

Plant		Tomato		69(08006)	Primary essential character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Growth habit	10 plants	Observation	0:Indeterminate 9:Determinate		
2	Number of leaves below the first inflorescence	10 plants	Measurement	* (integer)		Cotyledon is not included in the leaf number
3	Length of internode	10 plants	Measurement	cm (round to the 1st decimal place)		Average internode length between the first and second inflorescences
4	Shape of leaf	10 plants	Observation	1:Type 1 2:Type 2 3:Type 3 4:Type 4		Classified by standard of shape
5	Leaf length	10 plants	Measurement	cm (integer)		Length of the largest at the harvest time
6	Plant height (plant width)	10 plants	Measurement	cm (integer)		Distance from the base to the top at the harvest time of the first cluster (Stake type tomato). Width of bush at the maturity of the first cluster (Bush type tomato)
7	Type of inflorescence	10 plants	Observation	1:Simple 2:Complex 3:Mixed		
8	Number of flowers per inflorescence	10 plants	Observation	1:1-2 3:3-5 5:6-10 7:11-20 9:>=21 flowers		Number of flowers on the second and third inflorescences is counted
9	Size of fruit	50 fruits	Measurement	0:<=0.9 g 1:1-9 g 2:10-29 g 3:30-49 g 4:50-99 g 5:100-149 g 6:150-199 g 7:200-249 g 8:250-299 g 9:>=300 g		Average weight for 50 fruits (5 fruits per plant)
10	Shape of fruit	10 plants	Observation	1:Flattened 2:Slightly flattened 3:Round 4:High round 5:Heart-shaped 6:Elongated cylindrical 7:Pear-shaped 8:Plum-shaped		Classified by standard of fruit shape
11	Number of locules	20 fruits	Observation	1:2 2:3-4 3:5-6 4:7-8 5:>=9		
12	Intensity of shoulder color at the immature stage	20 fruits	Observation	0:Uniform 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		

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13	Color of fruit at maturity	20 fruits	Observation	0:White 1:Green 2:Purple 3:Yellow 4:Orange 5:Pink 6:Red		
14	Firmness of fruit at maturity	20 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		The Push Pull Scale Unit, Autograph (30 phi, 5mm) or hand feeling
15	Time of flowering	10 plants	Observation	Days (integer)		Number of days from sowing to anthesis of the first inflorescence

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1	Size of seed	50 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		
2	Size of cotyledon	20 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		In expanded cotyledon
3	Color of cotyledon	20 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		In expanded cotyledon
4	Color of hypocotyl	20 plants	Observation	0:Green 1:Extremely light purple 2:Very light purple 3:Light purple 4:Slightly light purple 5:Purple 6:Slightly dark purple 7:Dark purple 8:Very dark purple 9:Extremely dark purple		In expanded cotyledon
5	Number of leaves between inflorescences	10 plants	Measurement	* (integer)		The average number of leaves between the first and third inflorescences
6	Stem thickness	10 plants	Measurement	cm (round to the 1st decimal place)		The average value of the maximum and minimum diameters in the thickest part
7	Rate of branching	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		
8	Leaf width	10 plants	Measurement	cm (round to the 1st decimal place)		Width of the largest leaf at the harvest time
9	Rate of curling	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		
10	Color of leaf	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		

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11	Rate of leaf cover	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		At the harvest time (only bush type tomato)
12	Density of hair on stem	10 plants	Observation	1:Extremely few 2:Very few 3:Few 4:Slightly few 5:Intermediate 6:Slightly abundant 7:Abundant 8:Very abundant 9:Extremely abundant		
13	Length of hair on stem	10 plants	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		
14	Fasciation of flower	20 flowers	Observation	0:Absent 9:Present		
15	Size of crown	20 flowers	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		
16	Color of petal	10 flowers	Observation	1:Yellow 2:Orange		
17	Color of anther	10 flowers	Observation	1:Yellow 2:Orange		
18	Shape of calyx	10 fruits	Observation	1:Macro 2:Wide 3:Normal		
19	Size of calyx	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		
20	Length of pedicel	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		
21	Presence of abscission layer on peduncle	10 fruits	Observation	0:Absent 9:Present		

