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## Numerical Results of the Field Experiments 1969

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### 69/R/CS/23 - Simulated Grazing - Old Grass

#### Rothamsted Research

Rothamsted Research (1970) *69/R/CS/23 - Simulated Grazing - Old Grass* ; Numerical Results Of The Field Experiments 1969, pp 172 - 185 - DOI: <https://doi.org/10.23637/ERADOC-1-96>

SIMULATED GRAZING EXPERIMENT

(69/R/CS/23)

Comparison of yields from cages, 1 yard square (as used on the Grazed Reference Plots), and from cuts by motor scythe, Plot 6, Park Grass 1969, the third year. For treatments etc., and the previous years' results see 'Results' 67/C/38 and 68/C/29.

Cultivations etc.: Basal P, K, Na and Mg applied: 21 Nov, 1968.

The following treatments were cut on the dates shown:-

21 Apr 1969:	G+H,	G-H.			
7 May:	G+H,	G-H,	HG+,	HG-,	H.
16 May:			HG+,	HG-.	
27 May:			HG+,	HG-.	
9 June:			HG+,	HG-.	
23 June:	G+H,	G-H,	HG+,	HG-,	H.
14 July:	G+H,	G-H.			
31 July:	G+H,	G-H.			
20 Aug:	G+H,	G-H.			
8 Sept:	G+H,	G-H,	HG+,	HG-,	H.
3 Oct:			HG+,	HG-.	
10 Nov:	G+H,	G-H,	HG+,	HG-,	H.

Calcium nitrate applied on 4 Mar, 8 May, 24 June and 9 Sept.

NOTE: The percentages of N, P and K in the dry grass were measured.

Standard errors per plot. Grass, dry matter, cwt:

Motor Scythe

1st Period (cuts 1-2):	3.37 or 25.2% (28 d.f.)
2nd Period (cuts 3-6):	3.14 or 10.6% (28 d.f.)
3rd Period (cuts 7-10):	2.64 or 9.6% (28 d.f.)
4th Period (cuts 11-12):	0.48 or 20.0% (28 d.f.)
Total all 4 Periods (cuts 1-12):	3.94 or 5.4% (28 d.f.)

SUMMARY OF RESULTS

DRY MATTER: CWT

1ST PERIOD

Treatment	H	H(G-)	G-(H)	H(G+)	H(G+)	G+(H)	G(+H)	Mean*
Cut with	M	M	R	M	SC	R	SC	
	(±1.95)							(±0.87)
NO	7.5	6.6	8.0	8.5	16.4	8.5	15.3	7.8
N1	15.3	18.8	11.2	16.4	23.1	10.4	15.4	14.4
N2	18.2	24.7	13.7	19.4	25.9	13.5	13.7	17.9
Mean (±1.12)	13.7	16.7	11.0	14.8	21.8	10.8	14.8	13.4

R plots cut twice.

2ND PERIOD

Treatment	H	(H)G-	(G-)H	(H)G+	(H)G+	(G+)H	(G+)H	Mean*
Cut with	M	R	M	R	SC	M	SC	
	(±1.81)							(±0.81)
NO	31.4	12.3	30.7	14.7	38.9	34.3	42.5	24.7
N1	37.3	14.1	40.1	19.1	50.0	39.4	52.8	30.0
N2	43.5	17.3	44.3	20.0	57.3	45.3	48.7	34.1
Mean (±1.05)	37.4	14.6	38.4	17.9	48.8	39.7	48.0	29.6

R plots cut four times.

\* Excluding SC

M = Motor scythe

R = Rotary mower

SC = Shears in cages

( ) = Not applied in this period

NOTE: Standard errors do not apply to SC means

DRY MATTER: CWT

3RD PERIOD

Treatment	H	H(G-)	G-(H)	H(G+)	H(G+)	G+(H)	G+(H)	Mean*
Cut with	M	M	R	M	SC	R	SC	
	(±1.53)							(±0.68)
NO	25.4	26.7	18.6	27.6	34.7	16.7	28.4	23.0
N1	27.3	31.3	17.1	41.4	42.1	21.6	30.6	27.8
N2	31.4	40.7	21.8	45.6	44.8	19.0	29.2	31.7
Mean (±0.88)	28.0	32.9	19.2	38.2	40.5	19.1	29.4	27.5

R plots cut four times.

