MORPHOLOGICAL DESCRIPTOR

OKRA (*Abelmoschus esculentus* L.)

Federal Seed Certification & Registration Department
Ministry of Food, Agriculture & Livestock
Government of Pakistan, Islamabad

Testing Genetic Suitability and Adaptability: and Registration of Crop Varieties is Legal Obligation under Section 8 of Seed Act, 1976.

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GENERAL

Variety name	……
Parentage	……
Pedigree	……
Breeder (s)	……
Comparable variety (s)	……
Breeding center/institute	……
Variety maintainer	……
Origin	□ Local □ Exotic
Breeding method	□ Selection □ Hybridization □ Introduction □ Any other
Areas of adaptation	……
Planting time	……
Maturity duration	□ Short □ Medium □ Long

SEEDLING CHARACTERISTICS

Seedling height (cm)	…… (After two weeks)
Seedling color	□ L. green □ Pale green □ Green

PLANT CHARACTERISTICS

Growth habit	□ Erect □ Semi erect □ Bushy
Plant height (cm)	……
Plant height	□ Short (<55 cm) □ Medium (55-60) Late (>60)

STEM CHARACTERISTICS

Stem color	□ L. green □ Green □ Dark green □ Red
Stem thickness	□ Thick □ Thin
Stem diameter (cm)	……
Stem diameter	□ Small (<0.8cm) □ Medium (0.8-1.5 cm) □ Large (>1.5 cm)
No. of nodes (up to including first flowering node)	□ Few (<13) □ Medium (13-25) □ Many (>25)
Stem pigmentation	□ Present □ Absent
Branches attitude	□ Erect □ Semi erect
Branches type	□ Normal □ Short □ Cluster
Degree of branching	□ Weak (<2.1) □ Medium (2.1-3.9) □ Strong (>3.9)

LEAF CHARACTERISTICS

Leaf color	□ Green □ Dark green □ Pale green □ Spotted
Leaf length/width (cm)	……./…….
Leaf shape	
Petiole length (cm)	……
No. of lobes	……
Depth of lobes	□ Shallow □ Medium □ Deep
Dentation of margin	□ Weak □ Medium □ Strong
Leaf hairiness	□ Absent □ Sparse □ Medium □ Profuse
Leaf blade color between veins	□ Green □ Red
Intensity of color between veins	□ Light □ Medium □ Dark
Vein color	□ Light green □ Purple

FLOWER CHARACTERISTICS

Days to 50% flowering	……
Flower size	□ Small □ Medium □ Large
Petal color	□ Yellow □ Cream □ White □ Red
Petal base color	□ One side □ Both the side

No. of petals	……			
Pollen color	□ Yellow	□ Cream	□ White	□ Orange
Stamen density	□ Low	□ Medium	□ High	
Stigma protrusion	□ Short	□ Medium	□ High	

FRUIT CHARACTERISTICS

Days to fruiting	……			
Fruiting duration	□ Early	□ Medium	□ Late	
Fruit color	□ L. green	□ Green	□ Dark green	
Fruit shape	□ Straight and pointed	□ Semi straight and pointed		
Young fruit diameter at mid length	□ Small (<1.0 cm)	□ Medium (1.0-1.5 cm)	□ Large (>1.5 cm)	
Mature fruit diameter at mid length	……			
Fruit surface between ridges	□ Concave	□ Flat	□ Convex	
Fruit constriction of basal part	□ Absent/V. weak	□ Weak	□ Strong	
Fruit shape of apex	□ Narrow acute	□ Acute	□ Blunt	
Fruit hairiness	□ Absent	□ Sparse	□ Medium	□ Profuse
Number of locules	□ Five	□ Seven	□ More than seven	
Mature fruit length	□ Short (<10 cm)	□ Medium (10-15 cm)	□ Large (>15 cm)	
Mature fruit diameter at mid length	□ Small	□ Medium	□ Large	
Fruit size	□ Small	□ Medium	□ Large	
Fruit texture	□ Smooth	□ Creased		
Fruit hairiness	□ Absent	□ Sparse	□ Medium	□ Profuse
Fruit yield (kg/ha)	……			

SEED CHARACTERISTICS

Seed color	□ Brown	□ Gray	□ Black	□ Any other
Seed size	□ Small	□ Medium	□ Bold	
Seed shape	□ Round	□ Uneven	□ Any other	
Seed surface	□ Smooth	□ Rough		
000, seed weight (g)	……..			

ENVIRONMENTAL ADAPTABILITY (Evaluation done under define conditions)

Flowering Response to seasons	□ Stable	□ Variable	□ Highly variable
Drought tolerance (Measured as reduction in yield).	□ Least tolerant	□ Medium	□ Most tolerant
Tolerance to salinity (Measured by reduction in plant height 30 days after sowing).	□ Least tolerant	□ Medium	□ Most tolerant
Tolerance to acid soils (Measured as reduction in plant height 30 days after sowing).	□ Least tolerant	□ Medium	□ Most tolerant

Cold tolerance (Measured as reduction in general vigour and productivity after being continuously exposed to an average temperature of 15 °C for at least 15 days).	□ Least tolerant	□ Medium	□ Most tolerant
Heat tolerance (Measured as yield reduction when continuously exposed to average of 40 °C during the flowering period).	□ Least tolerant	□ Medium	□ Most tolerant

RESISTANCE TO INSECTS/PESTS

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RESISTANCE TO DISEASES

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…….

