

Table S1. The main effect result values of planting density and nitrogen application rate on stem diameter, plant height and LAI at three growth stages.

Treatments		Stem diameter (mm plant ⁻¹)			Plant height (cm plant ⁻¹)			LAI		
		Jointing Stage	Trumpet Stage	Maturity Stage	Jointing Stage	Trumpet Stage	Maturity Stage	Jointing Stage	Trumpet Stage	Maturity Stage
planting density (plant ha ⁻¹)	D1	25.05a	24.59a	22.50a	77.62b	203.23b	272.556a	2.47b	4.77c	5.20b
	D2	23.39b	22.62b	21.94ab	80.80a	210.72a	272.778a	2.91a	6.42b	5.73b
	D3	22.56b	21.86b	21.60b	76.60b	211.77a	269.00a	3.17a	7.32a	6.39a
Nitrogen application rate (kg ha ⁻¹)	N1	23.28a	22.79b	21.31b	74.85c	200.88c	255.33b	2.61b	5.54c	5.23b
	N2	23.70a	22.01b	22.00b	78.15b	208.27b	277.22a	2.78b	6.01b	6.08a
	N3	24.01a	24.26a	22.73a	82.02a	216.56a	281.78a	3.17a	6.95a	6.02a

Different letters represent significant differences at $P < 0.05$. D1, D2 and D3 represents 65000, 80000, and 95000 plants ha⁻¹, and N1, N2 and N3 represents 150, 230, and 310 kg ha⁻¹ nitrogen, respectively.

Table S2. The main effect result values of planting density and nitrogen application rate on CP, ADF, NDF, starch, and WSC.

Treatments		CP (%)	ADF (%)	NDF (%)	Starch (%)	WSC (%)
planting density (plant ha ⁻¹)	D1	8.82a	29.84a	50.22a	20.51c	11.17a
	D2	8.51b	27.73b	48.24b	24.27a	11.10a
	D3	8.49b	29.19a	49.14ab	22.07b	12.04a
Nitrogen application rate (kg ha ⁻¹)	N1	8.36b	29.84a	50.61a	20.96b	9.31b
	N2	8.70a	27.73b	48.12b	23.12a	12.16a
	N3	8.77a	29.19a	48.88b	22.77a	12.84a

CP: crude protein; NDF: neutral detergent fiber; ADF: acid detergent fiber; WSC: water-soluble carbohydrate. Different letters represent significant differences at $P < 0.05$. D1, D2 and D3 represents 65000, 80000, and 95000 plants ha⁻¹, and N1, N2 and N3 represents 150, 230, and 310 kg ha⁻¹ nitrogen, respectively.