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79/R/CS/161 Injected N - Old Grass

Rothamsted Research

Rothamsted Research (1980) *79/R/CS/161 Injected N - Old Grass* ; Yields Of The Field Experiments 1979, pp 137 - 158 - DOI: <https://doi.org/10.23637/ERADOC-1-45>

79/R/CS/161

INJECTED N

Object: To study the cumulative and residual effects of injecting aqueous urea, with or without a nitrification inhibitor, at three rates and two spacings on the yield and nitrogen uptake of old grass cut for silage - Highfield IX.

Sponsors: F.V. Widdowson, A. Penny, J. Ashworth.

The fifth year, old grass.

For previous years see 76-78/R/CS/161.

Design: 2 randomised blocks of 18 plots split into 2.

Whole plot dimensions: 4.27 x 15.2.

Treatments: All combinations of:-

Whole plots

1. LIQUID N Liquid nitrogen fertiliser:
 UREA Aqueous solution of urea, no nitrification inhibitor
 UREA+INH Aqueous solution of urea plus a nitrification inhibitor
 (ammonium trithiocarbonate in 1976, sodium trithiocarbonate
 in 1977 and 1978)
2. SPACING Spacing between tines injecting liquid fertiliser:
 30 CM
 60 CM
3. N RATE Rate of liquid fertiliser, applied as a single annual
 dressing (kg N):
 250
 375
 500

Sub plots

4. YEARS Years of application, cumulative when applied:
 75+6+8+9 1975, 1976, 1978 and 1979
 75+6+7+8 1975, 1976, 1977 and 1978

plus six whole plots given 'Nitro-Chalk', dressing divided between cuts (kg N, total/annum):

SOLID N

- 0
- 100
- 200
- 300
- 400
- 500

with sub plots YEARS as above.

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NOTES: (1) The whole area was grazed in 1975, yields were not taken.
 (2) Sodium trithiocarbonate was applied at 18 kg to SPACING, 30 CM and at 9 kg to SPACING, 60 CM.

Basal applications: (0:14:28) at 1010 kg.

Cultivations, etc.:— PK applied: 15 Nov, 1978. Aqueous urea and inhibitors injected: 3 Apr, 1979. Solid N applied six times: 3 Apr, 11 May, 7 June, 11 July, 13 Aug and 10 Sept. Cut: 10 May, 6 June, 10 July, 10 Aug, 7 Sept, and 24 Oct.

NOTE: The subsoil was tested for N content before injecting and topsoil was tested weekly throughout the season for ammonium and nitrate content.

1ST CUT (10/5/79) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

SPACING	30 CM	60 CM	MEAN	
LIQUID N				
UREA	1.02	0.96	0.99	
UREA+INH	1.00	0.97	0.98	
MEAN	1.01	0.96	0.99	
N RATE	250	375	500	MEAN
LIQUID N				
UREA	0.81	1.00	1.16	0.99
UREA+INH	0.85	0.89	1.21	0.98
MEAN	0.83	0.94	1.18	0.99
N RATE	250	375	500	MEAN
SPACING				
30 CM	0.93	0.96	1.15	1.01
60 CM	0.74	0.93	1.21	0.96
MEAN	0.83	0.94	1.18	0.99
YEARS	75+6+8+9	75+6+7+8	MEAN	
LIQUID N				
UREA	1.42	0.56	0.99	
UREA+INH	1.39	0.58	0.98	
MEAN	1.41	0.57	0.99	
YEARS	75+6+8+9	75+6+7+8	MEAN	
SPACING				
30 CM	1.59	0.43	1.01	
60 CM	1.22	0.70	0.96	
MEAN	1.41	0.57	0.99	

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1ST CUT (10/5/79) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

