

Plant		Rhododendron		452	Primary essential character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Number of flowers per flower bud	5 flower buds	Measurement	(round to the 1st decimal place)		Measure at flowering stage
2	Leaf length of spring leaf	5 leaves	Measurement	mm (integer)		Measure in summer
3	Hairiness of dorsal surface of spring leaf	5 leaves	Observation	1:Very sparse 3:Sparse 5:Intermediate 7:Dense 9:Very dense		Amount of pubescence and glandular hair of dorsal surface. Sparse: Gofuku (Kurume), Dense: Shiroryukyu
4	Glossiness of adaxial surface of spring leaf	5 leaves	Observation	0:Absent 1:Very weak 3:Weak 5:Intermediate 7:Strong		Glossiness of adaxial surface of spring leaves in summer. Weak: Imashoujou (Kurume), Strong: Oosakazuki (Satsuki)
5	Time of flowering	3 plants	Observation			Time when 80% of all plants have flowered. First ten days=E, middle ten days=M, the last ten days=L
6	Corolla tube length	5 flowers	Measurement	mm (integer)		Measure at flowering stage
7	Corolla lobe length	5 flowers	Measurement	mm (integer)		Observe at flowering stage. Central lobe in upper half of corolla
8	Corolla lobe width	5 flowers	Measurement	mm (integer)		Measure at flowering stage. Central lobe in upper half of corolla
9	Color of flower	5 flowers	Measurement			Refer to the RHS color chart at flowering stage
10	Amount of blotches	5 flowers	Observation	0:Absent 1:Very low 3:Low 5:Intermediate 7:High		Observe at flowering stage. Low: only central lobe in upper half of corolla, High: entire upper half of corolla
11	Color of blotches	5 flowers	Measurement			Refer to the RHS color chart at flowering stage

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12	Hairiness of ovary	5 flowers	Observation	0:Absent 1:Very sparse 3:Sparse 5:Intermediate 7:Dense	Observed at flowering stage. Sparse: Kirin (Kurume), Dense: Gofuku (Kurume)
13	Type of flower	5 flowers	Observation	1:Single 3:Semi-double 5:Single, hose in hose 7:Semi-double, hose in hose 9:Double and double hose-in hose	Observed at flowering stage

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1	Tree form	3 plants	Observation	3:Spreading 5:Intermediate 7:Erect		Time of growth cessation in autumn
2	Tree height	3 plants	Observation	3:Dwarf 5:Intermediate 7:High		Plant age is at least 5 years. Dwarf: R. kiusianum, High: over 1.5m
3	Circumference of biennial branch	5 branches	Observation	3:Small 5:Intermediate 7:Large		Time of cessation of outward growth in autumn. Small: Gofuku (Kurume), Large: Oomurasaki
4	Color of young shoot	5 shoots	Observation	1:White 3:Green 5:Red 7:Reddish brown 9:Brown		Time of bud break in spring
5	Density of primary scaffold branches	3 plants	Observation	3:Sparse 5:Intermediate 7:Dense		Time of growth cessation in autumn. Sparse: Oomurasaki, Dense: Imashoujou (Kurume)
6	Density of twigs	3 plants	Observation	3:Sparse 5:Intermediate 7:Dense		Time of growth cessation in autumn. Sparse: Oomurasaki, Dense: Imashoujou (Kurume)
7	Pubescence of young shoot	5 shoots	Observation	3:Sparse 5:Intermediate 7:Dense		Observe in spring. Intermediate: Gofuku (Kurume), Dense: Shiroryukyu
8	Serration of spring leaf	5 leaves	Observation	3:Entire 5:Lobed 7:Parted		Observe in summer
9	Curvature of spring leaf	5 leaves	Observation	3:Incurving 5:Straight 7:Reflexing		Observe in summer
10	Undulation of margin	5 leaves	Observation	3:Slightly undulate 5:Intermediate 7:Remarkably undulate		Observe in summer. Slightly undulate: Gofuku (Kurume), Remarkably: Pink Joy (Belgian)
11	Shape of midrib cross-section	5 leaves	Observation	3:Concave 5:Flat 7:Convex		Observe in summer
12	Twisting of spring leaf	5 leaves	Observation	3:Weak 5:Intermediate 7:Strong		Observe in summer. Weak: Gofuku (Kurume), Strong: Shinkyō (Belgian)
13	Shape of leaf apex	5 leaves	Observation	3:Apiculate 5:Intermediate 7:Obtuse		Observe in summer. Apiculate: Oosakazuki (Satsuki), Obtuse: Fukuju (Kurume)

