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Yields of the Field Experiments 1979

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78/R/BN/7 Barnfield - Ryegrass

Rothamsted Research

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79/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 fifth year of Italian ryegrass on the rest of the experiment.

For previous years see 'Details' 1967 & 1973 and 74-78/R/BN/7.

Plot dimensions: Ryegrass: 10.7 x 55.9.

Treatments to ryegrass: All combinations of:-

Whole plots

1. MANURE Fertilisers and organic manures:

DN	D	N				
DNPK	D	N	P	K		
NPKMG		N	P	K	(Na)	Mg
NP		N	P			
NPK		N	P	K		
NPMG		N	P		(Na)	Mg
N		N				

N: 100 kg N before first cut, 75 kg N after first and second cuts. All as 'Nitro-Chalk'.

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. NFORMRES Residues of forms of N (each supplying 96 kg N):

NS	Nitrate of soda
SA	Sulphate of ammonia
SA/CM	Sulphate of ammonia + castor meal
CM	Castor meal

Castor meal last applied 1961, others until 1959.

Plus one plot MANURE NKMKG

NOTES: (1) Yields were taken only from half plots cropped with sugar beet in 1973.

(2) P K and D treatments were applied to Sections 1 and 2, fallow in 1979.

Standard applications: Fallow: Weedkiller: Paraquat at 0.84 kg ion in 220 l.

79/R/BN/7

Cultivations, etc.:— Ryegrass and fallow: P applied: 7 Nov, 1978. K applied: 8 Nov.

Ryegrass: N applied: 6 Mar, 1979, 13 June and 27 July. Cut: 30 May, 25 July and 1 Oct.

Fallow: FYM applied: 9 Nov, 1978. Spring-tine cultivated: 1 May, 1979 and 3 Oct. Rotary harrowed: 7 June. Cultivated with thistle bar: 3 July.

Heavy spring-tine harrowed: 9 July. Weedkiller applied: 14 Sept.

1ST CUT (30/5/79) DRY MATTER TONNES/HECTARE

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

NFORMRES MANURE	NS	SA	SA/CM	CM	MEAN
DN	4.03	3.34	3.18	2.79	3.33
DNPK	4.21	3.54	3.35	3.21	3.58
NPKMG	2.76	2.34	2.31	2.23	2.41
NP	2.54	1.65	1.88	1.85	1.98
NPK	2.81	1.97	2.09	1.82	2.17
NPMG	2.17	1.53	1.77	1.93	1.85
N	1.15	2.05	1.81	2.30	1.83
MEAN	2.81	2.35	2.34	2.30	2.45

MANURE NKMG 2.26

GRAND MEAN 2.44

1ST CUT MEAN DM% 23.4

2ND CUT (25/7/79) DRY MATTER TONNES/HECTARE

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

NFORMRES MANURE	NS	SA	SA/CM	CM	MEAN
DN	2.69	2.70	2.55	2.70	2.66
DNPK	2.60	2.50	2.45	3.00	2.64
NPKMG	1.42	1.50	1.67	1.60	1.55
NP	0.90	0.88	1.10	1.10	1.00
NPK	1.27	1.33	1.79	1.31	1.42
NPMG	1.02	0.68	1.11	1.23	1.01
N	1.10	0.72	0.88	1.10	0.95
MEAN	1.57	1.47	1.65	1.72	1.60

MANURE NKMG 0.92

GRAND MEAN 1.58

2ND CUT MEAN DM% 32.1

79/R/BN/7

3RD CUT (1/10/79) DRY MATTER TONNES/HECTARE

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

NFORMRES MANURE	NS	SA	SA/CM	CM	MEAN
DN	2.95	3.00	3.54	3.35	3.21
DNPK	2.78	3.03	3.34	3.24	3.10
NPKMG	2.79	2.75	2.88	2.72	2.78
NP	2.35	2.13	2.19	2.14	2.20
NPK	2.97	2.92	2.99	2.93	2.95
NPMG	2.48	2.07	2.58	2.30	2.36
N	2.26	2.54	2.31	2.10	2.30
MEAN	2.66	2.63	2.83	2.68	2.70

MANURE NKMKG 2.72

GRAND MEAN 2.70

3RD CUT MEAN DM% 28.2

TOTAL OF 3 CUTS DRY MATTER TONNES/HECTARE

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

NFORMRES MANURE	NS	SA	SA/CM	CM	MEAN
DN	9.67	9.04	9.28	8.83	9.21
DNPK	9.59	9.07	9.14	9.45	9.31
NPKMG	6.97	6.59	6.85	6.54	6.74
NP	5.79	4.67	5.17	5.09	5.18
NPK	7.05	6.21	6.87	6.06	6.55
NPMG	5.67	4.29	5.46	5.47	5.22
N	4.51	5.31	5.00	5.50	5.08
MEAN	7.04	6.45	6.83	6.71	6.75

MANURE NKMKG 5.90

GRAND MEAN 6.73

TOTAL OF 3 CUTS MEAN DM% 27.9

SUB PLOT AREA HARVESTED 0.00568