

Plant		Tea		98(10001)	Primary essential character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Plant shape	Block	Observation	3:Erect 4:Semi-erect 5:Intermediate 6:Semi-spreading 7:Spreading		Shape of 2-3 years old stock. Erect:Yabukita, intermediate:Okumidori, spreading:Kanayamidori
2	Plant size	Block	Observation	2:Very small 3:Small 4:Slightly small 5:Intermediate 6:Slightly large 7:Large 8:Very large		Form of 4-5 years old stock. Small:Himemidori, intermediate:Yabukita, large:Hatsumomiji
3	Earliness of sprouting	Block	Observation	2:Very early 3:Early 4:Slightly early 5:Intermediate 6:Slightly late 7:Late 8:Very late		Based on the day when sprouting rate exceeds 70%. Early:Yutakamidori, intermediate:Yabukita, late:Okumidori
4	Color of leaf on new shoot (chlorophyll)	10 leaves	Observation	0:White 1:Yellow 2:Greenish yellow 3:Yellowish green 4:Pale green 5:Green 6:Slightly deep green 7:Deep green 8:Green brown 9:Purple		Color of the third leaf from the top of shoot (all characters of new leaf should be inspected at plucking of the first crop). Yellowish green:Yaeho, green:Yabukita, deep green:Sayamamidori
5	Anthocyanin pigmentation of new leaf	10 leaves	Observation	0:Absent 3:Faint 4:Slightly faint 5:Intermediate 6:Slightly heavy 7:Heavy 9:Red		Anthocyanin pigmentation of the third leaf from the top of shoot. Faint:Hatsumomiji, intermediate:Yabukita, heavy:Benihomare
6	Pubescent part of leaves of new shoot	10 leaves	Observation	0:Absent 1:Midrib 2:Midrib and nearby 3:1/3 of leaf 5:1/2 of leaf 7:2/3 of leaf 9:Full		Pubescent part of leaves of the first crop. None:Taiwanyamacha 1, midrib:KNA Ay19, midrib and nearby:KNA Ay93, 1/2 of leaf:Ail, full:Yabukita
7	Length and density of trichomes on leaves of new shoot	10 leaves	Observation	0:Absent 1:Short low 2:Short medium 3:Short high 4:Intermediate low 5:Intermediate medium 6:Intermediate high 7:Long low 8:Long medium 9:Long high		Absent:Taiwanyamacha 1, short*low:Ak124, short*medium:KNA Cd47, short*high:Ak1658, intermediate*low:Ail08, intermediate*medium:Kanaya 12, intermediate*high:Ooiwase, long*low:Benitachiwase, long*medium:Yutakamidori, long*high:Yabukita

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8	Length of mature leaf	10 leaves	Measurement	cm (round to the 1st decimal place)		Leaf length of middle part leaf of the branch after the end of spring growth (all characters of mature leaves should be inspected using leaves attaching to the branch)
9	Shape of mature leaf	10 leaves	Measurement	(round to the 2nd decimal place)		Ditto. Calculated from leaf length/leaf width (shape factor)
10	Length of apex of mature leaf	10 leaves	Observation	0:Absent 3:Short 4:Slightly short 5:Intermediate 6:Slightly long 7:Long 8:Very long		Ditto. Absent:Asatsuyu, short:Yabukita, intermediate:Hatsumomiji, long:Ai2
11	Color of mature leaf	10 leaves	Observation	1:Yellow 2:Greenish yellow 3:Yellowish green 4:Pale green 5:Green 6:Slightly deep green 7:Deep green 8:Green brown 9:Other		Ditto. Yellowish green:Hatsumomiji, green:Okumidori, deep green:Kanayamidori, other:variegated, etc.

