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79/R/CS/204 Clover Varieties in Grass/CLOVER Mixtures - Ryegrass, Clover

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79/R/CS/204

CLOVER VARIETIES IN GRASS/CLOVER MIXTURES

Object: To study the effects of controlling pests and diseases on the persistence of different varieties of white clover in mixed grass/clover swards - Long Hoos IV 2.

Sponsors: I.F. Henderson, R.T. Plumb, J.F. Jenkyn.

The third year, white clover, ryegrass.

For previous years see 77-78/R/CS/204

Design: 2 randomised blocks of 40 plots.

Whole plot dimensions: 1.83 x 6.10.

Treatments: All combinations of:-

1. VARIETY Varieties and species:

S23	S.23 ryegrass
S23/BLAN	S.23 ryegrass + Blanca white clover
S23/KWW	S.23 ryegrass + Kent wild white clover
S23/LAD	S.23 ryegrass + Ladino white clover
S23/MIL	S.23 ryegrass + Milkanova white clover
2. CHEMICAL Chemicals for pest and disease control:

NONE	None
ALDICARB	Aldicarb at 5 kg
BENOMYL	Benomyl at 0.5 kg
PHOR+MET	Phorate at 5 kg + metaldehyde at 1.8 kg
3. NITROGEN Nitrogen fertiliser (kg N as (20:14:14)):

N 1	100 in spring
N 2	100 in spring + 50 after each cut except the last

NOTES: (1) Aldicarb was applied on 2 Apr, 1979 and 10 Aug
(2) Benomyl was applied on 8 Jan and 26 Feb
(3) Phorate and metaldehyde were applied on 6 June, 5 July, 10 Aug, 14 Sept.

Standard applications: Weedkillers (to S.23 only): Dicamba with mecoprop and MCPA (as 'Tetralex Plus' at 6.7 kg) in 220 l.

Cultivations, etc.: - Spring NPK applied: 23 Mar, 1979. Cut: 1 June, 4 July, 8 Aug, 13 Sept, 18 Oct. NPK applied: 1 June, 4 July, 8 Aug, 13 Sept.

NOTE: The proportions of grass and clover, and monocotyledonous and dicotyledonous weeds were determined at each cut. Plots were vacuum sampled for insect pests at monthly intervals during the season.

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1ST CUT (1/6/79) DRY MATTER TONNES/HECTARE

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

CHEMICAL VARIETY	NONE	ALDICARB	BENQMYL	PHOR+MET	MEAN
S23	4.54	4.25	4.26	4.42	4.37
S23/BLAN	4.81	5.00	4.85	4.74	4.85
S23/KWW	4.93	5.13	4.58	4.90	4.88
S23/LAD	4.08	4.09	4.40	4.23	4.20
S23/MIL	4.61	4.90	5.11	5.17	4.95
MEAN	4.59	4.68	4.64	4.69	4.65

NITROGEN VARIETY	N 1	N 2	MEAN
S23	3.48	5.26	4.37
S23/BLAN	4.60	5.10	4.85
S23/KWW	4.67	5.10	4.88
S23/LAD	3.93	4.47	4.20
S23/MIL	4.86	5.04	4.95
MEAN	4.31	4.99	4.65

NITROGEN CHEMICAL	N 1	N 2	MEAN
NONE	4.29	4.90	4.59
ALDICARB	4.20	5.16	4.68
BENQMYL	4.67	4.61	4.64
PHOR+MET	4.07	5.31	4.69
MEAN	4.31	4.99	4.65

VARIETY	NITROGEN CHEMICAL	N 1	N 2
S23	NONE	3.47	5.60
	ALDICARB	3.71	4.79
	BENQMYL	3.36	5.16
	PHOR+MET	3.37	5.47
S23/BLAN	NONE	4.54	5.09
	ALDICARB	4.79	5.22
	BENQMYL	4.91	4.79
	PHOR+MET	4.17	5.30
S23/KWW	NONE	5.27	4.59
	ALDICARB	4.42	5.84
	BENQMYL	4.65	4.50
	PHOR+MET	4.33	5.47
S23/LAD	NONE	3.75	4.41
	ALDICARB	3.86	4.33
	BENQMYL	4.33	4.47
	PHOR+MET	3.78	4.68
S23/MIL	NONE	4.43	4.79
	ALDICARB	4.20	5.61
	BENQMYL	6.10	4.12
	PHOR+MET	4.70	5.63

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1ST CUT (1/6/79) DRY MATTER TONNES/HECTARE

