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## Yields of the Field Experiments 1990

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

#### Rothamsted Research

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90/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 seventh year of grass/clover. The 16th year of grass on the rest of the experiment.

For previous years see 'Details' 1967 and 1973 and 74-89/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 1990 (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

90/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 and K applied: 6 Dec, 1989. Mg applied: 7 Dec. Cut: 1 June, 1990 and 16 Nov.  
 Grass (Sections 3, 4, 5 and 6) only: N applied: 1 Mar, 1990 and 4 June.

**GRASS**

**1ST CUT (1/6/90) DRY MATTER TONNES/HECTARE**

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

N PERCUT	75	100	125	150	Mean
<b>MANURE</b>					
D	5.49	5.53	6.14	6.15	5.83
DPK	5.17	5.49	5.09	5.94	5.42
PKMG	4.28	5.30	5.44	4.84	4.96
P	1.38	1.47	1.95	1.78	1.64
PK	3.76	3.95	3.40	3.46	3.64
PMG	1.24	1.80	1.91	1.67	1.66
0	0.91	1.18	1.74	1.46	1.32
Mean	3.17	3.53	3.67	3.62	3.50

**MANURE KMG 100** 3.92

Grand mean 3.51

1ST CUT MEAN DM% 36.7

90/R/BN/7

2ND CUT (16/11/90) DRY MATTER TONNES/HECTARE

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

N PERCUT	75	100	125	150	Mean
<b>MANURE</b>					
D	1.57	1.72	2.18	1.90	1.84
DPK	1.54	1.79	1.73	2.29	1.84
PKMG	1.27	1.34	1.43	1.60	1.41
P	0.70	0.16	0.23	0.29	0.35
PK	1.24	1.03	0.94	1.75	1.24
PMG	0.35	0.18	0.18	0.46	0.29
0	0.50	0.20	0.39	0.60	0.42
Mean	1.02	0.92	1.01	1.27	1.06

MANURE KMG 100 1.27

Grand mean 1.06

2ND CUT MEAN DM% 24.3

TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

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

N PERCUT	75	100	125	150	Mean
<b>MANURE</b>					
D	7.07	7.25	8.32	8.06	7.67
DPK	6.71	7.28	6.82	8.22	7.26
PKMG	5.55	6.63	6.87	6.44	6.37
P	2.08	1.63	2.18	2.07	1.99
PK	5.00	4.98	4.34	5.21	4.88
PMG	1.59	1.98	2.09	2.14	1.95
0	1.41	1.38	2.13	2.07	1.74
Mean	4.20	4.45	4.68	4.89	4.55

MANURE KMG 100 5.19

Grand mean 4.58

TOTAL OF 2 CUTS MEAN DM% 30.5

PLOT AREA HARVESTED 0.00568

90/R/BN/7

GRASS/CLOVER

1ST CUT (1/6/90) DRY MATTER TONNES/HECTARE

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

MANURE	D	DPK	PKMG	P	PK	PMG	0	Mean
	2.32	2.33	0.98	0.48	0.65	0.62	0.41	1.11

1ST CUT MEAN DM% 39.5

2ND CUT (16/11/90) DRY MATTER TONNES/HECTARE

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

MANURE	D	DPK	PKMG	P	PK	PMG	0	Mean
	0.45	0.33	0.13	0.18	0.20	0.17	0.27	0.25

2ND CUT MEAN DM% 37.2

TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

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

MANURE	D	DPK	PKMG	P	PK	PMG	0	Mean
	2.77	2.66	1.11	0.65	0.86	0.79	0.67	1.36

TOTAL OF 2 CUTS MEAN DM% 38.3

PLOT AREA HARVESTED 0.00568