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Yields of the Field Experiments 1983

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83/R/BN/7 Barnfield - Ryegrass

Rothamsted Research

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83/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 fallow. The ninth year of grass on the rest of the experiment.

For previous years see 'Details' 1967 and 1973 and 74-82/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 1983 (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 (fallow) until 1980 but not since.

83/R/BN/7

Standard applications:

Grass: Weedkillers: Glyphosate at 1.4 kg in 250 l. Paraquat at 1.1 kg ion in 250 l. Dicamba, mecoprop and MCPA (as 'Herrisol' at 5.0 l) in 250 l.

Fallow: Weedkillers: Paraquat at 1.1 kg ion in 250 l.

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

NOTE: Sowing in August, 1982 failed and the crop was re-sown in March, 1983.

Cultivations, etc.:-

Grass: Glyphosate applied: 20 June, 1982. P applied: 25 June.

K applied: 2 July. Ploughed: 30 July. Discd: 9 Aug. Rotary harrowed: 18 Aug. Rotary harrowed, seed sown: 25 Aug. Paraquat applied: 20 Nov. Spring-tine cultivated: 8 Mar, 1983. Seed re-sown: 12 Mar. N applied: 25 May. 'Herrisol' applied: 16 June. Cut: 11 July. N applied: 15 July. Cut: 1 Nov.

Fallow: Ploughed: 30 July, 1982. Discd: 9 Aug, 18 Aug. Paraquat applied: 20 Nov. Spring-tine cultivated: 8 Mar, 1983. Heavy spring-tine cultivated: 26 May. Rotary cultivated: 16 June. Spring-tine cultivated: 23 June. Spring-tine cultivated, rotary harrowed: 11 Oct.

83/R/BN/7

1ST CUT (11/7/83) DRY MATTER TONNES/HECTARE

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

N PERCUT MANURE	75	100	125	150	MEAN
D	3.40	3.64	3.61	3.58	3.56
DPK	3.09	3.88	3.87	4.23	3.77
PKMG	1.81	2.16	2.56	2.22	2.19
P	1.47	1.55	2.05	2.19	1.81
PK	1.78	2.28	2.59	1.68	2.08
PMG	2.07	2.15	2.59	1.25	2.01
O	0.81	0.95	1.22	1.14	1.03
MEAN	2.06	2.37	2.64	2.33	2.35

MANURE KMG 100 1.88

GRAND MEAN 2.33

1ST CUT MEAN DM% 29.4

83/R/BN/7

2ND CUT (1/11/83) DRY MATTER TONNES/HECTARE

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

N PERCUT MANURE	75	100	125	150	MEAN
D	2.50	2.59	2.37	2.12	2.39
DPK	2.55	2.72	2.65	2.36	2.57
PKMG	1.25	1.98	2.30	1.77	1.83
P	0.87	1.17	1.33	0.68	1.01
PK	1.27	2.38	2.20	1.04	1.72
PMG	1.23	1.69	1.53	0.59	1.26
O	0.95	0.93	1.11	0.87	0.96
MEAN	1.52	1.92	1.93	1.35	1.68

MANURE KMG 100 1.75

GRAND MEAN 1.68

2ND CUT MEAN DM% 22.8

83/R/BN/7

TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

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

N PERCUT MANURE	75	100	125	150	MEAN
D	5.90	6.23	5.98	5.69	5.95
DPK	5.63	6.60	6.51	6.59	6.33
PKMG	3.06	4.14	4.86	3.98	4.01
P	2.34	2.72	3.38	2.87	2.83
PK	3.04	4.66	4.79	2.72	3.80
PMG	3.30	3.84	4.12	1.84	3.27
O	1.76	1.88	2.33	2.02	2.00
MEAN	3.58	4.29	4.57	3.67	4.03

MANURE KMG 100 3.63

GRAND MEAN 4.01

TOTAL OF 2 CUTS MEAN DM% 26.1

SUB PLOT AREA HARVESTED 0.00568