

Plant		Potato		432	Primary essential character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Tuber: shape	20 tubers	Observation	1:Round 2:Short oval 3:Oval 4:Long oval 5:Long 6:Very long		L=length/width, T=thickness, Round: L=1.0, T>0.8, Short oval: L=1.3, Oval: L=1.4, Long oval: L=1.7, Long: L=1.9, Very long: L=2.1
2	Tuber: color of skin	Block	Observation	1:Light beige 2:Yellow 3:Red 4:Red parti-colored 5:Violet 6:Violet parti-colored 7:Reddish brown		Record the number and weight of tubers heavier than 20 g
3	Plant: growth habit	Block	Observation	1:Upright 2:Semi-upright 3:Spreading		
4	Lightsprout: shape	6 tubers	Observation	1:Spherical 2:Ovoid 3:Conical 4:Broad cylindrical 5:Narrow cylindrical		Sprout tubers under conditions covered by 1 piece of newspaper in 20-25 centi degrees under 2000-3000lux. Observe lightsprout.
5	Lightsprout: intensity of anthocyanin coloration of base	6 tubers	Observation	1:Absent or very weak 3:Weak 5:Medium 7:Strong 9:Very strong		
6	Lightsprout: proportion of blue in anthocyanin coloration of base	6 tubers	Observation	1:Absent or very weak 2:Medium 3:High		
7	Lightsprout: pubescence of base	6 tubers	Observation	1:Absent or very weak 3:Weak 5:Medium 7:Strong 9:Very strong		
8	Lightsprout: number of root tips	6 tubers	Observation	3:Few 5:Medium 7:Many		
9	Strem: anthocyanin coloration	Block	Observation	1:Absent or very weak 3:Weak 5:Medium 7:Strong 9:Very strong		
10	Flower corolla: intensity of anthocyanin coloration on inner side	Block	Observation	1:Absent or very weak 3:Weak 5:Medium 7:Strong 9:Very strong		

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11	Flower corolla: proportion of blue in anthocyanin coloration on inner side	Block	Observation	1:Absent or low 2:Medium 3:High	
12	Flower corolla: extent of anthocyanin coloration on inner side	Block	Observation	1:Absent or very small 3:Small 5:Medium 7:Large 9:Very large	
13	Tuber: color of base of eye	Block	Observation	1:White 2:Yellow 3:Red 4:Violet	
14	Maturity: time of maturity	Block	Observation	1:Very early 3:Early 5:Medium 7:Late 9:Very late	

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No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Plant: height	5 clones	Measurement	1:Very short 3:Short 5:Medium 7:Tall 9:Very tall		Length of main stem from ground level to the growing point is measured at flower falling stage
2	Length of stolons	Block	Observation	1:Extremely short 3:Short 5:Intermediate 7:Long 9:Extremely long		Observe the longest stolon at harvest time
3	Tuber: net of skin	Block	Observation	1:Absent 3:Few 5:Medium 7:Many 9:Very many		Examine the roughness of tuber skin
4	Plant: foliage structure	Block	Observation	1:Stem type 2:Intermediate type 3:Leaf type		
5	Tuber: depth of eyes	10 tubers	Observation	1:Very shallow 3:Shallow 5:Medium 7:Deep 9:Very deep		
6	Tuber: color of flesh	10 tubers	Observation	1:White 2:Cream 3:Light yellow 4:Medium yellow 5:Dark yellow 6:Red 7:Red parti-colored 8:Violet 9:Violet parti-colored		
7	Second pair of lateral leaflets: size	Block	Observation	1:Very small 3:Small 5:Medium 7:Large 9:Very large		
8	Flower: frequency of flowers	Block	Observation	1:Absent or very low 3:Low 5:Medium 7:High 9:Very high		
9	Leaf: openness	Block	Observation	1:Closed 3:Intermediate 5:Open		
10	Lightsprout: anthocyanin coloration of tip	Block	Observation	1:Absent or very weak 3:Weak 5:Medium 7:Strong 9:Very strong		
11	Flower corolla: shape	5 clones	Observation	1:Acute angle 3:Slightly acute angle 5:Medium 7:Slightly obtuse angle 9:Obtuse angle		

