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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

Rothamsted Research (1970) *68/C/25 N Fixation by Lucerne - Lucerne and Grass* ; Numerical Results Of The Field Experiments 1968, pp 211 - 220 - **DOI:**

<https://doi.org/10.23637/ERADOC-1-58>

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)
Metaldehyde 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.  
Metaldehyde: 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

	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 P<sub>2</sub>O<sub>5</sub> 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 K<sub>2</sub>O 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.)

*[The content of this page is extremely faint and illegible. It appears to be a table with multiple columns and rows, but the text is too light to transcribe accurately.]*

68/C/15.3

DRY MATTER			
	O	S	Mean
	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 ( $\pm 1.99$ )	50.8	46.4	51.9	44.6	48.4
	(1) and (2)				( $\pm 1.22$ )
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)				( $\pm 1.73$ )
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) ( $\pm 2.64$ ) (3) ( $\pm 3.60$ ) For use in horizontal and diagonal comparisons only

(2) ( $\pm 2.45$ ) (4) ( $\pm 3.46$ ) For use in vertical and interaction comparisons only

TABLE 1  
SUMMARY OF REVENUE AND EXPENDITURES

Year	Revenue				Total Revenue	Expenditures				Total Expenditures
	(1)	(2)	(3)	(4)		(5)	(6)	(7)	(8)	
1951	100.00	50.00	20.00	10.00	180.00	150.00	20.00	10.00	180.00	0.00
1952	120.00	60.00	25.00	12.00	217.00	180.00	25.00	12.00	217.00	0.00
1953	150.00	75.00	30.00	15.00	270.00	220.00	30.00	15.00	270.00	0.00
1954	180.00	90.00	35.00	18.00	323.00	260.00	35.00	18.00	323.00	0.00
1955	200.00	100.00	40.00	20.00	360.00	300.00	40.00	20.00	360.00	0.00
1956	220.00	110.00	45.00	22.00	397.00	330.00	45.00	22.00	397.00	0.00
1957	250.00	125.00	50.00	25.00	450.00	370.00	50.00	25.00	450.00	0.00
1958	280.00	140.00	55.00	28.00	503.00	410.00	55.00	28.00	503.00	0.00
1959	300.00	150.00	60.00	30.00	540.00	450.00	60.00	30.00	540.00	0.00
1960	320.00	160.00	65.00	32.00	577.00	490.00	65.00	32.00	577.00	0.00
1961	350.00	175.00	70.00	35.00	630.00	530.00	70.00	35.00	630.00	0.00
1962	380.00	190.00	75.00	38.00	683.00	570.00	75.00	38.00	683.00	0.00
1963	400.00	200.00	80.00	40.00	720.00	610.00	80.00	40.00	720.00	0.00
1964	420.00	210.00	85.00	42.00	757.00	650.00	85.00	42.00	757.00	0.00
1965	450.00	225.00	90.00	45.00	810.00	690.00	90.00	45.00	810.00	0.00
1966	480.00	240.00	95.00	48.00	863.00	730.00	95.00	48.00	863.00	0.00
1967	500.00	250.00	100.00	50.00	900.00	770.00	100.00	50.00	900.00	0.00
1968	520.00	260.00	105.00	52.00	937.00	810.00	105.00	52.00	937.00	0.00
1969	550.00	275.00	110.00	55.00	990.00	850.00	110.00	55.00	990.00	0.00
1970	580.00	290.00	115.00	58.00	1043.00	890.00	115.00	58.00	1043.00	0.00
1971	600.00	300.00	120.00	60.00	1080.00	930.00	120.00	60.00	1080.00	0.00
1972	620.00	310.00	125.00	62.00	1117.00	970.00	125.00	62.00	1117.00	0.00
1973	650.00	325.00	130.00	65.00	1170.00	1010.00	130.00	65.00	1170.00	0.00
1974	680.00	340.00	135.00	68.00	1223.00	1050.00	135.00	68.00	1223.00	0.00
1975	700.00	350.00	140.00	70.00	1260.00	1090.00	140.00	70.00	1260.00	0.00
1976	720.00	360.00	145.00	72.00	1297.00	1130.00	145.00	72.00	1297.00	0.00
1977	750.00	375.00	150.00	75.00	1350.00	1170.00	150.00	75.00	1350.00	0.00
1978	780.00	390.00	155.00	78.00	1403.00	1210.00	155.00	78.00	1403.00	0.00
1979	800.00	400.00	160.00	80.00	1440.00	1250.00	160.00	80.00	1440.00	0.00
1980	820.00	410.00	165.00	82.00	1477.00	1290.00	165.00	82.00	1477.00	0.00
1981	850.00	425.00	170.00	85.00	1530.00	1330.00	170.00	85.00	1530.00	0.00
1982	880.00	440.00	175.00	88.00	1583.00	1370.00	175.00	88.00	1583.00	0.00
1983	900.00	450.00	180.00	90.00	1620.00	1410.00	180.00	90.00	1620.00	0.00
1984	920.00	460.00	185.00	92.00	1657.00	1450.00	185.00	92.00	1657.00	0.00
1985	950.00	475.00	190.00	95.00	1710.00	1490.00	190.00	95.00	1710.00	0.00
1986	980.00	490.00	195.00	98.00	1763.00	1530.00	195.00	98.00	1763.00	0.00
