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# Yields of the Field Experiments 1972

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## 72/S/RN/1 Rotation I - Grass, Lucerne

### Rothamsted Research

Rothamsted Research (1973) *72/S/RN/1 Rotation I - Grass, Lucerne* ; Yields Of The Field Experiments 1972, pp 41 - 44 - DOI: <https://doi.org/10.23637/ERADOC-1-62>

72/S/RN/1

ROTATION I

Object: To compare nutrient cycles, uptakes of nutrients and responses to fresh P and K of lucerne and grass leys. To obtain an estimate of the rate of release of nutrients, particularly K, from Saxmundham soil. The effects of lucerne and grass leys will be compared on subsequent arable crops - Saxmundham.

Sponsors: A.E. Johnston, R.C. Flint.

For previous years see 'Details' 1967, 68/A/9(t), 69/S/RN/1(t), 70/S/RN/1(t) and 71/S/RN/1.

Whole plot dimensions (new plots): 5.49 x 17.1.

Area harvested: Grass: 1st cut: New treatments: 0.00003  
Old treatments: 0.00050  
2nd cut: New treatments: 0.00139  
Old treatments: 0.00050  
Lucerne: New treatments: 0.00106  
Old treatments: 0.00139

Seed:- Grass: Timothy S352 and Meadow Fescue S215  
Lucerne: Europe.

Cultivations, etc.:

Grass: P and K applied: 15 Feb, 1972. Bonemeal applied: 22 Feb.  
N applied: 27 Mar. Cut: Blocks 3 and 4 - 23 May, 16 Aug,  
blocks 1 and 2 - 1 June, 16 Aug. N applied after the first  
cut.

Lucerne: P and K applied: 15 Feb, 1972. Bonemeal applied:  
22 Feb. Cut: 7 June, 10 Aug.

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TABLES OF MEANS

OLD TREATMENTS

GRASS, DRY MATTER: TONNES/HECTARE

Treatment 1899-1972	1st cut	2nd cut	Total of 2 cuts
D*	2.38	0.53	2.92
B	0.61	0.00	0.61
N	2.68	1.19	3.86
P	0.69	0.00	0.69
K	0.51	0.00	0.51
-	0.58	0.00	0.58
PK	0.72	0.00	0.72
NK	2.41	1.44	3.85
NP	2.52	1.49	4.01
NPK	2.93	1.93	4.87
Mean	1.60	0.66	2.26

Mean D.M. %: 1st cut: 27.7  
 2nd cut: 24.1  
 Total of 2 cuts: 25.9

\* Last applied autumn 1969

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NEW TREATMENTS

GRASS, DRY MATTER: TONNES/HECTARE

Treatment 1899-1965	Treatment* from 1966	1st cut	2nd cut	Total of 2 cuts
D	DN1	6.81	3.88	10.69
B	B	5.41	3.71	9.12
N	N2P2	5.90	3.58	9.48
P	N1P1	5.60	3.79	9.39
K	N1P2K	5.82	3.99	9.81
-	N1P2	5.52	3.65	9.17
PK	N1P1K	5.89	4.08	9.97
NK	N2P2K	5.95	4.09	10.04
NP	N2P1	5.63	3.51	9.14
NPK	N2P1K	6.10	3.88	9.98
Mean		5.86	3.82	9.68

Mean D.M. %: 1st cut: 22.2  
 2nd cut: 43.1  
 Total of 2 cuts: 32.6

\* N not tested since 1970 - all treatments receive basal N at 100 kg for each cut. FYM last applied autumn 1969.

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NEW TREATMENTS

LUCERNE, DRY MATTER: TONNES/HECTARE

Treatment 1899-1965	Treatment* from 1966	1st cut	2nd cut	Total of 2 cuts
D	DN1	5.37	5.33	10.70
B	B	3.96	4.54	8.50
N	N2P2	4.29	4.63	8.92
P	N1P1	3.87	4.63	8.50
K	N1P2K	4.73	5.33	10.06
-	N1P2	4.08	4.70	8.78
PK	N1P1K	4.61	5.17	9.77
NK	N2P2K	4.64	5.08	9.72
NP	N2P1	3.82	4.40	8.22
NPK	N2P1K	4.36	5.07	9.43
Mean		4.37	4.89	9.26

Mean D.M. %: 1st cut: 32.2  
 2nd cut: 27.0  
 Total of 2 cuts: 29.6

\* N not applied since 1970. FYM last applied autumn 1969.