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74/R/CS/106 Chemical Control of Pathogens - Ryegrass

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74/R/CS/106

CHEMICAL CONTROL OF PATHOGENS

Object: To study the effects of a range of chemicals on the yield and pathogens of ryegrass - Claycroft.

Sponsors: J.F. Jenkyn, E.W. Broom, R.T. Plumb.

The second year, ryegrass.

For previous year see 73/R/CS/106.

Design: 3 randomised blocks of 10 plots split into 3.

Whole plot dimensions: 4.27 x 16.7. Area harvested: 0.00050.

Treatments: All combinations of:-

Whole plots: 1. Chemicals applied cumulatively to 1973 treatments (kg a.i.):-

	CHEMICAL
None, 3 plots per block	0
BAS 3170F 1.12 kg per cut	BA
Benomyl 1.12 kg per cut	BE
Captafol 2.24 kg per cut	CA
Dezomet 400 kg, September 1972 only	DA
Endosulfan, 2.8 l of 'Thiodan', repeated frequently	EN
Menazon, 0.7 l of 'Saphi-Col', repeated frequently	ME
Endosulfan + menazon, repeated frequently	EN+ME

NOTE: Chemicals, with the exception of captafol, were applied: 9 Apr, 1974, 18 June, 7 Aug. Endosulfan and menazon were applied on 17 July also. Captafol was applied: 8 Apr, 6 June, 8 Aug.

Sub plots: 2. Compound fertiliser (25:0:16) applied for each cut (kg N):

	NPERCUT
38	38
75	75
150	150

Basal applications: Manures: (0:14:28) at 1250 kg.

Seed: Gremie, sown at 45 kg in 1973.

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Cultivations, etc.:— PK applied: 14 Dec, 1973. NK treatments applied:
27 Feb, 1974, 3 June, 2 Aug. Cut: 29 May, 25 July, 29 Dec.

- NOTES: (1) Counts of mites (*Abacarus hystrix*) were made on 5 Apr, 25 July, 27 Aug, 28 Oct.
(2) Assessments of infection by Ryegrass mosaic virus were made on 4 Apr, 25 July.
(3) Leaf, root and soil samples were taken in autumn to determine endosulfan residues.
(4) Soil was sampled in December to determine numbers of soil fauna including earthworms.
(5) Observations were made on foliar diseases.

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

1st cut:	Whole plot: 0.367 or 4.7% (20 d.f.)
	Sub plot: 0.488 or 6.3% (44 d.f.)
2nd cut:	Whole plot: 0.350 or 11.6% (20 d.f.)
	Sub plot: 0.343 or 11.4% (44 d.f.)
3rd cut:	Whole plot: 0.241 or 11.8% (20 d.f.)
	Sub plot: 0.323 or 15.8% (44 d.f.)
Total of 3 cuts:	Whole plot: 0.559 or 4.4% (20 d.f.)
	Sub plot: 0.682 or 5.3% (44 d.f.)

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TABLES OF MEANS

DRY MATTER: TONNES/HECTARE

1ST CUT

CHEMICAL

	O	BA	BE	CA	DA	EN	ME	EN+ME	Mean
NPERCUT									
38	6.11	6.25	5.66	6.03	6.70	6.81	6.06	6.51	6.23
75	8.22	8.14	8.11	8.14	8.26	8.87	8.17	9.06	8.34
150	8.44	8.73	9.03	9.01	8.89	9.37	8.30	9.34	8.80
Mean	7.59	7.71	7.60	7.73	7.95	8.35	7.51	8.30	7.79

STANDARD ERRORS OF DIFFERENCES

	NPERCUT	CHEMICAL	NPERCUT CHEMICAL
	0.126		
O v any of remainder		0.245	0.362
Between any of remainder		0.300	0.443
Except when comparing means with same level of			
CHEMICAL			
O			0.230
Between any of remainder			0.399

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DRY MATTER: TONNES/HECTARE

2ND CUT

CHEMICAL

	O	BA	BE	CA	DA	EN	ME	EN+ME	Mean
NPERCUT									
38	1.57	1.34	1.29	1.19	1.51	2.16	1.50	1.49	1.52
75	3.10	3.04	3.30	2.92	3.05	3.61	3.04	3.28	3.15
150	4.48	4.07	4.59	4.07	4.45	4.69	4.08	4.49	4.39
Mean	3.05	2.82	3.06	2.73	3.00	3.49	2.87	3.09	3.02

STANDARD ERRORS OF DIFFERENCES

	NPERCUT	CHEMICAL	NPERCUT CHEMICAL
	0.089		
O v any of remainder		0.233	0.299
Between any of remainder		0.285	0.366
Except when comparing means with same level of CHEMICAL			
O			0.162
Between any of remainder			0.280

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DRY MATTER: TONNES/HECTARE

3RD CUT

CHEMICAL

	O	BA	BE	CA	DA	EN	ME	EN+ME	Mean
NPERCUT									
38	1.36	1.48	1.07	1.40	1.67	1.15	1.75	1.19	1.38
75	2.33	1.96	2.30	2.19	2.56	2.11	2.26	2.42	2.28
150	2.53	2.57	2.18	2.78	2.76	2.09	2.35	2.29	2.46
Mean	2.07	2.00	1.85	2.12	2.33	1.78	2.12	1.97	2.04

STANDARD ERRORS OF DIFFERENCES

	NPERCUT	CHEMICAL	NPERCUT CHEMICAL
	0.083		
O v any of remainder		0.160	0.238
Between any of remainder		0.196	0.291
Except when comparing means with same level of CHEMICAL			
O			0.152
Between any of remainder			0.264

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DRY MATTER: TONNES/HECTARE

TOTAL OF 3 CUTS

CHEMICAL

	O	BA	BE	CA	DA	EN	ME	EN+ME	Mean
NPERCUT									
38	9.04	9.07	8.02	8.62	9.88	10.12	9.31	9.19	9.13
75	13.65	13.14	13.71	13.25	13.87	14.59	13.48	14.76	13.77
150	15.44	15.36	15.80	15.86	16.09	16.14	14.73	16.12	15.64
Mean	12.71	12.52	12.51	12.58	13.28	13.62	12.51	13.36	12.85

STANDARD ERRORS OF DIFFERENCES

	NPERCUT	CHEMICAL	NPERCUT CHEMICAL
	0.176		
O v any of remainder		0.373	0.526
Between any of remainder		0.456	0.644
Except when comparing means with same level of CHEMICAL			
O			0.322
Between any of remainder			0.557
Mean D.M. %			
1st cut:		26.3	
2nd cut:		29.6	
3rd cut:		35.3	
Total of 3 cuts:		30.4	