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Numerical Results of the Field Experiments 1968

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68/C/25 N Fixation by Lucerne - Lucerne and Grass

Rothamsted Research

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68/c/17.2

SUMMARY OF RESULTS

DRY MATTER

O	S	B	C	M	P	BCMP	Mean
1ST CUT							
29.3	28.3	27.6	(±2.81) 27.1	23.5	30.0	23.4	27.0
2ND CUT							
18.2	20.1	18.8	(±0.75) 17.8	17.9	20.6	16.6	18.6
3RD CUT							
17.8	19.4	17.8	(±0.58) 17.5	16.4	17.5	16.5	17.5
4TH CUT							
16.5	16.3	14.7	(±1.00) 15.9	13.7	14.6	14.2	15.1
TOTAL OF 2ND, 3RD AND 4TH CUTS*							
52.6	55.8	51.3	(±1.45) 51.1	48.1	52.7	47.2	51.3

Mean D.M. %: 1st cut: 20.7
 2nd cut: 17.4
 3rd cut: 15.3
 4th cut: 17.5
 Total of 2nd, 3rd
 and 4th cuts: 16.7

* NOTE: The treatments were not applied until after the 1st cut.

68/C/17.1

GRASS

(CS)

Insecticides and molluscicides, Road Piece 1968.

Design: 4 randomised blocks of 7 plots.

Area of each plot: 0.0209. Area harvested: 0.0054.

Treatments: Untreated, no sampling	(O)
Untreated, sampled	(S)
BHC spray at 6 lb in 200 gals (applied once after first cut)	(B)
Chlorbenside spray at 6 lb in 200 gals (applied 5 times, starting after first cut)	(C)
Metalddehyde bait at 5 lb (applied 5 times, starting after first cut)	(M)
Phosdrin spray at 4 oz in 200 gals (applied 5 times, starting after first cut)	(P)
Combined treatments	(BCMP)

NOTE: All plots except treatment (O) were sampled as treatment (S).

Basal applications: 3.5 cwt (25:0:16) in spring and 1.75 cwt after each cut except the last.

Cultivations, etc.: Basal NK compound applied: 22 Feb, 1968. Cut 4 times: 28 May, 9 July, 19 Aug, 6 Nov. NK compound applied after first 3 cuts. Insecticides and molluscicides applied:-
BHC: 6 June.
Chlorbenside: 11 June, 2 July, 5 Aug, 12 Sept, 3 Oct.
Metalddehyde: 5 June, 1 July, 21 Aug, 4 Sept, 1 Oct.
Phosdrin: 12 June, 2 July, 6 Aug, 4 Sept, 2 Oct.
Previous crop: Grass since 1945 (mainly grazed).

NOTE: Samples were taken for analysis of botanical composition on 27 May, 31 July and 10 Oct. Fauna samples (for estimation of foliage insects, soil insects and slugs) were taken during April, May, July, Sept, Oct and Nov. The concentration of BHC in the soil was determined from samples taken on 10 July, and the soil pH from samples taken on 10 Sept.

Standard errors per plot. Dry matter:

1st cut:	5.62 or 20.8% (18 d.f.)
2nd cut:	1.49 or 8.0% (18 d.f.)
3rd cut:	1.16 or 6.6% (18 d.f.)
4th cut:	1.99 or 13.2% (18 d.f.)
Total of 2nd, 3rd and 4th cuts:	2.89 or 5.6% (18 d.f.)

68/c/16.2

SUMMARY OF RESULTS

	P0	P1	P4	P6	P24	Mean
	GRAIN					
	(±0.63)					(±0.28)
K1	29.7	35.6	34.3	32.6	34.0	33.2
K4	30.2	34.9	31.2	31.7	32.5	32.1
Mean (±0.45)	30.0	35.3	32.7	32.1	33.2	32.7

Mean D.M. %: 83.4

	P0	P1	P4	P6	P24	Mean
	STRAW					
K1	27.6	35.1	37.7	34.9	40.5	35.2
K4	31.4	35.9	39.1	40.0	43.2	37.9
Mean	29.5	35.5	38.4	37.5	41.8	36.5

Mean D.M. %: 89.4

68/c/16.1

BARLEY

(CP/1)

P, K and take-all (*Ophiobolus graminis*), West Barnfield II 1968, the first year.

Design: 4 randomised blocks of 10 plots.

Area of each plot: 0.0265. Area harvested: 0.0140.

