

APPENDICES

Appendix Table A2.1 **Soil pH in the 0-10 cm and 20-30 cm soil depth layers at physiological maturity period of groundnut at HRC and MES, 1999/2000- 2000/01 seasons**

Treatment	HRC						MES					
	1999/2000		2000/01		2001/02		1999/2000		2000/01		2001/02	
	Soil depth layer (cm)											
	0-10	20-30	0-10	20-30	0-10	20-30	0-10	20-30	0-10	20-30	0-10	20-30
G-200	5.1	4.8	4.9	5.0	4.6	4.8	4.2	4.0	4.3	4.4	4.4	4.6
L-2000	5.6	4.8	5.2	5.3	5.1	5.3	5.4	4.1	5.1	4.6	4.5	5.0
CL-4000	5.8	5.0	5.6	5.8	5.4	5.7	6.1	4.4	5.0	5.5	4.5	5.1
DL-4000	5.8	4.9	5.2	5.5	5.4	5.3	5.9	4.3	5.3	5.1	4.5	5.0
SSP-250	5.1	4.8	4.9	4.7	4.8	4.8	4.1	4.1	4.2	4.5	4.8	4.5
G + CL	4.8	4.9	5.3	5.4	5.0	5.1	5.7	4.1	5.2	4.7	4.3	4.6
G + SSP	4.9	4.9	5.1	5.0	4.8	4.9	4.3	4.2	4.7	4.6	4.7	4.4
SSP + CL	5.5	4.8	5.5	5.2	4.9	5.1	5.0	4.1	5.2	4.7	4.3	4.9
SSP + G + CL	5.6	4.5	5.5	5.3	5.6	5.7	5.5	4.1	5.3	5.6	4.3	4.8
Control	4.6	4.8	4.7	4.3	4.5	4.3	4.1	4.0	4.2	4.2	4.3	4.1
Mean	5.3	4.8	5.2	5.2	5.0	5.1	5.0	4.1	4.9	4.8	4.5	4.7
LSD_(0.05)	0.36	0.28	0.11	0.11	0.22	0.29	0.45	0.18	0.29	0.27	0.17	0.23

Appendix Table A2.2 Soil Ca and Mg levels in the 0-10 cm and 20-30 cm soil depth layers at physiological maturity period of groundnut at HRC, 1999/2000 and 2000/01 cropping seasons

Treatment	1999/2000				2000/01			
	Soil nutrient level (mg kg ⁻¹)							
	Ca		Mg		Ca		Mg	
	Soil depth layer (cm)							
	0-10	20-30	0-10	20-30	0-10	20-30	0-10	20-30
G-200	158	188	20	24	171	165	35	28
L-2000	233	143	34	27	195	189	30	25
CL-4000	332	145	35	28	239	266	42	30
DL-4000	282	160	91	34	236	233	54	42
SSP-250	209	150	29	25	145	179	35	26
G + CL	168	158	29	25	191	192	34	31
G + SSP	159	153	27	28	183	184	31	23
SSP + CL	232	142	29	21	170	185	33	26
SSP + G + CL	275	141	33	20	211	210	42	32
Control	167	131	23	24	106	99	31	26
Mean	221	151	35	26	184	190	37	29
LSD_(0.05)	95.88	53.50	20.00	8.65	121.2	54.5	11.83	10..29

Appendix Table 2.3 Soil Ca and Mg levels in the 0-10 cm and 20-30 cm soil depth layers at physiological maturity period of groundnut at MES, 1999/2000 and 2000/01 cropping seasons

Treatment	1999/2000				2000/01			
	Soil nutrient level (mg kg ⁻¹)							
	Ca		Mg		Ca		Mg	
	Soil depth layer (cm)							
	0-10	20-30	0-10	20-30	0-10	20-30	0-10	20-30
G-200	71	52	7	6	135	129	29	27
L-2000	100	100	30	8	158	128	33	33
CL-4000	277	116	35	10	196	157	36	40
DL-4000	139	103	55	15	220	174	28	34
SSP-250	88	49	5	5	140	128	29	25
G + CL	189	86	20	8	184	143	23	31
G + SSP	74	59	8	7	146	137	27	26
SSP + CL	141	72	15	6	168	138	27	30
SSP + G + CL	171	72	19	8	202	162	29	30
Control	64	49	8	6	105	104	22	25
Mean	131	76	20	8	165	140	38	30
LSD_(0.05)	109	61.8	8.33	3.05	112.1	79.2	12.38	9.98

