

APPENDIX

Appendix Table 1 Vegetable soybean yield (kg/ha)

1.1 Original data for analysis of variance of marketable Yield

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	1993	2205	2169	1889	2063
F2	2436	2419	2362	2121	2334
F3	2905	2985	3037	2956	2971
F4	2299	2431	2662	2347	2434
F5	3387	3641	3569	3568	3541
F6	3655	3267	3537	3877	3583
AGS292					
F1	2609	2897	2787	2779	2768
F2	3112	2950	3254	3177	3123
F3	3905	3752	3992	4099	3937
F4	3284	3569	3214	3148	3304
F5	4838	4573	4775	4906	4773
F6	4958	4744	4989	4938	4907

1.2 Original data for analysis of variance of potential nonmarketable Yield

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	1975	1952	1989	1516	1858
F2	1752	1902	1861	1967	1871
F3	1623	1952	1778	1835	1797
F4	1917	1684	1627	1880	1777
F5	1784	1833	1809	1606	1758
F6	1872	1647	1685	1962	1792
AGS292					
F1	1635	1884	1862	1615	1749
F2	1721	1756	1715	1798	1748
F3	1600	1534	1677	1772	1646
F4	1691	1668	1585	1679	1676
F5	1876	1963	1823	1917	1894
F6	1916	1685	1843	1732	1794

1.3 Original data for analysis of variance of remainders

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	5666	5724	5752	5339	1698
F2	1653	1565	1524	1720	1616
F3	1679	1530	1641	1664	1629
F4	1402	1624	1650	1641	1579
F5	1878	1830	1823	1829	1840
F6	1457	1835	1607	1922	1705
AGS292					
F1	1759	1517	1740	1878	1724
F2	1669	1578	1695	1473	1604
F3	1806	1787	1961	1620	1794
F4	1525	1577	1768	1700	1642
F5	1738	1754	1467	1930	1722
F6	1852	1900	1620	1787	1790

1.4 Original data for analysis of variance of total Yield

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	5666	5724	5752	5339	5620
F2	5842	5886	5748	5807	5821
F3	6206	6467	6455	6455	6396
F4	5617	5739	5938	5868	5790
F5	7049	7304	7200	7004	7139
F6	6984	6749	6829	7761	7081
AGS292					
F1	6003	6299	6389	6272	6240
F2	6502	6284	6664	6448	6475
F3	7310	7073	7630	7491	7376
F4	6499	6813	6567	6527	6602
F5	8452	8290	8064	8752	8389
F6	8726	8329	8452	8457	8491

Table 1.5 Analysis of variance of Marketable yield

Source	DF	SS	MS	F	P
TRT (F)	5	2.3565E+07	4.7130E+06	206.06	0.0000
VAR (V)	1	1.1535E+07	1.1535E+07	504.35	0.0000
RER (R)	3	4.9603E+04	1.6534E+04	0.72	0.5455
F*V	5	6.1285E+05	1.2257E+05	5.36	0.0010
Error	33	7.5477E+05	2.2872E+04		
Total	47	3.6518E+07			
G. Average	1	5.2644E+08			

Table 1.6 Analysis of variance of potential nonmarketable yield

Source	DF	SS	MS	F	P
TRT (F)	5	8.9667E+04	1.7933E+04	1.09	0.3855
VAR (V)	1	4.4556E+04	4.4556E+04	2.70	0.1097
REP (R)	3	2186.8	728.94	0.04	0.9874
F*V	5	1.2162E+05	2.4324E+04	1.48	0.2244
Error	33	5.4414E+05	1.6489E+04		
Total	47	8.0217E+05			
G. Average	1	1.5177E+08			

Table 1.7 Analysis of variance of reminders

Source	DF	SS	MS	F	P
TRT (F)	5	2.0021E+05	4.0042E+04	2.26	0.0710
VAR (V)	1	1.4575E+04	1.4575E+04	0.82	0.3707
REP (R)	3	6.3721E+04	2.1240E+04	1.20	0.3249
F*V	5	9.1590E+04	1.8318E+04	1.04	0.4134
Error	33	5.8395E+05	1.7695E+04		
Total	47	9.5405E+05			
G. Average	1	1.3792E+08			

Table 1.8 Analysis of variance of total yield

Source	DF	SS	MS	F	P
TRT (F)	5	2.7639E+07	5.5277E+06	116.91	0.0000
VAR (V)	1	1.0930E+07	1.0930E+07	231.17	0.0000
REP (R)	3	9.8489E+04	3.2830E+04	0.69	0.5621
F*V	5	1.0362E+06	2.0724E+05	4.38	0.0036
Error	33	1.5603E+06	4.7281E+04		
Total	47	4.1263E+07			
G. Average	1	2.2097E+09			

Appendix Table 2 The dry weight of leave and stems (kg/ha)

2.1 Original data for analysis of variance of dry weight of leaves and stems

21 days after sowing (V4)

Treatment	Replication			Mean
	I	II	III	
301				
F1	229	228	236	231
F2	227	242	224	231
F3	240	253	250	248
F4	236	260	257	251
F5	216	241	273	243
F6	251	229	255	245
AGS292				
F1	166	217	207	197
F2	208	211	224	214
F3	243	199	235	225
F4	223	236	206	222
F5	204	225	211	213
F6	246	208	208	221

30 days after sowing (R1)

Treatment	Replication			Mean
	I	II	III	
301				
F1	454	490	564	503
F2	519	468	539	509
F3	673	544	595	604
F4	611	607	650	623
F5	626	632	555	604
F6	580	577	596	584
AGS292				
F1	458	383	458	433
F2	459	443	444	449
F3	538	626	556	573
F4	605	602	584	597
F5	514	536	619	556
F6	567	485	605	553

38 days after sowing (R3)

Treatment	Replication			Mean
	I	II	III	
301				
F1	1075	1302	1415	1264
F2	1437	1382	1347	1389
F3	1475	1377	1522	1458
F4	1501	1577	1484	1521
F5	1434	1430	1414	1426
F6	1513	1431	1574	1506
AGS292				
F1	1245	1213	1195	1218
F2	1245	1395	1421	1354
F3	1382	1380	1366	1376
F4	1451	1405	1494	1450
F5	1500	1331	1331	1387
F6	1344	1341	1419	1368

44 days after sowing (R5)

Treatment	Replication			Mean
	I	II	III	
301				
F1	1789	2301	2312	2134
F2	2857	3267	2496	2874
F3	3184	3203	3263	3217
F4	3272	3322	3288	3294
F5	3037	2855	3001	2965
F6	3143	2999	3222	3121
AGS292				
F1	2524	2328	2230	2361
F2	2587	2560	2579	2575
F3	2582	3027	2538	2716
F4	3076	3008	2742	2942
F5	2878	2674	2775	2775
F6	2682	2817	2858	2786

51 days after sowing (R5.5)

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	2311	2698	2790	2770	2642
F2	3260	3216	3305	2908	3172
F3	3289	3452	3515	3519	3444
F4	3443	3408	3502	3575	3482
F5	3458	3218	3289	3180	3286
F6	3353	3465	3383	3522	3431
AGS292					
F1	2590	2545	2415	2524	2518
F2	2737	2608	2604	2746	2674
F3	2747	2854	2955	2950	2877
F4	3139	3122	3088	3084	3108
F5	3042	2816	2756	2821	2859
F6	2937	2769	3061	3214	2995

77 days after sowing (R6.5)

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	3130	3631	3381	3402	3386
F2	4096	3857	3903	3986	3960
F3	4038	4168	4318	4253	4194
F4	4332	4304	4226	4084	4236
F5	4157	3689	4125	4291	4065
F6	3889	3651	4117	4282	3985
AGS292					
F1	3420	2729	2635	2736	2880
F2	2930	2925	3206	3000	3015
F3	3198	3342	3281	3351	3288
F4	3356	3527	3671	3555	3527
F5	3488	3247	3218	3178	3285
F6	3130	3082	3289	3486	3247

Table 2.2 Analysis of variance of vegetative dry matter

21 days after sowing (V4)

Source	DF	SS	MS	F	P
TRT (F)	5	6182.9	6182.9	20.67	0.0002
VAR (V)	1	2346.9	469.37	1.57	0.2101
REP (R)	2	380.02	190.01	0.64	0.5393
F*V	5	274.25	54.850	0.18	0.9659
Error	22	6581.3	299.15		
Total	35	1.5765E+04			
G. Average	1	1.8784E+06			

30 days after sowing (R1)

Source	DF	SS	MS	F	P
TRT (F)	5	9.1103E+04	1.8221E+04	10.34	0.0000
VAR (V)	1	1.1631E+04	1.1631E+04	6.60	0.0175
REP (R)	2	5832.0	2916.0	1.66	0.2140
F*V	5	3140.2	628.04	0.36	0.8725
Error	22	3.8758E+04	1761.7		
Total	35	1.5046E+05			
G. Average	1	1.1012E+07			

