

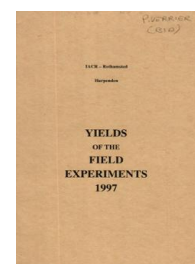
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Yields of the Field Experiments 1997

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97/R/BN/7 Barnfield - Ley

Rothamsted Research

Rothamsted Research (1998) 97/R/BN/7 *Barnfield - Ley* ; Yields Of The Field Experiments 1997, pp 33 - 37 - DOI: <https://doi.org/10.23637/ERADOC-1-53>

97/R/BN/7

BARNFIELD

Object: The experiment was designed to study the effects of organic and inorganic manures on continuous root crops. It was progressively modified to study effects on other crops.

Sections 1 and 2, 3rd year of clover. Sections 3-6, 3rd year of grass/clover.

For previous years see 'Details' 1967 and 1973 and 74-96/R/BN/7.

Plot dimensions: 10.7 x 55.9.

Treatments to grass/clover, Sections 3-6: All combinations of:-

Whole plots

1. **MANURE** Fertilizers and organic manures:

(D)	(D)
(D) PK	(D) P K
PKMG	P K (Na) Mg
P	P
PK	P K
PMG	P (Na) Mg
0	0

P: 35 kg P as triple superphosphate in 1974 and since 1987, single superphosphate in other years

K: 225 kg K as sulphate of potash

(Na): 90 kg Na as sodium chloride until 1973, none since

Mg: 90 kg Mg as kieserite every fourth year since 1974 (sulphate of magnesia until 1973)

(D): Farmyard manure at 35 t until 1975, none since

Sub-plots

2. **N PERCUT** Nitrogen fertilizer in 1997 (kg N per cut) as 34.5% N, cumulative to previous dressings and residues of forms of N previously each supplying 96 kg N per annum:

75	75, previously nitrate of soda, section 3
100	100, previously sulphate of ammonia, section 4
125	125, previously sulphate of ammonia + castor meal, section 5
150	150, previously castor meal, section 6

No nitrogen fertilizer applied in 1995. Castor meal last applied 1971, nitrate of soda and sulphate of ammonia until 1959.

Plus one plot **MANURE** KMG 100

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Treatments to clover, sections 1 and 2 (not given nitrogen fertilizer):

MANURE Fertilizers and organic manures as for grass/clover above, excluding KMG.

NOTES: (1) P, K and D treatments were applied to Sections 1 and 2 until 1980. None were applied subsequently until the resumption of P and K treatments only, from 1985.
(2) Yields were not taken from section 2.

Experimental diary:

02-Dec-96 : T : P applied.
04-Dec-96 : T : K applied.
07-Mar-97 : T : N applied.
11-Jun-97 : B : Cut, herbage removed.
01-Jul-97 : T : N applied.
29-Jul-97 : B : Cut, herbage removed.
11-Aug-97 : T : N applied.
11-Nov-97 : B : Cut, herbage removed.

NOTE: Herbage samples were taken for chemical analysis.

GRASS/CLOVER

1ST CUT (9/6/97) DRY MATTER TONNES/HECTARE

***** Tables of means *****

N PERCUT MANURE	75	100	125	150	Mean
(D)	2.14	2.47	2.93	3.84	2.84
(D)PK	2.42	4.06	3.66	4.47	3.65
PKMG	2.46	3.80	4.19	3.08	3.38
P	0.96	0.62	0.67	0.23	0.62
PK	1.94	4.14	3.80	3.61	3.37
PMG	1.00	1.10	0.56	0.73	0.85
0	1.30	1.31	1.28	1.39	1.32
Mean	1.74	2.50	2.44	2.48	2.29

MANURE KMG 100 2.34

Grand mean 2.29

1ST CUT MEAN DM% 23.7

97/R/BN/7

GRASS/CLOVER

2ND CUT (29/7/97) DRY MATTER TONNES/HECTARE

***** Tables of means *****

N PERCUT MANURE	75	100	125	150	Mean
(D)	1.99	2.13	2.97	3.23	2.58
(D) PK	2.81	3.31	3.90	4.54	3.64
PKMG	3.17	3.75	3.80	3.96	3.67
P	0.66	0.72	0.68	0.61	0.67
PK	3.41	3.29	4.34	4.34	3.85
PMG	0.97	0.80	0.54	0.27	0.64
0	1.03	1.12	0.93	0.79	0.97
Mean	2.01	2.16	2.45	2.54	2.29

MANURE KMG 100 2.26

Grand mean 2.29

2ND CUT MEAN DM% 26.2

3RD CUT (11/11/97) DRY MATTER TONNES/HECTARE

***** Tables of means *****

N PERCUT MANURE	75	100	125	150	Mean
(D)	0.76	1.30	2.27	2.81	1.78
(D) PK	1.92	2.37	1.85	2.06	2.05
PKMG	1.67	2.28	2.20	1.64	1.95
P	0.57	0.81	1.13	0.52	0.76
PK	1.90	2.32	2.28	2.69	2.30
PMG	0.79	1.13	1.07	0.66	0.91
0	0.73	1.19	1.21	0.99	1.03
Mean	1.19	1.63	1.72	1.62	1.54

MANURE KMG 100 2.11

Grand mean 1.56

3RD CUT MEAN DM% 22.1

97/R/BN/7

GRASS/CLOVER

TOTAL OF 3 CUTS DRY MATTER TONNES/HECTARE

***** Tables of means *****

N PERCUT	75	100	125	150	Mean
MANURE					
(D)	4.90	5.89	8.16	9.88	7.21
(D) PK	7.14	9.74	9.41	11.07	9.34
PKMG	7.31	9.83	10.19	8.69	9.00
P	2.18	2.15	2.48	1.37	2.05
PK	7.24	9.76	10.42	10.64	9.52
PMG	2.76	3.04	2.17	1.66	2.41
0	3.06	3.62	3.43	3.17	3.32
Mean	4.94	6.29	6.61	6.64	6.12

MANURE KMG 100 6.71

Grand mean 6.14

TOTAL OF 3 CUTS MEAN DM% 24.0

CLOVER

1ST CUT (9/6/97) DRY MATTER TONNES/HECTARE

***** Tables of means *****

MANURE	(D)	(D) PK	PKMG	P	PK	PMG	0	Mean
	3.44	3.34	2.58	1.48	3.16	2.13	1.46	2.51

1ST CUT MEAN DM% 17.8

2ND CUT (29/7/97) DRY MATTER TONNES/HECTARE

***** Tables of means *****

MANURE	(D)	(D) PK	PKMG	P	PK	PMG	0	Mean
	2.86	3.30	3.19	2.23	2.93	2.88	2.05	2.78

2ND CUT MEAN DM% 23.2

97/R/BN/7

CLOVER

3RD CUT (11/11/97) DRY MATTER TONNES/HECTARE

***** Tables of means *****

MANURE	(D)	(D) PK	PKMG	P	PK	PMG	0	Mean
	0.54	0.91	0.70	0.34	1.04	0.88	0.66	0.72

3RD CUT MEAN DM% 19.5

TOTAL OF 3 CUTS DRY MATTER TONNES/HECTARE

***** Tables of means *****

MANURE	(D)	(D) PK	PKMG	P	PK	PMG	0	Mean
	6.83	7.55	6.47	4.05	7.13	5.88	4.17	6.01

TOTAL OF 3 CUTS MEAN DM% 20.1

PLOT AREA HARVESTED 0.00155