

Plant		Warm season grasses		461	Primary essential character	
No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Plant type	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		Angle that the main stems make with the ground at early heading stage
2	Culm length	10 plants, 2 replications	Measurement	cm (integer)		Length from the neck node of panicle except for irregular rachis-branch to the ground at heading stage
3	Panicle length	10 plants, 2 replications	Measurement	cm (round to the 1st decimal place)		Length from base of the lowest primary rachis-branch except for irregular rachis-branch to the tip of panicle
4	Leaf length	10 plants, 2 replications	Measurement	cm (round to the 1st decimal place)		Leaf of the first leaf blade below flag leaf
5	Leaf width	10 plants, 2 replications	Measurement	cm (round to the 1st decimal place)		Leaf width of the widest part of the first leaf blade below flag leaf
6	Date of first heading	10 plants, 2 replications	Observation	date		Average of the heading date in 10 plants with 2 replications
7	Shattering habit	10 plants, 2 replications	Observation	1:Extremely easy 2:Very easy 3:Easy 4:Slightly easy 5:Intermediate 6:Slightly hard 7:Hard 8:Very hard 9:Extremely hard		Ease of detaching ripe seeds from rachis-branches, determined by remained mature seeds numbers at the rachis-branch after 1 month later than first heading
8	Number of panicles	10 plants, 2 replications	Observation	1:Almost none 2:Extremely few 3:Very few 4:Few 5:Intermediate 6:Some 7:Many 8:Very many 9:Extremely many		Number of panicles at early heading stage or at the first cutting
9	Regrowth	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:Excellent		Amount of regrowth one to two weeks after every cuttings
10	Number of tiller	10 plants, 2 replications	Observation	1:None or extremely little 2:Very little 3:Little 4:Slightly little 5:Intermediate 6:Some 7:Much 8:Very much 9:Extremely much		Number of tillers

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1	Pubescence on leaf and stem	10 plants, 2 replications	Observation	1:None or extremely little 2:Very little 3:Little 4:Slightly little 5:Intermediate 6:Some 7:Much 8:Very much 9:Extremely much	Presence and amount of pubescence on leaf blade, ligule, leaf sheath and stem node at heading stage
2	Waxiness of leaf and stem	10 plants, 2 replications	Observation	1:None or extremely little 2:Very little 3:Little 4:Slightly little 5:Intermediate 6:Some 7:Much 8:Very much 9:Extremely much	Presence and amount of wax on stems and leaves at heading stage
3	Leaf color	10 plants, 2 replications	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	Color of leaf blades at heading stage
4	Texture of leaves	10 plants, 2 replications	Observation	1:Extremely tender 2:Very tender 3:Tender 4:Slightly tender 5:Intermediate 6:Slightly rough 7:Rough 8:Very rough 9:Extremely rough	Texture of leaf blades determined by touching at the early heading stage
5	Anther color	10 plants, 2 replications	Observation	1:White 2:Whitish yellow 3:Yellow 4:Yellowish brown 5:Brown 6:Reddish Purple 7:Purple 8:Dark purple 9:Other	Color of anthers at flowering
6	Weight of 1000 seeds	10 plants, 2 replications	Measurement	g (round to the 2nd decimal place)	Weight of 1000 seeds, estimated by sampling 100 clean seeds from a mixture of 10 plants with two replications
7	Stem thickness	10 plants, 2 replications	Measurement	mm (round to the 1st decimal place)	Long diameter of the internode just below the panicle of the longest stem at heading stage
8	Persistency	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:Excellent	Ratio of survival observed after the first and last cutting in the second year after establishment
9	Color of midrib	10 plants, 2 replications	Observation	1:Brown 2:Green 3:Green with slight white basal portion 4:Green with white basal portion 5:Green with 1/3 white portion 6:Green with 1/2 white portion 7:Green with 2/3 white portion 8:Green with 3/4 white portion 9:Almost white or white	Observation of White color portion in midrib and Brown midrib

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1	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:Excellent		Overwintering ability based on the number of dead plants and the degree of damage to stems and leaves in early spring
2	Early growth vigor	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		Early growth plant vigor at 30 days germinated seedlings
3	Plant vigor at establishment	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		Plant vigor at establishment observed 30 days after planting seedlings or 45 days after germination
4	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		Plant vigor at most vigorously growing stage before cutting
5	Plant vigor of last cut	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		Plant vigor just before last cutting in the year
6	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		Number and degree of lodging

