

Table S1. ORYZA (v3) evaluation results for crop growth variables simulations for calibration data set over the entire growing season.

Variables	N	Xmean	Xsd	Ymean	Ysd	α	β	Rs _q	P _t	RMSE	RMSE _n
Total N uptake (kg ha ⁻¹)	20	117.92	36.94	111.10	41.41	-14.42	1.06	0.90	0.03	14.56	12.35
Panicle N uptake (kg ha ⁻¹)	12	30.18	25.88	31.18	23.92	3.57	0.91	0.98	0.42	4.04	13.38
Leaves N uptake (kg ha ⁻¹)	20	53.87	9.05	45.54	8.46	4.36	0.76	0.67	0.00	9.81	18.21
Total Biomass (kg ha ⁻¹)	32	7244.18	5416.40	7106.33	5680.15	-429.28	1.04	0.98	0.31	753.33	10.40
Panicles biomass (kg ha ⁻¹)	16	3302.34	2595.36	3636.96	2916.17	-35.72	1.11	0.98	0.02	594.38	18.00
stems biomass (kg ha ⁻¹)	32	3133.99	2134.76	2823.61	2080.97	-174.35	0.96	0.96	0.00	509.81	16.27
Leaves biomass (kg ha ⁻¹)	32	2062.33	1233.92	1757.49	923.95	259.27	0.73	0.94	0.00	501.84	24.33
LAI	28	3.96	2.44	4.07	2.49	0.27	0.96	0.88	0.51	0.86	21.68

N, number of data sets; Xmean, mean of observed values; Xsim, mean of simulated values; Xsd, standard deviation of observed values; Ysd, standard deviation of simulated values; P(t), student test for paired significance t-test, P(t) > 0.01 shows that observed and simulated values at a 99% confidence level are the same; α , linear intercept relation between observed and simulated values; β , linear slope relation between observed and simulated; R², coefficient of determination; RMSE_n, normalized root mean square error (%), RMSE, absolute root mean square error.

Table S2. ORYZA (v3) evaluation results for crop growth variables simulations for validation data set over the entire growing season.

Variables	N	Xmean	Xsd	Ymean	Ysd	α	β	Rs _q	P _t	RMSE	RMSE _n
Total N uptake (kg ha ⁻¹)	20	99.65	50.44	93.76	51.19	-5.32	0.99	0.96	0.02	11.59	11.63
Panicle N uptake (kg ha ⁻¹)	12	25.64	27.04	26.55	24.31	3.80	0.89	0.97	0.54	4.86	18.96
Leaves N uptake (kg ha ⁻¹)	20	49.39	22.90	38.05	17.58	1.62	0.74	0.92	0.00	13.61	27.56
Total Biomass (kg ha ⁻¹)	32	8521.39	5421.87	8407.66	5304.37	114.33	0.97	0.99	0.26	562.42	6.60
Panicles biomass (kg ha ⁻¹)	20	4282.73	3337.13	4069.13	3052.98	178.79	0.91	0.99	0.06	509.23	11.89
stems biomass (kg ha ⁻¹)	32	3603.80	1831.54	3171.89	1662.32	-27.66	0.89	0.96	0.00	585.53	16.25
Leaves biomass (kg ha ⁻¹)	32	1941.79	884.58	1907.69	738.06	484.74	0.73	0.77	0.65	419.44	21.60
LAI	32	3.89	1.70	4.38	1.94	0.30	1.05	0.84	0.00	0.91	23.41

N, number of data sets; Xmean, mean of observed values; Xsim, mean of simulated values; Xsd, standard deviation of observed values; Ysd, standard deviation of simulated values; P(t), student test for paired significance t-test, P(t) > 0.01 shows that observed and simulated values at a 99% confidence level are the same; α , linear intercept relation between observed and simulated values; β , linear slope relation between observed and simulated; R², coefficient of determination; RMSE_n, normalized root mean square error (%), RMSE, absolute root mean square error.