YEARS	75+6+8+9	75+6+7+8	MEAN				
N RATE							
250	1.23	0.44	0.83				
375	1.39	0.50	0.94				
500	1.60	0.77	1.18				
MEAN	1.41	0.57	0.99				
SPACING	30 CM			60 CM			
N RATE	250	375	500	250	375	500	
LIQUID N							
UREA	0.93	0.96	1.18	0.69	1.03	1.14	
UREA+INH	0.92	0.96	1.13	0.79	0.82	1.29	
SPACING	30 CM			60 CM			
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8			
LIQUID N							
UREA	1.61	0.43	1.23	0.68			
UREA+INH	1.57	0.43	1.20	0.73			
N RATE	250		375		500		
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	
LIQUID N							
UREA	1.22	0.41	1.49	0.50	1.56	0.76	
UREA+INH	1.24	0.47	1.28	0.50	1.65	0.77	
N RATE	250		375		500		
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	
SPACING							
30 CM	1.49	0.36	1.53	0.39	1.76	0.55	
60 CM	0.96	0.52	1.25	0.61	1.44	0.99	
N RATE	250		375		500		
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	
LIQUID N							
UREA	30 CM	1.49	0.38	1.58	0.35	1.78	0.57
	60 CM	0.94	0.44	1.41	0.65	1.34	0.94
UREA+INH	30 CM	1.49	0.35	1.48	0.43	1.75	0.52
	60 CM	0.98	0.59	1.09	0.56	1.54	1.03
SOLID N	0	100	200	300	400	500	MEAN
YEARS							
75+6+8+9		0.55	0.82	1.21	1.60	1.55	1.15
75+6+7+8		0.26	0.42	0.69	0.40	0.56	0.47
MEAN	0.36	0.41	0.62	0.95	1.00	1.05	0.73

GRAND MEAN 0.90

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1ST CUT (10/5/79) DRY MATTER TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	SOLID N	LIQUID N	SPACING	N RATE
SED	0.130	0.053	0.053	0.065

TABLE	YEARS	LIQUID N SPACING	LIQUID N N RATE	SPACING N RATE
SED	0.036 0.056*	0.075	0.092	0.092

TABLE	SOLID N YEARS	LIQUID N YEARS	SPACING YEARS	N RATE YEARS
SED	0.157	0.064	0.064	0.078
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
SOLID N	0.124			
LIQUID N		0.051		
SPACING			0.051	
N RATE				0.062

TABLE	LIQUID N SPACING N RATE	LIQUID N SPACING YEARS	LIQUID N N RATE YEARS	SPACING N RATE YEARS
SED	0.130	0.091	0.111	0.111
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
LIQUID N.SPACING		0.072		
LIQUID N.N RATE			0.088	
SPACING N RATE				0.088

TABLE	LIQUID N SPACING N RATE YEARS
SED	0.157
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:	
LIQUID N.SPACING.N RATE	0.124

* USE ONLY IN TABLES INVOLVING SOLID N

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	17	0.130	14.4
BLOCK.WP.SP	19	0.124	13.8

1ST CUT MEAN DM% 24.3

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2ND CUT (6/6/79) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

SPACING	30 CM	60 CM	MEAN	
LIQUID N				
UREA	3.13	3.05	3.09	
UREA+INH	2.99	3.11	3.05	
MEAN	3.06	3.08	3.07	
N RATE	250	375	500	MEAN
LIQUID N				
UREA	2.88	3.09	3.29	3.09
UREA+INH	2.92	2.92	3.33	3.05
MEAN	2.90	3.00	3.31	3.07
N RATE	250	375	500	MEAN
SPACING				
30 CM	2.93	2.99	3.26	3.06
60 CM	2.87	3.01	3.36	3.08
MEAN	2.90	3.00	3.31	3.07
YEARS	75+6+8+9	75+6+7+8	MEAN	
LIQUID N				
UREA	3.90	2.28	3.09	
UREA+INH	3.87	2.24	3.05	
MEAN	3.88	2.26	3.07	
YEARS	75+6+8+9	75+6+7+8	MEAN	
SPACING				
30 CM	4.07	2.06	3.06	
60 CM	3.70	2.46	3.08	
MEAN	3.88	2.26	3.07	

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2ND CUT (6/6/79) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

