Plant	Red clover	467	Primary essential character

No	Characters	No. of samples	Methods	Rank or measurement unit	Remarks
1	Plant habit	10 plants, 2 replications	Observation	1:Erect 2:Nearly erect 3:Semi-erect 4:Slightly semi-erect 5:Intermediate 6:Slightly intermediate 7:Semi-prostrate 8:Nearly prostrate 9:Prostrate	Angles that outer stems make with the ground at flower budding stage
2	Plant length	10 plants, 2 replications	Measurement	cm (integer)	Plant length from the ground to the tip of plant at flowering time
3	Stem thickness	10 plants, 2 replications	Measurement	mm (round to the 1st decimal place)	Diameter of the middle part of stem
4	Hairiness	10 plants, 2 replications	Observation	0:None 1:Extremely little 2:Very little 3:Little 4:Slightly little 5:Intermediate 6:Slightly abundant 7:Abundant 8:Very abundant 9:Extremely abundant	Amount of pubescences on the internode just below flower stalk
5	Leaflet length	10 plants, 2 replications	Measurement	mm (integer)	Length of the middle leaflet of the biggest leaf at flowering time
6	Leaflet width	10 plants, 2 replications	Measurement	mm (integer)	Width of the middle leaflet of the biggest leaf at flowering
7	Clearness of leaf water mark	10 plants, 2 replications	Observation	0:None 1:Extremely vague 2:Very vague 3:Vague 4:Slightly vague 5:Intermediate 6:Slightly clear 7:Clear 8:Very clear 9:Extremely clear	Presence and clearness of leaf water mark
8	Flowering date	10 plants, 2 replications	Observation	date	Date when 50% of plants have 3 flowering heads
9	Flower color	10 plants, 2 replications	Observation	1:White 2:Extremely light red 3:Light red 4:Slightly light red 5:Red 6:Slightly dark red 7:Dark red 9:Other	Color of flower just after flowering

Plant	Red clover	467	Primary optional character

No	Characters	No. of samples	Methods	Rank or measurement unit	Remarks
1	Ploidy	10 plants, 2 replications	Observation	1:Diploid 3:Tetraploid 5:Other ploidy	Chromosome counting or measurement by flow cytometry
2	Tendency to flower in the year of sowing	10 plants, 2 replications	Observation	1:Rosettes only 2:Extremely few no-flowering stems 3:Extremely Few flowering stems 4:Slightly many no-flowering stems 5:Few flowering stems 6:Many no-flowering stems 7:Slightly many flowering stems 8:Many flowering stems 9:Flowering stems only	Degree of rosette, no-flowering and flowering stems in a plant in October of seeding year
3	Plant natural height in the year of sowing	10 plants, 2 replications	Measurement	cm (integer)	Plant height within 4-5 weeks after reduction cut
4	Plant natural height in spring	10 plants, 2 replications	Measurement	cm (integer)	Plant height in 4 weeks after beginning of spring growth
5	Plant natural height in aftermath	10 plants, 2 replications	Measurement	cm (integer)	Plant height within 4-6 weeks after summer cut
6	Number of internodes	10 plants, 2 replications	Measurement	Number of internodes per stem (round to the 1st decimal place)	Number of internodes per stem observed at the flowering stage of the first harvest in the second year
7	Leaf shape	10 plants, 2 replications	Observation	1:Elongated 2:Ovate 3:Rounded	Shape of a center leaflet of the largest leaf at the flowering stage
8	Leaf color	10 plants, 2 replications	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	Greenness of leaf within 4-5 weeks after reduction cut
9	Cotyledon length	10 plants, 2 replications	Measurement	mm (integer)	Cotyledon length at the first leaf fully developed stage, 2 week after sowing
10	Cotyledon width	10 plants, 2 replications	Measurement	mm (integer)	Cotyledon width at the first leaf fully developed stage, 2 week after sowing

Plant	Red clover	467	Primary optional character

No	Characters	No. of samples	Methods	Rank or measurement unit	Remarks
11	Frequency of flowering plants	10 plants, 2 replications	Measurement	% (integer)	Percentage of flowering plants at the flowering stage
12	Number of heads	10 plants, 2 replications	Measurement	Number of heads per plant (integer)	Number of heads per plant
13	Number of florets	10 plants, 2 replications	Measurement	Number of florets per head (integer)	Number of florets per head estimated by sampling 5 heads per plant
14	Weight of 1000 seeds	10 plants, 2 replications	Measurement	g (round to the 2nd decimal place)	Weight of 1000 seeds estimated by sampling 100 seeds from a mixture of total 20 plants (10 plants with 2 replications) with 4 replications
15	Number of stems	10 plants, 2 replications	Observation	1:Extremely few 2:Very few 3:Few 4:Slightly few 5:Intermediate 6:Slightly many 7:Many 8:Very many 9:Extremely many	Number of stems per plant at the flowering stage of the second year

