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Yields of the Field Experiments 1984

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84/R/BN/7 Barnfield - Ryegrass

Rothamsted Research

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84/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 first year of grass/clover. The tenth year of grass on the rest of the experiment.

For previous years see 'Details' 1967 and 1973 and 74-83/R/BN/7.

Plot dimensions: Grass: 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
O	O

P: 35 kg P as single superphosphate (triple superphosphate 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 1984 (kg N per cut) as 'Nitro-Chalk' and residues of forms of N previously each supplying 96 kg N per annum:

75	75, previously nitrate of soda
100	100, previously sulphate of ammonia
125	125, previously sulphate of ammonia + castor meal
150	150, previously castor meal

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

Plus one plot MANURE KMG 100

NOTES: (1) P K and D treatments were applied to Sections 1 and 2 until 1980 but not since.

(2) Yields were not taken from sections 1 and 2.

84/R/BN/7

Standard applications:

Grass/clover (Sections 1 and 2): Weedkillers: 2, 4-DB, MCPA and benazolin (as 'Legumex Extra' at 7.0 l) in 500 l.

Seed: Grass: S.215 Meadow fescue at 12 kg, Climax timothy at 12 kg, mixture sown at 24 kg.

Grass/clover: Creeping red fescue at 9 kg, timothy at 9 kg, New Zealand Huia white clover at 4 kg, mixture sown at 22 kg.

Cultivations, etc.:-

Grass: P and K applied: 22 Nov, 1983. N applied: 7 Mar, 1984.

Cut: 31 May. N applied: 6 June. Cut: 19 July. N applied: 26 July.

Cut: 15 Nov.

Grass/clover (Sections 1 and 2): Ploughed: 21 Oct, 1983. Heavy spring-tine cultivated: 22 Mar, 1984. Rotary harrowed: 25 Apr. Seed sown: 26 Apr. Weedkillers applied: 3 July. Topped: 23 July.

84/R/BN/7

1ST CUT (31/5/84) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

N PERCUT MANURE	75	100	125	150	MEAN
D	5.54	6.19	6.18	5.78	5.92
DPK	5.52	6.45	6.33	6.81	6.28
PKMG	4.68	5.69	6.39	6.66	5.85
P	4.27	5.06	5.49	4.80	4.90
PK	4.61	5.73	6.69	6.11	5.79
PMG	4.50	4.73	4.92	4.51	4.67
O	3.93	4.56	4.45	3.93	4.22
MEAN	4.72	5.49	5.78	5.52	5.38

MANURE KMG 100 5.91

GRAND MEAN 5.39

1ST CUT MEAN DM% 19.6

2ND CUT (19/7/84) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

N PERCUT MANURE	75	100	125	150	MEAN
D	3.40	3.85	3.68	3.57	3.62
DPK	3.51	3.77	3.65	3.95	3.72
PKMG	3.20	3.44	3.39	3.56	3.40
P	2.75	2.42	2.40	2.23	2.45
PK	3.30	3.43	3.36	3.45	3.39
PMG	2.85	2.24	1.87	2.06	2.26
O	2.52	2.36	1.93	1.74	2.14
MEAN	3.08	3.07	2.90	2.94	3.00

MANURE KMG 100 2.73

GRAND MEAN 2.99

2ND CUT MEAN DM% 28.0

84/R/BN/7

3RD CUT (15/11/84) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

N PERCUT MANURE	75	100	125	150	MEAN
D	1.83	2.41	2.49	2.16	2.22
DPK	2.22	2.29	2.54	2.42	2.37
PKMG	1.59	2.43	2.58	2.66	2.32
P	1.65	2.17	1.59	1.92	1.83
PK	1.55	2.53	2.40	2.57	2.26
PMG	1.51	1.86	1.80	1.80	1.74
O	1.37	1.45	1.70	1.22	1.43
MEAN	1.68	2.16	2.16	2.11	2.03

MANURE KMG 100 2.19

GRAND MEAN 2.03

3RD CUT MEAN DM% 13.5

TOTAL OF 3 CUTS DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

N PERCUT MANURE	75	100	125	150	MEAN
D	10.77	12.44	12.35	11.51	11.77
DPK	11.26	12.51	12.52	13.18	12.37
PKMG	9.47	11.56	12.36	12.88	11.57
P	8.67	9.65	9.48	8.95	9.19
PK	9.46	11.70	12.45	12.13	11.44
PMG	8.86	8.83	8.60	8.37	8.67
O	7.82	8.37	8.08	6.89	7.79
MEAN	9.47	10.72	10.83	10.56	10.40

MANURE KMG 100 10.82

GRAND MEAN 10.41

TOTAL OF 3 CUTS MEAN DM% 20.3

SUB PLOT AREA HARVESTED 0.00568