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14	Color of spring leaf	5 leaves	Measurement			Refer to the RHS color chart. Measure in summer
15	Color of autumn leaf	5 leaves	Measurement			Refer to the RHS color chart. Measure in winter
16	Thickness of spring leaf	5 leaves	Measurement	mm (round to the 1st decimal place)		Measure in summer
17	Pubescence type of adaxial surface of spring leaf	5 leaves	Observation	3:Flat 5:Simple 7:Wavy		Observe in summer
18	Glandular hair of dorsal surface of spring leaf	5 leaves	Observation	0:Absent 9:Present		Observe in summer
19	Amount of pubescence of dorsal surface of spring leaf	5 leaves	Observation	3:Sparse 5:Intermediate 7:Dense		Observe in summer. Sparse: Kirin (Kurume), Dense: Shiroryukyu
20	Pubescence type of dorsal surface of spring leaf	5 leaves	Observation	3:Flat 5:Simple 7:Wavy		Observe in summer
21	Thickness of summer leaf	5 leaves	Measurement	mm (round to the 1st decimal place)		Measure in winter
22	Pubescence type of adaxial surface of summer leaf	5 leaves	Observation	3:Flat 5:Simple 7:Wavy		Observe in winter
23	Pubescence type of dorsal surface of summer leaf	5 leaves	Observation	3:Flat 5:Simple 7:Wavy		Observe in winter

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24	Amount of pubescence of dorsal surface of summer leaf	5 leaves	Observation	3: Sparse 5: Intermediate 7: Dense		Observe in winter. Sparse: Kirin (Kurume), Dense: Shiroryukyu
25	Pubescence color of adaxial surface of spring leaf	5 leaves	Observation	3: White 5: Brown 7: Black		Observe in summer
26	Pubescence color of dorsal surface of spring leaf	5 leaves	Observation	3: White 5: Brown 7: Black		Observe in summer
27	Pubescence color of adaxial surface of summer leaf	5 leaves	Observation	3: White 5: Brown 7: Black		Observe in winter
28	Glandular hair of dorsal surface of summer leaf	5 leaves	Observation	0: Absent 9: Present		Observe in winter
29	Pubescence color of dorsal surface of summer leaf	5 leaves	Observation	3: White 5: Brown 7: Black		Observe in winter
30	Waxiness of adaxial surface of summer leaf	5 leaves	Observation	0: Absent 9: Present		Observe in winter
31	Waxiness of dorsal surface of summer leaf	5 leaves	Observation	0: Absent 9: Present		Observe in winter
32	Waxiness of petiole of summer leaf	5 leaves	Observation	0: Absent 9: Present		Observe in winter
33	Attitude of spring leaf	5 leaves	Observation	3: Semi-upwards 5: Horizontal 7: Drooping		Observe in summer

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34	Attitude of summer leaf	5 leaves	Observation	3:Semi-upwards 5:Horizontal 7:Drooping		Observe in winter
35	Type of flower bud	5 flower buds	Observation	2:Terminal 5:Terminal and lateral 8:Lateral		Observe in winter
36	Attitude of flower	5 flowers	Observation	3:Erect 5:Horizontal 7:Drooping		Observe from horizontal level at flowering stage
37	Shape of flower bud	5 buds	Observation	3:Acute 5:Elliptic 7:Round		Observe in winter
38	Incision of corolla lobe	5 flowers	Observation	3:Weak 5:Intermediate 7:Strong		Rate of incision for corolla tube. Weak:1/5, Intermediate:1/3, Strong:1/2
39	Symmetry of corolla	5 flowers	Observation	1:Asymmetric 8:Symmetric		Observe at flowering stage
40	Shape of central lobe in upper half of corolla	5 flowers	Observation	1:Linear 2:Lanceolate 3:Ovate 4:Oblanceolate 5:Obovate 6:Semi-elliptic 7:Semi-orbicular		Observe at flowering stage
41	Shape of lobe in lower half of corolla	5 flowers	Observation	1:Linear 2:Lanceolate 3:Ovate 4:Oblanceolate 5:Obovate 6:Semi-elliptic 7:Semi-orbicular		Observe at flowering stage
42	Shape of apex of corolla lobe	5 flowers	Observation	3:Concave 5:Flat 7:Convex		Observe at flowering stage
43	Overlapping of corolla lobe	5 flowers	Observation	1:Not overlapping 3:Touching 5:Intermediate 7:Overlapping		Observe from side of corolla tube at flowering stage
44	Incision of corolla lobe margin	5 flowers	Observation	0:Absent 9:Present		Observe at flowering stage
45	Undulation of corolla lobe	5 flowers	Observation	0:Absent 3:Weak 5:Intermediate 7:Strong		Observe at flowering stage. Weak: Oomurasaki, Strong: Leopold (Belgian)
46	Pubescence of dorsal surface of corolla lobe	5 flowers	Observation	0:Absent 9:Present		Observe at flowering stage