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

TABLE	VARIETY	CHEMICAL	NITROGEN	VARIETY CHEMICAL
SED	0.243	0.217	0.154	0.486

TABLE	VARIETY NITROGEN	CHEMICAL NITROGEN	VARIETY CHEMICAL NITROGEN
SED	0.343	0.307	0.687

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

STRATUM	DF	SE	CV%
BLOCK.WP	39	0.687	14.8

1ST CUT MEAN DM% 15.4

2ND CUT (4/7/79) DRY MATTER TONNES/HECTARE

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

CHEMICAL VARIETY	NONE	ALDICARB	BENOMYL	PHOR+MET	MEAN
S23	2.04	1.61	1.72	2.26	1.91
S23/BLAN	2.69	2.99	2.70	2.99	2.84
S23/KWW	2.13	2.60	2.60	2.57	2.48
S23/LAD	2.45	2.76	2.60	2.85	2.66
S23/MIL	2.72	2.89	3.10	2.96	2.92
MEAN	2.40	2.57	2.55	2.73	2.56
NITROGEN VARIETY	N 1	N 2	MEAN		
S23	2.04	1.78	1.91		
S23/BLAN	2.93	2.75	2.84		
S23/KWW	2.56	2.39	2.48		
S23/LAD	2.73	2.60	2.66		
S23/MIL	3.04	2.79	2.92		
MEAN	2.66	2.46	2.56		
NITROGEN CHEMICAL	N 1	N 2	MEAN		
NONE	2.45	2.36	2.40		
ALDICARB	2.67	2.47	2.57		
BENOMYL	2.67	2.42	2.55		
PHOR+MET	2.85	2.60	2.73		
MEAN	2.66	2.46	2.56		

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2ND CUT (4/7/79) DRY MATTER TONNES/HECTARE

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

VARIETY	NITROGEN	N 1	N 2
S23	CHEMICAL		
	NONE	2.03	2.04
	ALDICARB	1.56	1.67
	BENOMYL	1.95	1.50
	PHOR+MET	2.60	1.93
S23/BLAN	NONE	2.80	2.58
	ALDICARB	3.15	2.83
	BENOMYL	2.80	2.59
	PHOR+MET	2.99	3.00
S23/KWW	NONE	2.04	2.22
	ALDICARB	2.85	2.35
	BENOMYL	2.62	2.58
	PHOR+MET	2.73	2.41
S23/LAD	NONE	2.55	2.35
	ALDICARB	2.92	2.60
	BENOMYL	2.65	2.56
	PHOR+MET	2.82	2.88
S23/MIL	NONE	2.84	2.60
	ALDICARB	2.88	2.89
	BENOMYL	3.34	2.86
	PHOR+MET	3.13	2.80

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

TABLE	VARIETY	CHEMICAL	NITROGEN	VARIETY CHEMICAL
SED	0.104	0.093	0.066	0.208

TABLE	VARIETY NITROGEN	CHEMICAL NITROGEN	VARIETY CHEMICAL NITROGEN
SED	0.147	0.131	0.294

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

STRATUM	DF	SE	CV%
BLOCK.WP	39	0.294	11.5
2ND CUT MEAN DM%	17.3		

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3RD CUT (8/8/79) DRY MATTER TONNES/HECTARE

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

CHEMICAL VARIETY	NONE	ALDICARB	BENOMYL	PHOR+MET	MEAN
S23	0.51	0.51	0.55	0.52	0.52
S23/BLAN	0.96	1.02	0.74	1.02	0.94
S23/KWW	0.71	0.79	0.61	0.80	0.73
S23/LAD	0.94	1.02	1.04	1.28	1.07
S23/MIL	1.03	1.00	0.98	1.11	1.03
MEAN	0.83	0.87	0.79	0.95	0.86

NITROGEN VARIETY	N 1	N 2	MEAN
S23	0.34	0.70	0.52
S23/BLAN	0.88	0.99	0.94
S23/KWW	0.70	0.75	0.73
S23/LAD	1.01	1.12	1.07
S23/MIL	1.06	1.00	1.03
MEAN	0.80	0.91	0.86

NITROGEN CHEMICAL	N 1	N 2	MEAN
NONE	0.77	0.88	0.83
ALDICARB	0.79	0.94	0.87
BENOMYL	0.71	0.86	0.79
PHOR+MET	0.92	0.97	0.95
MEAN	0.80	0.91	0.86

