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Numerical Results of the Field Experiments 1969

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69/R&W/CS/27&31 - N Fixation - Lucerne & Ryegrass

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N FIXATION

(69/R/CS/27 and 69/W/CS/31)

Nitrogen fixation by lucerne - Rothamsted (R) Pastures and Woburn (W) Stackyard B, 1969, the second year. For treatments and the previous year's results see 'Results' 68/C/26.

Area of each sub plot: 0.0011. Area harvested: 0.0006.

The M treatment did not receive ground chalk on either field in 1969.

NOTE: (1) It was decided to discontinue both experiments after the second cut, since yields from lucerne plots were very largely of annual grass.

On Pastures (R), hot dry weather then discouraged all weeds and lucerne grew vigorously. To obtain an estimate of maximum yields from this field a third and fourth cut were therefore taken, using a selection of the best sub-plots - all of the effectively inoculated treatments (E) and the four uninoculated treatments (O) in Block 2 only.

Cultivations, etc.:-

Pastures (R): PK and 'Nitro-Chalk' applied: 25 Mar, 1969. Cut twice: 22 May, 3 July. 'Nitro-Chalk' applied after first cut. Selected sub-plots cut twice 13 Aug, 6 Oct. 'Nitro-Chalk' applied on 13 Aug.

Stackyard B (W): PK and 'Nitro-Chalk' applied: 26 Mar, 1969. Cut twice: 20 May, 1 July. 'Nitro-Chalk' applied after first cut.

NOTE: (2) The dry matter samples were used for N analyses.

Standard errors per plot. Dry matter, cwt:

Rothamsted (Pastures) (R):

1st cut:	Whole plot:	2.65 or 17.6% (6 d.f.)
	Sub plot:	2.68 or 17.8% (24 d.f.)
2nd cut:	Whole plot:	1.15 or 5.7% (6 d.f.)
	Sub plot:	2.52 or 12.6% (24 d.f.)
Total of 2 cuts:	Whole plots:	3.39 or 9.7% (6 d.f.)
	Sub plots:	4.31 or 12.3% (24 d.f.)

'E' Plots only

3rd cut:	Whole plot:	2.45	or	16.8%	(6 d.f.)
4th cut:	Whole plot:	1.18	or	15.1%	(6 d.f.)
Total of 4 cuts:		6.87	or	12.4%	(6 d.f.)

Woburn (Stackyard B) (W):

1st cut:	Whole plot:	2.12	or	11.9%	(6 d.f.)
	Sub plot:	3.39	or	19.1%	(24 d.f.)
2nd cut:	Whole plot:	1.57	or	18.5%	(6 d.f.)
	Sub plot:	2.23	or	26.3%	(24 d.f.)
Total of 2 cuts:	Whole plot:	2.75	or	10.5%	(6 d.f.)
	Sub plot:	4.37	or	16.6%	(24 d.f.)

SUMMARY OF RESULTS

PASTURES (R)

DRY MATTER: CWT

	O	I	E	G	Mean
	1ST CUT				
	(1) and (2)				(±0.47)
U	11.3	10.2	12.4	20.8	13.7
M	14.2	12.7	16.0	23.1	16.5
	(3) and (4)				(±0.67)
NO	7.4	6.7	9.6	11.0	8.7
N1	11.0	9.2	14.3	21.8	14.1
N2	15.7	14.5	15.7	27.8	18.4
N3	16.8	15.3	17.3	27.0	19.1
Mean (±1.32)	12.7	11.4	14.2	21.9	15.1

(1) (±1.48) (3) (±1.76) For use in horizontal and diagonal comparisons only.
 (2) (±0.95) (4) (±1.34) For use in vertical and interaction comparisons only.

Mean D.M. %: 18.5

PASTURES (R)
 DRY MATTER: CWT

	O	I	E	G	Mean
	2ND CUT				
	(1) and (2)				(±0.45)
U	16.2	16.8	15.8	23.1	18.0
M	22.9	19.0	21.5	24.9	22.0
	(3) and (4)				(±0.63)
N0	15.1	14.5	14.3	9.8	13.4
N1	16.8	15.4	18.2	21.1	17.9
N2	22.2	22.1	22.1	30.5	24.2
N3	24.1	19.6	19.9	34.5	24.5
Mean (±0.57)	19.6	17.9	18.6	24.0	20.0

(1) (±0.85) (3) (±1.23) For use in horizontal and diagonal comparisons only.
 (2) (±0.89) (4) (±1.26) For use in vertical and interaction comparisons only.