YEARS	75+6+8+9	75+6+7+8	MEAN				
N RATE							
250	3.84	1.96	2.90				
375	3.93	2.07	3.00				
500	3.88	2.74	3.31				
MEAN	3.88	2.26	3.07				
SPACING	30 CM			60 CM			
N RATE	250	375	500	250	375	500	
LIQUID N							
UREA	3.00	3.07	3.33	2.77	3.11	3.26	
UREA+INH	2.87	2.92	3.20	2.96	2.92	3.46	
SPACING	30 CM			60 CM			
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8			
LIQUID N							
UREA	4.13	2.13	3.67	2.43			
UREA+INH	4.00	1.99	3.73	2.49			
N RATE	250		375		500		
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	
LIQUID N							
UREA	3.76	2.01	4.04	2.13	3.90	2.69	
UREA+INH	3.92	1.91	3.82	2.01	3.86	2.79	
N RATE	250		375		500		
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	
SPACING							
30 CM	4.01	1.86	4.13	1.85	4.06	2.47	
60 CM	3.67	2.07	3.74	2.29	3.70	3.02	
N RATE	250		375		500		
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	
LIQUID N							
SPACING							
UREA	30 CM	3.94	2.05	4.34	1.80	4.11	2.54
	60 CM	3.57	1.97	3.75	2.47	3.68	2.84
UREA+INH	30 CM	4.08	1.66	3.92	1.91	4.00	2.39
	60 CM	3.76	2.16	3.72	2.12	3.72	3.20
SOLID N	0	100	200	300	400	500	MEAN
YEARS							
75+6+8+9		2.48	2.98	3.01	3.46	3.66	3.12
75+6+7+8		1.53	1.71	2.09	1.73	2.16	1.84
MEAN	2.36	2.01	2.34	2.55	2.60	2.91	2.46

GRAND MEAN 2.87

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2ND CUT (6/6/79) DRY MATTER TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	SOLID N	LIQUID N	SPACING	N RATE
SED	0.184	0.075	0.075	0.092

TABLE	YEARS	LIQUID N SPACING	LIQUID N N RATE	SPACING N RATE
SED	0.065 0.101*	0.106	0.130	0.130

TABLE	SOLID N YEARS	LIQUID N YEARS	SPACING YEARS	N RATE YEARS
SED	0.243	0.099	0.099	0.121
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
	SOLID N 0.224	LIQUID N 0.091	SPACING 0.091	N RATE 0.112

TABLE	LIQUID N SPACING N RATE	LIQUID N SPACING YEARS	LIQUID N N RATE YEARS	SPACING N RATE YEARS
SED	0.184	0.140	0.172	0.172
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
	LIQUID N.SPACING LIQUID N.N RATE SPACING N RATE	0.129	0.158	0.158

TABLE	LIQUID N SPACING N RATE YEARS
SED	0.243
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:	
	LIQUID N.SPACING.N RATE 0.224

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	17	0.184	6.4
BLOCK.WP.SP	19	0.224	7.8

2ND CUT MEAN% 17.3

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3RD CUT (10/7/79) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

SPACING	30 CM	60 CM	MEAN	
LIQUID N				
UREA	1.19	1.29	1.24	
UREA+INH	1.16	1.27	1.22	
MEAN	1.18	1.28	1.23	
N RATE	250	375	500	MEAN
LIQUID N				
UREA	1.26	1.21	1.26	1.24
UREA+INH	1.25	1.25	1.15	1.22
MEAN	1.25	1.23	1.21	1.23
N RATE	250	375	500	MEAN
SPACING				
30 CM	1.21	1.21	1.11	1.18
60 CM	1.30	1.24	1.31	1.28
MEAN	1.25	1.23	1.21	1.23
YEARS	75+6+8+9	75+6+7+8	MEAN	
LIQUID N				
UREA	1.55	0.93	1.24	
UREA+INH	1.52	0.91	1.22	
MEAN	1.53	0.92	1.23	
YEARS	75+6+8+9	75+6+7+8	MEAN	
SPACING				
30 CM	1.44	0.92	1.18	
60 CM	1.63	0.93	1.28	
MEAN	1.53	0.92	1.23	