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No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Width of mature leaf	10 leaves	Measurement	cm (round to the 1st decimal place)		Ditto
2	Gloss of mature leaf	10 leaves	Observation	0:Absent 3:Weak 4:Slightly weak 5:Intermediate 6:Slightly strong 7:Strong		Ditto
3	Length of new leaf	10 leaves	Measurement	cm (round to the 1st decimal place)		The third leaf from the top of a shoot
4	Toughness of new leaf	10 leaves	Observation	3:Soft 4:Slightly soft 5:Intermediate 6:Slightly hard 7:Hard		The third leaf from the top of a shoot. Judge by the hand touch. Intermediate:Yabukita
5	Gloss of new leaf	10 leaves	Observation	2:Very weak 3:Weak 4:Slightly weak 5:Intermediate 6:Slightly strong 7:Strong 8:Very strong		The third leaf from the top of a shoot
6	Flower diameter	10 flowers	Measurement	cm (round to the 1st decimal place)		Flower diameter at full bloom
7	Flower color	10 flowers	Observation	0:White 1:Milky white 2:Greenish white 3:Pale green 4:Pale yellow 5:Yellow 6:Pale pink 7:Pink 8:Red 9:Other		Flower color at full bloom
8	Number of branches	Block	Obs.&Mear.	2:Extremely few 3:Very few 4:Few 5:Intermediate 6:Many 7:Very many 8:Extremely numerous		Number of branches of 2-3-years-old stock at winter rest. Intermediate:Yabukita
9	Internode length	10 samples	Obs.&Mear.	2:Very short 3:Short 4:Slightly short 5:Intermediate 6:Slightly long 7:Long 8:Very long		Internode length of middle part of branch at the end of spring growth. Intermediate:Yabukita
10	Shoot thickness	10 samples	Obs.&Mear.	2:Very thin 3:Thin 4:Slightly thin 5:Intermediate 6:Slightly thick 7:Thick 8:Very thick		Stem diameter of middle part of branch at the end of spring growth. Intermediate:Yabukita
11	Relative pistil height	10 flowers	Observation	3:S 5:M 7:L		Comparison of height between pistil and stamens. S:pistil < stamens, M:pistil = stamens, L:pistil > stamens. S:Yabukita, M:Sayamakaori, L:Okumidori
12	Number of style branches	10 flowers	Measurement	(round to the 1st decimal place)		Number of style branches

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13	Level of style branching point	10 flowers	Obs.&Measr.	3:Deep 5:Intermediate 7:Shallow		Level of style branching point. Deep:Yabukita, intermediate:Sayamamidori, shallow:Surugawase
14	Number of constricted styles	10 flowers	Observation	0:Absent 5:Some 9:All		Number of constricted styles. Absent:Yabukita, some:Okumusashi, all:Okumidori
15	Ovary hair	10 flowers	Observation	0:Absent 2:Extremely few 3:Very few 4:Slightly few 5:Intermediate 6:Slightly abundant 7:Very abundant 8:Extremely abundant		Number of ovary hair. Abundant:Yabukita
16	Thickness of mature leaf	10 leaves	Measurement	Micrometer (integer)		Mesophyll thickness between lateral veins at the central part of leaf on the middle of a branch after the end of spring flush

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No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Time of the first crop	Block	Observation	2:Very early 3:Early 4:Slightly early 5:Intermediate 6:Slightly late 7:Late 8:Very late		Judging from the day when banjhi exceeds 70% of shoot or open leaf content exceeds three. Early:Yutakamidori, intermediate:Yabukita, late:Okumidori
2	End of growing season	Block	Observation	2:Very early 3:Early 4:Slightly early 5:Intermediate 6:Slightly late 7:Late 8:Very late		Judging from the day when autumnal growth ends. Early:Sayamakaori, intermediate:Yabukita, late:Okumidori
3	Ratio of taking root of cutting	100 samples, 2 replications	Measurement	% (round to the 1st decimal place)		Investigate during winter resting period of the first year of cutting
4	Spread of tree	Block	Measurement	cm (integer)		Width of hedge across the widest part of hedge row in hedge cultured garden (investigate at the 6th year after planting)
5	Tolerance to frost damage	10 samples, 2 replications	Observation	2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high		Freezing resistance at the coldest season. Branches 10-15 cm long are kept around -9--15 centi degree for 2 hours, then kept in a room (10 centi degree) for 1-2 days, and judged by browning of leaf or stem cambium. Slightly low:Hatsumomiji, slightly high:Asatsuyu, high:Yabukita
6	Tolerance to bark split frost injury	10 samples, 2 replications	Observation	2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high		Insert defoliated scions (10-20 cm) to wet soil, then lower temperature to -3--5 centi degree and keep, judging from ratio of bark split injury or browning of cambium. Low:Okumusashi, slightly high:Yabukita, high:Kanayamidori