VARIETY	NITROGEN CHEMICAL	N 1	N 2
S23	NONE	0.33	0.68
	ALDICARB	0.37	0.65
	BENOMYL	0.30	0.80
	PHOR+MET	0.37	0.67
S23/BLAN	NONE	0.99	0.92
	ALDICARB	0.85	1.19
	BENOMYL	0.68	0.81
	PHOR+MET	1.01	1.04
S23/KWW	NONE	0.62	0.79
	ALDICARB	0.77	0.80
	BENOMYL	0.62	0.61
	PHOR+MET	0.81	0.79
S23/LAD	NONE	0.90	0.97
	ALDICARB	0.94	1.10
	BENOMYL	1.02	1.06
	PHOR+MET	1.20	1.36
S23/MIL	NONE	1.02	1.05
	ALDICARB	1.05	0.95
	BENOMYL	0.96	1.01
	PHOR+MET	1.22	1.01

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3RD CUT (8/8/79) DRY MATTER TONNES/HECTARE

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

TABLE	VARIETY	CHEMICAL	NITROGEN	VARIETY CHEMICAL
SED	0.072	0.065	0.046	0.145

TABLE	VARIETY NITROGEN	CHEMICAL NITROGEN	VARIETY CHEMICAL NITROGEN
SED	0.102	0.092	0.205

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

STRATUM	DF	SE	CV%
BLOCK.WP	39	0.205	23.9

3RD CUT MEAN DM% 28.7

4TH CUT (13/9/79) DRY MATTER TONNES/HECTARE

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

CHEMICAL VARIETY	NONE	ALDICARB	BENOMYL	PHOR+MET	MEAN
S23	1.06	1.08	0.90	1.26	1.07
S23/BLAN	1.38	1.52	1.33	1.51	1.43
S23/KWW	1.31	1.65	1.12	1.78	1.46
S23/LAD	1.68	1.80	1.80	1.92	1.80
S23/MIL	1.32	1.55	1.41	1.58	1.47
MEAN	1.35	1.52	1.31	1.61	1.45
NITROGEN VARIETY	N 1	N 2	MEAN		
S23	0.68	1.47	1.07		
S23/BLAN	1.37	1.50	1.43		
S23/KWW	1.36	1.57	1.46		
S23/LAD	1.79	1.81	1.80		
S23/MIL	1.44	1.49	1.47		
MEAN	1.33	1.57	1.45		
NITROGEN CHEMICAL	N 1	N 2	MEAN		
NONE	1.28	1.42	1.35		
ALDICARB	1.37	1.68	1.52		
BENOMYL	1.17	1.45	1.31		
PHOR+MET	1.49	1.72	1.61		
MEAN	1.33	1.57	1.45		

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4TH CUT (13/9/79) DRY MATTER TONNES/HECTARE

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

VARIETY	NITROGEN CHEMICAL	N 1	N 2
S23	NONE	0.71	1.41
	ALDICARB	0.68	1.48
	BENOMYL	0.46	1.34
	PHOR+MET	0.87	1.64
S23/BLAN	NONE	1.32	1.44
	ALDICARB	1.56	1.49
	BENOMYL	1.17	1.48
	PHOR+MET	1.43	1.59
S23/KWW	NONE	1.39	1.23
	ALDICARB	1.43	1.88
	BENOMYL	1.03	1.21
	PHOR+MET	1.59	1.96
S23/LAD	NONE	1.67	1.69
	ALDICARB	1.73	1.87
	BENOMYL	1.85	1.76
	PHOR+MET	1.90	1.94
S23/MIL	NONE	1.32	1.31
	ALDICARB	1.45	1.66
	BENOMYL	1.34	1.48
	PHOR+MET	1.67	1.49

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

TABLE	VARIETY	CHEMICAL	NITROGEN	VARIETY CHEMICAL
SED	0.066	0.059	0.042	0.132
TABLE	VARIETY NITROGEN	CHEMICAL NITROGEN	VARIETY CHEMICAL NITROGEN	
SED	0.093	0.083	0.186	

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

STRATUM	DF	SE	CV%
BLOCK.WP	39	0.186	12.9
4TH CUT MEAN DM%	26.6		

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5TH CUT (18/10/79) DRY MATTER TONNES/HECTARE