Plant	Red clover	467	Secondary essential character

No	Characters	No. of samples	Methods	Rank or measurement unit	Remarks
1	Virus resistance	10 plants, 2 replications	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Rather high 9:Extremely high	Degree of resistance to virus based on the infection when it became apparent by artificial inoculation or planting in an infected field
2	Northern anthracnose resistance	10 plants, 2 replications	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Rather high 9:Extremely high	Degree of resistance to Kabaliella caulivora based on the infection when it became apparent by the artificial inoculation or planting in an infected field
3	Sclerotinia root rot and crown rot resistance	10 plants, 2 replications	Observation	1:Extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Rather high 9:Extremely high	Degree of resistance to Sclerotinia trifolii based on the infection when it became apparent by the artificial inoculation or planting in an infected field
4	Regrowth	10 plants, 2 replications	Observation	1:Extremely poor 2:Very poor 3:Poor 4:Slightly poor 5:Intermediate 6:Slightly vigorous 7:Vigorous 8:Very vigorous 9:Extremely vigorous	Regrowth observed 2 to 3 weeks after the first harvest
5	Plant vigor in spring	10 plants, 2 replications	Observation	1:Extremely poor 2:Very poor 3:Poor 4:Slightly poor 5:Intermediate 6:Slightly vigorous 7:Vigorous 8:Very vigorous 9:Extremely vigorous	Amount of growth 1 month after sprouting in spring
6	Plant vigor in summer	10 plants, 2 replications	Observation	1:Extremely poor 2:Very poor 3:Poor 4:Slightly poor 5:Intermediate 6:Slightly vigorous 7:Vigorous 8:Very vigorous 9:Extremely vigorous	Amount of growth in mid summer
7	Plant vigor in autumn	10 plants, 2 replications	Observation	1:Extremely poor 2:Very poor 3:Poor 4:Slightly poor 5:Intermediate 6:Slightly vigorous 7:Vigorous 8:Very vigorous 9:Extremely vigorous	Amount of growth in autumn

Plant	Red clover	467	Secondary optional character

No	Characters	No. of samples	Methods	Rank or measurement unit	Remarks
1	Ring spot resistance	10 plants, 2 replications	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	Degree of resistance to Stemphylium sarcinaeforme based on when the infection and the varietal differences became apparent
2	Rust resistance	10 plants, 2 replications	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	Degree of resistance to Uromyces fallens based on when the infection and the varietal differences became apparent
3	Powdery mildew resistance	10 plants, 2 replications	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	Degree of resistance to Erysiphe trifolii based on when the infection and the varietal differences became apparent
4	Lodging resistance	10 plants, 2 replications	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	Degree of lodging resistance at the flowering stage
5	Overwintering ability	10 plants, 2 replications	Observation	1:Extremely poor 2:Very poor 3:Poor 4:Slightly poor 5:Intermediate 6:Slightly good 7:Good 8:Very good 9:Extremely good	Overwintering ability based on the ratio of dead plants and the degree of winter injury in early spring
6	Summer survival	10 plants, 2 replications	Observation	1:Extremely poor 2:Very poor 3:Poor 4:Slightly poor 5:Intermediate 6:Slightly good 7:Good 8:Very good 9:Extremely good	Summer survival, judging from the rate of dead plants and tillers and plant vigor in early autumn
7	Disease resistance	10 plants, 2 replications	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	Resistance to disease, judging from the degree of disease damage (note the name of disease)
8	Insect resistance	10 plants, 2 replications	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	Resistance to insects, judging from the degree of insect damage (note the name of insect)

Plant	Red clover	467	Tertiary essential character

No	Characters	No. of samples	Methods	Rank or measurement unit	Remarks
1	Green yield of the first harvest	2 plots	Measurement	kg/a (integer)	Green yield estimated from fresh weight harvested from an area more than 2 square meters in the middle of a 6 square meter plot at the first harvest
2	Dry matter ratio of first harvest	2 plots	Measurement	% (round to the 1st decimal place)	Ratio of dry matter estimated by sampling 300 to 500 g of fresh sample at the first harvest and drying at 70 centi degrees for 48 hours
3	Dry matter yield of first harvest	2 plots	Calculation	kg/a (integer)	Dry matter yield calculated by fresh yield x dry matter ratio/100 for the first harvest
4	Green yield of regrowth	2 plots	Measurement	kg/a (integer)	Total green yield of regrowth measured in the same way as the first harvest
5	Dry matter rate of regrowth	2 plots	Measurement	% (round to the 1st decimal place)	Average dry matter ratio of regrowth measured in the same way as the first harvest
6	Dry matter yield of regrowth	2 plots	Calculation	kg/a (integer)	Total dry matter yield calculated in the same way as the first harvest

Plant	Red clover	467	Tertiary optional character

No	Characters	No. of samples	Methods	Rank or measurement unit	Remarks
1	Dry matter digestibility	2 plots, 2 replications	Measurement	% (round to the 1st decimal place)	Ratio of digestible dry matter measured by in vivo test or in vitro enzyme method
2	Crude protein content	2 plots, 2 replications	Measurement	% (round to the 1st decimal place)	Ratio of crude protein content on a dry matter base analyzed by Kjeldahl method or near infrared spectroscopy (NIRS)
3	Acid detergent fiber (ADF)	2 plots, 2 replications	Measurement	% (round to the 1st decimal place)	Ratio of ADF content on a dry matter base analyzed by acid detergent-acetone washing
4	Acid detergent lignin (ADL)	2 plots, 2 replications	Measurement	% (round to the 1st decimal place)	Ratio of ADL content on a dry matter base analyzed by acid detergent-acetone washing
5	Seed productivity	2 plots, 2 replications	Measurement	g per square meters (integer)	Seed productivity estimated by measurement of pure seed yield from 1 square meter after maturity
6	Number of mature seeds per floret	2 plots, 2 replications	Measurement	Mature seeds/floret (round to the 1st decimal place)	Number of clean seeds per floret estimated by sampling 20 heads
7	Persistency	2 plots, 2 replications	Observation	1:Extremely poor 2:Very poor 3:Poor 4:Slightly poor 5:Intermediate 6:Slightly good 7:Good 8:Very good 9:Excellent	Persistency estimated by the coverage of stubbles after the last harvest in the 3rd year
8	Acceptability	2 plots, 2 replications	Obs.&Measr.	1:Extremely poor 2:Very poor 3:Poor 4:Slightly poor 5:Intermediate 6:Slightly good 7:Good 8:Very good 9:Excellent	Intake per unit time by grazing or free cafeteria feeding