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22	Density of hair on skin	10 fruits	Observation	0:None 1:Extremely few 2:Very few 3:Few 4:Slightly few 5:Intermediate 6:Slightly abundant 7:Abundant 8:Very abundant 9:Extremely abundant		Essential item in the wild species
23	Rate of pleats on shoulder of fruit	20 fruits	Observation	0:None 1:Extremely smooth 2:Very smooth 3:Smooth 4:Slightly smooth 5:Intermediate 6:Slightly rough 7:Rough 8:Very rough 9:Extremely rough		
24	Depression of pedicel area	20 fruits	Observation	1:Depressed 2:Nearly depressed 3:Intermediate 4:Slightly shallow 5:Shallow 6:Very shallow 7:Flat 8:Nearly pointed 9:Pointed		
25	Size of corky area around pedicel scar	20 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		
26	Length of style	20 flowers	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		
27	Shape of pistil scar	20 fruits	Observation			Classified by standard of pistil scar shape
28	Size of pistil scar	20 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		
29	Shape of blossom-end	20 fruits	Observation	1:Indented 3:Flat 5:Slightly pointed 7:Pointed 9:Very pointed		
30	Size of columella	20 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		
31	Puffiness (hollow fruit)	20 fruits	Observation	0:Absent 1:Extremely small 2:Very small 3:Small 4:Slightly small 5:Intermediate 6:Slightly large 7:Large 8:Very large 9:Extremely large		

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32	Color of flesh	20 fruits	Observation	0:White 1:Light green 2:Green 3:Dark green 4:Light yellow 5:Yellow 6:Dark yellow 7:Light red 8:Red 9:Dark red		
33	Thickness of pericarp	20 fruits	Measurement	1:Extremely thin 2:Very thin 3:Thin 4:Slightly thin 5:Intermediate 6:Slightly thick 7:Thick 8:Very thick 9:Extremely thick		
34	Uniformity of fruit size	30 fruits	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		
35	Shade of fruit color	20 fruits	Observation	1:Extremely light 2:Very light 3:Light 4:Slightly light 5:Intermediate 6:Slightly shade 7:Shade 8:Very shade 9:Extremely shade		
36	Color of immature fruit	20 fruits	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		
37	Presence of stripe on fruit	20 fruits	Observation	0:Absent 9:Present		Essential item in the wild species
38	Color of epidermis	10 fruits	Observation	0:Clear 9:Yellow		
39	Type of epidermis	10 fruits	Observation	1:Pubescent 2:Sticky 3:Tough		

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1	Date of maturity	10 plants	Observation	Days (integer)		Number of days from sowing to maturity of the first fruit on the first cluster
2	Maturing habit	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		
3	Rate of fruit setting	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		
4	Resistance to fruit cracking	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		
5	Resistance to Tobacco Mosaic Virus	30 plants	Others	0:Absent 1:Present (Unidentified) 2:Tm/+ 3:Tm/Tm 4:Tm-2/+ 5:Tm-2/Tm-2 6:Tm-2a/+ 7:Tm-2a/Tm-2a 8:Tm-2/Tm-2a		
6	Resistance to Fusarium wilt (Fusarium oxysporum f.lycopersici race 1)	30 plants	Others	0:Absent 9:Present		The resistance is evaluated based on the artificial inoculation or the natural infection in infested fields
7	Resistance to verticillium wilt (Verticillium dahliae)	30 plants	Others	0:Absent 9:Present		The resistance is evaluated based on the artificial inoculation or the natural infection in infested fields

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1	Rate of elongation 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	
2	Resistance to bacterial wilt (<i>Ralstonia solanacearum</i>)	30 plants	Others	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high	The resistance is evaluated based on the artificial inoculation or the natural infection in infested fields
3	Resistance to <i>Corynebacterium michiganense</i> pv. <i>michiganense</i>	30 plants	Others	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high	The resistance is evaluated based on the artificial inoculation or the natural infection in infested fields
4	Resistance to late blight (<i>Phytophthora infestans</i>)	30 plants	Others	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high	The resistance is evaluated based on the artificial inoculation or the natural infection in infested fields
5	Resistance to Fusarium wilt (<i>F.oxysporum</i> f. <i>lycopesici</i> race 2)	30 plants	Others	0:Absent 9:Present	The resistance is evaluated based on the artificial inoculation or the natural infection in infested fields
6	Resistance to Fusarium wilt (<i>F.oxysporum</i> f. <i>lycopesici</i> race 3)	30 plants	Others	0:Absent 9:Present	The resistance is evaluated based on the artificial inoculation or the natural infection in infested fields
7	Resistance to crown and root rot (<i>F,oxysporum</i> f. <i>radicis-lycopersici</i>)	30 plants	Others	0:Absent 9:Present	The resistance is evaluated based on the artificial inoculation or the natural infection in infested fields
8	Resistance to leaf mold type 1 (<i>Cladosporium fulvum</i>)	30 plants	Others	0:Absent 9:Present	The resistance is evaluated based on the artificial inoculation or the natural infection in infested fields

