

มหาวิทยาลัยเชียงใหม่
Chiang Mai University

APPENDICES

APPENDIX A :

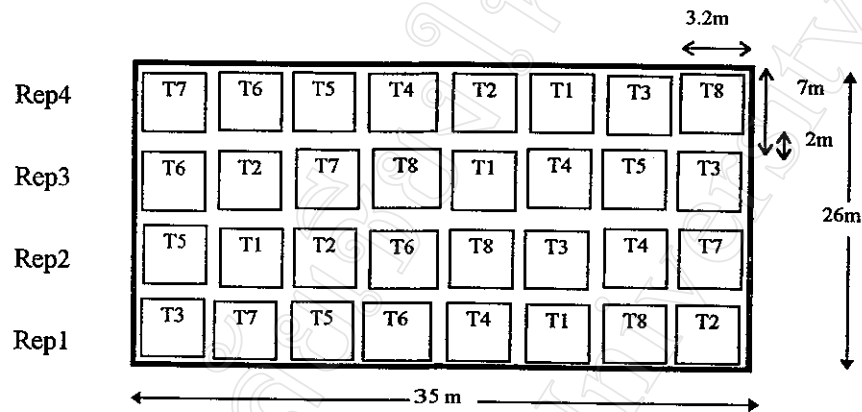


Figure 1. Layout of the field experiment.

- T1 = No rhizobium, no nitrogen fertilizer
 T2 = No rhizobium, 25 kg N ha⁻¹ applied at 14 DAP
 (September applied at 7 DAP)
 T3 = No rhizobium, 25 kg N ha⁻¹ applied at 37 DAP
 (September applied at 30 DAP)
 T4 = No rhizobium, 25 kg N ha⁻¹ applied at 14 DAP (September applied at 7 DAP)
 and 25 kg N ha⁻¹ applied at 37 DAP (September applied at 30 DAP)
 T5 = Rhizobium, no nitrogen fertilizer
 T6 = Rhizobium, 25 kg N ha⁻¹ applied at 14 DAP
 (September applied at 7 DAP)
 T7 = Rhizobium, 25 kg N ha⁻¹ applied at 37 DAP
 (September applied at 30 DAP)
 T8 = Rhizobium, 25 kg N ha⁻¹ applied at 14 DAP (September applied at 7 DAP)
 and 25 kg N ha⁻¹ applied at 37 DAP (September applied at 30 DAP)

APPENDIX B :

Table 1. ANOVA of dry matter at R₂ stage in May planting.

Source	DF	Stem		Leaf		Total	
		MS	P	MS	P	MS	P
Replication (A)	3	432.94	0.369	2.67	0.793	446.20	0.423
Rhizobium (B)	1	389.29	0.330	0.02	0.958	383.47	0.370
Fertilizer (C)	3	1619.30	0.019	2.15	0.841	1618.10	0.029
B×C	3	771.56	0.149	8.66	0.365	845.38	0.170
Error	21	391.52		7.76		457.93	

Table 2. ANOVA of dry matter at R₅ stage in May planting.

Source	DF	Stem, Leaf		Pod		Total	
		MS	P	MS	P	MS	P
Replication (A)	3	1343.20	0.009	1606.80	0.115	5608.80	0.009
Rhizobium (B)	1	77.66	0.596	168.48	0.634	17.37	0.903
Fertilizer (C)	3	85.32	0.812	1934.20	0.073	2810.60	0.090
B×C	3	99.45	0.775	866.97	0.334	1400.50	0.323
Error	21	267.89		722.23		1136.90	

Table 3. ANOVA of dry matter at R₇ stage in May planting.

Source	DF	Stem, Leaf		Seed		Total	
		MS	P	MS	P	MS	P
Replication (A)	3	7666.80	0.041	3405.90	0.012	20943.00	0.017
Rhizobium (B)	1	1210.20	0.480	1372.50	0.185	5160.20	0.318
Fertilizer (C)	3	8362.20	0.031	1085.50	0.246	15354.00	0.048
B×C	3	8060.20	0.035	706.78	0.426	13107.00	0.075
Error	21	2342.70		729.14		4928.70	

Table 4. ANOVA of dry matter (kg/ha) at R₁ stage in September planting.

