

Plant		Common pear		484	Primary essential character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Color of dormant one-year-old shoot	10 shoots	Observation	1:Green 2:Grey 3:Brown 4:Reddish brown		Observe the over color of the central portion of moderate 1-year-old dormant shoots
2	Leaf size	15 leaves	Measurement	square cm (integer)		Measure lengths (L) and widths (W) of leaf blade of 15 leaves collected from 4th to 6th node of moderate growing shoots in August and calculate leaf area by $\pi \times L \times W/4.0$
3	Leaf shape	15 leaves	Measurement	* (integer)		Evaluate length/width ratio of leaf blade by $L/W \times 100$
4	Shape of serration	15 leaves	Observation	0:Entire 1:Crenate 2:Serrate 3:Biserrate		Observe the incision of margin of the central portion of leaf blade
5	Flower size	10 flowers	Measurement	mm (integer)		Measure the longest diameter of 10 flowers of full opening
6	Fruit size	10 fruits	Measurement	g (integer)		Average weight of 10 normal ripe fruits
7	Fruit shape	10 fruits	Observation			Observe the shape of samples used for fruit size

Plant		Common pear		484	Primary optional character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Spines on shoot	10 shoots	Observation	0:Absent 9:Present		Observe the formation of spines on 1-year-old-shoots of adult trees
2	Pubescence on mature leaf	15 leaves	Observation	0:Absent 3:Scarce 5:Intermediate 7:Dense		Observe the pubescence on the reverse side of leaves

Plant		Common pear		484	Secondary essential character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Date of sprouting	2 trees	Measurement	date		Observe the date when more than 3 terminal buds have sprouted in a tree
2	Date of full bloom	2 trees	Measurement	date		Observe the date when 70-80% of terminal flowers have opened
3	Date of maturity	2 trees	Measurement	date		Observe the date when the largest amount of fruits were harvested
4	Over color of fruit	10 fruits	Observation	0:Absent 1:Blight red 2:Dark red		Observe the pigmentation on the sunny side of fruit skin
5	Degree of russetting on fruit skin	10 fruits	Observation	1:Almost absent 3:Few 5:Intermediate 7:Much 9:Very much		Classify the degree of russetting on fruit skin
6	Resistance to canker	2 trees	Observation	1:Resistant 3:Moderately resistant 5:Moderately susceptible 7:Highly susceptible		Judge from infection ratio and the degree of disease at shoots and trunk caused by <i>Diaporthe tanakae</i>
7	Resistance to <i>Physalospora</i> canker	2 trees	Observation	1:Resistant 3:Moderately resistant 5:Moderately susceptible 7:Highly susceptible		Judge from infection ratio and the degree of disease of fruits caused by <i>Physalospora piricola</i> at harvest time and ripening time
8	Resistance to scab	2 trees	Observation	1:Resistant 3:Moderately resistant 5:Moderately susceptible 7:Highly susceptible		Judge from infection ratio and the degree of disease caused by <i>Venturia pirina</i>
9	Black end	2 trees	Observation	0:Absent 3:Little 5:Intermediate 7:Much		Observe the incidence of physiological black end of fruits
10	Leaf scorch	2 trees	Observation	0:Absent 3:Little 5:Intermediate 7:Much		Observe the occurrence of burned leaf at harvest time
11	Cold injury	2 trees	Observation	0:Absent 3:Little 5:Intermediate 7:Much		Observe the degree of injury on shoots and buds
12	Frost injury	2 trees	Observation	0:Absent 3:Little 5:Intermediate 7:Much		Observe the degree of damage on flower buds and young fruits