38 days after sowing (R3)

Source	DF	SS	MS	F	P
TRT (F)	5	2.0927E+05	4.1855E+04	7.18	0.0004
VAR (V)	1	4.2031E+04	4.2031E+04	7.21	0.0135
REP (R)	2	8961.5	4480.8	0.77	0.4758
F*V	5	1.1153E+04	2230.6	0.38	0.8553
Error	22	1.2828E+05	5831.1		
Total	35	3.9970E+05			
G. Average	1	6.9853E+07			

44 days after sowing (R5)

Source	DF	SS	MS	F	P
TRT (F)	5	2.8036E+06	5.6073E+05	16.08	0.0000
VAR (V)	1	5.2478E+05	5.2478E+05	15.05	0.0008
REP (R)	2	4.9216E+04	2.4608E+04	0.71	0.5047
F*V	5	4.7078E+05	9.4156E+04	2.70	0.0476
Error	22	7.6738E+05	3.4881E+04		
Total	35	4.6158E+06			
G. Average	1	2.8491E+08			

51 days after sowing (R5.5)

Source	DF	SS	MS	F	P
TRT (F)	5	2.6857E+06	5.3715E+05	31.62	0.0000
VAR (V)	1	1.9636E+06	1.9636E+06	115.60	0.0000
Rep (R)	3	2.2362E+04	7454.0	0.44	0.7267
F*V	5	2.3199E+05	4.6399E+04	2.73	0.0358
Error	33	5.6054E+05	1.6986E+04		
Total	47	5.4642E+06			
G. Average	1	4.4376E+08			

77 days after sowing (R6.5)

Source	DF	SS	MS	F	P
TRT (F)	5	2.6821E+06	5.3642E+05	14.20	0.0000
VAR (V)	1	7.0082E+06	7.0082E+06	185.54	0.0000
REP (R)	3	1.0096E+05	3.3652E+04	0.89	0.4560
F*V	5	2.4712E+05	4.9424E+04	1.31	0.2844
Error	33	1.2464E+06	3.7771E+04		
Total	47	1.1285E+07			
G. Average	1	6.1829E+08			

Appendix Table 3 Plant biomass dry matter (kg/ha)

3.1 Original data for analysis of variance of plant biomass dry matter

21 days after sowing (V4)

Treatment	Replication			Mean
	I	II	III	
301				
F1	305	291	317	304
F2	299	307	297	301
F3	323	335	321	326
F4	318	333	331	327
F5	293	306	343	314
F6	335	309	334	326
AGS292				
F1	228	269	265	254
F2	274	270	287	277
F3	305	265	304	291
F4	287	299	268	285
F5	276	283	276	278
F6	309	278	276	288

30 days after sowing (R1)

Treatment	Replication			Mean
	I	II	III	
301				
F1	595	631	685	637
F2	639	585	672	632
F3	801	674	740	739
F4	740	716	779	745
F5	759	784	683	742
F6	725	685	706	705
AGS292				
F1	556	484	588	543
F2	586	565	556	569
F3	641	745	677	691
F4	720	713	705	713
F5	641	642	730	671
F6	685	686	624	665

38 days after sowing (R3)

Treatment	Replication			Mean
	I	II	III	
301				
F1	1399	1590	1746	1578
F2	1704	1687	1622	1671
F3	1794	1667	1795	1752
F4	1694	1842	1786	1774
F5	1689	1709	1683	1693
F6	1808	1687	1865	1787
AGS292				
F1	1489	1445	1463	1466
F2	1482	1628	1717	1609
F3	1604	1592	1601	1599
F4	1669	1651	1780	1700
F5	1756	1545	1568	1623
F6	1594	1609	1667	1623

44 days after sowing (R5)

Treatment	Replication			Mean
	I	II	III	
301				
F1	2252	2718	2782	2584
F2	3229	3706	2862	3265
F3	3542	3610	3683	3611
F4	3646	3744	3625	3672
F5	3369	3172	3381	3307
F6	3544	3360	3600	3501
AGS292				
F1	2864	2703	2596	2721
F2	2945	2893	2953	2930
F3	2963	3390	2945	3099
F4	3409	3337	3137	3294
F5	3237	3019	3161	3139
F6	3020	3166	3227	3138

51 days after sowing (R5.5)

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	3168	3749	3612	3784	3578
F2	4304	4546	4497	3886	4308
F3	4384	4522	4452	4575	4483
F4	4487	4578	4320	4594	4495
F5	4464	4208	4363	4145	4295
F6	4797	4538	4387	4885	4652
AGS292					
F1	3821	3504	3333	3743	3600
F2	4021	3582	3778	4055	3859
F3	3847	4156	3913	4153	4017
F4	4310	4760	4119	4478	4417
F5	4250	4253	4125	4173	4200
F6	4398	4320	4282	4402	4351

77 days after sowing (R6.5)

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	5213	5697	5479	5442	5458
F2	6120	6098	6063	6130	6103
F3	6058	6346	6511	6369	6321
F4	6233	6158	6093	6181	6167
F5	6670	6303	6804	6848	6656
F6	6638	6407	6949	7138	6783
AGS292					
F1	5797	5115	5132	5260	5326
F2	5560	5575	5939	5669	5686
F3	6072	6206	6208	6275	6190
F4	5648	6064	5997	6039	5937
F5	6795	6442	6276	6218	6433
F6	6220	5946	6478	6596	6310

Table 3.2 Analysis of variance of plant biomass dry matter
21 days after sowing (V4)

Source	DF	SS	MS	F	P
TRT (F)	5	4187.1	837.43	3.27	0.0235
VAR (V)	1	1.2797E+04	1.2797E+04	49.93	0.0000
REP (R)	2	280.04	140.52	0.55	0.5857
F*V	5	567.20	113.44	0.44	0.8139
Error	22	5638.8	256.31		
Total	35	2.3471E+04			
G. Average	1	3.1889E+06			

30 days after sowing (R1)

Source	DF	SS	MS	F	P
TRT (F)	5	9.1613E+04	1.8323E+04	9.48	0.0001
VAR (V)	1	2.2389E+04	2.2389E+04	11.58	0.0026
REP (R)	2	8137.9	4068.9	2.11	0.1457
F*V	5	6330.8	1266.2	0.66	0.6609
Error	22	4.2523E+04	1932.9		
Total	35	1.7099E+05			
G. Average	1	1.6407E+07			

38 days after sowing (R3)

Source	DF	SS	MS	F	P
TRT (F)	5	1.6521E+05	3.3042E+04	4.86	0.0038
VAR (V)	1	1.0095E+05	1.0095E+05	14.86	0.0009
REP (R)	2	2.1760E+04	1.0880E+04	1.60	0.2242
F*V	5	1.4684E+04	2936.8	0.43	0.8211
Error	22	1.4944E+05	6792.5		
Total	35	4.5204E+05			
G. Average	1	9.8750E+07			

44 days after sowing (R5)

Source	DF	SS	MS	F	P
TRT (F)	5	2.5703E+06	5.1407E+05	13.86	0.0000
VAR (V)	1	6.5574E+05	6.5574E+05	17.69	0.0004
REP (R)	2	3.8661E+04	1.9331E+04	0.52	0.6009
F*V	5	3.8906E+05	7.7811E+04	2.10	0.1040
Error	22	8.1573E+05	3.7078E+04		
Total	35	4.4695E+06			
G. Average	1	3.6598E+08			

51 days after sowing (R5.5)

Source	DF	SS	MS	F	P
TRT (F)	5	4.3706E+06	8.7412E+05	22.64	0.0000
VAR (V)	1	6.2276E+05	6.2276E+05	16.13	0.0003
REP (R)	3	1.4574E+05	4.8579E+04	1.26	0.3046
F*V	5	4.2768E+05	8.5535E+04	2.22	0.0761
Error	22	1.2740E+06	3.8607E+04		
Total	47	6.8408E+06			
G. Average	1	8.4184E+08			

77 days after sowing (R6.5)

Source	DF	SS	MS	F	P
TRT (F)	5	7.7311E+06	1.5462E+06	32.88	0.0000
VAR (V)	1	8.5924E+05	8.5924E+05	18.27	0.0002
REP (R)	3	1.7419E+05	5.8063E+04	1.23	0.3128
F*V	5	2.1033E+05	4.2065E+04	0.89	0.4962
Error	22	1.5520E+06	4.7031E+04		
Total	47	1.0527E+07			
G. Average	1	1.7944E+09			

