

Plant		Garden asparagus		448	Primary essential character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Plant height	10 plants	Measurement	cm (integer)		Measure the plant height of 10 plants around 1 month after mother stalks' development
2	Stalk thickness	10 plants	Measurement	mm (integer)		Measure the stalk thickness of 10 plants around 1 month after mother stalks' development
3	Stalk internode length	10 plants	Measurement	mm (integer)		Measure internode length between the first and fifth branches of the largest stalk around 1 month after mother stalks' development
4	Stalk number	10 plants	Measurement	(integer)		Number of stalks per plant around 1 month after mother stalks' development
5	Spear thickness	10 plants	Measurement	mm (integer)		Obtain data at the peak harvest time
6	Spear color	10 plants	Observation	1:White 2:Yellowish green 3:Light green 4:Green		At peak harvest time
7	Spear head shape	10 plants	Observation	3:Round 4:Slightly round 5:Intermediate 6:Slightly sharp 7:Sharp		At peak harvest time
8	Spear head tightness	10 plants	Observation	1:Extremely loose 2:Very loose 3:Loose 4:Slightly loose 5:Intermediate 6:Slightly tight 7:Tight 8:Very tight 9:Extremely tight		At peak harvest time
9	Time of spear bud break	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		Record the time when the buds on the spear start to grow rapidly
10	Ratio of male plants	20 plants	Measurement	% (integer)		Obtain data at the peak flowering time
11	Earliness of spear emergence	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		
12	First branch height	10 plants	Measurement	cm (integer)		Measure the height of the first branch of 10 plants around 1 month after mother stalks ' development

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1	Seed weight	200 seeds	Measurement	mg (integer)		
2	Germination	200 seeds	Measurement	% (integer)	Germinate seeds for 28 days under diurnal temperatures of 30 centi degrees for 16 hours and 20 centi degrees for 8 hours	
3	Germination time	200 seeds	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		
4	Spear hardness	20 plants	Observation	1:Extremely soft 2:Very soft 3:Soft 4:Slightly soft 5:Intermediate 6:Slightly hard 7:Hard 8:Very hard 9:Extremely hard	Measure at peak harvest time	
5	Spear uniformity	20 plants	Observation	1:Extremely poor 2:Very poor 3:Poor 4:Slightly poor 5:Intermediate 6:Slightly uniform 7:Uniform 8:Very uniform 9:Extremely uniform	Measure at peak harvest time	
6	Spear number	10 plants	Measurement	(integer)	Number of spears per plant	
7	Spear color (anthocyanin)	20 plants	Observation	1:None 2:Very little 3:Little 4:Slightly little 5:Intermediate 6:Some 7:Much 8:Very much 9:Extremely much	Anthocyanin expression in typical spears	
8	Spear tip color	20 plants	Observation	1:White 2:Cream 3:Yellowish green 4:Purple green 5:Greenish purple 6:Dark purple	Anthocyanin expression in typical spear heads	
9	Scale leaf length	20 scale leaves	Measurement	mm (integer)	In typical spears	
10	Scale leaf width	20 scale leaves	Measurement	mm (integer)	In typical spears	
11	Scale leaf color	20 plants	Observation	1:White 2:Cream 3:Yellowish green 4:Purple green 5:Greenish purple 6:Dark purple	In typical spears	
12	Cladophyll length	20 cladophylls	Measurement	mm (integer)	In typical stalks	

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13	Cladophyll color	20 plants	Observation	1:Extremely light green 2:Very light green 3:Light green 4:Slightly light green 5:Intermediate 6:Slightly dark green 7:Dark green 8:Very dark green 9:Extremely dark green		In typical stalks
14	Cladophyll density	20 plants	Observation	1:Extremely thin 2:Very thin 3:Thin 4:Slightly thin 5:Intermediate 6:Slightly dense 7:Dense 8:Very dense 9:Extremely dense		In typical stalks
15	Bisexual flowers	100 plants	Measurement	% (integer)		Obtain data at the peak flowering time
16	Time of flowering	20 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		
17	Number of male flowers	20 plants	Observation	1:Extremely few 2:Very few 3:Few 4:Slightly few 5:Intermediate 6:Some 7:Many 8:Very many 9:Extremely many		Obtain data at the peak flowering time
18	Number of female flowers	20 plants	Observation	1:Extremely few 2:Very few 3:Few 4:Slightly few 5:Intermediate 6:Some 7:Many 8:Very many 9:Extremely many		Obtain data at the peak flowering time
19	Number of seeds per berry	20 plants	Observation	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 maturity
20	Berry size	20 berries	Measurement	mm (integer)		Observe at maturity
21	Berry color	20 plants	Observation	1:Other 3:Light brown 4:Slightly light brown 5:Brownish red 6:Red 7:Dark red 8:Very dark red 9:Extremely dark red		Observe at maturity
22	Ploidy level in purple cultivar	5 plants	Observation	1:Diploid 2:Triploid 3:Tetraploid		Observe chromosomes in purple cultivar
23	Amount of fiber in spears in summer	10 spears	Observation	1:Extremely poor 2:Very poor 3:Poor 4:Slightly poor 5:Intermediate 6:Some 7:Many 8:Very many 9:Extremely many		Observe by cutting spears in summer

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1	Stem blight resistance	50 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 Stemphylium botryosum W.	50 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		
3	Resistance to rust	50 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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1	Chilling requirement for uniform sprouting	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		Observe uniformity in spear emergence in forcing culture
2	Color quality at low light intensity	20 plants	Observation	1:Extremely pale 2:Very pale 3:Pale 4:Slightly pale 5:Intermediate 6:Slightly good 7:Good 8:Very good 9:Excellent		Observe spear coloration under mother stalks in summer
3	Lodging tolerance	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		
4	Resistance to Violet root 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		
5	Resistance to Fusarium oxysporum S.	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		
6	Resistance to Sclerotium sp.	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		
7	Resistance to Rust	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		
8	Resistance to Crown 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		
9	Spear elongation under low temperature	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		Spear elongation under low temperature
10	Heat tolerance	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		Head tightness and spear coloration under high temperature
11	Winter survival	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		

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12	Drought tolerance	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		
13	Tolerance to excess moisture	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		