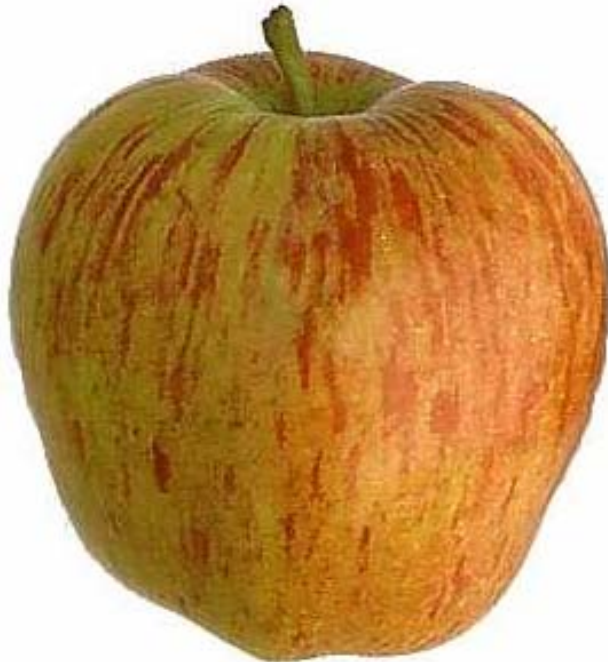




MORPHOLOGICAL DESCRIPTOR

APPLE

Malus domestica (Borkh.)



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.*

Ms. Naheed Naz

GENERAL:

Variety name

Breeding center/institute

Areas of adaptation

Status of the variety Primitive Advanced

Parentage

Rootstock name

Scion name

Origin of rootstock Local Selection from exotic material Introduction Any other

Origin of scion Local Selection from exotic material Introduction Any other

Type of maintenance Vegetative Seed Tissue Culture Others

Type of vegetative propagation Grafting/budding Hardwood cuttings Softwood cuttings
 Stole beds others

Scion/rootstock compatibility Poor Medium Good

Flowering season/month

Fruit ripening season/month

Fruiting set

Status of the variety Primitive Advanced

TREE CHARACTERISTICS:

Tree vigor Weak Medium Strong

Tree type Columnar Ramified

ONLY VARIETIES WITH RAMIFIED TREE TYPE:

Tree habit of branching Erect Spreading Drooping Weeping

Tree type of bearing Type I Type II Type III Type IV

ONE YEAR OLD SHOOT CHARACTERISTICS:

One year old shoot thickness Thin Medium Thick V. thick

One year old shoot length of internode V. short Short Medium Long

One year old shoot: Color on sunny side

One year old shoot: Pubescence on distal half of shoot Absent Weak Medium Strong

One year old shoot : Number of lenticels Few Medium Many

LEAF CHARACTERISTICS:

Leaf blade: Attitude in relation to shoot Upwards Outwards Downwards

Leaf blade length/width (cm)/.....

Leaf blade intensity of green color Light Medium Dark

Leaf blade: incisions of margins (Upper half) Crenate Bicrenate Serrate 1 Serrate 2 Biserrate

Leaf blade pubescence on lower side Absent Weak Medium Strong

Petiole length (cm)

Petiole anthocyanin Absent Present

FLOWER CHARACTERISTICS:

Flower color White Yellowish pink L. pink Dark pink Red Purple

Flower arrangement of petals Free Intermediate Collapsing

Position of stigmas relative to anthers Below Same level Above

FRUIT CHARACTERISTICS:

Young fruit extent of anthocyanin over color	<input type="checkbox"/> Absent	<input type="checkbox"/> Small	<input type="checkbox"/> Medium	<input type="checkbox"/> Large	<input type="checkbox"/> V. large	
Fruit size	<input type="checkbox"/> Small	<input type="checkbox"/> Medium	<input type="checkbox"/> Big			
Fruit height/diameter (cm)/.....					
Fruit shape	<input type="checkbox"/> Globose	<input type="checkbox"/> Globose-conical	<input type="checkbox"/> Short- globose conical	<input type="checkbox"/> Flat		
	<input type="checkbox"/> Flat-globose	<input type="checkbox"/> Conical	<input type="checkbox"/> Intermediate-conical	<input type="checkbox"/> Ellipsoid		
	<input type="checkbox"/> Ellipsoid conical	<input type="checkbox"/> Oblong	<input type="checkbox"/> Oblong-wasited			
Fruit ribbing	<input type="checkbox"/> Absent	<input type="checkbox"/> Present				
Crowning at calyx end	<input type="checkbox"/> Weak	<input type="checkbox"/> Moderate	<input type="checkbox"/> Strong			
Fruit size of eye	<input type="checkbox"/> Small	<input type="checkbox"/> Medium	<input type="checkbox"/> Large			
Fruit length of sepal (cm)					
Fruit bloom of skin	<input type="checkbox"/> Absent	<input type="checkbox"/> Moderate	<input type="checkbox"/> Strong			
Fruit greasiness of skin	<input type="checkbox"/> Absent	<input type="checkbox"/> Moderate	<input type="checkbox"/> Strong	<input type="checkbox"/>	<input type="checkbox"/>	
Fruit ground color	<input type="checkbox"/> Whitish yellow	<input type="checkbox"/> Yellow	<input type="checkbox"/> Whitish green	<input type="checkbox"/> Yellow green	<input type="checkbox"/>	
Relative area of over color	<input type="checkbox"/> Absent	<input type="checkbox"/> Small	<input type="checkbox"/> Medium	<input type="checkbox"/> Large	<input type="checkbox"/> V. large	
Fruit hue of over color with bloom removed	<input type="checkbox"/> Orange red	<input type="checkbox"/> Pink red	<input type="checkbox"/> Red	<input type="checkbox"/> Purple red	<input type="checkbox"/> Brown red	
Intensity of over color	<input type="checkbox"/> Light	<input type="checkbox"/> Medium	<input type="checkbox"/> Dark			
Fruit pattern of over color	<input type="checkbox"/> Only solid flush	<input type="checkbox"/> Solid flush with weakly defined stripes	<input type="checkbox"/> Solid flush with strongly defined stripes	<input type="checkbox"/> Flush and Mottled	<input type="checkbox"/> Flush striped and Mottled	
Fruit length of stalk (cm)					
Fruit length of stalk	<input type="checkbox"/> Short	<input type="checkbox"/> Medium	<input type="checkbox"/> Long	<input type="checkbox"/> V. long		
Fruit thickness of stalk	<input type="checkbox"/> Thin	<input type="checkbox"/> Medium	<input type="checkbox"/> Thick			
Fruit depth of stalk cavity	<input type="checkbox"/> Shallow	<input type="checkbox"/> Medium	<input type="checkbox"/> Deep			
Fruit depth of stalk cavity	<input type="checkbox"/> Narrow	<input type="checkbox"/> Medium	<input type="checkbox"/> Broad			
Fruit depth of eye basin	<input type="checkbox"/> Shallow	<input type="checkbox"/> Medium	<input type="checkbox"/> Deep			
Fruit width of eye basin	<input type="checkbox"/> Narrow	<input type="checkbox"/> Medium	<input type="checkbox"/> Broad			
Firmness of flesh	<input type="checkbox"/> V. soft	<input type="checkbox"/> Soft	<input type="checkbox"/> Medium	<input type="checkbox"/> Firm	<input type="checkbox"/> V. firm	
Flesh color	<input type="checkbox"/> Whitish	<input type="checkbox"/> Cream	<input type="checkbox"/> Yellowish	<input type="checkbox"/> Greenish	<input type="checkbox"/> Pinkish	<input type="checkbox"/> Reddish
Aperture of locules in T. S.	<input type="checkbox"/> Closed/slightly opened		<input type="checkbox"/> Moderately open	<input type="checkbox"/> Fully open		
Fruit weight (g/fruit)					
Yield (kg/tree)					