Source	DF	Stem, Leaf	
		MS	P
Replication (A)	3	32.50	0.443
Rhizobium (B)	1	65.41	0.185
Fertilizer (C)	3	451.77	0.000
B×C	3	36.46	0.393
Error	21	34.89	

Table 5. ANOVA of dry matter (kg/ha) at R₄ stage in September planting.

Source	DF	Stem, Leaf		Pod		Total	
		-----		-----		-----	
		MS	P	MS	P	MS	P
Replication (A)	3	690.55	0.021	71.34	0.604	1147.70	0.276
Rhizobium (B)	1	816.11	0.177	43.38	0.543	1235.80	0.236
Fertilizer (C)	3	550.88	0.296	110.99	0.421	895.43	0.380
B×C	3	78.48	0.904	134.33	0.339	407.63	0.693
Error	21	418.99		113.30		831.29	

Table 6. ANOVA of dry matter (kg/ha) at R₇ stage in September planting.

Source	DF	Stem, Leaf		Pod		Total	
		-----		-----		-----	
		MS	P	MS	P	MS	P
Replication (A)	3	4162.90	0.021	1436.10	0.019	10470.00	0.013
Rhizobium (B)	1	1721.80	0.211	31.56	0.767	2219.60	0.337
Fertilizer (C)	3	9922.40	0.000	2695.00	0.001	22805.00	0.000
B×C	3	986.68	0.434	309.78	0.464	2020.70	0.468
Error	21	1036.90		349.06		2301.10	

Table 7. ANOVA of N concentration (%) at R₂ stage in May planting.

Source	DF	Stem		Leaf	
		-----		-----	
		MS	P	MS	P
Replication (A)	3	0.123	0.000	0.029	0.682
Rhizobium (B)	1	0.020	0.217	0.133	0.145
Fertilizer (C)	3	0.064	0.008	0.036	0.606
B×C	3	0.073	0.004	0.113	0.151
Error	21	0.012		0.058	

Table 8. ANOVA of N concentration (%) R₅ stage in May planting.

Source	DF	Stem, Leaf		Pod	
		-----		-----	
		MS	P	MS	P
Replication (A)	3	0.012	0.455	0.203	0.188
Rhizobium (B)	1	0.130	0.006	0.006	0.817
Fertilizer (C)	3	0.109	0.001	0.248	0.125
B×C	3	0.030	0.116	0.071	0.616
Error	21	0.014		0.116	

Table 9. ANOVA of N concentration (%) R₇ stage in May planting.

Source	DF	Stem, Leaf		Seed	
		MS	P	MS	P
Replication (A)	3	0.068	0.067	0.192	0.032
Rhizobium (B)	1	0.020	0.371	0.000	0.922
Fertilizer (C)	3	0.125	0.008	0.247	0.013
B×C	3	0.008	0.795	0.026	0.695
Error	21			0.054	

Table 10. ANOVA of N concentration (%) at R₁ stage in September planting.

Source	DF	Stem, Leaf	
		MS	P
Replication (A)	3	0.005	0.897
Rhizobium (B)	1	0.013	0.478
Fertilizer (C)	3	0.282	0.000
B×C	3	0.034	0.267
Error	21	0.024	

Table 11. ANOVA of N concentration (%) at R₄ stage in September planting.

Source	DF	Stem, Leaf		Pod	
		MS	P	MS	P
Replication (A)	3	0.025	0.262	0.116	0.022
Rhizobium (B)	1	0.001	0.803	0.028	0.337
Fertilizer (C)	3	0.073	0.019	0.010	0.799
B×C	3	0.007	0.719	0.038	0.299
Error	21	0.018		0.029	

Table 12. ANOVA of N concentration (%) at R₇ stage in September planting.

Source	DF	Stem, Leaf		Pod	
		MS	P	MS	P
Replication (A)	3	0.029	0.010	0.016	0.258
Rhizobium (B)	1	0.062	0.004	0.018	0.205
Fertilizer (C)	3	0.017	0.057	0.033	0.049
B×C	3	0.006	0.421	0.016	0.258
Error	21	0.006		0.011	

Table 13. ANOVA of cumulative crop nitrogen (kg/ha) at R₂ stage in May planting.

Source	DF	Stem		Leaf		Total	
		MS	P	MS	P	MS	P
Replication (A)	3	0.140	0.833	0.005	0.791	0.135	0.880
Rhizobium (B)	1	0.642	0.263	0.005	0.804	0.692	0.298
Fertilizer (C)	3	1.091	0.113	0.003	0.868	1.140	0.165
B×C	3	0.662	0.282	0.011	0.523	0.714	0.343
Error	21	0.486		0.014		0.608	

Table 14. ANOVA of cumulative crop nitrogen at R₃ stage in May planting.