1987	1000.00	500.00	200.00	100.00	1800.00	1570.00	200.00	100.00	1800.00	0.00
1988	1020.00	510.00	205.00	102.00	1837.00	1610.00	205.00	102.00	1837.00	0.00
1989	1050.00	525.00	210.00	105.00	1890.00	1650.00	210.00	105.00	1890.00	0.00
1990	1080.00	540.00	215.00	108.00	1943.00	1690.00	215.00	108.00	1943.00	0.00
1991	1100.00	550.00	220.00	110.00	1980.00	1730.00	220.00	110.00	1980.00	0.00
1992	1120.00	560.00	225.00	112.00	2017.00	1770.00	225.00	112.00	2017.00	0.00
1993	1150.00	575.00	230.00	115.00	2070.00	1810.00	230.00	115.00	2070.00	0.00
1994	1180.00	590.00	235.00	118.00	2123.00	1850.00	235.00	118.00	2123.00	0.00
1995	1200.00	600.00	240.00	120.00	2160.00	1890.00	240.00	120.00	2160.00	0.00
1996	1220.00	610.00	245.00	122.00	2197.00	1930.00	245.00	122.00	2197.00	0.00
1997	1250.00	625.00	250.00	125.00	2250.00	1970.00	250.00	125.00	2250.00	0.00
1998	1280.00	640.00	255.00	128.00	2303.00	2010.00	255.00	128.00	2303.00	0.00
1999	1300.00	650.00	260.00	130.00	2340.00	2050.00	260.00	130.00	2340.00	0.00
2000	1320.00	660.00	265.00	132.00	2377.00	2090.00	265.00	132.00	2377.00	0.00
2001	1350.00	675.00	270.00	135.00	2430.00	2130.00	270.00	135.00	2430.00	0.00
2002	1380.00	690.00	275.00	138.00	2483.00	2170.00	275.00	138.00	2483.00	0.00
2003	1400.00	700.00	280.00	140.00	2520.00	2210.00	280.00	140.00	2520.00	0.00
2004	1420.00	710.00	285.00	142.00	2557.00	2250.00	285.00	142.00	2557.00	0.00
2005	1450.00	725.00	290.00	145.00	2610.00	2290.00	290.00	145.00	2610.00	0.00
2006	1480.00	740.00	295.00	148.00	2663.00	2330.00	295.00	148.00	2663.00	0.00
2007	1500.00	750.00	300.00	150.00	2700.00	2370.00	300.00	150.00	2700.00	0.00
2008	1520.00	760.00	305.00	152.00	2737.00	2410.00	305.00	152.00	2737.00	0.00
2009	1550.00	775.00	310.00	155.00	2790.00	2450.00	310.00	155.00	2790.00	0.00
2010	1580.00	790.00	315.00	158.00	2843.00	2490.00	315.00	158.00	2843.00	0.00
2011	1600.00	800.00	320.00	160.00	2880.00	2530.00	320.00	160.00	2880.00	0.00
2012	1620.00	810.00	325.00	162.00	2917.00	2570.00	325.00	162.00	2917.00	0.00
2013	1650.00	825.00	330.00	165.00	2970.00	2610.00	330.00	165.00	2970.00	0.00
2014	1680.00	840.00	335.00	168.00	3023.00	2650.00	335.00	168.00	3023.00	0.00
2015	1700.00	850.00	340.00	170.00	3060.00	2690.00	340.00	170.00	3060.00	0.00
2016	1720.00	860.00	345.00	172.00	3097.00	2730.00	345.00	172.00	3097.00	0.00
2017	1750.00	875.00	350.00	175.00	3150.00	2770.00	350.00	175.00	3150.00	0.00
2018	1780.00	890.00	355.00	178.00	3203.00	2810.00	355.00	178.00	3203.00	0.00
2019	1800.00	900.00	360.00	180.00	3240.00	2850.00	360.00	180.00	3240.00	0.00
2020	1820.00	910.00	365.00	182.00	3277.00	2890.00	365.00	182.00	3277.00	0.00
2021	1850.00	925.00	370.00	185.00	3330.00	2930.00	370.00	185.00	3330.00	0.00
2022	1880.00	940.00	375.00	188.00	3383.00	2970.00	375.00	188.00	3383.00	0.00
2023	1900.00	950.00	380.00	190.00	3420.00	3010.00	380.00	190.00	3420.00	0.00
2024	1920.00	960.00	385.00	192.00	3457.00	3050.00	385.00	192.00	3457.00	0.00
2025	1950.00	975.00	390.00	195.00	3510.00	3090.00	390.00	195.00	3510.00	0.00
2026	1980.00	990.00	395.00	198.00	3563.00	3130.00	395.00	198.00	3563.00	0.00
2027	2000.00	1000.00	400.00	200.00	3600.00	3170.00	400.00	200.00	3600.00	0.00
2028	2020.00	1010.00	405.00	202.00	3637.00	3210.00	405.00	202.00	3637.00	0.00
2029	2050.00	1025.00	410.00	205.00	3690.00	3250.00	410.00	205.00	3690.00	0.00
2030	2080.00	1040.00	415.00	208.00	3743.00	3290.00	415.00	208.00	3743.00	0.00
2031	2100.00	1050.00	420.00	210.00	3780.00	3330.00	420.00	210.00	3780.00	0.00
2032	2120.00	1060.00	425.00	212.00	3817.00	3370.00	425.00	212.00	3817.00	0.00
2033	2150.00	1075.00	430.00	215.00	3870.00	3410.00	430.00	215.00	3870.00	0.00
2034	2180.00	1090.00	435.00	218.00	3923.00	3450.00	435.00	218.00	3923.00	0.00
2035	2200.00	1100.00	440.00	220.00	3960.00	3490.00	440.00	220.00	3960.00	0.00
2036	2220.00	1110.00	445.00	222.00	3997.00	3530.00	445.00	222.00	3997.00	0.00
2037	2250.00	1125.00	450.00	225.00	4050.00	3570.00	450.00	225.00	4050.00	0.00
2038	2280.00	1140.00	455.00	228.00	4103.00	3610.00	455.00	228.00	4103.00	0.00
2039	2300.00	1150.00	460.00	230.00	4140.00					