Plant		Potato		432	Secondary essential character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Disease resistance: brown rot	10 clones, 2 replications	Obs.&Mearr.	1:Very weak 3:Weak 5:Medium 7:Strong		
2	Disease resistance: tuber rot	10 clones, 2 replications	Obs.&Mearr.	1:Very weak 3:Weak 5:Medium 7:Strong		
3	Resistance to potato cyst nematode (Ro1)	2 replications	Measurement	1:Absent 2:H1 3:Other type		
4	Flower: quantity of pollen	Block	Observation	1:Absent 2:Very few 3:Few 5:Medium 7:Many 9:Very many		
5	Flower: number of fruit	Block	Observation	1:Absent 3:Few 5:Medium 7:Many		
6	Disease resistance: Y mosaic disease	10 clones, 2 replications	Obs.&Mearr.	3:Weak 5:Medium 7:Strong 9:Immunity		
7	Disease resistance: late blight	Block	Obs.&Mearr.	1:Very weak 3:Weak 5:Medium 7:Strong		
8	Dormancy: time of dormancy	Block	Obs.&Mearr.	1:Very early 3:Early 4:Slightly early 5:Medium 6:Slightly late 7:Late 9:Very late		

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No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Disease resistance: leafroll disease	10 clones, 2 replications	Obs.&Mear.	3:Weak 5:Medium 7:Strong 9:Immunity		
2	Disease resistance: common scab	10 clones, 2 replications	Obs.&Mear.	1:Very weak 3:Weak 5:Medium 7:Strong		
3	Disease resistance: powdery scab	10 clones, 2 replications	Obs.&Mear.	1:Very weak 3:Weak 5:Medium 7:Strong		
4	Disease resistance: X mosaic disease	10 clones, 2 replications	Obs.&Mear.	3:Weak 5:Medium 7:Strong 9:Immunity		
5	Disease resistance: A mosaic disease	10 clones, 2 replications	Obs.&Mear.	3:Weak 5:Medium 7:Strong 9:Immunity		
6	Disease resistance: S mosaic disease	10 clones, 2 replications	Obs.&Mear.	3:Weak 5:Medium 7:Strong 9:Immunity		
7	Disease resistance: genotype of late blight resistance		Measurement			

Plant		Potato		432	Tertiary essential character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Yield ability: weight of fine tubers	Block	Measurement	1:Very low 3:Low 5:Medium 7:High 9:Very high		Weigh tubers heavier than 20 g, and the obtained values (unit:0.1 kg) are expressed by weight per are (kg/a).
2	Number of tubers	Block	Measurement	1:Extremely small 2:Very small 3:Small 4:Slightly small 5:Intermediate 6:Slightly large 7:Large 8:Very large 9:Extremely large		Count the numbers of tubers heavier than 20 g, and express by number per are (tubers/a)
3	Flesh type	4 pieces	Observation	1:Sticky 2:Slightly sticky 3:Medium 4:Slightly powdery 5:Powdery		
4	Degree of blackishness	4 pieces	Observation	1:None 2:Negligible 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High		Assess the degree of blackishness of flesh, one hour after boiling
5	Degree of fragility	4 pieces	Observation	1:None 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High		Peel and cut tubers into half longitudinally. Boil tubers for 20 minutes, observe tubers and determine the degree of fragility
6	Starch value	2 kg	Measurement	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		Test by Rayman balance. Starch value of 12% is classified as low, 16% is classified as intermediate, 20% is classified as high.
7	Mean weight of fine tuber	Block	Measurement	1:Very low 3:Low 5:Medium 7:High 9:Very high		

Plant		Potato		432	Tertiary optional character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Degree of browning of potato chips using tubers before storage	10 pieces	Measurement	1:None 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High		Fry sliced before storage tubers in common way. Measure the degree of browning of chips by using a colorimeter (Agtron) with rough crushed samples
2	Degree of browning of fried potatoes	10 pieces	Measurement	1:None 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High		Cut before storage tubers longitudinally into pillars 1 cm. Fry potatoes twice at low (140 centi degree) temperature and at high (180 centi degree) temperature. Evaluate the degree of browning of fried potatoes compared with the standard color chart
3	Degree of browning of potato chips using tubers after long time storage	10 pieces	Measurement	1:None 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High		Fry sliced tubers stored at 6-9 degrees Celsius more than three months in common way. Measure the degree of browning of chips by using a colorimeter (Agtron) with rough crushed samples
4	Quality of starch: degree of white	2 replications	Measurement	3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High		Measure whiteness of starch with the whiteness meter. Whiteness value lower than 90 is classified as low and higher than 95 is classified as high.
5	Quality of starch: size of particle	2 replications	Measurement	1:Very small 3:Small 5:Medium 7:Large 9:Very large		
6	Quality of starch: maximum viscosity	2 replications	Measurement	3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High		Measure the viscosity of starch with the Brabender's Viscograph, and measure the temperature at which gelatinization starts and maximum viscosity