

Table S1 Correlation coefficient analysis of phenotypic traits in the F₂ bi-parental segregating population derived from IITA-686 × Tiga Nicuru.

Traits	DTF	NL	PH	PL	IL	P/I	HI	100SW
Days to flowering (DTF)	-	-	-	-	-	-	-	-
Number of leaves per plant (NL)	-0.19	-	-	-	-	-	-	-
Plant height (PH)	0.33	0.54**	-	-	-	-	-	-
Petiole length (PL)	0.19	0.53**	0.83**	-	-	-	-	-
Internode length (IL)	0.10	0.53**	0.30	0.48**	-	-	-	-
Petiole internode ratio (P/I)	-0.10	-0.26	-0.09	-0.20	-0.89**	-	-	-
Harvest index (HI)	-0.10	-0.17	-0.26	-0.33	-0.31	0.21	-	-
100-seed weight (100SW)	0.10	-0.21	-0.15	-0.26	-0.37*	0.25	0.81*	-

Note: * = Significant at (p = 0.05), ** = Significant at (p = 0.01). Highlighted values represent highly significant correlation between phenotypic traits.

Table S2 Correlation coefficient analysis of phenotypic traits in the F₂ bi-parental segregating population derived from S19-3 × DodR.

Traits	DTF	NL	PH	PL	IL	P/I	HI	100SW
Days to flowering (DTF)	-	-	-	-	-	-	-	-
Number of leaves per plant (NL)	-0.01	-	-	-	-	-	-	-
Plant height (PH)	-0.18	0.62**	-	-	-	-	-	-
Petiole length (PL)	-0.28	0.36	0.53**	-	-	-	-	-
Internode length (IL)	0.05	0.51**	0.63**	0.38	-	-	-	-
Petiole internode ratio (P/I)	-0.18	-0.31	-0.38	0.12	-0.85**	-	-	-
Harvest index (HI)	0.10	-0.56**	-0.70**	-0.49**	-0.69**	0.44*	-	-
100-seed weight (100SW)	0.01	-0.27	-0.24	-0.09	-0.08	0.01	0.40*	-

Note: * = Significant at (p = 0.05), ** = Significant at (p = 0.01). Highlighted values represent highly significant correlation between phenotypic traits.

Table S3 Potential lines (cross IITA-686 × Tiga Nicuru) with superior performance than population mean for advancement based on days to flowering, harvest index and 100-seed weight, plant height and internode length.

Line	DTF	PH	PL	IL	NL	P/I	100SW	HI
Line-6	33	25.5	19.5	1.95	82	10	39.18	0.42
Line-38	31	29	21.5	1.8	98	11.94	30.1	0.28
Line-44	33	24	19.17	1.95	86	9.83	29.78	0.31
Line-48	33	26	21.5	2.45	116	8.78	31.43	0.33
Line-50	33	27	21.33	1.55	122	13.76	31.75	0.35
Population mean	34.98	26.18	19.72	2.03	84.8	10.95	21.85	0.24
IITA-686 (Female parent) mean	32.5	28.15	14.79	2.09	266.5	7.15	24.68	0.38
Tiga Nicuru (Male parent) mean	32.33	22.71	12.52	0.96	77.67	13.36	24.58	0.21

Note: DTF days to flowering, PH plant height, PL petiole length, IL internode length, NL number of leaves per plant, P/I petiole internode ratio, 100SW 100-seed weight, HI, harvest index.

Table S4 Potential lines (cross S19-3 × DodR) with superior performance than population mean for advancement based on days to flowering, harvest index and 100-seed weight, plant height and internode length.

Line	DTF	PH	PL	IL	NL	P/I	100SW	HI
Line-51	36	37	16.9	3.45	77	4.9	30.6	0.44
Line-73	36	31.5	17.5	2.75	111	6.36	37.86	0.47
Line-86	33	27	15.5	2.1	82	7.38	35.26	0.47
Line-108	36	35	14.25	2.45	85	5.82	35.47	0.49
Line-111	36	36	17.45	2.4	108	7.27	29.21	0.47
Population mean	36.41	28.34	16.2	2.48	77.67	28.34	28.72	0.33
S19-3 (Female parent) mean	33.4	27.33	17.44	2.46	84.8	27.33	27.47	0.47
DodR (Male parent) mean	32.1	34.35	21.6	4.04	266.5	34.35	45.49	0.28

Note: DTF days to flowering, PH plant height, PL petiole length, IL internode length, NL number of leaves per plant, P/I petiole internode ratio, 100SW 100-seed weight, HI, harvest index.