Appendix Table 4 Yield component

Table 4.1. Original data for analysis of variance of nodes per plant

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	9.00	9.17	9.00	9.17	9.09
F2	9.17	9.17	9.17	9.17	9.17
F3	9.00	9.00	9.17	9.33	9.13
F4	9.33	9.00	9.17	9.00	9.13
F5	9.00	9.13	9.80	9.00	9.23
F6	9.45	9.93	10.27	9.30	9.74
AGS292					
F1	9.00	9.17	9.17	9.17	9.13
F2	9.17	9.00	9.00	9.00	9.04
F3	9.21	9.17	9.60	9.00	9.25
F4	9.00	9.08	9.45	9.17	9.18
F5	9.17	9.17	9.17	9.76	9.32
F6	9.35	9.35	9.35	9.35	9.35

Table 4.2. Original data for analysis of variance of pods per node

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	2.31	2.65	2.77	2.42	2.53
F2	2.67	3.06	2.21	3.04	2.74
F3	2.81	2.68	2.69	2.78	2.74
F4	2.33	2.68	2.75	2.90	2.66
F5	2.53	3.02	2.83	2.69	2.77
F6	2.95	2.46	2.58	3.10	2.77
AGS292					
F1	2.80	2.75	2.65	2.46	2.66
F2	2.64	2.60	2.69	2.92	2.71
F3	3.29	2.24	3.08	2.91	2.88
F4	2.81	3.68	3.21	2.44	3.04
F5	3.04	3.10	2.73	3.54	3.10
F6	3.07	2.90	2.99	3.18	3.03

Table 4.3 Original data for analysis of variance of average 100 fresh pod weigh (g)

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	110	109	102	99	105
F2	138	140	104	116	125
F3	118	118	126	108	118
F4	108	90	96	99	98
F5	122	126	134	144	131
F6	113	128	120	141	126
AGS292					
F1	88	125	140	130	121
F2	124	108	139	136	127
F3	126	100	134	122	121
F4	118	127	135	129	127
F5	143	129	136	165	143
F6	140	132	164	169	151

Table 4.4 Original data for analysis of variance of average 100 marketable fresh pod weight (g)

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	158	201	179	164	176
F2	209	259	187	201	214
F3	191	206	222	195	204
F4	162	169	193	216	185
F5	191	192	222	238	211
F6	195	231	194	219	209
AGS292					
F1	187	184	196	186	187
F2	180	179	248	225	208
F3	203	166	205	204	194
F4	174	190	203	218	196
F5	224	199	213	267	226
F6	214	201	263	255	234

Table 4.5 Analysis of variance of nodes per plant

Source	DF	SS	MS	F	P
TRT (F)	5	1.1159	2.2318E-01	4.81	0.0021
VAR (V)	1	1.5769E-02	1.5769E-02	0.34	0.5639
REP (R)	3	2.9589E-01	9.8630E-02	2.13	0.1158
F*V	5	3.6892E-01	7.3784E-02	1.59	0.1903
Error	33	1.5316	4.6412E-02		
Total	47	3.3280			
G. Average	1	4087.2			

Table 4.6 Analysis of variance of pods per node

Source	DF	SS	MS	F	P
TRT (F)	5	6.1581E-01	1.2316E-01	1.31	0.2828
VAR (V)	1	4.8695E-01	4.8695E-01	5.19	0.0293
REP (R)	3	7.7735E-02	2.5912E-02	0.28	0.8422
F*V	5	2.2343E-01	4.4686E-02	0.48	0.7913
Error	33	3.0967	9.3839E-02		
Total	47	4.5006			
G. Average	1	377.43			

Table 4.7 Analysis of variance of average 100 fresh pod weight (g)

Source	DF	SS	MS	F	P
TRT (F)	5	5310.9	1062.2	6.09	0.0004
VAR (V)	1	2589.9	2589.9	14.86	0.0005
REP (R)	3	935.45	311.82	1.79	0.1684
F*V	5	1238.7	247.73	1.42	0.2423
Error	33	5751.1	174.282		
Total	47	1.5826E+04			
G. Average	1	7.4250E+05			

Table 4.8 Analysis of variance of average 100 marketable fresh pod weight (g)

Source	DF	SS	MS	F	P
TRT (F)	5	1.0225E+04	2045.1	2.20	0.0782
VAR (V)	1	724.33	724.33	0.78	0.3840
REP (R)	3	5819.1	1873.0	2.01	0.1313
F*V	5	1656.7	331.34	0.36	0.8746
Error	33	3.0710E+04	930.62		
Total	47	4.8936E+04			
G. Average	1	1.9901E+06			

Appendix Table 5. Pod number and pod setting

Table 5.1 Original data for analysis of variance of marketable pod number of average 12 plants

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	4.67	4.67	5.25	3.92	4.63
F2	6.25	6.50	4.58	5.58	5.73
F3	6.50	6.17	6.67	7.17	6.75
F4	5.00	4.50	5.75	5.00	5.06
F5	6.50	9.58	8.50	7.92	8.13
F6	7.25	7.08	7.75	8.83	7.73
AGS292					
F1	5.67	7.67	6.67	7.33	6.83
F2	7.58	7.50	7.08	8.75	7.73
F3	8.00	8.50	9.75	7.58	8.58
F4	6.83	10.00	10.00	5.05	7.98
F5	10.42	9.75	8.58	13.33	10.52
F6	9.75	9.17	10.83	14.00	10.94

Table 5.2 Original data for analysis of variance of potential nonmarketable pod number of average 12 plants

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	10.67	12.33	10.92	9.75	10.92
F2	10.25	10.75	8.58	11.42	10.25
F3	10.58	9.17	8.00	10.42	9.54
F4	8.00	8.75	9.75	10.08	9.15
F5	7.08	9.58	9.00	6.83	8.13
F6	10.75	8.42	6.25	9.42	8.71
AGS292					
F1	11.83	10.67	9.83	8.17	10.13
F2	8.67	9.00	8.83	10.75	9.31
F3	10.83	7.92	10.83	10.17	9.94
F4	10.83	11.67	8.33	8.75	9.90
F5	9.58	10.42	5.83	8.42	8.56
F6	10.00	5.83	6.67	9.08	7.90

Table 5.3 Original data for analysis of variance of the pod number of remainders of average 12 plants

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	5.42	7.25	8.75	8.50	7.48
F2	7.92	10.83	7.08	10.83	9.17
F3	9.67	8.83	10.00	8.33	9.21
F4	8.75	10.83	9.75	11.00	10.08
F5	9.17	8.42	10.25	9.50	9.33
F6	9.83	8.92	12.50	10.58	10.46
AGS292					
F1	7.67	6.92	7.75	7.08	7.35
F2	7.92	6.92	8.33	6.75	7.48
F3	9.50	7.67	9.00	8.42	8.65
F4	7.67	11.75	12.00	8.50	9.98
F5	7.92	8.25	10.58	12.75	9.88
F6	8.92	12.08	10.50	6.67	9.54

Table 5.4 Original data for analysis of variance of total pod number of average 12 plants

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	20.75	24.25	24.92	22.17	23.02
F2	24.42	28.08	20.25	27.83	25.15
F3	25.25	25.67	24.67	25.92	25.50
F4	21.75	24.08	25.25	26.08	24.29
F5	22.75	27.58	27.75	24.25	25.58
F6	27.83	24.42	26.50	28.83	26.90
AGS292					
F1	25.17	25.25	24.25	22.58	24.31
F2	24.17	23.42	24.25	26.25	24.52
F3	30.33	22.08	29.58	26.17	27.17
F4	25.33	33.42	30.33	22.33	27.85
F5	27.92	28.42	25.00	34.50	28.96
F6	28.67	27.08	28.00	29.75	28.38

Table 5.5 Analysis of variance of marketable pod number of average 12 plants

Source	DF	SS	MS	F	P
TRT (F)	5	91.753	18.351	8.29	0.0000
VAR (V)	1	70.640	70.640	31.92	0.0000
REP (R)	3	4.4276	1.4759	0.67	0.5783
F*V	5	2.8783	0.57567	0.26	0.9315
Error	33	73.022	2.2128		
Total	47	242.72			
G. Average	1	2676.2			

Table 5.6 Analysis of variance of potential nonmarketable pod number of average 12 plants

Source	DF	SS	MS	F	P
TRT (F)	5	30.794	6.1587	3.05	0.0225
VAR (V)	1	3.0720E-01	0.3072	0.15	0.6989
REP (R)	3	11.788	3.9293	1.95	0.1410
F*V	5	5.8594	1.1719	0.58	0.7142
Error	33	66.562	2.0170		
Total	47	115.31			
G. Average	1	4212.4			

Table 5.7 Analysis of variance of pod number of remainders of average 12 plants

Source	DF	SS	MS	F	P
TRT (F)	5	43.062	8.6123	3.98	0.0062
VAR (V)	1	2.7028	2.7028	1.25	0.2716
Rep (R)	3	10.854	3.6181	1.67	0.1917
F*V	5	5.9128	1.1826	0.55	0.7394
Error	33	71.352	2.1622		
Total	47	133.88			
G. Average	1	3931.9			