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3RD CUT (10/7/79) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

YEARS	75+6+8+9	75+6+7+8	MEAN				
N RATE							
250	1.53	0.98	1.25				
375	1.56	0.90	1.23				
500	1.52	0.90	1.21				
MEAN	1.53	0.92	1.23				
SPACING	30 CM			60 CM			
N RATE	250	375	500	250	375	500	
LIQUID N							
UREA	1.23	1.20	1.16	1.29	1.21	1.37	
UREA+INH	1.19	1.23	1.06	1.31	1.27	1.24	
SPACING	30 CM			60 CM			
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8			
LIQUID N							
UREA	1.48	0.91	1.62	0.96			
UREA+INH	1.40	0.92	1.64	0.91			
N RATE	250		375		500		
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	
LIQUID N							
UREA	1.60	0.92	1.52	0.89	1.53	0.99	
UREA+INH	1.46	1.04	1.60	0.90	1.50	0.80	
N RATE	250		375		500		
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	
SPACING							
30 CM	1.38	1.04	1.53	0.89	1.40	0.82	
60 CM	1.67	0.92	1.59	0.90	1.63	0.98	
N RATE	250		375		500		
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	
LIQUID N							
UREA	30 CM	1.46	0.99	1.55	0.85	1.43	0.88
	60 CM	1.73	0.84	1.48	0.94	1.63	1.10
UREA+INH	30 CM	1.30	1.08	1.51	0.94	1.37	0.75
	60 CM	1.61	1.01	1.69	0.85	1.63	0.85
SOLID N	0	100	200	300	400	500	MEAN
YEARS							
75+6+8+9		1.24	1.21	1.51	1.47	1.45	1.38
75+6+7+8		0.79	0.85	0.78	0.76	0.91	0.82
MEAN	1.25	1.01	1.03	1.15	1.11	1.18	1.12

GRAND MEAN 1.19

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3RD CUT (10/7/79) DRY MATTER TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	SOLID N	LIQUID N	SPACING	N RATE
SED	0.132	0.054	0.054	0.066

TABLE	YEARS	LIQUID N SPACING	LIQUID N N RATE	SPACING N RATE
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SED	0.053 0.082*	0.076	0.093	0.093
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TABLE	SOLID N YEARS	LIQUID N YEARS	SPACING YEARS	N RATE YEARS
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SED	0.185	0.075	0.075	0.092
-----	-------	-------	-------	-------

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:

SOLID N	0.182			
LIQUID N		0.074		
SPACING			0.074	
N RATE				0.091

TABLE	LIQUID N SPACING N RATE	LIQUID N SPACING YEARS	LIQUID N N RATE YEARS	SPACING N RATE YEARS
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SED	0.132	0.107	0.131	0.131
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EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:

LIQUID N.SPACING		0.105		
LIQUID N.N RATE			0.129	
SPACING N RATE				0.129

TABLE	LIQUID N SPACING N RATE YEARS
-------	--

SED	0.185
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:	
LIQUID N.SPACING.N RATE	0.182

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	17	0.132	11.1
BLOCK.WP.SP	19	0.182	15.3

3RD CUT MEAN DM% 23.4

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4TH CUT (10/8/79) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

SPACING	30 CM	60 CM	MEAN	
LIQUID N				
UREA	0.58	0.50	0.54	
UREA+INH	0.45	0.50	0.48	
MEAN	0.52	0.50	0.51	
N RATE	250	375	500	MEAN
LIQUID N				
UREA	0.46	0.53	0.63	0.54
UREA+INH	0.50	0.46	0.47	0.48
MEAN	0.48	0.49	0.55	0.51
N RATE	250	375	500	MEAN
SPACING				
30 CM	0.44	0.51	0.60	0.52
60 CM	0.51	0.48	0.50	0.50
MEAN	0.48	0.49	0.55	0.51
YEARS	75+6+8+9	75+6+7+8	MEAN	
LIQUID N				
UREA	0.82	0.26	0.54	
UREA+INH	0.66	0.29	0.48	
MEAN	0.74	0.27	0.51	
YEARS	75+6+8+9	75+6+7+8	MEAN	
SPACING				
30 CM	0.75	0.29	0.52	
60 CM	0.74	0.26	0.50	
MEAN	0.74	0.27	0.51	