Plant		Common pear		484	Secondary optional character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Tree habit	2 trees	Observation	1:Fastigiata 3:Upright 5:Intermediate 7:Spreading 9:Weeping		Judge by the general shape and growth characteristics of trees
2	Tree vigor	2 trees	Observation	3:Weak 5:Intermediate 7:Strong		Judge by the tree size and growth characteristics of current shoots
3	Spur formation	2 trees	Observation	3:Few 5:Intermediate 7:Many		Observe the spur formation on 2-year-old shoots
4	Formation of axillary floral bud	10 shoots	Observation	3:Few 5:Intermediate 7:Many		Observe the flowering of axillary buds on 1-year-old shoots in spring
5	Graft compatibility with quince	2 trees	Observation	1:Very poor 3:Poor 5:Intermediate 7:Good 9:Very good		Observe the tree growth, swelling and strength of graft union
6	Amount of pollen	10 flowers	Observation	0:Absent 9:Present		Observe the amount of pollens at flowering time
7	Precocity	2 trees	Measurement	years (round to the 1st decimal place)		Observe the tree age of first bearing
8	Fruit appearance	10 fruits	Observation	1:Very poor 3:Poor 5:Intermediate 7:Good 9:Excellent		Judge by shape, surface condition of fruits
9	Ground color of fruit skin	10 fruits	Observation	3:Yellow 5:Yellowish green 7:Green		Observe the ground color of fruit skin at harvest

Plant		Common pear		484	Tertiary essential character
No	Characters	No. of samples	Methods	Rank or measurement unit	Remarks
1	Firmness of fruit at maturity	10 fruits	Measurement	lb (round to the 1st decimal place)	Measure flesh firmness using a penetrometer with a plunger 5/16 inch in diameter. Measurement is taken at the center of the opposite cheeks of each fruit after removing a disc of peel about 1 cm in diameter
2	Firmness of fruit after ripening	5 fruits	Measurement	lb (round to the 1st decimal place)	Measure flesh firmness using a penetrometer with a plunger 5/16 inch in diameter. Measurement is taken at the center of the opposite cheeks of each fruit after removing a disc of peel about 1 cm in diameter
3	Soluble solids content	10 fruits	Measurement	% (round to the 1st decimal place)	Measure the filtrate of juice squeezed from 10 fruits with a refractometer
4	Titrateable acidity	10 fruits	Measurement	g/100 ml (round to the 3rd decimal place)	Take out 5 ml filtrate of juice from 10 fruits and fill up to 50 ml. Titrate by 1/10 N NaOH and convert to the amount of malic acid (Malic acid g/100 ml =0.134fx, f:factor, x : titration volume)
5	Texture of flesh	5 fruits	Sensory	1:Granular 2:Sandy 3:Coarse 4:Fine 5:Powdery 6:Soft 7:Melting 8:Buttery 9:Rubbery	Evaluate the texture of flesh by chewing
6	Juiciness	5 fruits	Sensory	3:Low 5:Intermediate 7:High	Evaluate the fruit juiciness by chewing
7	Astringency	5 fruits	Sensory	0:Absent 3:Weak 5:Intermediate 7:Strong	Evaluate the amount of astringency by chewing fruits
8	Aroma	5 fruits	Sensory	0:Absent 3:Weak 5:Intermediate 7:Strong	Evaluate the amount of aroma by chewing fruits
9	Days required for ripening	5 fruits	Measurement	days (integer)	Evaluate the days required for ripening at 15-20 degree centigrade

Plant	Common pear		484	Tertiary essential character	
No	Characters	No. of samples	Methods	Rank or measurement unit	Remarks
10	Yield	2 trees	Measurement	kg/tree (round to the 1st decimal place)	Measure the yield per tree at high productive age

Plant		Common pear		484	Tertiary optional character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Fruit quality	5 fruits	Sensory	1:Very poor 3:Poor 5:Intermediate 7:Good 9:Excellent		Evaluate the flavor of fully riped fruits by chewing
2	Fruit bruising	5 fruits	Observation	3:Easy 5:Intermediate 7:Difficult		Observe the injury of flesh after bruising ripe fruits by a finger
3	Storability of fruits under room temperature	20 fruits	Observation	days (integer)		Evaluate the maximum storage period of riped fruits under room temperature by the change of flavor and firmness of fruits