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47	Pubescence of adaxial surface of corolla lobe	5 flowers	Observation	0:Absent 9:Present		Observe at flowering stage
48	Scaly hair of corolla lobe	5 flowers	Observation	0:Absent 9:Present		Observe at flowering stage
49	Diameter of flower	5 flowers	Measurement	mm (integer)		Observe at flowering stage
50	Corolla width	5 flowers	Measurement	mm (integer)		Width of corolla from side to side at flowering stage
51	Corolla length	5 flowers	Measurement	mm (integer)		Length of corolla from the base to top at flowering stage
52	Type of flower color	3 plants	Observation	1:Single-colored 2:Plural		Observe at flowering stage
53	Variegation of flower color	3 plants	Observation	0:Absent 3:Weak 5:Intermediate 7:Strong		Observe at flowering stage. Weak: Asahinishiki (Kurume), Strong: Gunki (Kurume)
54	Margin of contrasting flower color	3 plants	Observation	0:Absent 3:White throat 5:White jewel spot 7:White fingernail		Observe at flowering stage
55	Jewel-border of flower color	3 plants	Observation	0:Absent 9:Present		Observe at flowering stage
56	Fingernail of flower color	3 plants	Observation	0:Absent 9:Present		Observe at flowering stage
57	Pattern of light and shade of flower color	3 plants	Observation	0:Absent 9:Present		Observe at flowering stage
58	Change of flower color	3 plants	Observation	0:Absent 9:Present		Change in flower color from beginning of flowering to full bloom
59	Hue of flower core	5 flowers	Observation	3:Bright 5:Same 7:Dull		Observe at flowering stage

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No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
60	Variation of lobe number	5 flowers	Observation	0:Absent 9:Present		Observe at flowering stage
61	Number of corolla lobes	5 flowers	Measurement	0:None 3:5 5:6 7:7 9:>=8		Measure at flowering stage. Excluding petal shape of stamen and calyx
62	Petal shape of stamen	5 flowers	Observation	0:Absent 3:Partly 5:Incomplete 7:Complete		Observe at flowering stage
63	Curvature of stamen	5 flowers	Observation	0:Absent 3:Slight 5:Intermediate 7:Strong		Observe at flowering stage. Slight: Benikirishima, Strong: Asahinosora (Kurume)
64	Glandular hair of stamen	5 flowers	Observation	0:Absent 9:Present		Observe at flowering stage
65	Pubescence length of stamen	5 flowers	Observation	3:Short 5:Intermediate 7:Long		Observe at flowering stage. Short: granular type, Long: Oomurasaki
66	Number of stamens	5 flowers	Measurement	(integer)		Measure at flowering stage
67	Length of stamen	5 flowers	Observation	3:Shorter 5:Same 7:Longer		Compare stamen with corolla at flowering stage
68	Color of filament	5 flowers	Observation	0:White 2:Yellow 4:Red 6:Reddish purple 8:Purple		Observe at flowering stage
69	Color of anther	5 flowers	Observation	0:White 2:Yellow 4:Brown 6:Purple 8:Red		Observe at flowering stage
70	Petal development of pistil	5 flowers	Observation	3:Absent 7:Developed		Observe at flowering stage
71	Glandular hair of ovary	5 flowers	Observation	0:Absent 9:Present		Observe at flowering stage
72	Length of pistil	5 flowers	Observation	3:Shorter 5:Same 7:Longer		Compare pistil with stamen at flowering stage
73	Color of style	5 flowers	Observation	0:White 2:Yellow 3:Light green 4:Light red 5:Red 6:Light purple 7:Purplish red 8:Purple		Observe at flowering stage

