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# Yields of the Field Experiments 1991

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## 91/R/BN/7 Barnfield - Leys

### Rothamsted Research

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91/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 the eighth year of grass/clover. The 17th year of grass on the rest of the experiment.

For previous years see 'Details' 1967 and 1973 and 74-90/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 1991 (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

91/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: P applied: 21 Nov, 1990. K applied: 28 Nov. Cut: 30 May, 1991 and 11 Nov.  
 Grass (Sections 3, 4, 5 and 6) only: N applied: 8 Mar, 1991 and 10 June.

**GRASS**

**1ST CUT (30/5/91) DRY MATTER TONNES/HECTARE**

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

N PERCUT	75	100	125	150	Mean
<b>MANURE</b>					
D	4.90	4.58	4.63	4.72	4.71
DPK	4.63	4.65	5.07	4.98	4.83
PKMG	4.47	4.64	4.50	4.72	4.58
P	2.25	1.81	1.65	1.69	1.85
PK	4.72	4.15	4.57	4.62	4.51
PMG	2.50	1.96	1.75	1.80	2.00
0	2.55	2.36	1.94	2.06	2.22
Mean	3.72	3.45	3.45	3.51	3.53
<b>MANURE KMG 100</b>	3.73				
Grand mean	3.54				
1ST CUT MEAN DM%	21.6				

91/R/BN/7

**GRASS**

**2ND CUT (11/11/91) DRY MATTER TONNES/HECTARE**

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

N PERCUT	75	100	125	150	Mean
<b>MANURE</b>					
D	5.15	5.88	4.78	5.60	5.35
DPK	6.12	5.80	5.66	5.39	5.74
PKMG	5.24	4.04	4.73	4.85	4.72
P	2.94	1.52	1.76	1.81	2.01
PK	4.91	5.12	5.03	5.07	5.03
PMG	2.65	1.53	1.17	1.49	1.71
0	2.56	2.51	2.41	2.48	2.49
Mean	4.22	3.77	3.65	3.81	3.86

**MANURE KMG 100** 4.63

Grand mean 3.89

2ND CUT MEAN DM% 27.2

**TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE**

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

N PERCUT	75	100	125	150	Mean
<b>MANURE</b>					
D	10.05	10.46	9.42	10.33	10.06
DPK	10.75	10.45	10.73	10.37	10.57
PKMG	9.71	8.68	9.23	9.56	9.30
P	5.19	3.32	3.41	3.50	3.86
PK	9.63	9.28	9.60	9.68	9.55
PMG	5.15	3.50	2.93	3.29	3.72
0	5.11	4.86	4.34	4.53	4.71
Mean	7.94	7.22	7.09	7.33	7.39

**MANURE KMG 100** 8.36

Grand mean 7.43

TOTAL OF 2 CUTS MEAN DM% 24.4

PLOT AREA HARVESTED 0.00568

91/R/BN/7

**GRASS/CLOVER**

**1ST CUT (30/5/91) DRY MATTER TONNES/HECTARE**

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

<b>MANURE</b>	D	DPK	PKMG	P	PK	PMG	0	Mean
	1.18	1.21	0.57	0.25	0.34	0.28	0.29	0.59

1ST CUT MEAN DM% 30.3

**2ND CUT (11/11/91) DRY MATTER TONNES/HECTARE**

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

<b>MANURE</b>	D	DPK	PKMG	P	PK	PMG	0	Mean
	1.59	1.62	1.91	1.03	2.21	1.70	1.47	1.65

2ND CUT MEAN DM% 22.7

**TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE**

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

<b>MANURE</b>	D	DPK	PKMG	P	PK	PMG	0	Mean
	2.77	2.83	2.48	1.28	2.55	1.99	1.76	2.24

TOTAL OF 2 CUTS MEAN DM% 26.5

PLOT AREA HARVESTED 0.00568