Source	DF	Stem, Leaf		Pod		Total	
		MS	P	MS	P	MS	P
Replication (A)	3	1.168	0.109	2.311	0.016	6.411	0.012
Rhizobium (B)	1	0.633	0.279	0.115	0.648	0.177	0.743
Fertilizer (C)	3	1.484	0.059	0.940	0.186	4.925	0.050
B×C	3	0.800	0.229	0.268	0.686	1.826	0.356
Error	21	0.512		0.535		1.604	

Table 15. ANOVA of cumulative crop nitrogen at R₇ stage in May planting.

Source	DF	Stem, Leaf		Seed		Total	
		MS	P	MS	P	MS	P
Replication (A)	3	0.920	0.260	4.233	0.029	9.066	0.046
Rhizobium (B)	1	0.567	0.357	1.957	0.209	4.632	0.219
Fertilizer (C)	3	3.200	0.009	3.316	0.062	12.996	0.014
B×C	3	1.460	0.109	1.501	0.303	5.546	0.156
Error	21	0.640		1.163		2.879	

Table 16. ANOVA of cumulative crop nitrogen (kg/ha) at R₁ stage in September planting.

Source	DF	Stem, Leaf	
		MS	P
Replication (A)	3	0.050	0.427
Rhizobium (B)	1	0.052	0.329
Fertilizer (C)	3	1.059	0.000
B×C	3	0.039	0.537
Error	21	0.052	

Table 17. ANOVA of cumulative crop nitrogen (kg/ha) at R₄ stage in September planting.

Source	DF	Stem, Leaf		Pod		Total	
		MS	P	MS	P	MS	P
Replication (A)	3	0.716	0.103	0.102	0.638	1.183	0.231
Rhizobium (B)	1	0.560	0.191	0.019	0.746	0.787	0.321
Fertilizer (C)	3	0.370	0.332	0.194	0.374	0.967	0.311
B×C	3	0.059	0.900	0.106	0.627	0.320	0.741
Error	21	0.307		0.178		0.762	

Table 18. ANOVA of cumulative crop nitrogen (kg/ha) at R₇ stage in September planting.

Source	DF	Stem, Leaf		Pod		Total	
		MS	P	MS	P	MS	P
Replication (A)	3	0.140	0.250	2.169	0.029	3.207	0.039
Rhizobium (B)	1	0.981	0.004	0.163	0.605	1.946	0.169
Fertilizer (C)	3	1.488	0.000	6.143	0.000	13.670	0.000
B×C	3	0.171	0.178	0.334	0.645	0.842	0.469
Error	21	0.095		0.593		0.960	

Table 19. ANOVA of RUI (%) in September planting.

Source	DF	R ₂		R ₄	
		MS	P	MS	P
Replication (A)	3	17.574	0.195	732.302	0.000
Rhizobium (B)	1	24.060	0.631	1.122	0.899
Fertilizer (C)	3	268.366	0.075	648.237	0.000
B×C	3	384.897	0.025	50.299	0.538
Error	21	101.220		67.690	

Table 20. ANOVA of seed yield (kg/ha), biomass (kg/ha) and plant height (cm) in May planting.

Source	DF	Seed yield		Biomass		Plant height	
		MS	P	MS	P	MS	P
Replication (A)	3	2576.30	0.022	10263.00	0.022	4.177	0.783
Rhizobium (B)	1	571.75	0.358	4873.60	0.184	0.054	0.946
Fertilizer (C)	3	691.67	0.385	5241.10	0.141	46.704	0.021
B×C	3	399.78	0.612	3308.20	0.307	10.397	0.460
Error	21	648.80		2585.00		11.609	

Table 21. ANOVA of pod/plant, seed/plant and 100 seeds weight (g) in May planting.

Source	DF	Pod/plant		Seed/pod		100 SW	
		MS	P	MS	P	MS	P
Replication (A)	3	3.845	0.020	0.589	0.294	4.370	0.214
Rhizobium (B)	1	0.846	0.354	0.089	0.658	2.453	0.351
Fertilizer (C)	3	0.710	0.532	0.197	0.725	3.449	0.307
B×C	3	1.016	0.379	0.804	0.177	1.184	0.727
Error	21	0.941		0.445		2.691	

Table 22. ANOVA of plant/m², seed damage (%) in May planting.