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7	Resistance to anthracnose	10 samples, 2 replications	Observation	2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high		Judging from the response to artificial inoculation or the observation of field susceptibility, spray conidia suspension and keep 2 days at 100% RH, wait 3-4 week for the observation. Low:Yabukita, intermediate:Kanayamidori, high:Yamatomidori
8	Resistance to gray blight	10 samples, 2 replications	Observation	2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high		Judging from the response to artificial inoculation or the observation of field susceptibility, observe the results of the inoculation of conidia to scratched leaves of the same age on 15 days after. Low:Yabukita, intermediate:Yamakai, high:Yamatomidori

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No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Tolerance to cold wind tolerance	Block	Observation	2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high		Judging from field injury by cold wind at low temperature. Low:Asatsuyu, intermediate:Yabukita, high:Okumusashi
2	Resistance to net blister blight	Block	Observation	2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high		Judging from field inspection
3	Resistance to blister blight	Block	Observation	2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high		Judging from field inspection
4	Resistance to bacterial shoot blight	Block	Observation	2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high		Judging from field inspection
5	Resistance to Kanzawa spider mite	Block	Observation	2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high		Judging from field inspection

Plant		Tea		98(10001)	Tertiary essential character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Length of plucked new shoot	20 samples, 2 replications	Measurement	cm (round to the 1st decimal place)		Stem length from base to just under folded leaf of plucked bud (the first crop)
2	Number of leaves on plucked new shoot	20 samples, 2 replications	Measurement	Number (round to the 1st decimal place)		Leaf number of plucked bud (the first crop)
3	Stem thickness of plucked new shoot	20 samples, 2 replications	Measurement	mm (integer)		Stem diameter of plucked bud (the first crop)
4	Number of plucked new shoots	2 replications	Measurement	(round to the 1st decimal place)		Quadrate (30 cm x 30 cm) plucking, count the number of shoots that have at least two leaves over plucking surface
5	Weight of plucked new shoots	2 replications	Measurement	g (round to the 1st decimal place)		Weight of 100 shoots or calculate this by counting number of shoots in 30 g of plucked shoots (exclude fragmented leaves)
6	Rate of banjhi shoots	2 replications	Measurement	% (round to the 1st decimal place)		Ratio of banjhi bud in plucked shoots. Measurement should be done at the same time as the measurement of number of plucked new shoots.
7	Growth uniformity of new shoots	Block	Observation	3:Bad 4:Slightly bad 5:Intermediate 6:Slightly good 7:Good		Uniformity of the first crop
8	Total nitrogen	2 replications	Measurement	% (round to the 2nd decimal place)		Analyze plucked shoots (Ikegaya et al., Tea Res. J.:71, 1990)
9	Amino acids content	2 replications	Measurement	% (round to the 2nd decimal place)		Analyze plucked shoots (Ikegaya et al., Tea Res. J.:71, 1990)
10	Caffeine content	2 replications	Measurement	% (round to the 2nd decimal place)		Analyze plucked shoots (Ikegaya et al., Tea Res. J.:71, 1990)

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11	Tannin content	2 replications	Measurement	% (round to the 2nd decimal place)		Analyze plucked shoots (Ikegaya et al., Tea Res. J.:71, 1990)

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No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Yield (1st crop)	Block	Measurement	kg/a (round to the 1st decimal place)		Yield of the 6th year after planting
2	Aroma	2 replications	Sensory	3:Bad 4:Slightly bad 5:Intermediate 6:Slightly good 7:Good		If the sample has pungent, fresh, and bouquet flavor, the grade is good (green tea)
3	Color of liquid	2 replications	Sensory	3:Bad 4:Slightly bad 5:Intermediate 6:Slightly good 7:Good		If liquid is not weak, red, blackish and dull color, and without sediment, the grade is good (green tea)
4	Taste	2 replications	Sensory	3:Bad 4:Slightly bad 5:Intermediate 6:Slightly good 7:Good		If the sample has good body and pungent taste, the grade is good (green tea)
5	Fermentation ability	2 replications	Observation	0:None 2:Very bad 3:Bad 4:Slightly bad 5:Intermediate 6:Slightly good 7:Good 8:Very good		Chloroform test. Bad:Hatsumomiji, intermediate:Benitachiwase, good:Benihomare
6	Suitability for tea products	Block	Others	1:Tencha 2:Gyokuro 4:Sencha 5:Kamairicha 6:Tamaryokucha 7:Semi-fermented 8:Black tea 9:Other		
7	Geraniol/linalool index in essential oil	2 replications	Measurement	(round to the 1st decimal place)		Calculated from gas-chromatografic measurement of geraniol (G) and linalol (L) using the formula, $L/(G+L)$