SEED CHARACTERISTICS:

Seed color	<input type="checkbox"/> Brown	<input type="checkbox"/> Reddish brown	<input type="checkbox"/> Blackish brown		
Seed shape	<input type="checkbox"/> Ellipsoid	<input type="checkbox"/> Clavate	<input type="checkbox"/>		
Seed size	<input type="checkbox"/> Small	<input type="checkbox"/> Medium	<input type="checkbox"/> Bold		
Seed length/width (mm)/.....				
Seed glossiness	<input type="checkbox"/> Low	<input type="checkbox"/> Medium	<input type="checkbox"/> High		
No. of seeds/fruit				
000, seed weight (g)				

QUALITY CHARACTERISTICS:

Eating maturity	<input type="checkbox"/> Extremely early	<input type="checkbox"/> Early	<input type="checkbox"/> Mid season	<input type="checkbox"/> Late	
Eating quality (Desserts)	<input type="checkbox"/> Poor	<input type="checkbox"/> Medium	<input type="checkbox"/> Good	<input type="checkbox"/> V. good	<input type="checkbox"/> Extremely good
Eating quality (Cooked)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Firmness without skin	<input type="checkbox"/> V. soft	<input type="checkbox"/> Soft	<input type="checkbox"/> Intermediate	<input type="checkbox"/> Firm	<input type="checkbox"/> V. firm
Texture of the flesh of the fruit when ripe	<input type="checkbox"/> Extremely coarse	<input type="checkbox"/> Coarse	<input type="checkbox"/> Intermediate	<input type="checkbox"/> Fine	<input type="checkbox"/> V. fine

ENVIRONMENTAL ADAPTABILITY:

Stress Susceptibility to Low temperature late autumn/early winter	<input type="checkbox"/> Low	<input type="checkbox"/> Medium	<input type="checkbox"/> High
Low temperature mid winter	<input type="checkbox"/> Low	<input type="checkbox"/> Medium	<input type="checkbox"/> High
Low temperature-spring (in relation to flowering)	<input type="checkbox"/> Low	<input type="checkbox"/> Medium	<input type="checkbox"/> High

High temperature	<input type="checkbox"/> Low	<input type="checkbox"/> Medium	<input type="checkbox"/> High
Drought	<input type="checkbox"/> Low	<input type="checkbox"/> Medium	<input type="checkbox"/> High
High soil moisture	<input type="checkbox"/> Low	<input type="checkbox"/> Medium	<input type="checkbox"/> High
Chlorosis	<input type="checkbox"/> Low	<input type="checkbox"/> Medium	<input type="checkbox"/> High
Pest and Disease Susceptibility	<input type="checkbox"/> Low	<input type="checkbox"/> Medium	<input type="checkbox"/> High

DISTINGUISHING CHARACTERISTICS:

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.....

.....

.....

.....

RECOMMENDED/APPROVED BY:

Variety Evaluation Committee (VEC)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Experts Sub Committee	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Provincial Seed Council	<input type="checkbox"/> Yes	<input type="checkbox"/> No

COMMENTS OF SPOT EXAMINATION:

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ADDITIONAL INFORMATION:

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TREE HABIT OF BRANCHING



Erect



Spreading



Drooping



Weeping

TREE TYPE OF BEARING



Type I

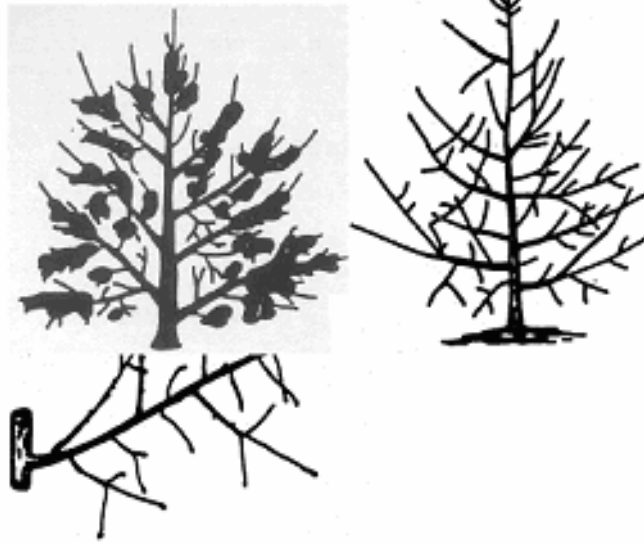
Trees tend to be upright with narrow crotches and sparse branching.
 Fruiting occurs on numerous short spurs, which are long lived.
 The zone of fruiting tends to remain close to trunk.



Type-II

This is a variation of type-I in which branching is more frequent and there is a greater tendency for the fruiting zone to move away from the trunk

TREE TYPE OF BEARING



Type-III

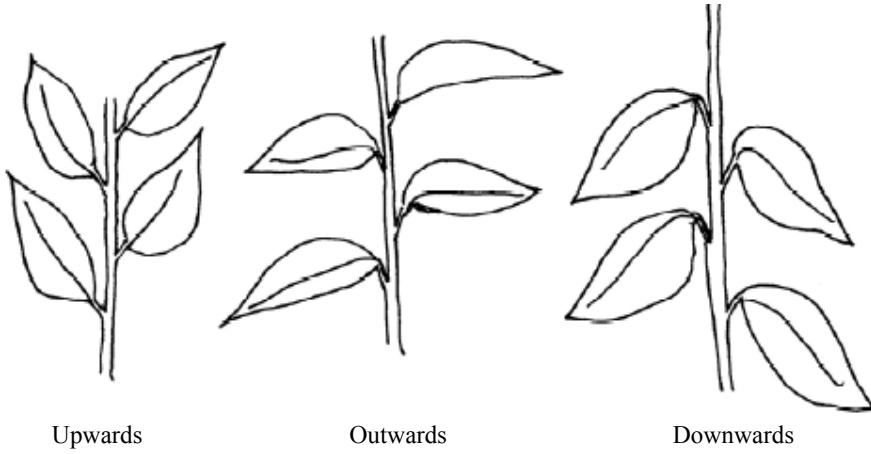
Varieties tend to be spreading with wide crotches and frequent branching. They bear on spurs and shoots which are generally 1 to 3 years of age. The fruiting zone tends to move away from the trunk to the outside of the tree.