Treatments: All combinations of:-

1. Phosphate (in cwt P₂O₅ as superphosphate). Applied annually to seedbed: None (P0), 0.3 (P1), 1.2 (P4). Applied in autumn 1967 only, half before ploughing, half after: 1.8 (P6), 7.2 (P24).
2. Potash, applied annually to seedbed: 0.3 (K1), 1.2 (K4) cwt K₂O as muriate of potash.

Basal applications: 0.8 cwt N as 'Nitro-Chalk' to seedbed. Weedkillers: Aminotriazole at 4 lb and ammonium thiocyanate at 3.7 lb in 32 gals. Paraquat at 0.75 lb ion in 32 gals.

Cultivations, etc.: Aminotriazole and ammonium thiocyanate applied: 21 Sept, 1967. Paraquat applied: 6 Oct. Half autumn superphosphate applied: 20 Oct. Ploughed: 26 Oct. Half autumn superphosphate applied: 7 Nov. 'Nitro-Chalk' applied: 29 Feb, 1968. Seedbed P and K applied, seed drilled at 140 lb: 1 Mar. Combine harvested: 21 Aug. Variety: Maris Badger. Previous crops: Grass 1966, winter wheat 1967.

NOTE: Estimates of eyespot (*Cercospora herpotrichoides*) and take-all (*Ophiobolus graminis*) were made in spring and summer. Estimates of lodging were also made.

Standard error per plot.

Grain: 1.26 or 3.9% (27 d.f.)

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68/C/15.3

	DRY MATTER		Mean
	O	S	
	3RD CUT		
	(±0.98)		(±0.69)
L	11.8	14.0	12.9
M	29.6	28.0	28.8
Mean (±0.69)	20.7	21.0	20.8
	TOTAL OF 3 CUTS		
	(±2.22)		(±1.57)
L	54.8	61.6	58.2
M	101.6	98.4	100.0
Mean (±1.57)	78.2	80.0	79.1

Mean D.M. %: 3rd cut: 18.0
 Total of 3 cuts: 17.9

68/C/15.2

SUMMARY OF RESULTS

DRY MATTER

	O	S	Mean
	1ST CUT		
	(±1.41)		(±1.00)
L	21.8	25.3	23.5
M	49.5	48.2	48.8
Mean (±1.00)	35.6	36.7	36.2
	2ND CUT		
	(±0.72)		(±0.51)
L	21.2	22.3	21.8
M	22.6	22.2	22.4
Mean (±0.51)	21.9	22.3	22.1

Mean D.M. %: 1st cut: 15.9
 2nd cut: 19.7

68/C/15.1

LUCERNE

(BZ)

Virus control - Long Hoos VI 1968, the third year. For treatments etc. and for previous years' results see 'Results' 66/C/26 and 67/C/20.

Area of each plot: 0.0661. Area harvested: 0.0046.

The dressing applied to M plots after each cut except the last is now 0.5 cwt N as 'Nitro-Chalk' and not NK compound as previously.

Cultivations, etc.: Basal PK compound applied: 14 Dec, 1967. 'Nitro-Chalk' applied to M plots: 12 Mar, 1968. S plots sprayed with demeton-s-methyl at 3.5 oz in 70 gals: 25 Apr, 22 May, 24 June, 13 Aug, 5 Nov. Cut 3 times: 27 May, 5 July, 29 Oct. Muriate of potash applied to L plots and 'Nitro-Chalk' to M plots after first two cuts.

NOTE: Aphid counts were made and the incidences of mosaic virus and of bean leaf roll virus were estimated.

Standard errors per plot. Grass, dry matter:

1st cut:	2.83 or 7.8% (6 d.f.)
2nd cut:	1.44 or 6.5% (6 d.f.)
3rd cut:	1.97 or 9.4% (6 d.f.)
Total of 3 cuts:	4.44 or 5.6% (6 d.f.)

68/C/25.9

DRY MATTER					
	O	I	E	G	Mean
STACKYARD C (W)					
TOTAL OF 1ST AND 2ND CUTS					
Mean (± 1.99)	50.8	46.4	51.9	44.6	48.4
	(1) and (2)				(± 1.22)
U	48.1	42.3	48.6	44.2	45.8
M	53.5	50.5	55.1	45.0	51.0
	(3) and (4)				(± 1.73)
NO	48.3	41.2	49.7	6.5	36.4
N1	56.2	48.3	53.8	40.6	49.7
N2	47.9	50.9	55.7	62.8	54.3
N3	50.8	45.2	48.2	68.6	53.2

Mean D.M. %: 19.4

(1) (± 2.64) (3) (± 3.60) For use in horizontal and diagonal comparisons only

(2) (± 2.45) (4) (± 3.46) For use in vertical and interaction comparisons only

