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73/R/CS/86 - Weedkiller & Aqueous N - Old Grass

Rothamsted Research

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73/R/CS/86

WEEDKILLER AND AQUEOUS N

Object: To study the effects of a range of rates of solid or liquid nitrogen fertilizer in combination with a range of rates of hormone weedkiller, on weed control and yield of old grass - Ver.

Sponsors: S.C.R. Freeman, A. Penny.

The second year, old grass.

For previous year see 72/R/CS/86(t).

Design: 3 randomised blocks of 28 plots.

Whole plot dimensions: 2.74 x 1.37. Area harvested: 0.00002.

Treatments (applied per cut): All combinations of:-

1. Form of nitrogen:

Solid, as 'Nitro-Chalk' 21% N	Solid
Liquid, as urea/ammonium nitrate 26% N, alone or mixed with the weedkiller (using fan jet size 00)	Liquid

2. Rate of nitrogen (kg N):

37.7	37.7
75.3	75.3
113.0	113.0

3. Weedkiller (dichloprop/MCPA, kg total a.e.) (using fan jet size 00)

None	0.0
1.4	1.4
2.8	2.8
4.2	4.2

together with four treatments all given liquid fertiliser, urea/ammonium nitrate, at 113 kg N per cut, using fan jet size 1. Weedkiller (dichloprop/MCPA, kg total a.e.) - EXTRA:

None	0.0
1.4	1.4
2.8	2.8
4.2	4.2

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NOTE: The weedkiller was applied in 337 l where solid fertiliser was used. The liquid fertiliser (with or without weedkiller) was applied as a spray at 112, 225 and 337 l for the three rates tested.

Basal applications: Manures: (0:14:28) at 630 kg.

Cultivations, etc.: Basal PK broadcast: 8 Dec, 1972. Treatments applied: 10 Apr, 1973 repeated 2 July. Grass cut: 6 June, 3 Sept.

NOTE: (1) Scores were made of foliar scorch after first and second treatments.
(2) The yield of weeds at the second cut was measured.
(3) The % N in the herbage was measured.

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

1st cut: 0.600 or 10.0% (54 d.f.)
2nd cut: 0.478 or 11.3% (54 d.f.)
Total of 2 cuts: 0.872 or 8.5% (54 d.f.)

73/R/CS/86

TABLES OF MEANS

DRY MATTER: TONNES/HECTARE

1ST CUT

	NPERCUT			WEEDKILLR(00)				Mean
	37.7	75.3	113.0	0.0	1.4	2.8	4.2	
FORM								
Solid	5.49	6.62	6.84	6.42	6.52	6.30	6.03	6.32
Liquid	4.77	5.82	6.27	5.43	5.53	5.75	5.77	5.62
	NPERCUT							
		37.7		5.27	5.03	5.11	5.11	5.13
		75.3		6.20	6.40	6.36	5.92	6.22
		113.0		6.31	6.64	6.61	6.68	6.56
	Mean			5.93	6.02	6.02	5.90	5.97

FORM	NPERCUT	WEEDKILLR(00)			
		0.0	1.4	2.8	4.2
Solid	37.7	5.91	5.51	5.50	5.03
	75.3	6.75	6.81	6.76	6.17
	113.0	6.62	7.22	6.63	6.90
Liquid	37.7	4.63	4.54	4.72	5.19
	75.3	5.66	5.99	5.95	5.66
	113.0	6.00	6.06	6.58	6.46

EXTRA

WEEDKILLR(1)				
0.0	1.4	2.8	4.2	Mean
6.76	6.01	6.05	6.83	6.41

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DRY MATTER: TONNES/HECTARE

2ND CUT

	NPERCUT			WEEDKLLR(00)				Mean
	37.7	75.3	113.0	0.0	1.4	2.8	4.2	
FORM								
Solid	4.16	4.33	4.21	4.24	4.39	4.34	3.96	4.24
Liquid	3.82	4.43	4.27	4.25	4.20	4.03	4.22	4.18
	NPERCUT							
		37.7		3.91	3.95	4.15	3.96	3.99
		75.3		4.57	4.54	4.34	4.08	4.38
		113.0		4.26	4.40	4.07	4.25	4.24
	Mean			4.24	4.30	4.19	4.09	4.21

FORM	NPERCUT	WEEDKLLR(00)			
		0.0	1.4	2.8	4.2
Solid	37.7	4.02	4.33	4.44	3.85
	75.3	4.66	4.46	4.38	3.83
	113.0	4.05	4.38	4.21	4.21
Liquid	37.7	3.79	3.56	3.86	4.07
	75.3	4.48	4.62	4.31	4.32
	113.0	4.46	4.42	3.92	4.28

EXTRA

WEEDKLLR(1)				
0.0	1.4	2.8	4.2	Mean
4.26	4.44	4.18	4.41	4.32

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DRY MATTER: TONNES/HECTARE

TOTAL OF 2 CUTS

	NPERCUT			WEEDKILLR(00)				Mean
	37.7	75.3	113.0	0.0	1.4	2.8	4.2	
FORM								
Solid	9.65	10.95	11.05	10.67	10.91	10.64	10.00	10.55
Liquid	8.59	10.25	10.55	9.68	9.73	9.78	9.99	9.80
	NPERCUT							
		37.7		9.18	8.98	9.26	9.07	9.12
		75.3		10.77	10.94	10.70	9.99	10.60
		113.0		10.57	11.04	10.68	10.92	10.80
	Mean			10.17	10.32	10.21	9.99	10.17

FORM	NPERCUT	WEEDKILLR(00)			
		0.0	1.4	2.8	4.2
Solid	37.7	9.93	9.85	9.94	8.88
	75.3	11.41	11.27	11.13	10.00
	113.0	10.67	11.60	10.85	11.11
Liquid	37.7	8.43	8.11	8.58	9.26
	75.3	10.14	10.61	10.27	9.98
	113.0	10.47	10.48	10.51	10.74

EXTRA

WEEDKILLR(1)				
0.0	1.4	2.8	4.2	Mean
11.02	10.45	10.23	11.23	10.73

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STANDARD ERRORS OF DIFFERENCES

FORM	NPERCUT	WEEDKILLR	EXTRA	FORM NPERCUT	FORM WEEDKILLR
1ST CUT					
0.142	0.173	0.200	0.490	0.245	0.283
NPERCUT WEEDKILLR	FORM NPERCUT WEEDKILLR				
0.347	0.490				
Grand mean	6.03				
Mean D.M. %	20.6				
2ND CUT					
0.113	0.138	0.159	0.390	0.195	0.225
0.276	0.390				
Grand mean	4.22				
Mean D.M. %	29.6				
TOTAL OF 2 CUTS					
0.206	0.252	0.291	0.712	0.356	0.411
0.503	0.712				
Grand mean	10.25				
Mean D.M. %	25.1				