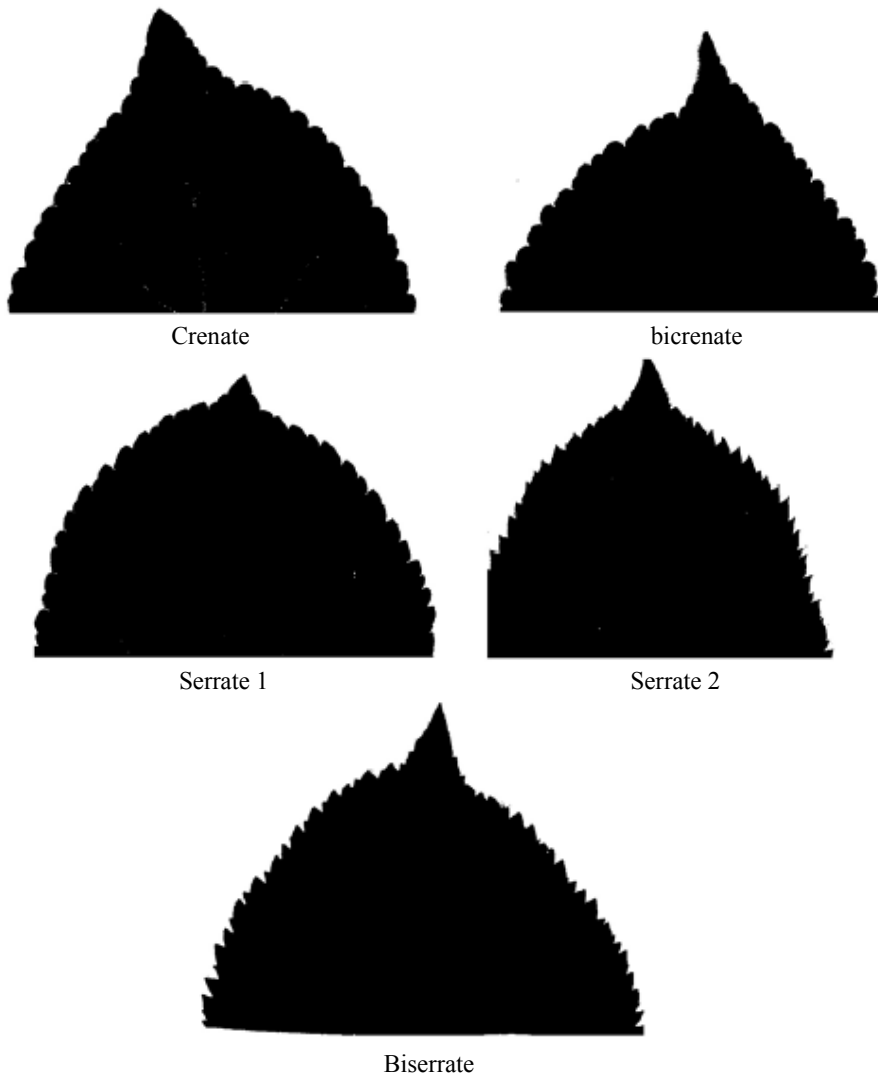
Type IV

Varieties tend to have upright main scaffold limbs with narrow crotches and frequent branching. They bear much of the crop on the ends of the previous year's shoots. There is a strong tendency for the lower half of the shoots to be without leaves or fruit, that is, "bare" or "blind." There is a strong tendency for the fruiting wood to be located at the extremities of the branches, with the tree spreading as a result