Mean D.M.%: 24.7

PASTURES (R)
 DRY MATTER: CWT

	O	I	E	G	Mean
	TOTAL OF TWO CUTS				
	(1) and (2)				(±0.76)
U	27.5	27.0	28.2	43.9	31.7
M	37.1	31.7	37.5	48.0	38.5
	(3) and (4)				(±1.08)
NO	22.6	21.2	23.9	20.9	22.1
N1	27.8	24.6	32.5	42.9	32.0
N2	37.8	36.6	37.8	58.3	42.6
N3	41.0	35.0	37.2	61.6	43.7
Mean (±1.70)	32.3	29.3	32.9	45.9	35.1

(1) (±2.01) (3) (±2.52) For use in horizontal and diagonal comparisons only.
 (2) (±1.52) (4) (±2.15) For use in vertical and interaction comparisons only.

Mean D.M.%: 21.6

STACKYARD B (W)

DRY MATTER: CWT

	O	I	E	G	Mean
	1ST CUT				
	(1) and (2)				(±0.60)
U	16.0	12.4	14.4	31.5	18.6
M	11.1	11.2	14.0	31.8	17.0
	(3) and (4)				(±0.85)
NO	4.5	6.2	9.9	7.8	7.1
N1	15.5	8.2	12.4	32.3	17.1
N2	16.6	14.8	15.9	43.4	22.7
N3	17.5	18.0	18.5	43.0	24.3
Mean (±1.06)	13.5	11.8	14.2	31.6	17.8

(1) (±1.36) (3) (±1.81) For use in horizontal and diagonal comparisons only

(2) (±1.20) (4) (±1.70) For use in vertical and interation comparisons only

Mean D.M. %: 19.3

STACKYARD B (W)

DRY MATTER: CWT

	O	I	E	G	Mean
2ND CUT					
(1) and (2)					
					(±0.39)
U	4.1	4.4	5.3	15.9	7.4
M	6.0	6.2	6.5	19.4	9.5
(3) and (4)					
					(±0.56)
NO	4.2	5.2	6.4	5.1	5.2
N1	5.6	6.2	5.7	18.1	8.9
N2	5.3	5.0	6.4	25.1	10.5
N3	5.0	4.8	5.0	22.5	9.3
Mean (±0.79)	5.0	5.3	5.9	17.7	8.5

(1) (±0.96) (3) (±1.24) For use in horizontal and diagonal comparisons only
 (2) (±0.79) (4) (±1.12) For use in vertical and interaction comparisons only

Mean D.M. %: 28.8

STACKYARD B (W)

DRY MATTER: CWT

	O	I	E	G	Mean
TOTAL OF TWO CUTS					
(1) and (2)					
U	20.1	16.9	19.7	47.4	26.0
M	17.1	17.4	20.4	51.2	26.5
(3) and (4)					
NO	8.7	11.4	16.3	12.9	12.3
N1	21.2	14.5	18.1	50.3	26.0
N2	21.9	19.8	22.3	68.5	33.1
N3	22.5	22.8	23.5	65.5	33.6
Mean (± 1.38)	18.6	17.1	20.1	49.3	26.3

(1) (± 1.76) (3) (± 2.34) For use in horizontal and diagonal comparisons only

(2) (± 1.55) (4) (± 2.19) For use in vertical and interaction comparisons only

Mean D.M. %: 24.0

PASTURES (R)

DRY MATTER: CWT

E PLOTS

	NO	N1	N2	N3	Mean
	3RD CUT				
	(±1.73)				(±0.87)
U	15.6	11.7	6.7	8.5	10.6
M	20.6	19.3	17.6	16.8	18.6
Mean (±1.23)	18.1	15.5	12.2	12.7	14.6

Mean D.M. %: 19.6

O PLOTS

Mean 16.0

PASTURES (R)

DRY MATTER: CWT

E PLOTS

	NO	N1	N2	N3	Mean
	4TH CUT				
	(±0.83)				(±0.42)
U	6.9	6.2	4.6	5.3	5.8
M	9.6	10.6	10.0	9.0	9.8
Mean (±0.59)	8.3	8.4	7.3	7.2	7.8

Mean D.M. %: 21.8

O PLOTS

Mean 8.7

PASTURES (R)

DRY MATTER: CWT

E PLOTS

	NO	N1	N2	N3	Mean
	TOTAL OF FOUR CUTS				
	(±4.85)				(±2.43)
U	42.4	46.1	43.9	46.1	44.6
M	58.1	66.8	70.7	68.0	65.9
Mean (±3.43)	50.2	56.5	57.3	57.0	55.3

Mean D.M. %: 20.7

O PLOTS

Mean 57.0