYT), Mexico, which co-sponsors the Committee. The major outcome of the programme was the production of a revised descriptor list for wheat. The Committee's participants appear in the Appendix.

The IBPGR recommends Sections 1-4 of this list for widespread use in documentation and exchange of germplasm. It should be noted that the IBPGR endorses the descriptors and the descriptor states included in Sections 1-4, but the suggested coding should not be regarded as the only definitive scheme.

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

REVISED DESCRIPTOR LIST FOR WHEAT

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 to be desirable by a consensus of users of the particular crop).

Characterization and preliminary evaluation will be the responsibility of the curators, while data from further evaluation should be fed back to the curator who will maintain a data file.

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 been done the full range of codes is available for use by extension of the codes given or by using values between them e.g. SEED SIZE (3.7) could also be recorded as:

1 Very small

or

6 Intermediate-to-large

PASSPORT DATA

1. ACCESSION DATA

1.1 ACCESSION NUMBER

This number serves as an identifier for accessions in a genebank and is assigned by the curator when an accession is entered into his collection. Once assigned this number should never be re-assigned to another accession in the collection. Even if an accession is lost, its accession number is not available for re-use. Letters should occur before the number to give an abbreviation identifying the genebank.

1.2 SCIENTIFIC NAME

1.2.1 Genus

1.2.2 Species

1.2.3 Subspecies

1.2.4 Botanical variety (convariety)

1.3 DONOR NAME

The institution or person responsible for donating the germplasm to the collection

1.4 DONOR NUMBER

Accession number or accession name assigned by the donor

1.5 PEDIGREE/CULTIVAR NAME

Names and numbers assigned to breeder's material, or registered variety name (see remarks under 2.2). Additional data includes the breeding institute and country where bred.

1.6 SYNONYMS

Any other names or numbers associated with the accession not the collector's number (2.2), cultivar name (1.5) or vernacular name (2.10). Synonyms will usually be accession numbers assigned by other institutes, e.g. PI number, MG number, BGRC number, etc.

2. COLLECTION DATA

2.1 COLLECTING INSTITUTE

Abbreviation for the institute or person collecting the original sample

2.2 COLLECTOR'S NUMBER

Original number assigned by the collector of the sample. Normally composed of the initials of the collector, team or expedition 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. [In many genebanks this item is combined with pedigree/cultivar name (1.5) to form a single descriptor the "accession name"]

2.3 DATE OF COLLECTION OF ORIGINAL SAMPLE

Expressed as day/month/year, e.g. 20 October 1981 is recorded as 201081

2.4 COUNTRY OF COLLECTION

Use of the three letter abbreviations supported by the statistical office of the United Nations. Copies of these abbreviations are available from the IBPGR Secretariat.

2.5 LATITUDE OF COLLECTION SITE

Degrees and minutes followed by N (north) or S (south), e.g. 32°30'N

2.6 LONGITUDE OF COLLECTION SITE

Degrees and minutes followed by E (east) or W (west) e.g.
41° 25'E

2.7 PROVINCE/STATE

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

2.8 LOCATION OF COLLECTION SITE

Number of kilometres and direction from nearest
town or village; or map grid reference

2.9 ALTITUDE OF COLLECTION SITE

Height above sea level in metres

2.10 VERNACULAR NAME

Farmer's name for landrace material

2.11 SAMPLE TYPE

- 1 Wild
- 2 Weed
- 3 Primitive cultivar/landrace
- 4 Breeder's line
- 5 Advanced cultivar

2.12 SAMPLE SOURCE

- 1 Natural habitat
- 2 Ruderal 1/
- 3 Farm field
- 4 Farm store/threshing place
- 5 Market
- 6 Agricultural institute

1/ Occurring in a habitat disturbed by man but not growing wild
or as a crop weed.

CHARACTERIZATION AND PRELIMINARY EVALUATION

3. CHARACTERIZATION

If an accession is variable for any characteristic then the most frequent form is recorded, followed by the letter V to indicate that it is Variable

3.1 GROWTH CLASS (SEASONALITY)

- 1 Winter
- 2 Facultative (neither a winter nor spring wheat)
- 3 Spring

3.2 SPIKE DENSITY

A visual measure of density of a spike measured on a 1-9 scale. (NB. Spike density is not the same as spike shape.) See Figure 1