Source	DF	plant/m ²		% seed damage	
		MS	P	MS	P
Replication (A)	3	5.48	0.115	49.731	0.211
Rhizobium (B)	1	1.22	0.489	7.81	0.617
Fertilizer (C)	3	1.45	0.629	49.26	0.215
B×C	3	3.66	0.247	9.69	0.812
Error	21	2.46		30.40	

Table 23. ANOVA of seed yield (kg/ha), biomass (kg/ha) and plant height (cm) in September planting.

Source	DF	Seed yield		Plant height		Biomass	
		MS	P	MS	P	MS	P
Replication (A)	3	142.90	0.091	4.687	0.014	95.92	0.649
Rhizobium (B)	1	12.29	0.651	1.684	0.217	3.41	0.889
Fertilizer (C)	3	1841.40	0.000	5.358	0.008	6699.30	0.000
B×C	3	17.28	0.827	1.062	0.404	116.53	0.576
Error	21	58.25		1.042		172.13	

Table 24. ANOVA of pods/plant, seeds/plant and 100 seeds weight (g) in September planting.

Source	DF	Pods/plant		Seeds/pod		100 SW	
		MS	P	MS	P	MS	P
Replication (A)	3	1.539	0.002	0.016	0.566	1.413	0.192
Rhizobium (B)	1	0.096	0.514	0.007	0.568	4.500	0.029
Fertilizer (C)	3	1.070	0.010	0.085	0.030	5.086	0.003
B×C	3	0.157	0.551	0.010	0.744	7.951	0.000
Error	21	0.217		0.023		0.819	

Table 25. ANOVA of plant/m², seed damage (%) in September planting.

Source	DF	plant/m ²		% seed damage	
		MS	P	MS	P
Replication (A)	3	13.009	0.000	0.854	0.514
Rhizobium (B)	1	0.109	0.742	0.196	0.675
Fertilizer (C)	3	2.222	0.109	0.096	0.966
B×C	3	0.207	0.887	0.056	0.984
Error	21	0.975		1.084	

APPENDIX C :

Table 26. Effects of N management and rhizobium on dry weight (kg/ha) R₂ stage in May planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
	Stem				
R ₀	1227	1263	1242	1584	1329
R ₁	1097	1472	1136	1322	1259
Average	1162	1368	1186	1458	
	Leaf				
R ₀	78	80	94	102	89
R ₁	102	91	74	88	89
Average	90	86	84	95	
	Total				
R ₀	1305	1343	1336	1686	1418
R ₁	1200	1563	1210	1420	1349
Average	1252	1453	1273	1553	

Table 27. Effects of N management and rhizobium on dry weight (kg/ha) R₅ stage in May planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
	Stem and Leaf				
R ₀	1383	1190	1401	1639	1403
R ₁	1254	1433	1157	1586	1357
Average	1319	1312	1279	1612	
	Pod				
R ₀	1476	1448	1502	1503	1482
R ₁	1511	1525	1433	1585	1513
Average	1493	1486	1467	1544	
	Total				
R ₀	2859	2638	2903	3141	2886
R ₁	2765	2958	2589	3171	2871
Average	2812	2798	2746	3156	

Table 28. Effects of N management and rhizobium on dry weight (kg/ha)
R₇ stage in May planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
Stern and Leaf					
R ₀	2999	2030	2948	3270	2812
R ₁	2554	2812	2293	3096	2689
Average	2776	2421	2620	3183	
Seed					
R ₀	1559	1323	1569	1640	1523
R ₁	1316	1401	1239	1612	1392
Average	1437	1362	1404	1626	
Total					
R ₀	4558	3353	4516	4910	4335
R ₁	3870	4213	3532	4708	4081
Average	4214	3783	4024	4809	

Table 29. Effects of N fertilizer management and rhizobium on dry weight (kg/ha)
R₁ stage in September planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
Stern and Leaf					
R ₀	550	678	492	670	598
R ₁	506	621	527	623	569
Average	528	649	509	647	