Table 5.8 Analysis of variance of average total pod number of average 12 plants

Source	DF	SS	MS	F	P
TRT (F)	5	88.351	17.670	2.08	0.0930
VAR (V)	1	38.521	38.521	4.53	0.0408
Rep (R)	3	6.3295	2.1098	0.25	0.8620
F*V	5	23.689	4.7378	0.56	0.7316
Error	33	280.45	8.4985		
Total	47	437.34			
G. Average	1	3.2163E+04			

Appendix Table 6. The relative abundance of ureide (%) in xylem sap

Table 6.1 Original data for analysis of variance of relative abundance of ureide in xylem sap
21 days after sowing (V4)

Treatment	Replication			Mean
	I	II	III	
301				
F1	10.87	10.81	11.37	11.01
F2	11.57	11.03	10.71	11.10
F3	11.87	13.41	11.10	12.13
F4	11.81	12.89	12.01	12.24
F5	11.99	11.51	12.37	11.96
F6	11.40	12.35	12.73	12.16
AGS292				
F1	10.65	12.44	10.74	11.28
F2	12.88	11.42	10.11	11.47
F3	12.75	14.34	13.24	13.44
F4	12.86	12.31	14.38	13.18
F5	12.59	14.02	12.77	13.13
F6	12.97	12.89	15.17	13.68

30 days after sowing (R1)

Treatment	Replication			Mean
	I	II	III	
301				
F1	61.37	57.10	56.13	58.20
F2	58.04	58.46	56.78	57.76
F3	36.76	48.72	37.60	41.03
F4	22.31	25.84	32.27	26.81
F5	39.95	40.70	38.16	39.60
F6	41.48	39.68	38.22	39.79
AGS292				
F1	53.93	58.17	53.06	55.05
F2	59.26	53.01	54.15	55.47
F3	46.00	49.63	48.56	48.06
F4	28.64	36.39	32.51	32.51
F5	45.55	54.21	45.93	48.56
F6	43.95	48.81	49.30	47.36

38 days after sowing (R3)

Treatment	Replication			Mean
	I	II	III	
301				
F1	79.66	77.48	78.51	78.55
F2	66.77	66.15	67.04	66.65
F3	67.44	68.66	67.67	67.93
F4	56.87	57.24	48.98	54.36
F5	56.80	55.27	54.32	55.46
F6	70.43	68.27	66.39	68.36
AGS292				
F1	80.69	79.19	77.87	79.25
F2	66.14	66.98	67.55	66.89
F3	72.53	64.08	68.99	68.53
F4	51.88	55.37	52.85	53.37
F5	52.64	60.15	54.40	55.73
F6	70.49	68.06	67.82	68.79

44 days after sowing (R5)

Treatment	Replication			Mean
	I	II	III	
301				
F1	85.20	83.56	85.43	84.73
F2	68.91	71.84	73.86	71.54
F3	77.25	78.98	75.87	77.37
F4	67.43	70.61	73.55	70.53
F5	65.01	66.56	69.73	67.10
F6	75.29	73.18	76.36	74.94
AGS292				
F1	86.38	85.27	85.70	85.78
F2	72.77	69.80	70.33	70.96
F3	78.40	77.34	74.01	76.58
F4	67.99	65.87	73.60	69.15
F5	66.54	68.71	67.59	67.61
F6	71.66	73.58	72.25	72.50

51 days after sowing (R5.5)

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	86.86	86.19	85.48	84.60	85.78
F2	80.29	80.06	80.71	80.24	80.32
F3	82.71	83.96	81.78	79.84	82.07
F4	77.94	77.46	78.60	78.55	78.14
F5	77.57	73.99	81.97	72.67	76.55
F6	79.66	82.33	80.62	81.75	81.09
AGS292					
F1	86.80	88.34	88.38	88.33	87.96
F2	81.27	79.38	79.74	80.36	80.19
F3	82.77	80.57	82.71	81.83	81.97
F4	80.90	73.39	78.61	77.48	77.59
F5	78.30	74.72	79.80	74.52	76.84
F6	78.73	76.71	75.36	74.57	76.34

77 days after sowing (R6.5)

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	79.31	79.90	79.80	80.16	79.79
F2	78.80	79.05	79.51	79.07	79.11
F3	80.14	78.79	80.43	79.02	79.59
F4	79.89	79.39	78.09	78.43	78.95
F5	77.68	79.29	79.62	76.67	78.32
F6	79.30	78.90	80.25	79.25	79.42
AGS292					
F1	82.07	81.92	81.69	80.57	81.56
F2	81.55	79.82	79.56	77.69	79.65
F3	79.17	81.02	80.87	79.30	80.09
F4	78.92	79.15	80.46	79.30	79.45
F5	80.38	80.74	80.62	80.51	80.56
F6	78.98	80.84	81.34	81.65	80.70

Table 6.2 Analysis of variance of relative ureide-N in xylem sap

21 days after sowing (V4)

Source	DF	SS	MS	F	P
TRT (F)	5	19.065	3.8129	4.59	0.0051
VAR (V)	1	7.7841	7.7841	9.38	0.0057
REP (R)	2	1.1401	5.7007E-01	0.69	0.5136
F*V	5	1.9794	3.9588E-01	0.48	0.7894
Error	22	7.1317E+05	2.1611E+04		
Total	35	48.224			
G. Average	1	5384.8			

30 days after sowing (R1)

Source	DF	SS	MS	F	P
TRT (F)	5	3025.1	605.02	52.89	0.0000
VAR (V)	1	141.82	141.82	12.40	0.0019
REP (R)	2	53.816	26.908	2.35	0.1186
F*V	5	209.91	41.982	3.67	0.0145
Error	22	251.65	11.439		
Total	35	3682.3			
G. Average	1	7.5683E+04			

38 days after sowing (R3)

Source	DF	SS	MS	F	P
TRT (F)	5	2588.3	517.65	92.26	0.0000
VAR (V)	1	3.8131E-01	3.8131E-01	0.07	0.7968
REP (R)	2	17.763	8.8817	1.58	0.2279
F*V	5	2.8397	5.6794E-01	0.10	0.9908
Error	22	123.43	5.6106		
Total	35	2732.7			
G. Average	1	1.5361E+05			

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44 days after sowing (R5)

Source	DF	SS	MS	F	P
TRT (F)	5	1227.3	245.46	56.41	0.0000
VAR (V)	1	3.2683	3.2683	0.75	0.3955
REP (R)	2	11.511	5.7556	1.32	0.2868
F*V	5	12.050	2.4101	0.55	0.7338
Error	22	95.721	4.3510		
Total	35	1349.8			
G. Average	1	1.9749E+05			

51 days after sowing (R5.5)

Source	DF	SS	MS	F	P
TRT (F)	5	540.37	108.07	32.45	0.0000
VAR (V)	1	3.1268	3.1268	0.94	0.3396
REP (R)	3	26.752	8.9174	2.68	0.0631
F*V	5	52.216	10.443	3.14	0.0200
Error	33	123.43	5.6106		
Total	47	732.36			
G. Average	1	3.1030E+05			

77 days after sowing (R6.5)

Source	DF	SS	MS	F	P
TRT (F)	5	12.007	2.4015	3.301	0.0159
VAR (V)	1	15.592	15.592	21.42	0.0001
REP (R)	3	5.0634	1.6878	2.32	0.0935
F*V	5	5.5992	1.1198	1.54	0.2049
Error	33	24.018	7.2782E-01		
Total	47	62.280			
G. Average	1	3.0541E+05			

Appendix Table 7. The proportion of plant nitrogen derived from nitrogen fixation

Table 7.1 Original data for analysis of variance of proportion of plant nitrogen derived from nitrogen fixation

21 days after sowing (V4)				
Treatment	Replication			Mean
	I	II	III	
301				
F1	7.34	7.27	7.94	7.52
F2	8.19	7.54	7.15	7.62
F3	8.56	10.42	7.62	8.87
F4	8.48	9.79	8.73	9.00
F5	8.70	8.12	9.15	8.66
F6	7.98	9.13	9.59	8.90
AGS292				
F1	7.08	9.25	7.18	7.84
F2	9.77	8.01	6.43	8.07
F3	9.62	11.54	10.21	10.46
F4	9.75	9.08	11.59	10.14
F5	9.42	11.16	9.64	10.07
F6	9.88	9.79	12.55	10.74
30 days after sowing (R1)				
Treatment	Replication			Mean
	I	II	III	
301				
F1	68.45	63.29	62.11	64.61
F2	64.43	64.93	62.89	64.08
F3	38.67	53.15	39.69	43.84
F4	21.19	25.46	33.24	26.63
F5	42.53	43.44	40.37	42.11
F6	44.38	42.20	40.44	42.34
AGS292				
F1	59.45	64.58	58.40	60.81
F2	65.89	58.33	59.72	61.31
F3	49.84	54.24	52.95	52.34
F4	28.85	38.22	33.53	33.53
F5	49.31	59.79	49.76	52.95
F6	47.37	53.25	53.85	51.49