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9	Resistance to leaf mold type 2 (Cladosporium fulvum)	30 plants	Others	0:Absent 9:Present		The resistance is evaluated based on the artificial inoculation or the natural infection in infested fields
10	Resistance to leaf mold type 3 (Cladosporium fulvum)	30 plants	Others	0:Absent 9:Present		The resistance is evaluated based on the artificial inoculation or the natural infection in infested fields
11	Resistance to Brown root rot (Pyrenochaeta lycopersici)	30 plants	Others	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		The resistance is evaluated based on the artificial inoculation or the natural infection in infested fields
12	Resistance to early blight (Alternaria solani)	30 plants	Others	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		The resistance is evaluated based on the artificial inoculation or the natural infection in infested fields
13	Resistance to leaf spot (Stemphylium lycopersici)	30 plants	Others	0:Absent 9:Present		The resistance is evaluated based on the artificial inoculation or the natural infection in infested fields
14	Resistance to root-rot nematodes (Pratylenchus spp.)	30 plants	Others	0:Absent 9:Present		The resistance is evaluated based on the artificial inoculation or the natural infection in infested fields
15	Resistance to root-knot nematodes (Meloidogyne spp.)	30 plants	Others	0:Absent 9:Present		The resistance is evaluated based on the artificial inoculation or the natural infection in infested fields
16	Resistance to aphid	30 plants	Others	0:Absent 9:Present		The resistance is evaluated based on the artificial inoculation or the natural infection in infested fields

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17	Resistance to greenhouse white flies (Trialeurodes vaporariorum)	10 plants	Others	0:Absent 9:Present	The resistance is evaluated based on the artificial inoculation or the natural infection in infested fields
18	Resistance to internal white tissue	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	
19	Resistance to blossom-end rot	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	

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No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Soluble solids content	20 fruits	Measurement	1:<=2% 2:3% 3:4% 4:5% 5:6% 6:7% 7:8% 8:9% 9:>=10%		From mature fruits of the second and third clusters, Brix(%)
2	Titrateable acidity	20 fruits	Measurement	1:<=0.2% 2:0.3% 3:0.4% 4:0.5% 5:0.6% 6:0.7% 7:>=0.8%		From mature fruits of the second and third clusters, Acidity is expressed in % of citric acid.
3	pH	20 fruits	Measurement	1:<=3.9 2:4.0-4.1 3:4.2-4.3 4:4.4-4.5 5:4.6-4.7 6:4.8-4.9 7:>=5.0		From mature fruits of the second and third clusters
4	Flavor	20 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		
5	Use	10 plants	Observation	1:Fresh market 2:Whole packing 3:Juice 4:Concentration 5:Other types of processing 6:Rootstock 9:Other		
6	Yield	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		

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No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Vitamin C content	20 fruits	Measurement	mg/100ml (round to the 1st decimal place)		Mature fruits of the second and third clusters
2	Firmness of flesh (1)	20 fruits	Measurement	g (integer)		Autograph or Push-Pull Scale Unit
3	Firmness of flesh (2)	20 fruits	Measurement	1:<=9 2:10-14 3:15-19 4:20-24 5:25-29 6:30-34 7:35-39 8:40-44 9:>=45		Autograph or Push-Pull Scale Unit
4	Texture	20 fruits	Sensory	1:Mealy 3:Slightly mealy 5:Intermediate 7:Slightly non-mealy 9:Non-mealy		
5	Toughness of skin (1)	10 plants	Measurement	g (integer)		Autograph or Push-Pull Scale Unit
6	Toughness of skin (2)	10 plants	Measurement	1:<=99 g 2:100-124 g 3:125-149 g 4:150-174 g 5:175-199 g 6:200-224 g 7:225-249 g 8:250-274 g 9:>=275 g		Autograph or Push-Pull Scale Unit
7	Yield (1)	10 plants	Measurement	kg/a (integer)		Yield of mature fruits
8	Yield (2)	10 plants	Measurement	1:<=99 kg/a 2:100-199 kg/a 3:200-399 kg/a 4:400-599 kg/a 5:600-799 kg/a 6:800-999 kg/a 7:1000-1119 kg/a 8:1200-1399 kg/a 9:>=1400 kg/a		Yield of mature fruits (kg/a)