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No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
74	Color of stigma	5 flowers	Observation	0:White 2:Yellow 3:Light green 4:Light red 5:Red 7:Purplish red 8:Purple		Observe at flowering stage
75	Glandular hair of style	5 flowers	Observation	0:Absent 9:Present		Observe at flowering stage
76	Color of flower bud scale	5 flower buds	Observation	1:Green 5:Red 8:Brown		Observe in winter
77	Overlapping of flower bud scale	5 flower buds	Observation	0:No overlapping 9:Overlapping		Observe before flowering
78	Presence of hose in hose	5 flowers	Observation	0:Absent 9:Present		Observe at flowering stage
79	Degree of hose in hose	5 flowers	Observation	3:Small 4:Slightly small 5:Intermediate 6:Slightly large 7:Large		Observe at flowering stage. Small: Short skirt (Mino), Intermediate: skirt (Koshimino), Large: twofold
80	Coalescence of calyx with base of corolla	5 flowers	Observation	0:Absent 9:Present		Observe at flowering stage
81	Number of calyxes	5 flowers	Measurement	3:5 5:6 7:7 9:>=8		Observe at flowering stage
82	Differences in calyx size	5 flowers	Observation	0:Absent 9:Present		Observe at flowering stage
83	Shape of calyx	5 flowers	Observation	1:Prominent 3:Orbicular 5:Lanceolate 7:Serrate		Observe at flowering stage
84	Calyx length	5 flowers	Measurement	mm (round to the 1st decimal place)		Observe at flowering stage
85	Calyx width	5 flowers	Measurement	mm (round to the 1st decimal place)		Observe at flowering stage
86	Coloration of calyx margin	5 flowers	Observation	0:Absent 9:Present		Observe at flowering stage
87	Pubescence of calyx	5 flowers	Observation	0:Absent 9:Present		Observe at flowering stage

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88	Glandular hair of calyx	5 flowers	Observation	0:Absent 9:Present	Observe at flowering stage
89	Pedicel length	5 flowers	Measurement	mm (integer)	Observe at flowering stage
90	Pedicel width	5 flowers	Measurement	mm (round to the 1st decimal place)	Observe at flowering stage

Plant		Rhododendron		452	Secondary essential character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Time of leaf fall	3 plants	Observation			Time of month when leaves developed in spring fall. First ten days=E, middle ten days=M, the last ten days=L
2	Length of flowering time	3 plants	Measurement	days (integer)		Length of time from 10% to 90% of plants have flowered
3	Cold hardiness	10 flower buds	Measurement	2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high		Degree of browning and dying of florets in flower buds in winter. Low: 70%, Intermediate: 40%, High: less than 10%
4	Resistance to Earias roseifera	10 flower buds	Measurement	2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high		Degree of damage to flower buds in autumn. Low: 70%, Intermediate: 40%, High: less than 10%
5	Resistance to Anthracnose	3 plants	Observation	2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high		Degree of occurrence in spring and summer. Low: 70%, Intermediate: 40%, High: less than 10%
6	Resistance to Ovulinia petal blight	3 plants	Observation	2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high		Degree of occurrence after rainfall or watering at flowering stage. Low: 70%, Intermediate: 40%, High: less than 10%
7	Resistance to disease common to propagation	10 cuttings	Measurement	2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high		Degree of occurrence from spring to autumn. Low: 70%, Intermediate: 40%, High: less than 10%

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No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Time of sprouting	3 plants	Observation			Time of month when bud break begins. E=first ten days, M=middle ten days, L=the last ten days
2	Autumn-flowering ability	3 plants	Observation	0:None 2:Very weak 3:Weak 4:Slightly weak 5:Intermediate 6:Slightly strong 7:Strong 8:Very strong		Degree of flowering shoot from September to December. Weak:10%, Intermediate:40%, Strong:70%
3	Heat tolerance	3 plants	Observation	2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high		Degree of growth damage under high temperature in summer. Low: occurrence of dying, Intermediate: arrest of flower bud formation, High: normal growth. Slightly weak: R. japonicum, Strong: Oosakazuki (Satsuki)
4	Drought tolerance	3 plants	Observation	2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high		Degree of growth damage under drought condition in all season. Low: occurrence of dying, Intermediate: occurrence of dead leaves, High :occurrence of dead buds
5	Resistance to lace bug	3 plants	Observation	2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high		Degree of damage at the time of occurrence. Low: 70%, Intermediate: 40%, High: less than 10%
6	Resistance to white fly	3 plants	Observation	2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high		Degree of infestation at the time of occurrence. Low: 70%, Intermediate: 40%, High: less than 10%
7	Resistance to Anthracnose leaf spot	3 plants	Observation	2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high		Degree of damage at the time of occurrence(mainly early spring and the rainy season). Low: 70%, Intermediate: 40%, High: less than 10%

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8	Forcing ability	5 plants	Measurement	days (integer)		Length between the day when plants are put in heat room kept at the minimum night temperature of 10 centi degrees, and the day of flowering.
9	Cutting productivity	10 branches	Measurement	Number (integer)		Number of cuttings per biennial branch in all seasons
10	Rooting ability	10 cuttings	Measurement	Number (integer)		Use current shoots for cuttings. Measure the number of adventitious roots (more than 1 mm long) per cutting two months after planting

Plant	Rhododendron	452	Tertiary essential character		
No	Characters	No. of samples	Methods	Rank or measurement unit	Remarks
1	Regenerative shoot length	20 branches	Measurement	cm (integer)	After pruning