38 days after sowing (R3)

Treatment	Replication			Mean
	I	II	III	
301				
F1	86.96	83.71	85.24	85.30
F2	67.75	66.83	68.15	67.58
F3	68.75	70.57	69.09	69.47
F4	53.00	53.54	41.25	49.26
F5	52.89	50.61	49.20	50.90
F6	73.21	69.99	67.18	70.12
AGS292				
F1	88.49	86.25	84.29	86.34
F2	66.81	68.07	68.92	67.93
F3	76.34	63.74	71.05	70.38
F4	45.57	50.77	47.01	47.78
F5	46.69	57.88	49.31	51.29
F6	73.29	69.67	69.31	70.76

44 days after sowing (R5)

Treatment	Replication			Mean
	I	II	III	
301				
F1	95.21	92.76	95.55	94.51
F2	70.94	75.30	78.31	74.85
F3	83.36	85.94	81.32	83.54
F4	68.74	73.48	77.85	73.36
F5	65.13	67.44	72.17	68.25
F6	80.45	77.30	82.04	79.93
AGS292				
F1	96.97	95.31	95.96	96.08
F2	76.69	72.26	73.05	74.00
F3	85.07	83.50	78.53	82.37
F4	69.56	66.41	77.93	71.30
F5	67.40	70.65	68.98	69.01
F6	75.04	77.89	75.92	76.28

51 days after sowing (R5.5)

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	97.68	96.69	95.63	94.32	96.08
F2	87.89	87.55	88.51	87.83	87.94
F3	91.49	93.36	90.12	87.22	90.55
F4	84.39	83.68	85.37	85.30	84.69
F5	83.84	78.50	90.40	76.54	82.32
F6	86.95	90.94	88.38	90.06	89.08
AGS292					
F1	97.59	99.89	99.94	99.88	99.32
F2	89.35	86.53	87.07	88.00	87.74
F3	91.60	88.31	91.49	90.19	90.40
F4	88.80	77.61	85.40	83.71	83.88
F5	84.93	79.60	87.16	79.30	82.75
F6	85.57	82.56	80.55	79.37	82.01

77 days after sowing (R6.5)

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	86.44	87.32	87.17	87.70	87.16
F2	85.67	86.05	86.73	86.07	86.13
F3	87.67	85.66	88.11	86.00	86.86
F4	87.30	86.55	84.62	85.12	85.90
F5	84.01	86.41	86.90	82.49	84.95
F6	86.42	85.82	87.84	86.34	86.61
AGS292					
F1	90.54	90.32	89.98	88.31	89.79
F2	89.77	87.19	86.80	84.02	86.95
F3	86.23	88.99	88.77	86.42	87.60
F4	85.85	86.20	88.14	86.41	86.65
F5	88.02	88.56	88.38	88.22	88.30
F6	85.95	88.71	89.46	89.91	88.51

Table 7.2 Analysis of variance of proportion of plant nitrogen derived from nitrogen fixation

21 days after sowing (V4)					
Source	DF	SS	MS	F	P
TRT (F)	5	27.872	5.5744	4.59	0.0051
VAR (V)	1	11.391	11.391	9.39	0.0057
REP (R)	2	1.6709	8.3544E-01	0.69	0.5129
F*V	5	2.8882	5.7763E-01	0.48	0.7902
Error	22	26.700	1.2137		
Total	35	70.522			
G. Average	1	2909.7			
30 days after sowing (R1)					
Source	DF	SS	MS	F	P
TRT (F)	5	4429.3	885.86	52.89	0.0000
VAR (V)	1	207.70	207.70	12.40	0.0019
REP (R)	2	78.793	39.396	2.35	0.1186
F*V	5	307.42	61.484	3.67	0.0145
Error	22	368.49	16.750		
Total	35	5391.7			
G. Average	1	8.8823E+04			
38 days after sowing (R3)					
Source	DF	SS	MS	F	P
TRT (F)	5	5746.3	1149.3	92.26	0.0000
VAR (V)	1	8.5254E-01	8.5254E-01	0.07	0.7961
REP (R)	2	39.413	19.706	1.58	0.2281
F*V	5	6.3068	1.2614	0.10	0.9908
Error	22	274.04	12.456		
Total	35	6066.9			
G. Average	1	1.5489E+05			

44 days after sowing (R5)

Source	DF	SS	MS	F	P
TRT (F)	5	2724.3	544.87	56.41	0.0000
VAR (V)	1	7.2630	7.2630	0.75	0.3952
REP (R)	2	25.557	12.778	1.32	0.2867
F*V	5	26.765	5.3530	0.55	0.7336
Error	22	212.49	9.6587		
Total	35	2996.4			
G. Average	1	2.2253E+05			

51 days after sowing (R5.5)

Source	DF	SS	MS	F	P
TRT (F)	5	1199.7	239.95	32.46	0.0000
VAR (V)	1	6.9312	6.9312	0.94	0.3400
REP (R)	3	59.385	19.795	2.68	0.0631
F*V	5	115.89	23.178	3.14	0.0201
Error	33	243.97	7.3931		
Total	47	1625.9			
G. Average	1	3.7225E+05			

77 days after sowing (R6.5)

Source	DF	SS	MS	F	P
TRT (F)	5	26.668	5.3337	3.30	0.0159
VAR (V)	1	34.578	34.578	21.40	0.0001
REP (R)	3	11.221	3.7402	2.31	0.0939
F*V	5	12.403	2.4806	1.53	0.2060
Error	33	53.332	1.6161		
Total	47	138.20			
G. Average	1	3.6428E+05			

Appendix Table 8. Cumulative crop nitrogen

Table 8.1 Original data for analysis of cumulative crop nitrogen (kg/ha)

21 days after sowing (V4)				
Treatment	Replication			Mean
	I	II	III	
301				
F1	10.4	10.5	10.7	10.5
F2	10.6	10.9	10.2	10.5
F3	12.2	13.6	11.8	12.5
F4	12.5	12.1	12.9	12.5
F5	11.7	12.0	12.4	12.1
F6	12.9	11.4	12.3	12.2
AGS292				
F1	9.1	10.5	9.4	9.7
F2	9.5	10.0	9.7	9.7
F3	12.0	10.7	11.3	11.3
F4	10.9	10.3	11.2	10.8
F5	9.4	11.0	11.4	10.6
F6	11.1	10.5	11.2	11.0

*Note: There are 2.97 and 2.92 kg N/ha in the seeds of 301 and AGS292 respectively

30 days after sowing (R1)				
Treatment	Replication			Mean
	I	II	III	
301				
F1	21.7	25.5	22.4	23.2
F2	23.3	20.4	22.7	22.1
F3	28.4	26.9	24.5	26.6
F4	31.0	29.4	31.1	30.6
F5	27.4	26.4	25.6	26.5
F6	26.6	27.0	26.6	26.7
AGS292				
F1	20.9	18.2	20.1	19.7
F2	24.0	25.1	18.9	22.7
F3	27.1	26.2	26.3	26.5
F4	30.8	28.5	28.6	29.3
F5	25.0	26.1	24.7	25.3
F6	24.8	25.1	26.6	25.5

38 days after sowing (R3)

Treatment	Replication			Mean
	I	II	III	
301				
F1	40.5	48.4	43.2	44.0
F2	53.2	51.8	50.2	51.7
F3	54.5	53.8	54.5	54.3
F4	56.0	57.0	56.0	56.4
F5	51.5	52.6	50.4	51.5
F6	54.7	55.7	54.8	55.1
AGS292				
F1	38.3	44.1	42.3	41.5
F2	48.6	52.3	50.5	50.4
F3	53.5	53.7	50.8	52.7
F4	57.8	55.2	56.3	56.5
F5	56.6	52.4	54.3	54.4
F6	51.6	53.0	54.4	53.0

44 days after sowing (R5)

Treatment	Replication			Mean
	I	II	III	
301				
F1	72.4	72.5	69.3	71.4
F2	91.8	96.4	91.5	93.3
F3	99.3	103.1	106.0	102.8
F4	104.1	106.6	108.5	106.4
F5	100.2	98.0	99.4	99.2
F6	103.3	99.7	107.6	103.5
AGS292				
F1	72.7	69.6	68.0	70.1
F2	83.0	86.0	85.2	84.7
F3	88.4	89.1	86.8	88.1
F4	95.6	93.3	92.7	93.9
F5	89.2	86.5	88.6	88.1
F6	93.0	92.4	93.5	93.0