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4TH CUT (10/8/79) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

YEARS	75+6+8+9	75+6+7+8	MEAN				
N RATE							
250	0.61	0.34	0.48				
375	0.77	0.22	0.49				
500	0.84	0.26	0.55				
MEAN	0.74	0.27	0.51				
SPACING	30 CM			60 CM			
N RATE	250	375	500	250	375	500	
LIQUID N							
UREA	0.42	0.57	0.76	0.49	0.48	0.51	
UREA+INH	0.46	0.44	0.45	0.53	0.48	0.49	
SPACING	30 CM			60 CM			
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8			
LIQUID N							
UREA	0.90	0.27	0.74	0.25			
UREA+INH	0.60	0.31	0.73	0.27			
N RATE	250		375		500		
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	
LIQUID N							
UREA	0.60	0.32	0.83	0.22	1.03	0.24	
UREA+INH	0.63	0.36	0.70	0.22	0.66	0.28	
N RATE	250		375		500		
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	
SPACING							
30 CM	0.49	0.39	0.78	0.24	0.98	0.23	
60 CM	0.74	0.29	0.76	0.20	0.71	0.29	
N RATE	250		375		500		
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	
LIQUID N							
UREA	30 CM	0.48	0.36	0.92	0.22	1.29	0.22
	60 CM	0.71	0.28	0.74	0.22	0.76	0.27
UREA+INH	30 CM	0.49	0.43	0.63	0.25	0.66	0.24
	60 CM	0.77	0.30	0.78	0.18	0.65	0.32
SOLID N	0	100	200	300	400	500	MEAN
YEARS							
75+6+8+9		0.65	0.56	0.58	0.59	1.05	0.69
75+6+7+8		0.33	0.28	0.22	0.15	0.24	0.24
MEAN	0.62	0.49	0.42	0.40	0.37	0.65	0.49

GRAND MEAN 0.50

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4TH CUT (10/8/79) DRY MATTER TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	SOLID N	LIQUID N	SPACING	N RATE
SED	0.097	0.040	0.040	0.049

TABLE	YEARS	LIQUID N SPACING	LIQUID N N RATE	SPACING N RATE
SED	0.038 0.059*	0.056	0.069	0.069

TABLE	SOLID N YEARS	LIQUID N YEARS	SPACING YEARS	N RATE YEARS
SED	0.135	0.055	0.055	0.067
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
	SOLID N 0.133	LIQUID N 0.054	SPACING 0.054	N RATE 0.066

TABLE	LIQUID N SPACING N RATE	LIQUID N SPACING YEARS	LIQUID N N RATE YEARS	SPACING N RATE YEARS
SED	0.097	0.078	0.095	0.095
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
	LIQUID N. SPACING LIQUID N. N RATE SPACING N RATE	0.078	0.094	0.094

TABLE	LIQUID N SPACING N RATE YEARS
SED	0.135
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:	
	LIQUID N. SPACING. N RATE 0.133

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	17	0.097	19.3
BLOCK.WP.SP	19	0.133	26.4

4TH CUT MEAN DM% 27.1

79/R/CS/161

5TH CUT (7/9/79) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

SPACING	30 CM	60 CM	MEAN	
LIQUID N				
UREA	1.07	1.02	1.04	
UREA+INH	0.95	1.05	1.00	
MEAN	1.01	1.03	1.02	
N RATE	250	375	500	MEAN
LIQUID N				
UREA	0.85	1.02	1.26	1.04
UREA+INH	0.95	0.91	1.13	1.00
MEAN	0.90	0.97	1.20	1.02
N RATE	250	375	500	MEAN
SPACING				
30 CM	0.88	0.93	1.22	1.01
60 CM	0.92	1.01	1.17	1.03
MEAN	0.90	0.97	1.20	1.02
YEARS	75+6+8+9	75+6+7+8	MEAN	
LIQUID N				
UREA	1.49	0.60	1.04	
UREA+INH	1.44	0.56	1.00	
MEAN	1.46	0.58	1.02	
YEARS	75+6+8+9	75+6+7+8	MEAN	
SPACING				
30 CM	1.42	0.60	1.01	
60 CM	1.50	0.56	1.03	
MEAN	1.46	0.58	1.02	