Appendix Table A2.4 Soil N, P and K levels in the 0-10 cm and 20-30 cm soil depth layers at physiological maturity period of groundnut at HRC and MES, 1999/2000 season

	HRC						MES					
	Soil nutrient level (mg kg ⁻¹)											
	N		P		K		N		P		K	
	Soil depth layer (cm)											
	0-10	20-30	0-10	20-30	0-10	20-30	0-10	20-30	0-10	20-30	0-10	20-30
G-200	9	14	24	22	20	16	5	4	64	54	15	14
L-2000	10	7	26	24	18	14	2	4	48	55	19	11
CL-4000	6	6	23	23	20	16	3	5	43	51	23	10
DL-4000	5	10	27	24	17	12	2	2	42	43	24	11
SSP-250	5	6	30	21	16	16	1	3	74	60	14	11
G + CL	5	7	28	19	13	13	3	1	42	59	25	10
G + SSP	7	9	31	29	15	19	2	5	55	40	15	12
SSP + CL	4	8	23	23	12	12	1	1	61	59	15	12
SSP + G + CL	7	4	27	25	13	13	3	4	51	71	18	13
Control	6	3	23	23	18	14	2	5	67	55	21	18
Mean	6	7	26	23	16	15	2	3	55	55	19	12
LSD_(0.05)	1.563	2.873	2.897	2.999	2.596	3.030	1.178	2.054	6.040	7.224	3.461	1.936

Appendix Table A2.5 Soil N, P and K levels in the 0-10 cm and 20-30 cm soil depth layers at physiological maturity period of groundnut at HRC and MES, 2000/01 season

Treatment	HRC						MES					
	Soil nutrient level (mg kg ⁻¹)											
	N		P		K		N		P		K	
	Soil depth layer (cm)											
	0-10	20-30	0-10	20-30	0-10	20-30	0-10	20-30	0-10	20-30	0-10	20-30
G-200	12	11	27	18	20	21	13	11	25	30	14	14
L-2000	11	7	18	17	13	21	12	12	24	27	14	12
CL-4000	10	11	23	20	17	21	12	8	25	29	13	11
DL-4000	11	35	22	28	17	23	14	8	19	25	12	11
SSP-250	9	10	23	23	17	19	10	10	20	25	13	12
G + CL	16	13	16	16	17	19	17	10	16	24	15	13
G + SSP	11	17	36	24	15	17	15	9	15	30	13	13
SSP + CL	7	13	24	24	15	17	17	9	17	26	14	14
SSP + G + CL	13	13	31	19	13	15	12	9	22	23	12	11
Control	12	11	19	13	20	19	20	6	21	21	17	17
Mean	11	14	24	20	16	19	11	9	34	26	14	13
LSD_(0.05)	5.19	4.83	3.98	3.71	3.77	4.14	3.23	2.81	2.030	5.16	2.32	2.04

Appendix Table A2.6 Total correlation coefficients between soil, kernel and shell nutrient contents at HRC and MES

	HRC					MES				
	Soil Nutrients									
	Ca	Mg	N	P	K	Ca	Mg	N	P	K
Kernel Ca	0.044 ^{ns}	0.067 ^{ns}	0.241 ^{ns}	0.011 ^{ns}	0.072 ^{ns}	0.231 ^{ns}	0.173 ^{ns}	0.161 ^{ns}	0.177 ^{ns}	0.126 ^{ns}
“ Mg	0.551**	0.081 ^{ns}	0.021 ^{ns}	0.353*	0.169 ^{ns}	0.532**	0.029 ^{ns}	0.134 ^{ns}	0.235 ^{ns}	0.232 ^{ns}
“ N	0.249 ^{ns}	0.148 ^{ns}	0.213 ^{ns}	0.268 ^{ns}	0.060 ^{ns}	0.132 ^{ns}	0.032 ^{ns}	0.066 ^{ns}	0.034 ^{ns}	0.145 ^{ns}
“ P	0.009 ^{ns}	0.182 ^{ns}	0.094 ^{ns}	0.016 ^{ns}	0.100 ^{ns}	0.061 ^{ns}	0.119 ^{ns}	0.202 ^{ns}	0.079 ^{ns}	0.081 ^{ns}
“ K	0.250 ^{ns}	0.026 ^{ns}	0.328*	0.315*	0.020 ^{ns}	0.204 ^{ns}	0.111 ^{ns}	0.272 ^{ns}	0.245 ^{ns}	0.009 ^{ns}
Shell Ca	0.459**	0.180 ^{ns}	0.263 ^{ns}	0.207 ^{ns}	0.095 ^{ns}	0.472**	0.163 ^{ns}	0.230 ^{ns}	0.090 ^{ns}	0.229 ^{ns}
“ Mg	0.485**	0.358*	0.227 ^{ns}	0.104 ^{ns}	0.104 ^{ns}	0.267 ^{ns}	0.224 ^{ns}	0.341*	0.099 ^{ns}	0.343*
“ N	0.173 ^{ns}	0.313*	0.042 ^{ns}	0.097 ^{ns}	0.035 ^{ns}	0.246 ^{ns}	0.264 ^{ns}	0.031 ^{ns}	0.062 ^{ns}	0.085 ^{ns}
“ P	0.127 ^{ns}	0.011 ^{ns}	0.046 ^{ns}	0.115 ^{ns}	0.089 ^{ns}	0.046 ^{ns}	0.113 ^{ns}	0.024 ^{ns}	0.137 ^{ns}	0.037 ^{ns}
“ K	0.364*	0.311*	0.385*	0.180 ^{ns}	0.116 ^{ns}	0.313*	0.250 ^{ns}	0.154 ^{ns}	0.094 ^{ns}	0.119 ^{ns}