Table 30. Effects of N fertilizer management and rhizobium on dry weight (kg/ha)
R₄ stage in September planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
Stern and Leaf					
R ₀	958	1039	964	1067	1007
R ₁	1048	1159	986	1239	1108
Average	1003	1099	975	1153	
Pod					
R ₀	614	550	669	635	617
R ₁	616	635	585	726	640
Average	615	593	627	681	
Total					
R ₀	1573	1589	1633	1703	1624
R ₁	1664	1794	1571	1965	1749
Average	1619	1691	1602	1834	

Table 31. Effects of N fertilizer management and rhizobium on dry weight (kg/ha)
R₇ stage in September planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
Stem and Leaf					
R ₀	1964	2458	2336	2968	2432
R ₁	2434	2419	2407	3054	2578
Average	2199	2439	2372	3011	
Seed					
R ₀	1189	1315	1392	1620	1379
R ₁	1335	1307	1251	1703	1399
Average	1262	1311	1321	1662	
Total					
R ₀	3153	3774	3728	4589	3811
R ₁	3769	3726	3658	4757	3977
Average	3461	3750	3693	4673	

Table 32. Effects of N fertilizer management and rhizobium on N concentration (%)
R₂ stage in May planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
Stem					
R ₀	3.52	3.38	3.34	3.11	3.34
R ₁	3.24	3.25	3.40	3.26	3.29
Average	3.38	3.31	3.37	3.19	
Leaf					
R ₀	4.53	4.22	4.25	4.13	4.28
R ₁	4.05	4.27	4.16	4.13	4.15
Average	4.29	4.24	4.21	4.13	

Table 33. Effects of N fertilizer management and rhizobium N concentration (%)
R₅ stage in May planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
Stem and Leaf					
R ₀	2.45	2.42	2.78	2.53	2.54
R ₁	2.37	2.32	2.47	2.51	2.42
Average	2.41	2.37	2.63	2.52	
Pod					
R ₀	3.14	3.14	3.43	3.70	3.35
R ₁	3.28	3.34	3.43	3.47	3.38
Average	3.21	3.24	3.43	3.58	

Table 34. Effects of N fertilizer management and rhizobium on N concentration (%)
R₇ stage in May planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
Stem and Leaf					
R ₀	1.21	1.41	1.37	1.51	1.37
R ₁	1.13	1.34	1.42	1.41	1.32
Average	1.17	1.37	1.39	1.46	
Seed					
R ₀	3.78	3.82	4.01	4.13	3.94
R ₁	3.65	3.97	4.04	4.11	3.95
Average	3.72	3.90	4.03	4.12	

Table 35. Effects of N fertilizer management and rhizobium on N concentration (%)
R₁ stage in September planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
Stem and Leaf					
R ₀	3.59	3.53	3.56	3.94	3.66
R ₁	3.53	3.76	3.54	3.95	3.70
Average	3.56	3.65	3.55	3.95	

Table 36. Effects of N fertilizer management and rhizobium on N concentration (%)
R₄ stage in September planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
Stem and Leaf					
R ₀	2.85	2.62	2.87	2.87	2.80
R ₁	2.86	2.69	2.83	2.79	2.79
Average	2.85	2.65	2.85	2.83	
Pod					
R ₀	3.82	3.86	3.80	3.94	3.86
R ₁	3.81	3.70	3.91	3.76	3.80
Average	3.82	3.78	3.86	3.85	

Table 37. Effects of N fertilizer management and rhizobium on N concentration (%)
R₇ stage in September planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
Stem and Leaf					
R ₀	0.80	0.85	0.87	0.92	0.86
R ₁	0.96	0.88	0.93	1.02	0.95
Average	0.85	0.86	0.90	0.97	
Seed					
R ₀	4.19	4.15	4.15	4.33	4.21
R ₁	4.16	4.24	4.30	4.31	4.26
Average	4.18	4.20	4.23	4.32	

Table 38. Effects of N fertilizer management and rhizobium on N uptake (kgN/ha)
R₂ stage in May planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
Stem					
R ₀	43.11	42.77	41.23	49.50	44.15
R ₁	35.37	47.96	38.55	43.38	41.32
Average	39.24	45.36	39.89	46.44	
Leaf					
R ₀	3.57	3.38	3.96	4.28	3.80
R ₁	4.15	3.89	3.06	3.67	3.69
Average	3.86	3.64	3.51	3.98	
Total					
R ₀	46.68	46.15	45.20	53.78	47.95
R ₁	39.52	51.85	41.61	47.06	45.01
Average	43.10	49.00	43.45	50.42	

