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Yields of the Field Experiments 1974

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74/R/G/1 Grass Rates and Forms of N - Grass

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74/R/G/1

GRASS

RATES AND FORMS OF N

Object: To study the effects of autumn injection of liquid fertilisers at different rates and spacing on nitrification losses and the yield of old grass - Bones Close.

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

The first year, old grass.

Design: 4 blocks of 20 plots.

Whole plot dimensions: 2.44 x 15.2. Area harvested: 0.00111.

Treatments: All combinations of:-

1. Form of nitrogen fertiliser:

NFORM L

Aqueous ammonia 25% N

Liquid AA

Aqueous urea 18% N

Liquid AU

2. Spacing between injection tines (cm):

SPACING

30

30

60

60

3. Total nitrogen fertiliser applied (kg N):

TOTALN L

250

250

375

375

500

500

Plus all combinations of:-

1. Form of nitrogen fertiliser:

NFORM S

'Nitro-Chalk' 25% N

Solid NC

Prilled urea 46% N

Solid U

2. Total nitrogen fertiliser applied (kg N):

TOTALN S

250

250

375

375

500

500

EXTRA

Plus two plots per block untreated

None

NOTE: Aqueous nitrogen fertiliser was all applied in one dressing: 13 Nov, 1973. Solid nitrogen was divided equally and applied for each of the three cuts on 13 Mar, 1974, 7 June, 6 Aug.

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Basal applications: Manures: (0:14:28) at 500 kg. Weedkiller:
Mecoprop ('Compitox Extra' at 4.2 l in 370 l).

Cultivations, etc.:— PK applied: 5 Nov, 1973. Weedkiller applied:
7 May, 197⁴. Cut: 29 May, 30 July, 9 Oct. Previous crops:
Grass since 1952.

Standard errors per plot. Dry matter: tonnes/hectare.

1st cut:	0.364 or 6.3% (58 d.f.)
2nd cut:	0.231 or 8.0% (58 d.f.)
3rd cut:	0.215 or 12.1% (58 d.f.)
Total of 3 cuts:	0.496 or 4.7% (58 d.f.)

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TABLES OF MEANS

1ST CUT. DRY MATTER: TONNES/HECTARE

	SPACING		TOTALN L			Mean
	30	60	250	375	500	
NFORM L						
Liquid AA	6.07	6.09	5.78	6.24	6.21	6.08
Liquid AU	6.24	6.32	6.08	6.32	6.45	6.28
	SPACING					
		30	5.72	6.36	6.38	6.15
		60	6.14	6.20	6.28	6.20
Mean			5.93	6.28	6.33	6.18

TOTALN S

	250	375	500	Mean
NFORM S				
Solid NC	5.97	6.23	6.23	6.14
Solid U	5.51	5.47	6.15	5.71
Mean	5.74	5.85	6.19	5.93

EXTRA None 3.14

Grand mean 5.80

Mean D.M. % 21.2

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2ND CUT. DRY MATTER: TONNES/HECTARE

	SPACING		TOTALN L			Mean
	30	60	250	375	500	
NFORM L						
Liquid AA	2.75	2.99	2.31	3.12	3.18	2.87
Liquid AU	3.10	3.14	2.71	3.29	3.36	3.12
	SPACING					
		30	2.29	3.08	3.40	2.93
		60	2.73	3.33	3.14	3.07
Mean			2.51	3.21	3.27	3.00

	TOTALN S			Mean
	250	375	500	
NFORM S				
Solid NC	3.34	3.75	3.54	3.54
Solid U	3.08	3.50	3.39	3.32
Mean	3.21	3.62	3.46	3.43

EXTRA None 0.80

Grand mean 2.91

Mean D.M. % 23.6

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3RD CUT. DRY MATTER: TONNES/HECTARE

SPACING

TOTALN L

	30	60	250	375	500	Mean
NFORM L						
Liquid AA	1.34	1.68	0.79	1.42	2.31	1.51
Liquid AU	1.47	1.73	0.93	1.55	2.31	1.60
	SPACING					
		30	0.68	1.35	2.18	1.40
		60	1.05	1.62	2.44	1.70
Mean			0.86	1.48	2.31	1.55

TOTALN S

	250	375	500	Mean
NFORM S				
Solid NC	2.64	2.81	2.86	2.77
Solid U	2.16	2.88	2.97	2.67
Mean	2.40	2.85	2.91	2.72

EXTRA None 0.29

Grand mean 1.78

Mean D.M. % 20.9

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TOTAL OF 3 CUTS. DRY MATTER: TONNES/HECTARE

	SPACING		TOTALN L			Mean
	30	60	250	375	500	
NFORM L						
Liquid AA	10.16	10.75	8.88	10.78	11.71	10.46
Liquid AU	10.80	11.20	9.72	11.16	12.12	11.00
	SPACING					
		30	8.68	10.80	11.96	10.48
		60	9.92	11.15	11.86	10.98
Mean			9.30	10.97	11.91	10.73

TOTALN S

	250	375	500	Mean
NFORM S				
Solid NC	11.94	12.78	12.63	12.45
Solid U	10.75	11.85	12.52	11.71
Mean	11.35	12.32	12.57	12.08

EXTRA None 4.23

Grand mean 10.48

Mean D.M. % 23.6

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STANDARD ERRORS OF DIFFERENCES

1ST CUT

NFORM L	SPACING	TOTALN L	NFORM S	TOTALN S	NFORM L SPACING
0.105	0.105	0.129	0.149	0.182	0.149
NFORM L TOTALN L	SPACING TOTALN L	NFORM S TOTALN S			
0.182	0.182	0.258			

2ND CUT

NFORM L	SPACING	TOTALN L	NFORM S	TOTALN S	NFORM L SPACING
0.067	0.067	0.082	0.094	0.116	0.094
NFORM L TOTALN L	SPACING TOTALN L	NFORM S TOTALN S			
0.116	0.116	0.164			

3RD CUT

NFORM L	SPACING	TOTALN L	NFORM S	TOTALN S	NFORM L SPACING
0.062	0.062	0.076	0.088	0.108	0.088
NFORM L TOTALN L	SPACING TOTALN L	NFORM S TOTALN S			
0.108	0.108	0.152			

TOTAL OF 3 CUTS

NFORM L	SPACING	TOTALN L	NFORM S	TOTALN S	NFORM L SPACING
0.143	0.143	0.175	0.202	0.248	0.202
NFORM L TOTALN L	SPACING TOTALN L	NFORM S TOTALN S			
0.248	0.248	0.351			