- 1 Very lax
- 3 Lax
- 5 Intermediate
- 7 Dense
- 9 Very dense

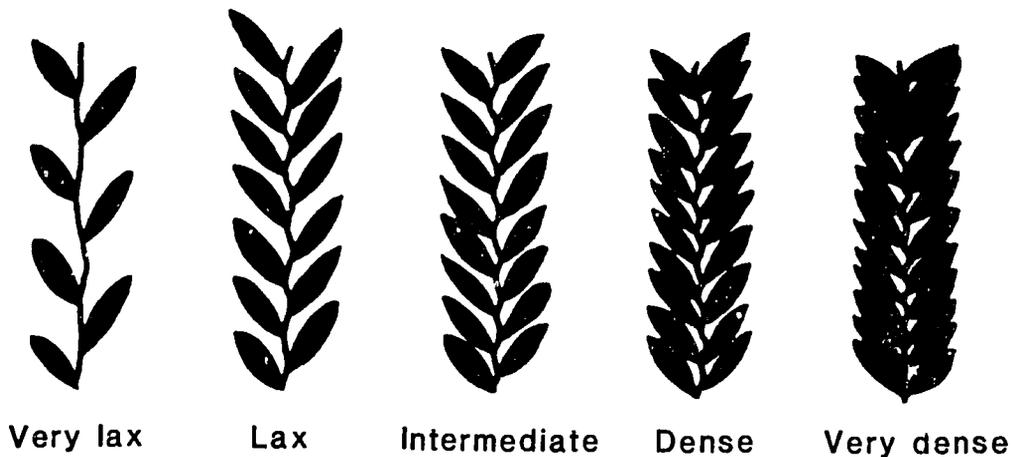


Figure 1 Spike density

3.3 AWNEDNESS

- 0 Awnless
- 3 Awnletted (short awns)
- 7 Awned (conspicuous awns)

3.4 SEED COLOUR

- 1 White
- 2 Red
- 3 Purple

(If this is difficult to decide then the sodium hydroxide test can be used. Place grains in a petri-dish and add 25 millimetres of a 5 percent solution of sodium hydroxide for 60-90 minutes. Original red grains will be dark brownish orange, and white grains will be straw yellow.)

3.5 GLUME COLOUR

Observed on the outer glume

- 1 White
- 2 Red to brown
- 3 Purple to black

3.6 GLUME HAIRINESS

Measured on outer side of sterile glume

- 0 Absent
- 3 Low
- 7 High

3.7 SEED SIZE
See Figure 2

- 3 Small
- 5 Intermediate
- 7 Large
- 9 Very large (only applies to turgidum types)

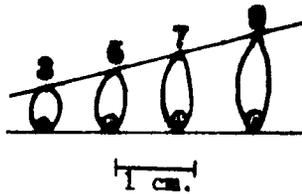


Figure 2. Seed size

4. PRELIMINARY EVALUATION

4.1 PLANT HEIGHT

Height of plant at maturity, measured in centimetres from ground to top of spike, excluding awns.

4.2 DAYS TO FLOWER

Counted as days from sowing to 50% of plants in flower. However, when planting in dry soils in dryland areas it is counted from the first day of rainfall or irrigation which is sufficient for germination.

4.3 SEED VITREOUSNESS

Glass-like appearance when seeds are transversely sectioned

- 3 Not vitreous (soft)
- 5 Partly vitreous
- 7 Vitreous

4.4 NUMBER OF SPIKELETS PER SPIKE

The average number of spikelets on a spike from five typical spikes selected from a growing accession

4.5 NUMBER OF SEEDS PER SPIKELET

The average number of seeds from a spikelet - obtained from the central portion of the spike - using the five typical spikes coded in 4.4

5. FURTHER EVALUATION ^{1/}

5.1 EVALUATING INSTITUTE

5.2 SITE OF EVALUATION

5.3 EVALUATOR'S NAME

5.4 YEAR OF EVALUATION

5.5 DEGREE OF SEED SHRIVELLING

3	Plump
5	Intermediate
7	Shrivelled

5.6 WINTER SUSCEPTIBILITY

Measured as a loss of plants in a sowing. Recorded on a 1-9 scale viz:

1	Very resistant
3	Resistant
7	Susceptible
9	Very susceptible

^{1/} Recommendations for descriptors for further evaluation are not made in this report. However, since descriptors 5.5-5.12 were included in the Descriptors for Wheat and Aegilops (1976), they are also included here, but solely for information.

5.7 COLD SUSCEPTIBILITY

Damage caused by cold to aerial parts of plants; not associated with death of plants in winter. Recorded on a 1-9 scale

- | | |
|---|------------------|
| 1 | Very resistant |
| 3 | Resistant |
| 7 | Susceptible |
| 9 | Very susceptible |

5.8 DROUGHT SUSCEPTIBILITY

Recorded on a 1-9 scale

- | | |
|---|------------------|
| 1 | Very resistant |
| 9 | Very susceptible |

5.9 SPROUTING TENDENCY

Tendency of grains to sprout in the ear before harvest as a result of late rainfall. Recorded on a 1-9 scale

- | | |
|---|--------------------|
| 1 | No sprouting |
| 9 | Complete sprouting |

5.10 SUSCEPTIBILITY TO DISEASES, INSECTS AND OTHER PESTS

Scored on a 1-9 scale with disease, insect or pest specified

- | | |
|---|------------------|
| 1 | Very resistant |
| 9 | Very susceptible |

5.11 PERCENTAGE PROTEIN CONTENT

Measured as percentage of dry weight (seed moisture equal to or less than 12 percent). Indicating the conversion factor used as either $N \times 6.25$ or $N \times 5.6$

5.12 LYSINE (PROTEIN RATION)

Percentage of lysine per unit of protein (absolute)

APPENDIX

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APPENDIX
(Continued)

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