* Correlation is significant at the 0.05 level (2-tailed).
 0.01 level (2-tailed). ^{ns} Correlation is not significant

** Correlation is significant at the

Appendix Table A 2.7 Effect of soil ameliorants on the proportion of mature pods and empty pods (pops) at MES

Treatment	1999/2000		2001/02	
	Mature pods (%)	Pops (%)	Mature pods (%)	Pops (%)
G-200	76.6	11.2	74.8	12.5
L-2000	73.6	13.2	71.2	14.3
CL-4000	79.6	10.2	78.7	10.6
DL-4000	74.8	12.6	69.2	13.9
SSP-250	73.1	13.4	69.7	15.1
G + CL	71.8	14.1	72.4	13.7
G + SSP	72.9	13.6	71.1	14.5
SSP + CL	73.1	13.5	74.5	12.7
SSP + G + CL	79.1	10.5	77.8	11.3
Control	57.5	21.3	45.4	22.3
Mean	73.2	13.6	70.4	14.1
LSD_(0.05)	4.04	1.26	3.87	0.78

Appendix Table A3.1 **Effect of Ca source and rate on soil chemical parameters at peak flowering period of groundnut - Pot Experiment 2000/01 season**

Ca Source	Ca rate (kg ha ⁻¹)	pH (CaCl ₂)	Soil nutrient level (mg kg ⁻¹)				
			Ca	Mg	N	P	K
1. Calcitic Lime	115	4.51	144	37.3	18.0	21.6	46.9
2. Calcitic Lime	403	5.97	404	63.7	19.3	24.7	38.4
3. Calcitic Lime	690	6.23	492	50.3	12.3	26.3	36.0
4. Dolomitic Lime	115	4.47	136	51.0	24.3	15.3	41.1
5. Dolomitic Lime	403	5.90	348	62.7	23.3	15.7	38.3
6. Dolomitic Lime	690	6.13	444	82.3	21.3	14.7	39.2
7. Gypsum	115	4.17	140	30.0	18.0	14.9	33.5
8. Gypsum	403	4.20	327	34.3	22.3	14.8	24.9
9. Gypsum	690	4.63	384	41.0	23.0	19.1	29.7
10. SSP	53	4.28	147	26.0	23.7	21.5	44.0
11. SSP + Calcitic lime	743	5.95	436	68.7	26.3	35.8	57.4
12. SSP + Gypsum	743	5.13	347	31.3	33.7	26.7	40.2
13. Control	0	4.10	104	20.7	20.3	14.6	29.2
LSD_(0.05) Ca Source		0.30	71.0	9.7	5.6	2.8	6.3
Ca Rate		0.37	87.0	11.9	6.9	3.4	7.7
Source x Rate		0.53	123.1	16.9	9.8	4.9	10.9

Appendix Table A3.2 **Effect of Ca source and rate on shoot and root dry mass and nodule size - Pot Experiment 2000/01 season**