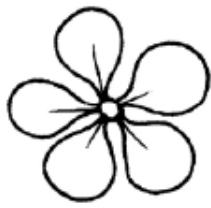
LEAF BLADE ATTITUDE



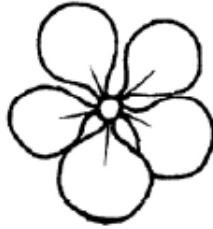
LEAF BLADE MARGIN



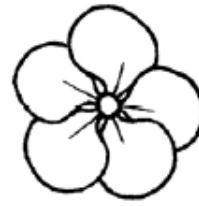
FLOWER ARRANGEMENT OF PETALS



Free

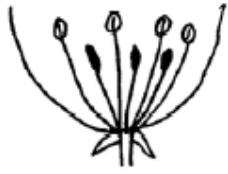


Intermediate



Overlapping

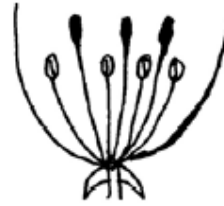
POSITION OF STIGMAS RELATION TO ANTHERS



Below

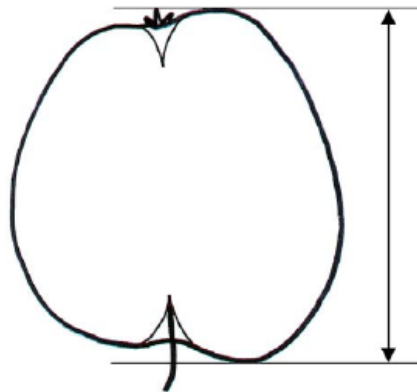


Same level

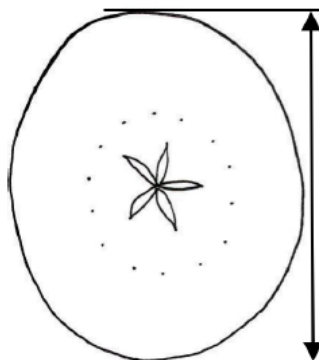


Above

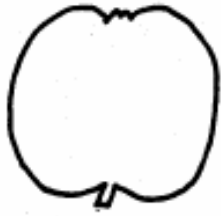
FRUIT HEIGHT



FRUIT DIAMETER



FRUIT SHAPE



Globose



Globose Conical



Short globose conical



Flat



Flat globose



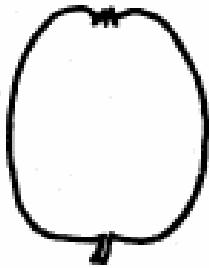
Conical



Long-conical



Intermediate conical



Ellipsoid



Ellipsoid conical



Oblong

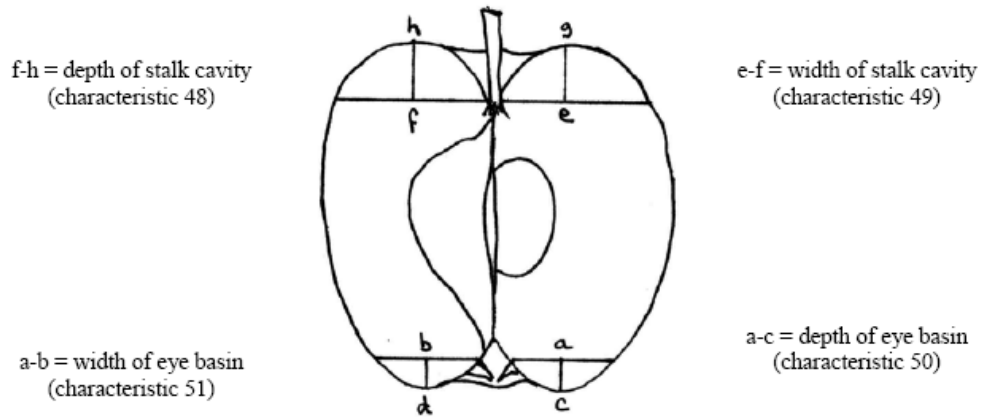


Oblong-conical

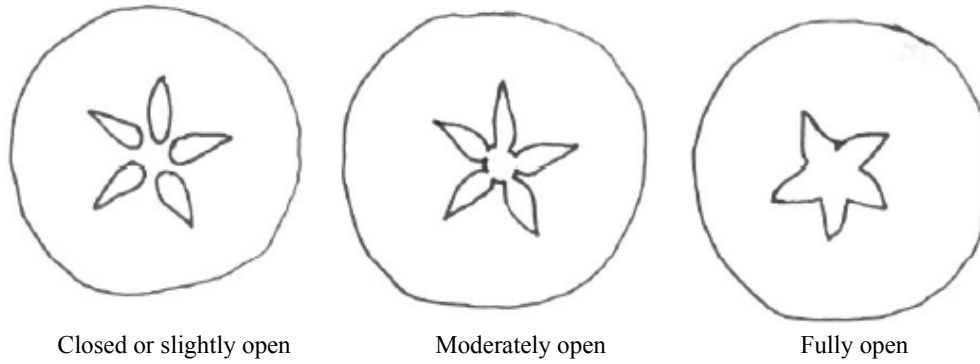


Oblong waisted

FRUIT: DEPTH AND WIDTH OF STALK CAVITY; DEPTH AND WIDTH OF EYE BASIN



FRUIT: APERTURE OF LOCULES (IN TRANSVERSE SECTION)



SEED SHAPES



Ellipsoid



Clavate