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1	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 diseases based on the degree of infection by artificial inoculation or planting in an infected field (note the name of the disease)
2	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 based on the degree of damage by artificial inoculation or natural occurrence (note the name of the insect)
3	Ratio of apomixis	10 plants, 2 replications	Obs.&Mear.	1:None or extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		Ratio of off-types observed in the progeny test or apomixis rate by embryo sac analysis
4	Self-fertility rate	10 plants, 2 replications	Obs.&Mear.	1:None or extremely low 2:Very low 3:Low 4:Slightly low 5:Intermediate 6:Slightly high 7:High 8:Very high 9:Extremely high		Rate of sexual self-fertility obtained by bagging each panicles or isolating each individual
5	Number of floweret	10 plants, 2 replications	Obs.&Mear.	1:None or extremely little 2:Very little 3:Little 4:Slightly little 5:Intermediate 6:Some 7:Much 8:Very much 9:Extremely much		Number and degree of density of rachis-branch and floweret

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No	Characters	No. of samples	Methods	Rank or measurement unit		Remarks
1	Fresh yield of first harvest	2 plots	Measurement	kg/a (integer)		Fresh yield estimated from fresh weight harvested from an area of more than 2 square meters at the prime harvest in persisting use or first harvest in annual use
2	Dry matter ratio of first harvest	2 plots	Measurement	% (round to the 1st decimal place)		Ratio of dry matter estimated by sampling 300-500 g fresh weight at immediately after 70 centi degrees for 48 hours up as far as reaching plateau at the prime harvest in persisting use or first harvest in annual use
3	Dry matter yield of first harvest	2 plots	Calculation	kg/a (integer)		Dry matter yield of the first harvest calculated by fresh weight x dry matter ratio/100 at the prime harvest in persisting use or first harvest in annual use
4	Fresh yield of regrowth	2 plots	Measurement	kg/a (integer)		Sum of fresh yield of regrowth every other harvest except with the prime harvest in persisting use or first harvest in annual use measured as for the first harvest
5	Dry matter ratio of regrowth	2 plots	Measurement	% (round to the 1st decimal place)		Average of ratio of dry matter of regrowth every other harvest except with the prime harvest in persisting use or first harvest in annual use measured as for the first harvest
6	Dry matter yield of regrowth	2 plots	Calculation	kg/a (integer)		Sum of dry matter yield of regrowth every other harvest except with the prime harvest in persisting use or first harvest in annual use calculated as for the first harvest

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1	Dry matter digestibility	2 plots, 2 replications	Measurement	% (round to the 1st decimal place)		Ratio of digestible dry matter on dry matter base by in vitro enzyme method or near infrared spectroscopy (NIRS)
2	Crude protein	2 plots, 2 replications	Measurement	% (round to the 1st decimal place)		Ratio of crude protein content on 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 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 dry matter base analyzed by acid detergent-acetone washing
5	Neutral detergent fiber (NDF)	2 plots, 2 replications	Measurement	% (round to the 1st decimal place)		Ratio of NDF content on dry matter base analyzed by neutral detergent-acetone washing
6	Mono-and oligosaccharides	2 plots, 2 replications	Measurement	% (round to the 2nd decimal place)		Ratio of mono-and oligosaccharide content on dry matter base analyzed by thin layer chromatography after ethanol extraction
7	Alkaloid	2 plots, 2 replications	Measurement	ppm (integer)		Alkaloid content on dry matter base analyzed by thin layer chromatography after extracted with solvent
8	Hydrocyanic acid	2 plots, 2 replications	Measurement	ppm (integer)		Hydrocyanic acid content on dry matter base analyzed by colorimetric analysis with alkali picrate solution
9	Nitrate nitrogen (NO ₃ -N)	2 plots, 2 replications	Measurement	ppm (integer)		Nitrate nitrogen content on dry matter base analyzed by phenol di-sulfuric acid method
10	Intake	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 estimated by grazing or free cafeteria feeding in a unit of time

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11	Palatability	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	Palatability estimated by grazing or free cafeteria feeding