79/R/CS/161

5TH CUT (7/9/79) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

YEARS	75+6+8+9	75+6+7+8	MEAN				
N RATE							
250	1.06	0.74	0.90				
375	1.47	0.47	0.97				
500	1.86	0.53	1.20				
MEAN	1.46	0.58	1.02				
SPACING	30 CM			60 CM			
N RATE	250	375	500	250	375	500	
LIQUID N							
UREA	0.85	1.04	1.33	0.84	1.01	1.19	
UREA+INH	0.91	0.82	1.12	0.99	1.01	1.15	
SPACING	30 CM			60 CM			
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8			
LIQUID N							
UREA	1.51	0.63	1.47	0.56			
UREA+INH	1.33	0.57	1.54	0.56			
N RATE	250			375			500
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	
LIQUID N							
UREA	0.98	0.71	1.56	0.49	1.93	0.59	
UREA+INH	1.13	0.76	1.38	0.45	1.79	0.48	
N RATE	250			375			500
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	
SPACING							
30 CM	0.89	0.86	1.37	0.49	2.00	0.44	
60 CM	1.22	0.61	1.57	0.45	1.72	0.62	
N RATE	250			375			500
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	
LIQUID N							
SPACING							
UREA	30 CM	0.88	0.83	1.51	0.56	2.16	0.50
	60 CM	1.09	0.60	1.60	0.41	1.71	0.67
UREA+INH	30 CM	0.91	0.90	1.23	0.41	1.85	0.39
	60 CM	1.36	0.62	1.53	0.49	1.74	0.57
SOLID N	0	100	200	300	400	500	MEAN
YEARS							
75+6+8+9		1.41	1.93	2.22	2.26	2.20	2.00
75+6+7+8		0.85	0.72	0.50	0.30	0.46	0.57
MEAN	1.04	1.13	1.33	1.36	1.28	1.33	1.24

GRAND MEAN 1.10

79/R/CS/161

5TH CUT (7/9/79) DRY MATTER TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	SOLID N	LIQUID N	SPACING	N RATE
SED	0.121	0.049	0.049	0.061

TABLE	YEARS	LIQUID N SPACING	LIQUID N N RATE	SPACING N RATE
SED	0.052 0.081*	0.069	0.085	0.085

TABLE	SOLID N YEARS	LIQUID N YEARS	SPACING YEARS	N RATE YEARS
SED	0.176	0.072	0.072	0.088
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
SOLID N	0.181			
LIQUID N		0.074		
SPACING			0.074	
N RATE				0.091

TABLE	LIQUID N SPACING N RATE	LIQUID N SPACING YEARS	LIQUID N N RATE YEARS	SPACING N RATE YEARS
SED	0.121	0.102	0.125	0.125
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
LIQUID N.SPACING		0.105		
LIQUID N.N RATE			0.128	
SPACING N RATE				0.128

TABLE	LIQUID N SPACING N RATE YEARS
SED	0.176
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:	
LIQUID N.SPACING.N RATE	0.181

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	17	0.121	11.1
BLOCK.WP.SP	19	0.181	16.5

5TH CUT MEAN DM% 24.3

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6TH CUT (24/10/79) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

