

Plant		Water melon		66(08002)	Primary essential character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Seed size	20 seeds	Observation	1:Extremely small 2:Very small 3:Small 4:Slightly small 5:Intermediate 6:Slightly large 7:Large 8:Very large 9:Extremely large		Size of dried ripe seeds
2	Leaf length	5 plants	Measurement	cm (round to the 1st decimal place)		Leaf length of the 10th-15th true leaves on main vine at harvest time. Main vine is the longest one bearing fruit
3	Leaf width	5 plants	Measurement	cm (round to the 1st decimal place)		Leaf width of the 10th-15th true leaves on main vine at harvest time
4	Petiole length	5 plants	Measurement	cm (round to the 1st decimal place)		Petiole length of the 10th-15th true leaves on main vine at harvest time
5	Number of leaves	5 plants	Measurement	* (round to the 1st decimal place)		Number of leaves at the 20th leaf stage on main vine of the earliest entry
6	Main vine length	5 plants	Measurement	cm (integer)		Vine length at 20th leaf stage on main vine of the earliest entry
7	Internode length	5 plants	Measurement	cm (round to the 1st decimal place)		Average internode length of the 10th-15th nodes on main vine at harvest time
8	First male flower bearing node	5 plants	Observation	0:None 1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		Bearing position of the first male flower (or hermaphrodite) on main vine
9	Time of female flowering	5 plants	Observation	0:None 1:Extremely early 2:Very early 3:Early 4:Slightly early 5:Intermediate 6:Slightly late 7:Late 8:Very late 9:Extremely late		Flowering time of the first female or hermaphrodite on main vine
10	Number of female flowers	5 plants	Observation	0:None 1:Extremely few 2:Very few 3:Few 4:Slightly few 5:Intermediate 6:Some 7:Many 8:Very many 9:Extremely many		Observe at flowering time, including hermaphrodite flower
11	Fruit shape	5 fruits	Observation	1:Flat 2:Slightly flat 3:Round 4:Slightly round 5:Long round 6:Slightly oval 7:Oval 8:Very oval 9:Extremely oval		Observe at harvest time

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12	Fruit weight	5 fruits	Measurement	kg (round to the 1st decimal place)	Measure at harvest time
13	Fruit skin color	5 fruits	Observation	1:Green white 2:Yellow 3:Yellow green 4:Light green 5:Green 6:Slightly dark green 7:Dark green 8:Darker green	Observe at harvest time
14	Number of stripes on fruit	5 fruits	Observation	0:None 1:Extremely few 2:Very few 3:Few 4:Slightly few 5:Intermediate 6:Some 7:Many 8:Very many 9:Extremely many	Observe at harvest time

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1	Seed shape	10 seeds	Observation	1:Round 3:Short oval 5:Oval 7:Long oval	Size of dried ripe seeds
2	Seed color	20 seeds	Observation	1:White 2:White yellow 3:Red pink 4:Dark red yellow 5:Green yellow 6:Brown 7:Black	Surface color of dried ripe seeds
3	Seed thickness	10 seeds	Measurement	mm (round to the 1st decimal place)	Thickness of dried ripe seeds
4	Seed length	10 seeds	Measurement	mm (round to the 1st decimal place)	Length of dried ripe seeds
5	Seed width	10 seeds	Measurement	mm (round to the 1st decimal place)	Width of dried ripe seeds
6	Design on seed coat	10 seeds	Observation	1:Absent 2:Black spots on hilum 3:Black on hilum and on margin 4:Black spot on hilum and black 5:Black speckles on seed coat 6:White yellow spots margin 9:Other	Design on dried ripe seed coat
7	Cotyledon shape	10 plants	Observation	1:Round 3:Short oval 5:Oval 7:Long oval 8:Chicken egg type	Observe at the time the first true leaf is fully expanded
8	Cotyledon size	10 plants	Observation	1:Extremely small 2:Very small 3:Small 4:Slightly small 5:Intermediate 6:Slightly large 7:Large 8:Very large 9:Extremely large	Observe at the time the first true leaf is fully expanded
9	Cotyledon color	10 plants	Observation	1:Extremely light green 2:Very light green 3:Light green 4:Slightly light green 5:Green 6:Slightly dark green 7:Dark green 8:Very dark green 9:Extremely dark green	Observe at the time the first true leaf is fully expanded
10	Blotch on cotyledon	10 plants	Observation	0:Absent 9:Present	Observe at the time the first true leaf is fully expanded
11	Hypocotyl length	20 plants	Measurement	cm (round to the 1st decimal place)	Observe at the time the first true leaf is fully expanded
12	Hypocotyl diameter	10 plants	Measurement	mm (round to the 1st decimal place)	Observe at the time the first true leaf is fully expanded