Ca Source		Ca rate (kg ha ⁻¹)	SDM (g plant ⁻¹)	RDM (g plant ⁻¹)	Nodule size (mg nodule ⁻¹)
1.	Calcitic Lime	115	10.0	4.65	6.14
2.	Calcitic Lime	403	10.3	5.46	5.09
3.	Calcitic Lime	690	12.3	5.72	5.66
4.	Dolomitic Lime	115	9.3	5.30	5.04
5.	Dolomitic Lime	403	12.3	5.41	4.35
6.	Dolomitic Lime	690	13.9	5.41	3.68
7.	Gypsum	115	11.4	4.88	11.18
8.	Gypsum	403	12.6	4.63	6.32
9.	Gypsum	690	14.2	4.40	6.82
10.	SSP	53	7.4	4.16	8.98
11.	SSP + Calcitic lime	743	12.1	4.48	3.97
12.	SSP + Gypsum	743	12.6	4.25	4.18
13.	Control	0	5.4	3.36	5.81
LSD _(0.05) Ca Source			2.78	0.59	0.66
Ca Rate			2.62	0.56	0.63

Source x Rate

4.54

0.96

1.08

Appendix Table A3.3 **Effect of Ca source and rate on leaf nutrient content at peak flowering period of groundnut - Pot Experiment 2000/01 season**

Ca Source	Ca rate (kg ha ⁻¹)	Leaf nutrient concentration (%)				
		Ca	Mg	N	P	K
1. Calcitic Lime	115	0.94	0.53	2.28	0.28	2.45
2. Calcitic Lime	403	1.25	0.44	2.41	0.17	3.89
3. Calcitic Lime	690	1.46	0.44	2.78	0.42	4.23
4. Dolomitic Lime	115	0.82	0.79	2.22	0.18	2.35
5. Dolomitic Lime	403	1.30	0.75	2.35	0.27	3.32
6. Dolomitic Lime	690	1.45	0.72	2.64	0.22	3.79
7. Gypsum	115	1.61	0.61	1.83	0.22	2.62
8. Gypsum	403	1.63	0.48	1.97	0.32	4.52
9. Gypsum	690	2.09	0.45	2.01	0.20	3.07
10. SSP	53	1.16	0.47	1.84	0.31	4.19
11. SSP + Calcitic lime	743	1.82	0.52	2.65	0.48	4.20
12. SSP + Gypsum	743	1.42	0.54	2.31	0.34	2.75
13. Control	0	0.76	0.25	1.71	0.15	2.21
LSD_(0.05) Ca Source		0.262	0.09	0.20	0.05	0.46

Ca Rate	0.302	0.11	0.26	0.07	0.59
Source x Rate	0.524	0.19	0.45	0.12	1.02

Appendix Table A3.4 **Effect of Ca source and rate on basal and apical kernel yields and kernel quality parameters - Pot Experiment 2000/01 season**

Ca Source		Ca rate (kg ha⁻¹)	Basal kernel yield (g plant⁻¹)	Apical kernel yield (g plant⁻¹)	Sound mature kernels (%)	Shrivelled kernels (%)	Discolored kernels (%)	Rotted kernels (%)
1.	Calcitic Lime	115	1.84	1.47	87	12.1	1.00	0.00
2.	Calcitic Lime	403	2.83	2.54	90	6.9	0.76	0.00
3.	Calcitic Lime	690	3.04	2.50	92	4.1	0.00	0.00
4.	Dolomitic Lime	115	2.72	1.97	85	15.2	0.00	0.21
5.	Dolomitic Lime	403	2.41	2.24	87	11.4	0.22	1.01
6.	Dolomitic Lime	690	2.96	2.61	91	8.9	0.00	0.00
7.	Gypsum	115	2.30	1.75	94	5.9	0.00	0.00
8.	Gypsum	403	2.75	2.10	87	10.0	0.97	1.74
9.	Gypsum	690	2.09	1.56	90	10.1	0.00	0.28
10.	SSP	53	0.89	0.66	74	26.1	1.93	2.41
11.	SSP + Calcitic lime	743	2.75	2.28	95	4.3	0.23	0.34
12.	SSP + Gypsum	743	2.86	2.39	93	6.8	0.00	0.00
13.	Control	0	0.47	0.34	44	54.9	6.12	2.31
LSD_(0.05) Ca Source		0.264	0.264	0.201	3.514	3.59	0.295	0.407
Ca Rate		0.28	0.28	0.213	3.727	3.808	0.313	0.431

Source x Rate	0.458	0.458	0.348	6.086	6.218	0.511	0.704
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