DISTINGUISHING CHARACTERISTICS

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RECOMMENDED/APPROVED BY

Variety Evaluation Committee (VEC)	□ Yes	□ No
Experts Sub Committee	□ Yes	□ No
Provincial Seed Council	□ Yes	□ No

COMMENTS OF SPOT EXAMINATION

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…….

ADDITIONAL INFORMATION

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METHODS AND OBSERVATIONS

1. The characteristics described in the Table of characteristics should be used for the testing of varieties for DUS.
2. For the assessment of distinctness and stability observations should be made on 30 plants or parts of 30 plants, which should be divided among 3 replications (10 plants in each replication).
3. For the assessment of uniformity of characteristics on the plot as a whole (visual assessment by a single observation of a group of plants or parts of plants), a population standard of 1% with an acceptance probability of at least 95% should be applied. In the case of a sample size of 200 plants, the number of off-types should not exceed 4.

IMPORTANT PLANT CHARACTERISTICS TO BE RECORDED

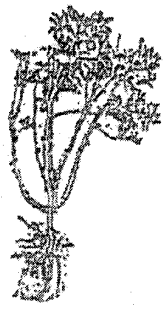
1. **Active vegetative growth before flowering**
   Plant degree of branching, Stem diameter, Stem color, Intensity of green color, Leaf blade size, Depth of lobing, Dentation of margin, Leaf blade color between veins, Intensity of color between veins, Vein color and petiole length
2. **Appearance of first flush**
   Number of nodes (up to and including the first flowering node), Time of flowering (50% of the plants with at least one open flower) and Plant height
3. **Full flowering i.e., about 50% of flowers being opened**
   Flower size, Petal color at base
4. **About 50% fruits attained commercial maturity (edible stageity)**
   Fruit color, Intensity of green color, diameter of young fruit (at mid length), Fruit surface between ridges, Fruit hairiness, Fruit constriction of basal part, Fruit shape of apex, Number of locules.
5. **About 50% of fruits have reached turning stage (physiological maturity). Advanced seed filling**
   Mature fruit length and mature fruit diameter at mid length.
6. **Advanced ripening: about 50% of fruits are ripe**
   i.e., becomes yellowish/yellowish brown in colour; Main period of seed ripening
7. **Full maturity**
   Approximately all fruits are shrunken and turned yellowish brown (seed maturity)

GROUPING OF VARIETIES

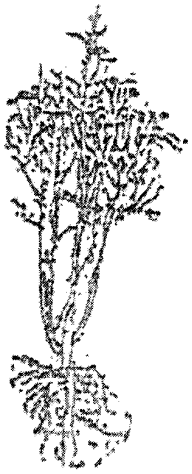
a) Stem color
b) Stem number of nodes (up to and including the first flowering mode)
c) Leaf blade depth of lobing
d) Plant height
e) Fruit colour
f) Fruit number of locules

PLANT HEIGHT

Short



Medium



Tall

DEPTH OF LEAF LOBING

Shallow

Medium

Deep

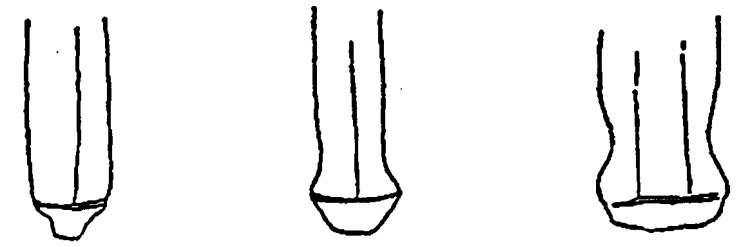
FRUIT SURFACE BETWEEN RIDGES

Concave

Flat

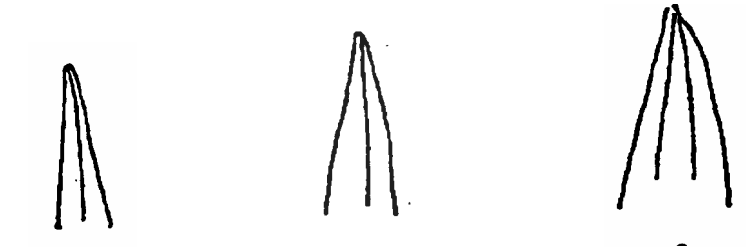
Convex

FRUIT CONSTRUCTION OF BASAL PART



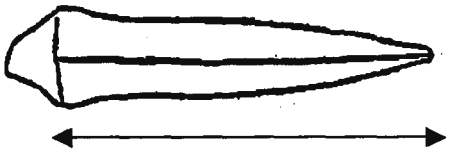
Absent or very weak | Weak | Strong

FRUIT SHAPE OF APEX



Narrow Acute | Acute | Blunt

MATURE FRUIT LENGTH



Length