

Key access and utilization descriptors for faba bean genetic resources

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

Based on the comprehensive 'Faba bean Descriptors' published by ICARDA and IBPGR (now Bioversity International) in 1985, the list was subsequently compared with a number of sources such as 'Descriptors for Fababean' (USDA-ARS), UPOV Technical guidelines (2003), Minimal descriptors of Faba bean (NBPGR), and the traits in need of further research identified in the 'Global Strategy for the Ex Situ Conservation of Faba Bean' (GCDT, 2009).

This minimal set defines a first priority set of characteristics to describe, to access and to utilize *Vicia faba* genetic resources. A worldwide distribution of experts involved in an online survey was assured and the list was afterwards validated by a Core Advisory Group (see 'Contributors') led by Dr Kenneth Street of ICARDA.

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 1985 publication. Descriptors with numbers ending in 'X' are new descriptors that were added during the development of the list below.

PLANT DATA

Growth habit (4.1.1)

- 1 Determinate, i.e. stems with terminal inflorescence
- 2 Semi-determinate, i.e. without terminal inflorescence
- 3 Indeterminate

Branching from basal nodes (4.1.4)

Mean number of branches (to the nearest whole number) per plant taken from five representative plants in late flowering stage

Plant height [cm] (4.1.6)

Measured at near maturity from ground to the tip of the plant. Average of 10 plants

Days to flowering (4.2.1)

Number of days from sowing until 50% of plants have flowered. However, in dry land areas where planting occurs in dry soils, it is counted from the first day of rainfall or irrigation which is sufficient for germination

Days to pod maturity (4.2.2)

Number of days from sowing until 90% of the pods have dried. See 4.2.1 for planting in dry soils

Flower ground colour (4.2.3)

Ground colour of standard petal (flag)

- 1 White
- 2 Violet
- 3 Dark brown
- 4 Light brown
- 5 Pink
- 6 Red
- 7 Yellow
- 99 Other (i.e. 'mixed', specify in the **Notes** descriptor)

Wing petal colour (4.2.5)

- 1 Uniformly white
- 2 Uniformly coloured
- 3 Spotted
- 99 Other (i.e. 'mixed', specify in the **Notes** descriptor)

Pod angle/attitude at maturity (4.2.6)

- 1 Erect
- 2 Horizontal
- 3 Pendent
- 99 Other (i.e. 'mixed', specify in the **Notes** descriptor)

Pod length [cm] (4.2.10)

Mean of five dry pods

Number of seeds per pod (4.3.2)

Mean of five dry pods

100-seed weight [g] (4.3.3)

Ground colour of testa (seed coat) (4.3.4)

Observed immediately after harvest (within one month after harvest)

- 1 Black
- 2 Dark brown
- 3 Light brown
- 4 Light green
- 5 Dark green
- 6 Red
- 7 Violet
- 8 Yellow
- 9 White
- 10 Grey
- 99 Other (i.e. 'mixed', specify in the **Notes** descriptor)

Seed shape	(4.3.6)
1 Flattened	
2 Angular	
3 Round	
99 Other (i.e. 'mixed', specify in the Notes descriptor)	
Resistance to lodging	(6.1.5)
3 Low	
5 Medium	
7 High	
Number of pods per node	(6.2.3)
Mean number of pods on the second pod-bearing node of five plants	
Pod shattering	(6.2.5)
0 Non-shattering (wrinkled-pod type)	
1 Shattering	
Number of flowers per node	(6.2.X)
ABIOTIC STRESSES	
High temperature	(7.2)
Salinity	(7.5)
Frost	(7.X)
BIOTIC STRESSES	
Aphids (<i>Aphis</i> spp.)	(8.1.1)
Seed weevils (<i>Bruchus</i> spp.)	(8.1.5)
Chocolate spot (<i>Botrytis fabae</i>)	(8.2.1)
Ascochyta blight (<i>Ascochyta fabae</i>)	(8.2.2)
Rust (<i>Uromyces fabae</i>)	(8.2.4)
Stem rot (<i>Sclerotinia</i> spp.)	(8.2.8)
Faba Bean Yellow Mosaic Virus (FBYM)	(8.4.X)

NOTES

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

CONTRIBUTORS

Bioversity is grateful to all the scientists and researchers who have contributed to the development of this strategic set of 'Key access and utilization descriptors for faba bean genetic resources', and in particular to Dr Kenneth Street who provided scientific direction. Adriana Alercia provided technical expertise and guided the entire production process.

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