Table 39. Effects of N fertilizer management and rhizobium on N uptaken (kgN/ha) R₅ stage in May planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
Stem and Leaf					
R ₀	34.08	28.65	38.95	41.38	35.76
R ₁	29.83	33.56	28.60	39.82	32.95
Average	31.96	31.11	33.77	40.60	
Pod					
R ₀	46.58	45.44	51.59	55.76	49.84
R ₁	49.49	50.85	48.86	54.95	51.04
Average	48.03	48.15	50.23	55.35	
Total					
R ₀	80.65	74.09	90.54	97.14	85.61
R ₁	79.33	84.41	77.46	95.28	84.12
Average	79.99	79.25	84.00	96.21	

Table 40 Effects of N fertilizer management and rhizobium on N uptake (kgN/ha) R₇ stage in May planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
Stem and Leaf					
R ₀	35.98	28.49	40.03	49.12	38.41
R ₁	29.18	38.53	31.72	43.54	35.74
Average	32.58	33.51	35.88	46.33	
Seed					
R ₀	58.98	50.21	62.81	67.56	59.89
R ₁	48.44	55.75	49.42	66.16	54.94
Average	53.71	52.98	56.12	66.86	
Total					
R ₀	94.96	78.69	102.80	116.70	98.30
R ₁	77.62	94.28	81.14	109.70	90.69
Average	86.29	86.49	91.99	113.32	

Table 41. Effects of N fertilizer management and rhizobium on N uptake (kgN/ha) R₁ stage in September planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
	Stem and Leaf				
R ₀	19.74	23.94	17.54	26.43	21.91
R ₁	17.86	23.35	18.62	24.60	21.11
Average	18.80	23.65	18.08	25.51	

Table 42. Effects of N fertilizer management and rhizobium on N uptake (kgN/ha) R₄ stage in September planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
	Stem and Leaf				
R ₀	27.32	27.25	27.64	30.59	28.20
R ₁	29.94	30.85	27.89	34.71	30.85
Average	28.63	29.05	27.76	32.65	
	Pod				
R ₀	23.47	21.28	25.45	25.00	23.80
R ₁	23.52	23.54	22.86	27.24	24.29
Average	23.49	22.41	24.15	26.12	
	Total				
R ₀	50.79	48.53	53.09	55.59	52.00
R ₁	53.46	54.39	50.75	61.95	55.14
Average	53.13	51.46	51.92	58.77	

Table 43. Effects of N fertilizer management and rhizobium on N uptake (kgN/ha) R₇ stage in September planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
	Stem and Leaf				
R ₀	15.74	20.76	20.20	27.28	24.50
R ₁	23.22	21.38	22.47	30.91	20.99
Average	19.48	21.07	21.34	29.10	
	Seed				
R ₀	49.89	54.52	57.79	70.12	58.08
R ₁	55.46	55.26	53.85	73.46	59.51
Average	52.67	54.89	55.82	71.79	
	Total				
R ₀	65.63	75.28	77.99	97.40	79.07
R ₁	78.68	76.64	76.33	104.40	84.01
Average	72.15	75.96	77.16	100.90	

Table 44. Effects of N fertilizer management and rhizobium on RUI (%) R₂ stage and R₄ in September planting.

Replication				
I	II	III	IV	
				R ₂
61.694	71.413	45.282	38.004	
66.908	55.258	60.333	69.984	
69.560	68.038	61.396	85.198	
50.535	60.495	36.289	28.447	
59.962	70.812	68.268	68.637	
61.023	69.571	50.363	59.750	
54.335	65.895	58.225	42.444	
59.032	52.557	44.924	70.781	
				R ₄
50.316	54.104	62.368	69.602	
30.363	40.439	61.455	53.540	
39.251	57.909	71.849	64.585	
32.818	53.923	60.212	45.267	
56.772	57.312	58.843	68.153	
25.285	48.419	61.704	30.098	
62.818	53.209	74.404	67.154	
27.458	52.198	60.392	37.790	

Table 45. Effects of N fertilizer management and rhizobium on yield (kg/ha) on May planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
	Yield (kg/ha)				
R ₀	1312	1095	1305	1334	1261
R ₁	1147	1148	1063	1349	1177
Average	1230	1121	1184	1342	

