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Yields of the Field Experiments 1989

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89/R/BN/7 Barnfield - Leys

Rothamsted Research

Rothamsted Research (1990) *89/R/BN/7 Barnfield - Leys* ; Yields Of The Field Experiments 1989, pp 28 - 31 - DOI: <https://doi.org/10.23637/ERADOC-1-40>

89/R/BN/7

BARNFIELD

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

Sections 1 and 2 the sixth year of grass/clover. The 15th year of grass on the rest of the experiment.

For previous years see 'Details' 1967 and 1973 and 74-88/R/BN/7.

Plot dimensions: 10.7 x 55.9.

Treatments to grass: All combinations of:-

Whole plots

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

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

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

K: 225 kg K as sulphate of potash

(Na): 90 kg Na as sodium chloride until 1973

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

D: Farmyard manure at 35 tonnes (until 1975).

Quarter plots

2. **N PERCUT** Nitrogen fertilizer in 1989 (kg N per cut) as 'Nitram', 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

Castor meal last applied 1961, nitrate of soda and sulphate of ammonia until 1959.

Plus one plot **MANURE** KMG 100

89/R/BN/7

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

MANURE Fertilizers and organic manures as for grass 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.

Cultivations, etc.:-

All sections: K applied: 8 Dec, 1988. P applied: 9 Dec. Cut: 25 May, 1989, 27 Sept.
 Grass (Sections 3, 4, 5 and 6) only: N applied: 10 Apr, 1989, 6 June.

GRASS

1ST CUT (25/5/89) DRY MATTER TONNES/HECTARE

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

N PERCUT MANURE	75	100	125	150	Mean
D	4.28	4.77	4.83	4.72	4.65
DPK	4.62	5.07	5.30	5.09	5.02
PKMG	4.03	4.57	4.97	4.90	4.62
P	2.52	2.34	2.22	2.02	2.27
PK	3.73	4.33	4.68	4.27	4.25
PMG	2.81	2.63	2.21	1.96	2.40
0	2.41	2.56	2.66	2.25	2.47
Mean	3.49	3.75	3.84	3.60	3.67

MANURE KMG 100 4.33

Grand mean 3.69

1ST CUT MEAN DM% 22.5

89/R/BN/7

GRASS

2ND CUT (27/9/89) DRY MATTER TONNES/HECTARE

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

N PERCUT MANURE	75	100	125	150	Mean
D	1.31	1.73	1.62	1.40	1.52
DPK	1.24	1.73	1.62	1.51	1.53
PKMG	0.86	1.16	1.56	1.43	1.25
P	0.65	0.56	0.53	0.32	0.52
PK	0.57	1.42	1.34	0.96	1.07
PMG	0.52	0.61	0.33	0.30	0.44
0	0.41	0.37	0.38	0.41	0.39
Mean	0.80	1.08	1.06	0.90	0.96

MANURE KMG 100 0.91

Grand mean 0.96

2ND CUT MEAN DM% 37.4

TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

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

N PERCUT MANURE	75	100	125	150	Mean
D	5.60	6.49	6.45	6.12	6.16
DPK	5.86	6.80	6.92	6.60	6.55
PKMG	4.89	5.73	6.53	6.33	5.87
P	3.17	2.90	2.76	2.34	2.79
PK	4.30	5.75	6.02	5.23	5.32
PMG	3.34	3.24	2.54	2.26	2.85
0	2.82	2.93	3.04	2.66	2.86
Mean	4.28	4.83	4.89	4.51	4.63

MANURE KMG 100 5.24

Grand mean 4.65

TOTAL OF 2 CUTS MEAN DM% 29.9

PLOT AREA HARVESTED 0.00568

89/R/BN/7

GRASS/CLOVER

1ST CUT (25/5/89) DRY MATTER TONNES/HECTARE

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

MANURE	D	DPK	PKMG	P	PK	PMG	0	Mean
	2.60	3.07	1.99	1.12	1.94	1.69	1.16	1.94

1ST CUT MEAN DM% 25.1

2ND CUT (27/9/89) DRY MATTER TONNES/HECTARE

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

MANURE	D	DPK	PKMG	P	PK	PMG	0	Mean
	0.49	0.58	0.12	0.40	0.17	0.39	0.51	0.38

2ND CUT MEAN DM% 37.1

TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

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

MANURE	D	DPK	PKMG	P	PK	PMG	0	Mean
	3.09	3.65	2.11	1.52	2.12	2.08	1.67	2.32

TOTAL OF 2 CUTS MEAN DM% 31.1

PLOT AREA HARVESTED 0.00568