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73/R/CS/42 - Effects of Invertebrates on Yield - Old Grass

Rothamsted Research

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73/R/CS/42

EFFECT OF INVERTEBRATES ON YIELD

Object: To study the effects of a range of invertebrate-killing chemicals on the yield of old grass - Road Piece.

Sponsor: I.F. Henderson.

The fifth year, old grass.

For previous years see 69/R/CS/42(t), 70/R/CS/42(t), 71/R/CS/42(t) and 72/R/CS/42(t).

Design: 4 randomised blocks of 12 plots.

Whole plot dimensions: 2.74 x 6.40. Area harvested: 0.00065.

Treatments: Chemicals:

CHEMICAL

None

0

To control foliar invertebrates:

Chlorbenside spray until 1972, none since

(FCB)

Menazon spray, repeated frequently

FMZ

Chlorbenside (until 1972), menazon, dimethoate sprays and parathion/bran bait, repeated frequently

F3

To control soil invertebrates:

Formalin, last applied in 1970

(SFO)

Parathion/bran bait, repeated frequently

SL

Nematicide C14421, last applied in 1970

(SN)

Metalddehyde, repeated frequently

SMT

Aldrin in 1969 and 1972 only, nematicide C14421 until 1970, metalddehyde repeated frequently

S3

As S3 + chlordane in 1969 and 1972

S4

To control foliar and soil invertebrates:

As F3+S4 since 1969

F3S4

As F3+S4 since 1972 (previously untreated)

F3S4*

73/R/CS/42

Basal applications: Manures: (0:14:28) at 500 kg in winter, (25:0:16) at 440 kg in spring, (25:0:16) at 220 kg after each cut except the last.

Cultivations, etc.:— PK applied: 17 Nov, 1972. NK applied: 21 Feb, 1973.
Cut three times: 22 May, 4 July, 12 Sept. NK applied after the first two cuts.

Chemical treatments applied:

Dimethoate: 11 May, 22 June, 23 July, 16 Aug.

Menazon: 10 May, 21 June, 20 July, 16 Aug.

Metalddehyde: 10 May, 21 June, 24 July, 15 Aug.

Parathion: 11 May, 21 June, 24 July, 25 Aug.

NOTE: Samples were taken for botanical analysis in May. Samples for fauna were taken after the last cut.

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

1st cut: 0.505 or 11.3% (33 d.f.)

2nd cut: 0.305 or 15.6% (33 d.f.)

3rd cut: 0.234 or 11.6% (33 d.f.)

Total of 3 cuts: 0.586 or 6.9% (33 d.f.)

73/R/CS/42

TABLES OF MEANS

DRY MATTER: TONNES/HECTARE

	1ST CUT	2ND CUT	3RD CUT	TOTAL OF 3 CUTS
CHEMICAL				
O	3.91	1.96	2.26	8.13
(FCB)	3.75	2.14	2.12	8.01
FMZ	4.57	1.99	2.00	8.57
F3	4.95	1.80	1.66	8.40
(SFO)	4.20	1.73	2.41	8.34
SL	4.62	1.86	2.27	8.75
(SN)	4.16	1.97	2.24	8.37
SMT	4.08	2.14	1.87	8.10
S3	4.68	1.97	2.02	8.67
S4	4.58	2.07	1.99	8.63
F3S4	5.38	1.65	1.35	8.39
F3S4*	4.95	2.13	2.05	9.12
Mean	4.49	1.95	2.02	8.46

STANDARD ERRORS OF DIFFERENCES

CHEMICAL	0.357	0.216	0.166	0.415
Mean D.M. %	1st cut:	16.8		
	2nd cut:	23.4		
	3rd cut:	36.2		
	Total of 3 cuts:	25.5		

* Since 1972