51 days after sowing (R5.5)

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	105	104	100	100	103
F2	124	121	122	126	123
F3	124	134	136	137	133
F4	140	134	130	141	136
F5	128	122	124	123	124
F6	137	132	135	140	136
AGS292					
F1	111	103	102	107	106
F2	109	99	109	112	108
F3	117	120	119	121	119
F4	135	139	133	131	134
F5	125	124	121	126	124
F6	131	131	129	130	130

77 days after sowing (R6.5)

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	136	150	142	141	142
F2	173	167	165	155	165
F3	154	166	167	174	165
F4	163	163	162	157	161
F5	185	183	198	193	190
F6	194	187	203	203	197
AGS292					
F1	170	151	149	151	155
F2	164	163	187	167	170
F3	183	183	190	189	186
F4	164	166	170	172	168
F5	210	220	198	182	202
F6	195	193	205	197	197

Table 8.2 Analysis of variance of proportion of cumulative crop nitrogen

21 days after sowing (V4)					
Source	DF	SS	MS	F	P
TRT (F)	5	14.643	2.9286	7.45	0.0003
VAR (V)	1	9.7240	9.7240	24.74	0.0001
REP (R)	2	2.4080E-01	1.2040E-01	0.31	0.7392
F*V	5	3.2347	6.4694E-01	1.65	0.1897
Error	22	8.6464	3.9302E-01		
Total	35	36.489			
G. Average	1	4509.8			
30 days after sowing (R1)					
Source	DF	SS	MS	F	P
TRT (F)	5	282.88	56.577	25.10	0.0000
VAR (V)	1	11.334	11.334	5.03	0.0354
REP (R)	2	6.6596	3.3298	1.48	0.2501
F*V	5	14.331	2.8662	1.27	0.3114
Error	2	49.599	2.2545		
Total	35	364.81			
G. Average	1	2.3202E+04			
38 days after sowing (R3)					
Source	DF	SS	MS	F	P
TRT (F)	5	673.60	134.72	37.93	0.0000
VAR (V)	1	4.7089	4.7089	1.33	0.2619
REP (R)	2	8.8431	4.4216	1.24	0.3075
F*V	5	29.621	5.9242	1.67	0.1842
Error	22	78.140	3.5518		
Total	35	794.91			
G. Average	1	9.6563E+04			

44 days after sowing (R5)

Source	DF	SS	MS	F	P
TRT (F)	5	3465.8	693.16	132.23	0.0000
VAR (V)	1	860.15	860.15	164.09	0.0000
REP (R)	2	8.4702E-01	4.2351E-01	0.08	0.9227
F*V	5	160.89	32.179	6.14	0.0011
Error	22	115.32	5.2419		
Total	35	4603.0			
G. Average	1	2.9942E+05			

51 days after sowing (R5.5)

Source	DF	SS	MS	F	P
TRT (F)	5	5413.1	1082.6	87.84	0.0000
VAR (V)	1	380.08	380.08	30.84	0.0000
REP (R)	3	74.854	24.951	2.02	0.1296
F*V	5	571.57	114.31	9.27	0.0000
Error	33	406.74	12.325		
Total	47	6846.3			
G. Average	1	7.2658E+05			

77 days after sowing (R6.5)

Source	DF	SS	MS	F	P
TRT (F)	5	1.4263E+04	2852.6	40.75	0.0000
VAR (V)	1	1128.5	1128.5	16.12	0.0003
REP (R)	3	149.76	49.921	0.71	0.5512
F*V	5	530.02	106.00	1.51	0.2122
Error	33	2310.1	70.003		
Total	47	1.8381E+04			
G. Average	1	1.4714E+06			

Appendix Table 9. Cumulative amount of N fixed (kg/ha)

Table 9.1 Original data for analysis of cumulative amount of nitrogen fixed (kg/ha)

21 days after sowing (V4)

Treatment	Replication			Mean
	I	II	III	
301				
F1	0.27	0.27	0.31	0.28
F2	0.31	0.30	0.26	0.29
F3	0.39	0.55	0.33	0.43
F4	0.40	0.45	0.43	0.43
F5	0.38	0.37	0.43	0.39
F6	0.40	0.38	0.45	0.41
AGS292				
F1	0.22	0.35	0.23	0.27
F2	0.37	0.32	0.25	0.31
F3	0.43	0.45	0.43	0.44
F4	0.39	0.33	0.48	0.40
F5	0.30	0.45	0.41	0.39
F6	0.40	0.37	0.52	0.43

30 days after sowing (R1)

Treatment	Replication			Mean
	I	II	III	
301				
F1	4.56	5.59	4.43	4.86
F2	4.91	3.75	4.63	4.43
F3	4.21	4.80	3.34	4.12
F4	3.15	3.54	4.26	3.65
F5	4.39	4.08	3.70	4.06
F6	3.98	4.39	4.04	4.14
AGS292				
F1	4.16	3.19	3.74	3.70
F2	4.49	5.00	3.96	4.44
F3	4.93	5.54	5.16	5.21
F4	4.23	4.64	4.40	4.42
F5	4.90	5.79	4.36	5.02
F6	4.33	4.96	5.64	4.97

38 days after sowing (R3)

Treatment	Replication			Mean
	I	II	III	
301				
F1	19.2	22.4	19.7	20.4
F2	24.7	24.4	22.6	23.9
F3	18.3	21.4	19.7	19.8
F4	14.3	12.4	13.5	13.4
F5	16.4	14.8	15.9	15.7
F6	20.5	20.5	19.2	20.1
AGS292				
F1	21.7	18.0	19.6	19.8
F2	21.8	22.2	23.3	22.4
F3	21.6	21.8	20.3	21.3
F4	15.6	14.3	16.6	15.5
F5	20.0	19.0	21.3	20.1
F6	20.5	22.1	22.8	21.8

44 days after sowing (R5)

Treatment	Replication			Mean
	I	II	III	
301				
F1	48.3	43.6	43.3	45.1
F2	51.5	56.2	52.9	53.5
F3	52.3	60.0	58.4	56.9
F4	43.6	44.0	44.8	44.1
F5	45.1	41.6	45.6	44.1
F6	57.8	53.0	58.6	56.4
AGS292				
F1	53.6	41.1	42.7	45.8
F2	46.5	45.9	47.9	46.8
F3	49.8	47.8	47.3	48.3
F4	37.3	36.6	39.3	37.7
F5	38.6	40.9	41.6	40.4
F6	51.2	51.2	51.2	51.2

51 days after sowing (R5.5)

Treatment	Replication			Mean
	I	II	III	
301				
F1	80.0	73.8	73.0	75.6
F2	77.3	76.3	77.9	77.2
F3	82.4	89.6	84.5	85.5
F4	68.4	67.2	69.2	68.3
F5	62.5	60.5	63.0	62.0
F6	86.5	82.6	86.3	85.1
AGS292				
F1	90.0	76.1	79.3	81.8
F2	68.5	64.0	69.8	67.4
F3	74.9	73.8	75.8	74.8
F4	68.4	65.2	70.6	68.1
F5	65.9	67.7	69.1	67.6
F6	81.1	79.9	79.6	80.2

77 days after sowing (R6.5)

Treatment	Replication			Mean
	I	II	III	
301				
F1	121	109	110	113
F2	122	116	116	118
F3	111	116	118	115
F4	88	97	88	91
F5	117	111	123	117
F6	135	140	139	138
AGS292				
F1	141	117	117	125
F2	116	112	118	115
F3	136	135	141	137
F4	96	95	105	98
F5	140	134	127	134
F6	138	138	139	138

Table 9.2 Analysis of variance of cumulative amount of nitrogen fixed

21 days after sowing (V4)					
Source	DF	SS	MS	F	P
TRT (F)	5	1.3233E-01	2.6467E-02	7.00	0.0005
VAR (V)	1	1.1111E-05	1.1111E-05	0.00	0.9573
REP (R)	2	5.1500E-03	2.5750E-03	0.68	0.5165
F*V	5	3.2222E-03	6.4444E-04	0.17	0.9708
Error	22	8.3183E-02	3.9302E-01		
Total	35	2.2390E-01			
G. Average	1	4.9729			
30 days after sowing (R1)					
Source	DF	SS	MS	F	P
TRT (F)	5	1.5591	3.1182E-01	0.77	0.5838
VAR (V)	1	1.6341	1.6341	4.02	0.0575
REP (R)	2	8.8971E-01	4.4485E-01	1.09	0.3526
F*V	5	5.5311	1.1062	2.72	0.0465
Error	22	8.9510	4.0686E-01		
Total	35	18.565			
G. Average	1	703.75			
38 days after sowing (R3)					
Source	DF	SS	MS	F	P
TRT (F)	5	269.75	53.950	33.89	0.0000
VAR (V)	1	13.963	13.963	8.77	0.0072
REP (R)	2	8.4650E-02	4.2325E-02	0.03	0.9738
F*V	5	33.207	6.6414	4.17	0.0081
Error	22	35.021	1.5919		
Total	35	352.03			
G. Average	1	1.3705E+04			