SPACING	30 CM	60 CM	MEAN	
LIQUID N				
UREA	0.22	0.30	0.26	
UREA+INH	0.22	0.28	0.25	
MEAN	0.22	0.29	0.25	
N RATE	250	375	500	MEAN
LIQUID N				
UREA	0.21	0.26	0.31	0.26
UREA+INH	0.22	0.26	0.27	0.25
MEAN	0.22	0.26	0.29	0.25
N RATE	250	375	500	MEAN
SPACING				
30 CM	0.19	0.21	0.25	0.22
60 CM	0.24	0.30	0.33	0.29
MEAN	0.22	0.26	0.29	0.25
YEARS	75+6+8+9	75+6+7+8	MEAN	
LIQUID N				
UREA	0.33	0.19	0.26	
UREA+INH	0.32	0.18	0.25	
MEAN	0.32	0.19	0.25	
YEARS	75+6+8+9	75+6+7+8	MEAN	
SPACING				
30 CM	0.25	0.19	0.22	
60 CM	0.40	0.18	0.29	
MEAN	0.32	0.19	0.25	

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6TH CUT (24/10/79) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

YEARS	75+6+8+9	75+6+7+8	MEAN					
N RATE								
	250	0.22	0.21	0.22				
	375	0.32	0.19	0.26				
	500	0.42	0.16	0.29				
MEAN	0.32	0.19	0.25					
SPACING	30 CM			60 CM				
N RATE	250	375	500	250	375	500		
LIQUID N								
UREA	0.17	0.23	0.26	0.25	0.29	0.37		
UREA+INH	0.22	0.19	0.24	0.23	0.32	0.29		
SPACING	30 CM			60 CM				
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8		
LIQUID N								
UREA	0.25	0.19	0.41	0.19				
UREA+INH	0.24	0.19	0.39	0.18				
N RATE	250		375		500			
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8		
LIQUID N								
UREA	0.20	0.22	0.32	0.19	0.46	0.17		
UREA+INH	0.25	0.20	0.32	0.19	0.38	0.16		
N RATE	250		375		500			
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8		
SPACING								
30 CM	0.18	0.21	0.20	0.22	0.36	0.15		
60 CM	0.27	0.21	0.44	0.17	0.49	0.17		
N RATE		250		375		500		
YEARS		75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	
LIQUID N								
UREA	SPACING	30 CM	0.14	0.20	0.22	0.24	0.38	0.14
		60 CM	0.26	0.24	0.43	0.15	0.55	0.19
UREA+INH	30 CM	0.22	0.22	0.19	0.20	0.33	0.15	
	60 CM	0.28	0.18	0.45	0.19	0.43	0.16	
SOLID N	0	100	200	300	400	500	MEAN	
YEARS								
75+6+8+9		0.39	0.41	0.38	0.49	0.57	0.45	
75+6+7+8		0.21	0.22	0.12	0.14	0.20	0.18	
MEAN	0.16	0.30	0.32	0.25	0.32	0.38	0.29	

GRAND MEAN 0.27

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6TH CUT (24/10/79) DRY MATTER TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	SOLID N	LIQUID N	SPACING	N RATE
SED	0.053	0.022	0.022	0.027

TABLE	YEARS	LIQUID N SPACING	LIQUID N N RATE	SPACING N RATE
SED	0.025 0.038*	0.031	0.037	0.037

TABLE	SOLID N YEARS	LIQUID N YEARS	SPACING YEARS	N RATE YEARS
SED	0.081	0.033	0.033	0.040
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
SOLID N	0.086			
LIQUID N		0.035		
SPACING			0.035	
N RATE				0.043

TABLE	LIQUID N SPACING N RATE	LIQUID N SPACING YEARS	LIQUID N N RATE YEARS	SPACING N RATE YEARS
SED	0.053	0.047	0.057	0.057
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
LIQUID N.SPACING		0.050		
LIQUID N.N RATE			0.061	
SPACING N RATE				0.061

TABLE	LIQUID N SPACING N RATE YEARS
SED	0.081
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:	
LIQUID N.SPACING.N RATE	0.086

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	17	0.053	20.0
BLOCK.WP.SP	19	0.086	32.2

6TH CUT MEAN DM% 26.2

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TOTAL OF 6 CUTS DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