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13	Main vine diameter	10 plants	Measurement	cm (round to the 1st decimal place)		Average internode diameter of the 10th-15th nodes on main vine at harvest time
14	Leaf color	10 plants	Observation	2:Yellowish green 3:Light green 4:Slightly light green 5:Green 6:Slightly dark green 7:Dark green 8:Very dark green		Observe at harvest time
15	Leaf blotch	10 plants	Observation	0:Absent 9:Present		Color of the 10th-15th leaves on lateral branch
16	Plant habit	5 plants	Observation	1:Self topping 2:Bush 3:Creeping		Observe at flowering time of female flower
17	Plant vigor	5 plants	Observation	1:Extremely weak 2:Very weak 3:Weak 4:Slightly weak 5:Intermediate 6:Slightly strong 7:Strong 8:Very strong 9:Extremely strong		Observe at harvest time
18	Petal size	5 plants	Observation	1:Extremely small 2:Very small 3:Small 4:Slightly small 5:Intermediate 6:Slightly large 7:Large 8:Very large 9:Extremely large		Observe petal of the 2nd-3rd female flower
19	Ovary shape	5 plants	Observation	1:Flat 2:Slightly flat 3:Round 4:Somewhat oval 5:Oval 6:Slightly spindle 7:Spindle		Observe ovary of the 2nd-3rd female flower
20	Ovary size	5 plants	Observation	1:Extremely small 2:Very small 3:Small 4:Slightly small 5:Intermediate 6:Slightly large 7:Large 8:Very large 9:Extremely large		Observe ovary of the 2nd-3rd female flower
21	Ovary pubescence density	5 plants	Observation	0:Absent 1:Extremely sparse 2:Very sparse 3:Sparse 4:Slightly sparse 5:Intermediate 6:Slightly dense 7:Dense 8:Very dense 9:Extremely dense		Observe ovary of the 2nd-3rd female flower
22	Sex type	5 plants	Observation	1:Androecious 2:Monoecious 3:Trimonoecious 4:Andromonoecious 5:Gynomonoecious 6:Gynoecious 7:Hermaphroditic		
23	Days to male flowering	10 plants	Observation	1:Extremely early 2:Very early 3:Early 4:Slightly early 5:Intermediate 6:Slightly late 7:Late 8:Very late 9:Extremely late		Observe at flowering time of the first male flower

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24	Number of male flower	10 plants	Observation	0:None 1:Extremely few 2:Very few 3:Few 4:Slightly few 5:Intermediate 6:Slightly many 7:Many 8:Very many 9:Extremely many		Observe at flowering time of the 2nd-3rd female flower
25	Anther dehiscence	10 flowers	Observation	1:Extremely hard 2:Very hard 3:Hard 4:Slightly hard 5:Intermediate 6:Slightly easy 7:Easy 8:Very easy 9:Extremely easy		Evaluate under low temperature condition
26	Amount of pollen	10 flowers	Observation	0:None 1:Extremely little 2:Very little 3:Little 4:Slightly little 5:Intermediate 6:Some 7:Many 8:Very many 9:Extremely many		Observe male flowers of the 10th-15th nodes
27	Germination rate of pollen	10 flowers	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		Germination test on agar medium
28	Peduncle length	10 fruits	Observation	1:Extremely short 2:Very short 3:Short 4:Slightly short 5:Intermediate 6:Slightly long 7:Long 8:Very long 9:Extremely long		Observe at harvest time
29	Peduncle diameter	10 fruits	Observation	1:Extremely small 2:Very small 3:Small 4:Slightly small 5:Intermediate 6:Slightly large 7:Large 8:Very large 9:Extremely large		Observe at harvest time
30	Abscission layer diameter of fruit	10 plants	Observation	1:Extremely small 2:Very small 3:Small 4:Slightly small 5:Intermediate 6:Slightly large 7:Large 8:Very large 9:Extremely large		Observe at harvest time
31	Peduncle attachment shape	10 fruits	Observation	1:Small 2:Slightly small 3:Intermediate 4:Slightly enlarged 5:Enlarged 6:Very enlarged 7:Extremely enlarged		Observe at harvest time
32	Fruit ribs	10 fruits	Observation	0:Absent 1:Extremely shallow 2:Very shallow 3:Shallow 4:Slightly shallow 5:Intermediate 6:Slightly deep 7:Deep 8:Very deep 9:Extremely deep		Observe at harvest time
33	Gloss of fruit	10 fruits	Observation	0:None 1:Almost none 2:Extremely slight 3:Very slight 4:Slight 5:Intermediate 6:Slightly pronounced 7:Pronounced 8:Very pronounced 9:Extremely pronounced		Observe at harvest time