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

CHEMICAL VARIETY	NONE	ALDICARB	BENOMYL	PHOR+MET	MEAN
S23	0.42	0.38	0.37	0.46	0.41
S23/BLAN	0.40	0.47	0.41	0.50	0.45
S23/KWW	0.33	0.58	0.41	0.53	0.46
S23/LAD	0.50	0.67	0.53	0.61	0.58
S23/MIL	0.38	0.46	0.34	0.55	0.43
MEAN	0.41	0.51	0.41	0.53	0.47
NITROGEN VARIETY	N 1	N 2	MEAN		
S23	0.19	0.63	0.41		
S23/BLAN	0.35	0.54	0.45		
S23/KWW	0.31	0.62	0.46		
S23/LAD	0.51	0.65	0.58		
S23/MIL	0.35	0.51	0.43		
MEAN	0.34	0.59	0.47		
NITROGEN CHEMICAL	N 1	N 2	MEAN		
NONE	0.29	0.52	0.41		
ALDICARB	0.38	0.64	0.51		
BENOMYL	0.32	0.50	0.41		
PHOR+MET	0.38	0.68	0.53		
MEAN	0.34	0.59	0.47		
VARIETY	NITROGEN CHEMICAL	N 1	N 2		
S23	NONE	0.19	0.65		
	ALDICARB	0.19	0.57		
	BENOMYL	0.16	0.58		
	PHOR+MET	0.22	0.70		
S23/BLAN	NONE	0.34	0.47		
	ALDICARB	0.32	0.63		
	BENOMYL	0.33	0.50		
	PHOR+MET	0.43	0.57		
S23/KWW	NONE	0.20	0.47		
	ALDICARB	0.41	0.75		
	BENOMYL	0.30	0.52		
	PHOR+MET	0.32	0.75		
S23/LAD	NONE	0.41	0.59		
	ALDICARB	0.58	0.76		
	BENOMYL	0.53	0.54		
	PHOR+MET	0.52	0.71		
S23/MIL	NONE	0.31	0.45		
	ALDICARB	0.40	0.51		
	BENOMYL	0.30	0.38		
	PHOR+MET	0.41	0.68		

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5TH CUT (18/10/79) DRY MATTER TONNES/HECTARE

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

TABLE	VARIETY	CHEMICAL	NITROGEN	VARIETY CHEMICAL
SED	0.035	0.031	0.022	0.069

TABLE	VARIETY NITROGEN	CHEMICAL NITROGEN	VARIETY CHEMICAL NITROGEN
SED	0.049	0.044	0.098

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

STRATUM	DF	SE	CV%
BLOCK.WP	39	0.098	21.0

5TH CUT MEAN DM% 19.3

TOTAL OF 5 CUTS DRY MATTER TONNES/HECTARE

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

CHEMICAL VARIETY	NONE	ALDICARB	BENOMYL	PHOR+MET	MEAN
S23	8.56	7.83	7.80	8.92	8.28
S23/BLAN	10.24	11.01	10.03	10.76	10.51
S23/KWW	9.42	10.75	9.32	10.58	10.02
S23/LAD	9.64	10.35	10.38	10.89	10.32
S23/MIL	10.06	10.79	10.95	11.36	10.79
MEAN	9.58	10.15	9.70	10.50	9.98

NITROGEN VARIETY	N 1	N 2	MEAN
S23	6.72	9.83	8.28
S23/BLAN	10.14	10.88	10.51
S23/KWW	9.60	10.43	10.02
S23/LAD	9.97	10.66	10.32
S23/MIL	10.76	10.82	10.79
MEAN	9.44	10.52	9.98

NITROGEN CHEMICAL	N 1	N 2	MEAN
NONE	9.09	10.08	9.58
ALDICARB	9.41	10.88	10.15
BENOMYL	9.55	9.84	9.70
PHOR+MET	9.71	11.29	10.50
MEAN	9.44	10.52	9.98

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TOTAL OF 5 CUTS DRY MATTER TONNES/HECTARE

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

VARIETY	NITROGEN	N 1	N 2
S23	CHEMICAL		
	NONE	6.73	10.39
	ALDICARB	6.51	9.16
	BENOMYL	6.23	9.37
	PHOR+MET	7.43	10.41
S23/BLAN	NONE	9.99	10.50
	ALDICARB	10.67	11.35
	BENOMYL	9.89	10.17
	PHOR+MET	10.02	11.51
S23/KWW	NONE	9.53	9.31
	ALDICARB	9.88	11.61
	BENOMYL	9.21	9.42
	PHOR+MET	9.78	11.38
S23/LAD	NONE	9.27	10.01
	ALDICARB	10.03	10.66
	BENOMYL	10.37	10.39
	PHOR+MET	10.22	11.57
S23/MIL	NONE	9.91	10.20
	ALDICARB	9.98	11.61
	BENOMYL	12.04	9.86
	PHOR+MET	11.11	11.61

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

TABLE	VARIETY	CHEMICAL	NITROGEN	VARIETY CHEMICAL
SED	0.2880	0.2576	0.1821	0.5759
TABLE	VARIETY NITROGEN	CHEMICAL NITROGEN	VARIETY CHEMICAL NITROGEN	
SED	0.4072	0.3643	0.8145	

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

STRATUM	DF	SE	CV%
BLOCK.WP	39	0.8145	8.2

TOTAL OF 5 CUTS MEAN DM% 21.5

AVERAGE PLOT AREA HARVESTED 0.00053