44 days after sowing (R5)

Source	DF	SS	MS	F	P
TRT (F)	5	886.35	177.27	20.91	0.0000
VAR (V)	1	224.45	224.45	26.47	0.0000
REP (R)	2	9.1938	4.5969	0.54	0.5890
F*V	5	79.591	15.918	1.88	0.1393
Error	22	186.52	8.4780		
Total	35	1386.1			
G. Average	1	8.1310E+04			

51 days after sowing (R5.5)

Source	DF	SS	MS	F	P
TRT (F)	5	1530.5	306.10	36.83	0.0000
VAR (V)	1	46.968	46.968	5.65	0.0266
REP (R)	2	37.795	18.898	2.27	0.1266
F*V	5	405.69	81.137	9.76	0.0001
Error	22	182.86	8.3118		
Total	35	2203.8			
G. Average	1	1.9961E+05			

77 days after sowing (R6.5)

Source	DF	SS	MS	F	P
TRT (F)	5	6240.6	1248.1	36.30	0.0000
VAR (V)	1	780.36	780.36	22.70	0.0001
REP (R)	2	76.508	38.254	1.11	0.3465
F*V	5	691.73	138.35	4.02	0.0096
Error	22	756.43	34.383		
Total	35	8545.7			
G. Average	1	5.1823E+05			

Appendix Table 10. Available nitrogen content in soil

Table 10.1 Original data for analysis of available nitrogen in soil (ug/g)

5 days after sowing (Germination)

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	25.28	30.26	26.58	27.79	27.49
F2	29.71	26.12	27.76	26.61	27.55
F3	28.80	23.38	28.58	34.32	28.77
F4	35.45	24.32	28.28	30.96	29.75
F5	25.23	24.77	34.13	30.57	28.68
F6	26.82	29.98	31.21	27.82	28.96
AGS292					
F1	27.24	25.58	23.89	28.06	26.19
F2	28.75	25.22	23.59	29.21	26.69
F3	26.20	27.87	28.48	28.45	27.75
F4	27.47	24.96	29.54	28.41	27.60
F5	22.48	28.66	23.34	30.35	26.21
F6	22.75	27.23	29.32	31.83	27.78

21 days after sowing (V4)

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	20.02	27.43	21.45	29.53	24.61
F2	27.81	25.61	24.03	23.70	25.29
F3	26.37	32.76	24.19	34.15	29.37
F4	35.02	32.13	27.89	30.93	31.49
F5	33.01	25.77	32.59	28.45	29.96
F6	29.22	32.77	32.86	30.07	31.23
AGS292					
F1	28.01	22.03	26.45	24.56	25.26
F2	25.84	26.77	27.35	22.80	25.69
F3	28.65	25.84	30.97	31.26	29.18
F4	29.01	30.84	29.85	34.14	30.96
F5	26.81	29.62	26.98	32.84	29.06
F6	34.61	25.98	28.67	30.73	30.00

30 days after sowing (R1)

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	7.55	9.19	8.54	8.08	8.34
F2	8.95	7.74	7.45	8.15	8.07
F3	16.66	15.01	14.24	13.05	14.74
F4	18.84	20.82	16.54	17.02	18.31
F5	13.95	16.86	14.22	14.74	14.94
F6	16.25	14.02	15.02	13.76	14.76
AGS292					
F1	7.30	9.10	7.24	8.74	8.10
F2	10.01	9.03	8.82	7.54	8.85
F3	7.10	16.87	13.38	14.14	12.87
F4	18.17	20.41	16.55	14.46	17.40
F5	14.78	12.81	10.68	12.75	12.76
F6	12.35	13.24	12.24	14.74	13.14

38 days after sowing (R3)

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	6.01	6.17	7.87	7.13	6.80
F2	12.53	9.56	9.26	10.74	10.52
F3	8.17	10.70	8.44	11.70	9.75
F4	11.40	18.28	13.58	12.61	13.97
F5	19.49	17.17	20.65	14.70	18.00
F6	8.08	11.25	8.85	8.02	9.05
AGS292					
F1	6.46	5.51	6.67	7.23	6.47
F2	8.01	9.28	10.35	13.80	10.36
F3	9.66	8.26	9.04	8.14	8.78
F4	10.10	10.18	9.84	12.29	10.60
F5	17.46	19.08	14.91	20.04	17.87
F6	9.01	8.84	8.17	9.92	8.99

52 days after sowing (R5.5)

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	3.21	3.64	3.54	3.84	3.56
F2	3.94	3.57	3.31	3.53	3.59
F3	3.41	3.58	3.39	4.42	3.70
F4	3.68	3.44	4.31	3.61	3.76
F5	7.10	3.53	2.78	2.92	4.08
F6	3.25	2.25	7.58	3.75	4.20
AGS292					
F1	3.89	3.41	3.93	4.32	3.89
F2	3.73	3.79	4.25	4.46	4.06
F3	4.17	5.84	4.66	3.57	4.56
F4	5.00	4.81	4.88	3.99	4.67
F5	4.47	5.01	5.09	6.84	5.35
F6	5.14	4.40	6.04	4.57	5.04

77 days after sowing (R6.5)

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	3.21	3.36	3.11	3.19	3.22
F2	3.28	3.15	3.53	3.61	3.39
F3	3.31	3.06	3.14	3.29	3.20
F4	2.90	3.06	3.71	3.36	3.26
F5	3.78	3.60	3.58	4.01	3.74
F6	3.87	3.56	3.17	3.45	3.51
AGS292					
F1	2.80	2.94	3.32	2.90	2.99
F2	3.64	2.70	4.67	2.85	3.47
F3	3.04	3.53	2.94	3.60	3.28
F4	3.31	3.47	3.84	3.57	3.55
F5	4.04	4.23	3.30	3.60	3.79
F6	3.30	3.31	3.85	4.12	3.65

Table 10.2 Analysis of variance of available nitrogen content in soil

5 days after sowing (Germination)					
Source	DF	SS	MS	F	P
TRT (F)	5	22.552	4.5103	0.50	0.7721
VAR (V)	1	26.775	26.775	2.98	0.0935
REP (R)	3	60.3040	20.013	2.23	0.1031
F*V	5	4.3264	8.6527E-01	0.10	0.9921
Error	33	296.15	8.9743		
Total	47	409.85			
G. Average	1	3.7052E+04			
21 days after sowing (V4)					
Source	DF	SS	MS	F	P
TRT (F)	5	282.35	56.469	1.75	0.0399
VAR (V)	1	1.0651	1.0651	0.03	0.8568
REP (R)	3	62.821	20.940	0.65	0.5884
F*V	5	5.3857	1.0771	0.03	0.9994
Error	33	1062.6	32.199		
Total	47	1414.2			
G. Average	1	3.9009E+04			
30 days after sowing (R1)					
Source	DF	SS	MS	F	P
TRT (F)	5	549.65	109.93	36.97	0.0000
VAR (V)	1	12.201	12.201	4.10	0.0509
REP (R)	3	20.398	6.7992	2.29	0.0968
F*V	5	12.570	2.5139	0.85	0.5275
Error	33	98.117	2.9732		
Total	47	692.94			
G. Average	1	7729.2			

38 days after sowing (R3)

Source	DF	SS	MS	F	P
TRT (F)	5	608.75	121.75	12.21	0.0000
VAR (V)	1	8.4253	8.4253	0.85	0.3646
REP (R)	3	38.677	12.892	1.29	0.2930
F*V	5	16.442	3.2884	0.33	0.8913
Error	33	328.95	9.9680		
Total	47	1001.2			
G. Average	1	5733.7			

51 days after sowing (R5.5)

Source	DF	SS	MS	F	P
TRT (F)	5	6.5744	1.3149	1.16	0.3518
VAR (V)	1	7.2696	7.2696	6.39	0.0165
REP (R)	3	1.8130	6.0435E-01	0.53	0.6642
F*V	5	1.1290	2.2579E-01	0.20	0.9609
Error	33	37.565	1.1383		
Total	47	54.351			
G. Average	1	848.74			

77 days after sowing (R6.5)

Source	DF	SS	MS	F	P
TRT (F)	5	2.2338	4.4676E-01	3.05	0.0628
VAR (V)	1	5.2272E-02	5.2272E-02	0.36	0.5546
REP (R)	3	2.4812E-01	8.2708E-02	0.56	0.6427
F*V	5	2.8324E-01	5.6648E-02	0.39	0.8547
rror	33	4.8409	1.4670E-01		
Total	47	7.6584			
G. Average	1	561.40			