Table 46. Effects of N fertilizer management and rhizobium on biomass (kg/ha) on May planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
	Biomass (kg/ha)				
R ₀	2999	2525	2948	3270	2936
R ₁	2554	2812	2293	3096	2689
Average	2776	2669	2620	3183	

Table 47 Effects of N fertilizer management and rhizobium on plant height (cm) on May planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
	Height (cm)				
R ₀	35.58	36.00	37.08	41.16	37.45
R ₁	35.75	38.83	34.41	40.50	37.37
Average	35.66	37.41	35.75	40.83	

Table 48. Effects of N fertilizer management and rhizobium on pods/plant on May planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
	Pods/plant				
R ₀	6.02	5.59	6.39	6.51	6.13
R ₁	5.56	6.14	5.21	6.30	5.80
Average	5.79	5.87	5.80	6.41	

Table 49. Effects of N fertilizer management and rhizobium on seeds/pod on May planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
	Seeds/pod				
R ₀	3.12	2.63	3.08	3.19	3.00
R ₁	2.90	3.63	2.64	3.26	3.11
Average	3.01	3.13	2.86	3.22	

Table 50. Effects of N fertilizer management and rhizobium on 100 seeds weight (g) on May planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
	100 SW(g)				
R ₀	43.05	42.44	42.38	43.24	42.78
R ₁	42.53	42.66	40.77	42.94	42.22
Average	42.79	42.55	41.57	43.09	

Table 51. Effects of N fertilizer management and rhizobium on plant/m² on May planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
	Plant/m ²				
R ₀	27.19	27.50	26.87	27.19	27.19
R ₁	26.72	25.62	28.28	26.56	26.80
Average	26.95	26.56	27.58	26.87	

Table 52. Effects of N fertilizer management and rhizobium on seed damage (%) on May planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
	Seed damage (%)				
R ₀	15.46	17.93	17.40	18.93	17.43
R ₁	12.38	18.23	14.79	20.37	16.44
Average	13.92	18.08	16.09	19.65	

Table 53. Effects of N fertilizer management and rhizobium on yield (kg/ha) on September planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
	Yield (kg/ha)				
R ₀	1229	1234	1244	1544	1315
R ₁	1282	1216	1257	1547	1325
Average	1256	1225	1250	1546	

Table 54. Effects of N fertilizer management and rhizobium on biomass (kg/ha) on September planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
	Biomass (kg/ha)				
R ₀	2334	2411	2336	2968	2512
R ₁	2434	2341	2333	2915	2506
Average	2384	2376	2335	2942	

Table 55. Effects of N fertilizer management and rhizobium on plant height (cm) on September planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
	Height (cm)				
R ₀	36.67	37.92	37.75	37.83	37.54
R ₁	35.75	37.42	36.75	38.42	37.08
Average	36.21	37.67	37.25	38.12	

Table 56. Effects of N fertilizer management and rhizobium on pods/plant on September planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
	Pods/plant				
R ₀	5.65	5.75	5.88	6.71	6.00
R ₁	6.09	5.82	6.06	6.47	6.11
Average	5.87	5.78	5.97	6.59	

Table 57. Effects of N fertilizer management and rhizobium on seeds/pod on September planting

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
	Seeds/pod				
R ₀	2.25	2.26	2.38	2.38	2.32
R ₁	2.12	2.24	2.42	2.37	2.29
Average	2.18	2.25	2.40	2.37	

Table 58. Effects of N fertilizer management and rhizobium on 100 seeds weight (g) on September planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
	100 SW(g)				
R ₀	42.40	45.77	45.44	45.19	44.70
R ₁	44.12	43.23	43.27	45.18	43.95
Average	43.26	44.50	43.35	45.19	

Table 59. Effects of N fertilizer management and rhizobium on plant/m² on September planting

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
	Plant/m ²				
R ₀	30.16	29.53	28.75	29.69	29.53
R ₁	30.00	29.37	29.06	30.15	29.65
Average	30.08	29.45	28.19	29.92	

Table 60. Effects of N fertilizer management and rhizobium on seeds damage (%) on September planting.

Rhizobium	Fertilizer (kg N/ha)				Average
	F ₀	F ₁	F ₂	F ₃	
	Seed damage (%)				
R ₀	4.11	4.15	4.33	4.11	4.17
R ₁	4.06	4.16	4.06	3.78	4.02
Average	4.09	4.15	4.19	3.94	

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