SPACING	30 CM	60 CM	MEAN	
LIQUID N				
UREA	7.22	7.10	7.16	
UREA+INH	6.77	7.19	6.98	
MEAN	7.00	7.14	7.07	
N RATE	250	375	500	MEAN
LIQUID N				
UREA	6.47	7.10	7.92	7.16
UREA+INH	6.69	6.69	7.56	6.98
MEAN	6.58	6.89	7.74	7.07
N RATE	250	375	500	MEAN
SPACING				
30 CM	6.58	6.81	7.60	7.00
60 CM	6.57	6.98	7.88	7.14
MEAN	6.58	6.89	7.74	7.07
YEARS	75+6+8+9	75+6+7+8	MEAN	
LIQUID N				
UREA	9.51	4.82	7.16	
UREA+INH	9.19	4.77	6.98	
MEAN	9.35	4.79	7.07	
YEARS	75+6+8+9	75+6+7+8	MEAN	
SPACING				
30 CM	9.51	4.48	7.00	
60 CM	9.19	5.10	7.14	
MEAN	9.35	4.79	7.07	

79/R/CS/161

TOTAL OF 6 CUTS DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

YEARS	75+6+8+9	75+6+7+8	MEAN				
N RATE							
250	8.49	4.67	6.58				
375	9.44	4.35	6.89				
500	10.13	5.36	7.74				
MEAN	9.35	4.79	7.07				
SPACING	30 CM			60 CM			
N RATE	250	375	500	250	375	500	
LIQUID N							
UREA	6.59	7.07	8.00	6.34	7.13	7.85	
UREA+INH	6.56	6.55	7.20	6.81	6.82	7.92	
SPACING	30 CM			60 CM			
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8			
LIQUID N							
UREA	9.88	4.56	9.13	5.07			
UREA+INH	9.14	4.40	9.24	5.13			
N RATE	250		375		500		
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	
LIQUID N							
UREA	8.35	4.58	9.77	4.43	10.41	5.44	
UREA+INH	8.62	4.75	9.11	4.27	9.84	5.29	
N RATE	250		375		500		
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	
SPACING							
30 CM	8.44	4.72	9.54	4.08	10.55	4.65	
60 CM	8.53	4.61	9.34	4.62	9.70	6.07	
N RATE	250		375		500		
YEARS	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	75+6+8+9	75+6+7+8	
LIQUID N							
UREA	30 CM	8.39	4.80	10.12	4.01	11.14	4.86
	60 CM	8.31	4.37	9.41	4.85	9.68	6.01
UREA+INH	30 CM	8.49	4.63	8.97	4.14	9.97	4.44
	60 CM	8.76	4.86	9.26	4.39	9.71	6.13
SOLID N	0	100	200	300	400	500	MEAN
YEARS							
75+6+8+9		6.72	7.91	8.90	9.88	10.48	8.78
75+6+7+8		3.99	4.21	4.40	3.47	4.52	4.12
MEAN	5.80	5.35	6.06	6.65	6.67	7.50	6.34

GRAND MEAN 6.83

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TOTAL OF 6 CUTS DRY MATTER TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	SOLID N	LIQUID N	SPACING	N RATE
SED	0.417	0.170	0.170	0.209

TABLE	YEARS	LIQUID N SPACING	LIQUID N N RATE	SPACING N RATE
SED	0.147 0.228*	0.241	0.295	0.295

TABLE	SOLID N YEARS	LIQUID N YEARS	SPACING YEARS	N RATE YEARS
SED	0.551	0.225	0.225	0.275
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
SOLID N	0.508			
LIQUID N		0.207		
SPACING			0.207	
N RATE				0.254

TABLE	LIQUID N SPACING N RATE	LIQUID N SPACING YEARS	LIQUID N N RATE YEARS	SPACING N RATE YEARS
SED	0.417	0.318	0.389	0.389
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
LIQUID N.SPACING		0.293		
LIQUID N.N RATE			0.359	
SPACING N RATE				0.359

TABLE	LIQUID N SPACING N RATE YEARS
SED	0.551
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:	
LIQUID N.SPACING.N RATE	0.508

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	17	0.417	6.1
BLOCK.WP.SP	19	0.508	7.4

TOTAL OF 6 CUTS MEAN DM% 23.8

SUBPLOT AREA HARVESTED 0.00141