4TH PERIOD

Treatment	H	(H)G-	(G-)H	(H)G+	(H)G+	(G+)H	(G+)H	Mean*
Cut with	M	R	M	R	SC	M	SC	
	(±0.28)							(±0.12)
NO	1.1	3.7	0.7	2.5	4.4	1.3	5.3	1.9
N1	1.9	4.5	2.3	4.1	8.0	2.7	10.7	3.1
N2	1.6	2.9	1.8	3.0	7.6	1.9	10.5	2.2
Mean (±0.16)	1.5	3.7	1.6	3.2	6.7	1.9	8.9	2.4

R plots cut twice.

\* Excluding SC

NOTE: Standard errors do not apply to SC means

DRY MATTER: CWT

TOTAL OVER ALL PERIODS

Treatment	H		HG-		G-H		HG+		G+H		G+H		Mean*
	M	M&R	M&R	M&R	M&R	M&R	SC	SC	M&R	SC	SC		
NO	65.4	49.4	58.0	53.4	94.3	60.7	91.5						(±1.02)
N1	81.7	68.7	70.8	81.0	123.3	74.1	109.6						57.4
N2	94.6	85.5	81.6	88.0	135.6	79.8	102.2						75.3
Mean (±1.31)	80.6	67.9	70.1	74.1	117.7	71.5	101.1						72.8

(±2.27)

\*Excluding SC

NOTE: Standard errors do not apply to SC means.

DRY MATTER: CWT

TOTALS FOR ALL PERIODS UNDER SAME MANAGEMENT

Treatment	H	H(G-)	G-(H)	H(G+)	H(G+)	H(G+)	G+(H)	G+(H)
Cut with	M	M	R	M	SC	R	R	SC
N0	65.4	64.7	42.6	71.7	98.9	42.4	87.0	87.0
N1	81.7	92.5	46.9	99.9	128.7	55.2	104.0	104.0
N2	94.6	111.5	55.7	112.2	129.9	55.5	107.8	107.8
Mean	80.6	89.6	48.5	94.6	119.2	51.0	99.7	99.7

R plots cut twelve times.

SUMMARY OF RESULTS

DRY MATTER: CWT

1ST PERIOD

Treatment	H	H(G-)	G-(H)	H(G+)	M	H(G+)	H(G+)	SC	SF	G+(H)	R	G+(H)	SC	G+(H)	F	Mean*
Cut with	M	M	R	M	M	M	SC	SF								
																(+0.41)
NO	6.5	7.8	3.0	6.0	6.0	12.1	12.1	9.3	1.6	17.3	17.4	17.4	17.3	17.4	17.4	5.0
N1	15.5	16.2	4.6	14.5	14.5	21.9	21.9	23.5	4.8	23.4	22.1	22.1	23.4	22.1	22.1	11.1
N2	18.6	22.8	9.6	19.8	19.8	29.2	29.2	26.1	8.0	29.4	29.0	29.0	29.4	29.0	29.0	15.8
Mean ( $\pm 0.53$ )	13.5	15.6	5.8	13.4	13.4	21.1	21.1	19.6	4.8	23.4	22.8	22.8	23.4	22.8	22.8	10.6

R plots cut 3 times

\* Excluding SC and SF

M = Motor scythe

R = Rotary mower

SC = Shears in cages

SF = Shears in frames

() = Not applied in this period

NOTE: Standard errors do not apply to SC and SF means

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DRY MATTER: CWT

2ND PERIOD

Treatment	H		(H)G-		(G-)H		(H)G+		(H)G+		(G+)H		(G+)H		Mean*
	M	R	R	M	M	R	SC	SF	M	SC	M	SC	SF		
															(±0.72)
NO	25.1	11.8	11.1	27.0	28.2	11.1	28.2	27.3	27.7	34.2	27.7	34.2	34.4	20.5	
N1	41.5	18.4	23.2	40.8	45.3	23.2	45.3	45.7	42.3	49.1	42.3	49.1	48.8	33.2	
N2	49.9	23.9	27.6	51.6	53.3	27.6	53.3	57.2	55.3	53.6	55.3	53.6	53.1	41.6	
Mean (±0.93)	38.8	18.0	20.6	39.8	42.2	20.6	42.2	43.4	41.8	45.6	41.8	45.6	45.4	31.8	

(±1.61)