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34	Smoothness of fruit surface	10 fruits	Observation	1:Extremely rough 2:Very rough 3:Rough 4:Slightly rough 5:Intermediate 6:Slightly smooth 7:Smooth 8:Very smooth 9:Extremely smooth		Observe at harvest time
35	Color of stripes on fruit	5 fruits	Observation	1:Yellow 2:Yellow orange 3:Orange 4:Brown 5:Green 6:Slightly dark green 7:Dark green 8:Slightly deep green 9:Deep green		Observe at harvest time
36	Number of stripes on fruit	5 fruits	Observation	0:None 1:Extremely few 2:Very few 3:Few 4:Slightly few 5:Intermediate 6:Some 7:Many 8:Very many 9:Extremely many		Observe at harvest time
37	Stem-end fruit shape	5 fruits	Observation	3:Pointed 4:Slightly pointed 5:Intermediate 6:Slightly depressed 7:Depressed		Observe at harvest time
38	Blossom-end fruit shape	5 fruits	Observation	3:Pointed 4:Slightly pointed 5:Intermediate 6:Slightly depressed 7:Depressed		Observe at harvest time
39	Flower scar shape of fruit	5 fruits	Observation	3:Concave 4:Slightly concave 5:Flat 6:Slightly convex 7:Convex		Observe at harvest time

Plant		Water melon		66(08002)	Secondary essential character
No	Characters	No. of samples	Methods	Rank or measurement unit	Remarks
1	Resistance to anthracnose	20 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high	Evaluate based on symptoms in the nursery or field test
2	Resistance to fusarium wilt	20 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high	Evaluate based on symptoms in the nursery or field test
3	Resistance to powdery mildew	20 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high	Evaluate based on symptoms in the nursery or field test
4	Resistance to sclerotinia rot	20 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high	Evaluate based on symptoms in the nursery or field test
5	Resistance to gummy stem blight	20 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high	Evaluate based on symptoms in the nursery or field test
6	Resistance to aphids palmi	20 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high	Evaluate based on symptoms in the nursery or field test
7	Earliness of fruit bearing	10 plants	Observation	1:Extremely early 2:Very early 3:Early 4:Slightly early 5:Intermediate 6:Slightly late 7:Late 8:Very late 9:Extremely late	Days after sowing
8	Fruit bearing node	5 plants	Measurement	* node (round to the 1st decimal place)	Evaluate in the field test

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No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Resistance to cucumber mosaic virus	10 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		Evaluate based on symptoms in the field test
2	Resistance to water-melon mosaic virus	10 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		Evaluate based on symptoms in the field test
3	Resistance to cucumber green mottle mosaic virus	10 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		Evaluate based on symptoms in the field test
4	Resistance to acute wilt	20 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		Evaluate based on symptoms in the field test
5	Resistance to spider mite	10 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		Evaluate based on symptoms in the field test
6	Resistance to root knot nematode	10 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		Evaluate based on symptoms in the field test
7	Resistance to cucurbit leaf beetle	10 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		Evaluate based on symptoms in the field test
8	Amount of root per plant	10 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		Observe in the field
9	Growth under low temperature	10 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		Evaluate in the nursery or field test
10	Fruit setting under low temperature	10 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		Evaluate in the field test
11	Sugar accumulation under low temperature	10 plants	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		Evaluate in the field test

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12	Fruit setting under high temperature	10 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		Evaluate in the field test
13	Drought tolerance	10 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		Evaluate in the nursery or field test
14	Excess soil moisture tolerance	10 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		Evaluate in the nursery or field test
15	Tolerance to poor sunshine	10 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		Evaluate in the nursery or field test