Appendix Table 11. Nodule dry weight (g/plant)

Table 11.1 Original data for analysis of nodule dry weight
21 days after sowing (V4)

Treatment	Replication			Mean
	I	II	III	
301				
F1	0.012	0.013	0.010	0.011
F2	0.009	0.014	0.012	0.012
F3	0.013	0.015	0.014	0.014
F4	0.017	0.017	0.014	0.016
F5	0.013	0.012	0.018	0.014
F6	0.015	0.015	0.014	0.015
AGS292				
F1	0.015	0.018	0.016	0.016
F2	0.017	0.015	0.018	0.017
F3	0.021	0.022	0.024	0.021
F4	0.024	0.030	0.020	0.025
F5	0.022	0.022	0.020	0.021
F6	0.021	0.022	0.020	0.021

30 days after sowing (R1)

Treatment	Replication			Mean
	I	II	III	
301				
F1	0.065	0.059	0.054	0.060
F2	0.050	0.061	0.061	0.057
F3	0.039	0.038	0.036	0.038
F4	0.021	0.023	0.020	0.021
F5	0.030	0.028	0.029	0.029
F6	0.035	0.031	0.032	0.033
AGS292				
F1	0.072	0.066	0.071	0.069
F2	0.068	0.072	0.067	0.069
F3	0.054	0.054	0.057	0.055
F4	0.031	0.033	0.033	0.032
F5	0.059	0.060	0.061	0.060
F6	0.062	0.060	0.061	0.061

38 days after sowing (R3)

Treatment	Replication			Mean
	I	II	III	
301				
F1	0.290	0.276	0.233	0.266
F2	0.190	0.183	0.174	0.182
F3	0.163	0.155	0.175	0.164
F4	0.091	0.120	0.084	0.098
F5	0.149	0.190	0.166	0.168
F6	0.163	0.153	0.155	0.157
AGS292				
F1	0.210	0.189	0.258	0.219
F2	0.156	0.175	0.159	0.163
F3	0.164	0.156	0.180	0.167
F4	0.127	0.123	0.126	0.125
F5	0.153	0.195	0.109	0.152
F6	0.144	0.173	0.166	0.161

44 days after sowing (R5)

Treatment	Replication			Mean
	I	II	III	
301				
F1	0.440	0.426	0.373	0.413
F2	0.260	0.353	0.243	0.285
F3	0.212	0.298	0.295	0.268
F4	0.178	0.185	0.167	0.176
F5	0.201	0.209	0.200	0.203
F6	0.192	0.279	0.268	0.246
AGS292				
F1	0.259	0.311	0.364	0.311
F2	0.292	0.223	0.211	0.242
F3	0.200	0.182	0.267	0.216
F4	0.183	0.175	0.199	0.186
F5	0.254	0.243	0.218	0.238
F6	0.258	0.226	0.277	0.254

51 days after sowing (R5.5)

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	0.601	0.628	0.660	0.636	0.631
F2	0.621	0.572	0.541	0.574	0.577
F3	0.599	0.595	0.621	0.580	0.599
F4	0.536	0.521	0.532	0.586	0.544
F5	0.527	0.627	0.614	0.605	0.593
F6	0.596	0.606	0.619	0.642	0.616
AGS292					
F1	0.643	0.633	0.628	0.618	0.630
F2	0.618	0.588	0.606	0.573	0.596
F3	0.653	0.618	0.629	0.571	0.613
F4	0.620	0.581	0.558	0.588	0.587
F5	0.580	0.588	0.607	0.551	0.582
F6	0.588	0.602	0.591	0.644	0.606

77 days after sowing (R6.5)

Treatment	Replication				Mean
	I	II	III	IV	
301					
F1	0.337	0.305	0.312	0.315	0.317
F2	0.236	0.304	0.273	0.309	0.282
F3	0.347	0.225	0.277	0.297	0.286
F4	0.279	0.265	0.271	0.272	0.272
F5	0.301	0.282	0.289	0.290	0.291
F6	0.304	0.281	0.300	0.321	0.302
AGS292					
F1	0.402	0.415	0.400	0.390	0.402
F2	0.375	0.366	0.384	0.357	0.375
F3	0.360	0.425	0.332	0.373	0.372
F4	0.322	0.350	0.354	0.350	0.344
F5	0.376	0.357	0.414	0.362	0.377
F6	0.382	0.370	0.363	0.420	0.384

Table 11.2 Analysis of variance of nodule dry weight

21 days after sowing (V4)						
Source	DF	SS	MS	F	P	
TRT (F)	5	1.7786E-04	3.5572E-05	8.64	0.0001	
VAR (V)	1	3.9734E-04	3.9734E-04	96.54	0.0000	
REP (R)	2	1.2702E-05	6.3508E-06	1.54	0.2360	
F*V	5	1.5249E-05	3.0498E-06	0.74	0.6010	
Error	22	9.0552E-05	4.1160E-06			
Total	35	6.9370E-04				
G. Average	1	1.0323E-02				
30 days after sowing (R1)						
Source	DF	SS	MS	F	P	
TRT (F)	5	5.8400E-03	1.1680E-03	122.19	0.0000	
VAR (V)	1	3.0195E-03	3.0195E-03	315.89	0.0000	
REP (R)	2	4.9556E-07	2.4778E-07	0.03	0.9744	
F*V	5	6.2438E-04	1.2488E-04	13.06	0.0000	
Error	22	2.1029E-04	9.5587E-06			
Total	35	9.6947E-03				
G. Average	1	8.5196E-02				
38 days after sowing (R3)						
Source	DF	SS	MS	F	P	
TRT (F)	5	5.3383E-02	1.0677E-02	22.78	0.0000	
VAR (V)	1	5.9862E-04	5.9862E-04	1.28	0.2706	
REP (R)	2	5.1462E-04	2.5731E-04	0.55	0.5853	
F*V	5	4.8357E-03	9.6714E-04	2.06	0.1089	
Error	22	1.0312E-02	4.6873E-04			
Total	35	6.9644E-02				
G. Average	1	1.0241				

44 days after sowing (R5)

Source	DF	SS	MS	F	P
TRT (F)	5	1.0974E-01	2.1949E-02	14.58	0.0000
VAR (V)	1	5.2514E-03	5.2514E-03	3.49	0.0751
REP (R)	2	1.5718E-03	7.8592E-04	0.52	0.6004
F*V	5	1.9079E-02	3.8158E-03	2.54	0.0588
Error	22	3.3109E-02	1.5050E-03		
Total	35	1.6876E-01			
G. Average	1	2.3081			

51 days after sowing (R5.5)

Source	DF	SS	MS	F	P
TRT (F)	5	2.0990E-02	4.1917E-03	5.51	0.0009
VAR (V)	1	9.7560E-04	9.7560E-04	1.28	0.2660
REP (R)	3	1.3005E-04	4.3349E-05	0.06	0.9819
F*V	5	4.3413E-03	8.6826E-04	1.14	0.3594
Error	33	2.5148E-02	7.6206E-04		
Total	47	5.1584E-02			
G. Average	1	17.148			

77 days after sowing (R6.5)

Source	DF	SS	MS	F	P
TRT (F)	5	1.1941E-02	2.3882E-03	3.58	0.0107
VAR (V)	1	8.3167E-02	8.3167E-02	124.78	0.0000
REP (R)	3	5.7746E-04	1.9249E-04	0.29	0.8332
F*V	5	3.7935E-04	7.5869E-05	0.11	0.9885
Error	33	2.1996E-02	6.6653E-04		
Total	47	1.1806E-01			
G. Average	1	5.3288			

Table 12. Linear regression of P(fix) on available soil N (ug/g)

Stage	Regression equation	R ²	Std. Err of Coef
301			
V4	Y=2.106+0.221N	0.957	0.023
R1	Y=94.15-3.553N	0.987	0.203
R3	Y=100.528-3.092N	0.844	0.665
R5.5	Y=123.16-9.098N	0.259	7.694
R6.5	Y=95.97-2.865N	0.583	1.213
AGS292			
V4	Y=-4.833+0.507N	0.879	0.094
R1	Y=87.096-2.874N	0.925	0.409
R3	Y=94.452-2.731N	0.562	1.205
R5.5	Y=131.80-9.511N	0.662	3.395
R6.5	Y=93.907-1.721N	0.181	1.827

Y: P(fix), proportion of plant N derived from N fixation

X: Available soil N

V4 21 days after sowing

R1 30 days after sowing

R3 38 days after sowing

R5.5: 51 days after sowing

R6.5: 77 days after sowing

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