R plots cut 4 times

\* Excluding SC and SF

NOTE: Standard errors do not apply to SC and SF means

Replacements for pages  
67/C/38.3 - 38.7



DRY MATTER: CWT

3RD PERIOD

Treatment	H	H(G-)	G-(H)	H(G+)	H(G+)	H(G+)	H(G+)	R	G+(H)	R	G+(H)	SC	G+(H)	SF	Mean*
Cut with	M	M	R	M	SC	SF	SC	R	SC	R	SC	SF	SC	SF	
N0	21.2	21.9	14.0	22.2	29.0	28.1	29.0	12.8	28.8	12.8	28.8	25.3	28.8	25.3	(±0.76)
N1	30.1	30.7	16.5	34.0	39.2	42.2	39.2	18.6	37.2	18.6	37.2	38.2	37.2	38.2	18.4
N2	36.6	40.8	22.6	43.5	44.7	46.7	44.7	24.0	39.6	24.0	39.6	41.3	39.6	41.3	26.0
Mean (±0.99)	29.3	31.1	17.7	33.3	37.6	39.0	37.6	18.5	35.2	18.5	35.2	34.9	35.2	34.9	26.0

R plots cut 4 times

\* Excluding SC and SF

NOTE: Standard errors do not apply to SC and SF means

Replacements for pages 67/C/38.3 - 38.7

DRY MATTER: CWT

4TH PERIOD

Treatment	H		(H)G--		(G--)H		(H)G+		(H)G+		(H)G+		(G+)H		(G+)H		(G+)H		Mean*
	M	R	R	M	M	R	SC	SC	SF	M	M	SC	SC	SC	SF	SF	SF		
NO	3.7	4.6	3.6	6.8	3.6	12.0	9.7	8.8	19.1	17.4	17.4	19.1	17.4	17.4	17.4	17.4	17.4	17.4	(±0.44)
N1	13.1	7.6	6.1	12.9	6.1	15.3	13.0	17.9	21.6	21.3	21.3	21.6	21.3	21.3	21.3	21.3	21.3	21.3	5.5
N2	17.9	9.0	8.5	23.8	8.5	23.6	21.8	22.0	24.3	24.9	24.9	24.3	24.9	24.9	24.9	24.9	24.9	24.9	11.5
Mean (±0.57)	11.6	7.1	6.1	14.5	6.1	17.0	14.9	16.2	21.7	21.2	21.2	21.7	21.2	21.2	21.2	21.2	21.2	21.2	11.1

(±0.99)

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R plots cut 3 times

\* Excluding SC and SF

NOTE: Standard errors do not apply to SC and SF means

DRY MATTER: CWT

TOTAL OVER ALL PERIODS

Treatment	H		HG-		G-H		HG+		G+H		G+H		Mean*
	M	M&R	M&R	M&R	M&R	SC	SF	M&R	SC	SF	SF		
													(±1.40)
NO	56.4	46.0	50.8	42.9	81.3	74.4	50.9	99.3	94.5				49.4
NI	100.2	72.9	74.8	77.8	121.6	124.4	83.6	131.3	130.4				81.9
N2	123.0	96.5	107.7	99.4	150.7	151.8	109.3	146.9	148.2				107.2
Mean (±1.81)	93.2	71.8	77.8	73.4	117.9	116.9	81.3	125.8	124.4				79.5

R plots cut 14 times

\* Excluding SC and SF

NOTE: Standard errors do not apply to SC and SF means

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DRY MATTER: CWT

TOTALS FOR ALL PERIODS UNDER SAME MANAGEMENT

Treatment	H		H(G-)		G-(H)		H(G+)		H(G+)		H(G+)		G+(H)		G+(H)		G+(H)	
	M	M	M	M	R	R	M	M	SC	SF	R	R	SC	SF	R	R	SC	SF
NO	56.4	63.5	33.4	64.7	33.4	64.7	94.4	94.4	89.2	89.2	29.1	29.1	86.3	86.3	79.7	79.7		
N1	100.2	100.6	47.1	108.7	47.1	108.7	131.8	131.8	135.8	135.8	52.7	52.7	121.2	121.2	119.0	119.0		
N2	123.0	139.0	65.1	140.6	65.1	140.6	151.8	151.8	150.8	150.8	68.1	68.1	145.9	145.9	149.3	149.3		
Mean	93.2	101.0	48.6	104.7	48.6	104.7	126.0	126.0	125.3	125.3	50.0	50.0	117.8	117.8	116.0	116.0		

R plots cut 14 times

Replacement for pages 68/C/29.3 - 29.7

SUMMARY OF RESULTS

DRY MATTER: CWT.