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No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Flesh color (reddish type)	5 fruits	Observation	2:Light pink 3:Pink 4:Dark pink 5:Light orange 6:Orange 7:Dark red 8:Red 9:Other		Observe at harvest time
2	Flesh color (white yellowish type)	5 fruits	Observation	1:White 2:Light yellow 3:Yellow 4:Light orange yellow 5:Orange yellow 6:Red yellow 7:Greenish white 9:Other		Observe at harvest time
3	Brix value of fruit	5 fruits	Measurement	% (round to the 1st decimal place)		Measure at center part of fruit at the harvest time
4	Flesh firmness	5 fruits	Measurement	1:Extremely soft 2:Very soft 3:Soft 4:Slightly soft 5:Intermediate 6:Slightly hard 7:Hard 8:Very hard 9:Extremely hard		Evaluate at harvest time by Autograph or sensory test
5	Blandness of flesh	5 fruits	Sensory	1:Extremely poor 2:Very poor 3:Poor 4:Slightly poor 5:Intermediate 6:Slightly good 7:Good 8:Very good 9:Extremely good		Evaluate at harvest time by sensory test
6	Quantity of fibers in flesh	5 fruits	Sensory	1:Extremely small 2:Very small 3:Small 4:Slightly small 5:Intermediate 6:Slightly large 7:Large 8:Very large 9:Extremely large		Evaluate at harvest time by sensory test
7	Yellow straight in flesh	10 plants	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		Observe at harvest time
8	Fruit skin thickness	5 fruits	Measurement	mm (integer)		Measure at equator of fruit at harvest time
9	Cracking habit of fruit in field	5 fruits	Observation	1:Extremely hard 2:Very hard 3:Hard 4:Slightly hard 5:Intermediate 6:Slightly easy 7:Easy 8:Very easy 9:Extremely easy		Evaluate in the field test
10	Quantity of seeds per fruit	5 fruits	Observation	0:None 1:Extremely few 2:Very few 3:Few 4:Slightly few 5:Intermediate 6:Some 7:Many 8:Very many 9:Extremely many		Number of dried ripe seeds in mature fruit
11	Days to ripening	5 fruits	Observation	1:Extremely short 2:Very short 3:Short 4:Slightly short 5:Intermediate 6:Slightly long 7:Long 8:Very long 9:Extremely long		Days from flowering to harvesting

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1	Location of seeds in fruit	5 fruits	Observation	0:None 3:Narrow 4:Slightly narrow 5:Intermediate 6:Slightly broad 7:Broad 9:Uniform	Observe location of seeds in a mature fruit	
2	Quantity of sterile seeds in fruit	5 fruits	Observation	0:None 1:Extremely small 2:Very small 3:Small 4:Slightly small 5:Intermediate 6:Slightly large 7:Large 8:Very large 9:Extremely large	Observe at harvest time	
3	Storability of fruit	5 fruits	Observation	1:Extremely short 2:Very short 3:Short 4:Slightly short 5:Intermediate 6:Slightly long 7:Long 8:Very long 9:Extremely long	Storage test under a constant temperature	
4	Juiciness	5 fruits	Sensory	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high	Evaluate at harvest time by sensory test	
5	Cracking of flesh	5 fruits	Observation	0:None 1:Extremely small 2:Very small 3:Small 4:Slightly small 5:Intermediate 6:Slightly large 7:Large 8:Very large 9:Extremely large	Evaluate at harvest time by cutting test	
6	Bitterness of fruit	5 fruits	Sensory	0:None 1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high	Evaluate at harvest time by sensory test	
7	Acidity of fruit	5 fruits	Sensory	0:None 1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high	Evaluate at harvest time by sensory test	
8	Firmness of fruit skin	5 fruits	Measurement	1:Extremely soft 2:Very soft 3:Soft 4:Slightly soft 5:Intermediate 6:Slightly firm 7:Firm 8:Very firm 9:Extremely firm	Measure firmness of fruit skin at the equator part by Autograph or Force-gauge	
9	Pressed dehiscent	5 fruits	Measurement	kg (round to the 2nd decimal place)	Depress at the equator part of fruit by Autograph	
10	Fruit cracking by cutting	5 fruits	Observation	1:Extremely hard 2:Very hard 3:Hard 4:Slightly hard 5:Intermediate 6:Slightly easy 7:Easy 8:Very easy 9:Extremely easy	Cracking habit by knife dutting	

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11	Hallow degree of fruit	5 fruits	Observation	0:None 1:Extremely small 2:Very small 3:Small 4:Somewhat small 5:Intermediate 6:Somewhat large 7:Large 8:Very large 9:Extremely large		Observe vertical section of mature fruit
12	Uniformity of fruit	5 fruits	Observation	1:Extremely low 2:Very slow 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		Observe at harvest time