1ST PERIOD

Treatment	H	H(G-)	G-(H)	H(G+)	H(G+)	G+(H)	G+(H)	Mean*
Cut with	M	M	R	M	SC	R	SC	
	(±1.25)							(±0.56)
NO	6.5	7.6	6.4	7.5	12.3	5.6	14.2	6.7
N1	15.0	17.3	8.3	19.3	28.4	11.5	23.6	14.3
N2	29.9	28.5	16.1	30.8	32.4	20.4	30.0	25.1
Mean (±0.72)	17.1	17.8	10.2	19.2	24.4	12.5	22.6	15.4

R plots cut 3 times

2ND PERIOD

Treatment	H	(H)G-	(G-)H	(H)G+	(H)G+	(G+)H	(G+)H	Mean*
Cut with	M	R	M	R	SC	M	SC	
	(±1.35)							(±0.61)
NO	27.9	15.4	31.4	17.3	27.7	32.0	35.0	24.8
N1	32.5	16.6	33.0	19.2	35.3	38.8	40.7	28.0
N2	33.1	19.8	40.1	19.5	33.1	37.0	43.7	29.9
Mean (±0.78)	31.2	17.2	34.8	18.6	32.1	35.9	39.8	27.6

R plots cut 3 times

\* Excluding SC

M = Motor scythe

R = Rotary mower

SC = Shears in cages

( ) = Not applied in this period

NOTE: Standard errors do not apply to SC means

Replacement for pages 68/C/29.3 - 29.7

DRY MATTER: CWT

3RD PERIOD

Treatment	H	H(G-)	G-(H)	H(G+)	H(G+)	G+(H)	G+(H)	Mean*
Cut with	M	M	R	M	SC	R	SC	
	(±1.39)							(±0.62)
NO	26.3	28.7	18.9	29.8	34.2	19.2	36.0	24.6
N1	31.9	35.9	18.3	34.8	40.1	25.9	38.5	29.3
N2	35.4	39.4	26.7	40.9	45.7	26.4	39.6	33.7
Mean (±0.80)	31.2	34.7	21.3	35.1	40.0	23.8	38.0	29.2

R plots cut 4 times

4TH PERIOD

Treatment	H	(H)G-	(G-)H	(H)G+	(H)G+	(G+)H	(G+)H	Mean*
Cut with	M	R	M	R	SC	M	SC	
	(±0.93)							(±0.42)
NO	7.2	6.6	12.9	6.1	12.0	14.1	22.0	9.4
N1	13.1	10.9	16.7	9.7	15.0	24.2	26.1	14.9
N2	17.0	9.3	26.0	7.4	13.4	19.5	19.5	15.8
Mean (±0.54)	12.4	8.9	18.5	7.7	13.5	19.3	22.5	13.4

R plots cut 3 times

\* Excluding SC

Replacement for pages 68/C/29.3 - 29.7

DRY MATTER: CWT

TOTAL OVER ALL PERIODS

Treatment	H	HG-	G-H	HG+	HG+	G+H	G+H	Mean*
Cut with	M	M&R	M&R	M&R	SC	M&R	SC	
								(±1.07)
					(±2.39)			
N0	67.9	58.3	69.6	60.6	86.3	70.9	107.2	65.5
N1	92.5	80.6	76.3	82.9	118.9	100.4	128.9	86.6
N2	115.3	97.0	108.9	98.5	124.6	103.3	132.7	104.6
Mean (±1.38)	91.9	78.6	84.9	80.7	109.9	91.5	122.9	85.5

\* Excluding SC

NOTE: Standard errors do not apply to SC means.

TOTALS FOR ALL PERIODS UNDER SAME MANAGEMENT

Treatment	H	H(G-)	G-(H)	H(G+)	H(G+)	G+(H)	G+(H)
Cut with	M	M	R	M	SC	R	SC
N0	67.9	80.6	47.3	83.4	103.5	48.2	89.9
N1	92.5	102.9	54.1	117.1	135.3	66.3	112.4
N2	115.3	134.0	71.9	128.2	141.3	73.7	116.1
Mean	91.9	105.8	57.6	109.5	126.7	62.6	106.2

R plots cut 13 times