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## Yields of the Field Experiments 1974

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

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74/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.

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For previous years see 'Details' 1967, 68/A/9(t), 69/S/RN/1(t), 70/S/RN/1(t) and 71-73/S/RN/1.

Treatments: From 1899 to 1969 the experiment followed a four-course rotation of wheat, roots, barley, legumes. Each phase of the rotation was present each year on a separate block. From 1966 each plot was divided, a small area at the south end continued under the original treatment (OLDTREAT), on the larger sub-plots modified treatments (NEWTREAT) were applied (see below).

In 1970 the rotation was stopped and each pair of blocks was divided for lucerne and grass (the OLDTREAT sub-plots form a part of the Grass area).

TREATMENT 1899-1965	OLDTREAT Grass	NEWTREAT Lucerne	NEWTREAT Grass
	MANURE	MANURE	MANURE
D	(D)	(D)	(D)N
B	B	B	BN
N	N	(N)P2	(N)P2N
P	P	(P)P1	(P)P1N
K	K	(K)P2K	(K)P2KN
-	-	(-)P2	(-)P2N
PK	PK	(PK)P1K	(PK)P1KN
NK	NK	(NK)P2K	(NK)P2KN
NP	NP	(NP)P1	(NP)P1N
NPK	NPK	(NPK)P1K	(NPK)P1KN

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D: Farmyard manure at 15 tonnes  
(D): Farmyard manure at 30 tonnes (1966-1969 15 tonnes on  
OLDTREAT), 60 tonnes in autumn 1969, none since 1970  
B: Bone meal at 0.5 tonnes  
N: 1899-1965 - 38 kg N as nitrate of soda. Since 1970 -  
100 kg N (38 kg N on OLDTREAT) as 'Nitro-Chalk'  
(N1), (N2): Residues of N applied as 'Nitro-Chalk' 1966-1969:  
63, 126 kg N (wheat, sugar beet, barley): 0, 63 kg N (beans)  
P: 38 kg P<sub>2</sub>O<sub>5</sub> as superphosphate  
P1, P2: 50, 100 kg P<sub>2</sub>O<sub>5</sub> as triple superphosphate (single superphosphate  
until 1973)  
K: 1899-1965 63 kg K<sub>2</sub>O as muriate of potash. Since 1966 -  
126 kg K<sub>2</sub>O (63 kg K<sub>2</sub>O on OLDTREAT)

NOTE: For a fuller record of treatments see 'Details' etc.

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

Areas harvested: Grass, Old treatments, 1st cut:	0.00050
	2nd cut: 0.00050
Lucerne, New treatments, 1st cut:	0.00123
	2nd cut: 0.00130
Grass, New treatments, 1st cut:	0.00130
	2nd cut: 0.00137

Seed: Grass: Timothy S 352 and Meadow Fescue S215.  
Lucerne: Europe.

Cultivations, etc.:-

Grass: P, K and bone meal applied: 21 Feb, 1974. N applied: 21 Mar  
and 3 July. Cut: 24 June and 23 Sept.  
Lucerne: P, K and bone meal applied: 21 Feb, 1974. Cut: 3 July  
and 10 Sept.

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TABLES OF MEANS

DRY MATTER: TONNES/HECTARE

OLDTREAT - Grass

MANURE

(D)	B	N	P	K	-	PK	NK	NP	NPK	Mean
1ST CUT										
2.02	0.83	2.21	0.72	0.47	0.61	0.76	1.92	2.19	2.59	1.43
2ND CUT										
0.28	0.28	0.86	0.14	0.06	0.08	0.12	0.73	0.89	0.98	0.44
TOTAL OF 2 CUTS										
2.29	1.11	3.07	0.86	0.53	0.69	0.87	2.65	3.08	3.57	1.87
Mean D.M. %	1st cut:				43.7					
	2nd cut:				22.0					
	Total of 2 cuts:				32.8					

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DRY MATTER: TONNES/HECTARE

NEWTREAT - Lucerne

MANURE

(D)	B	(N)P2	(P)P1	(K)P2K	(-)P2	(FK)PIK	(NK)P2K	(NP)P1	(NPK)PIK	Mean
6.71	6.50	6.01	6.00	6.35	5.25	6.06	6.73	5.34	5.84	6.08
3.10	2.49	2.59	2.58	2.54	2.27	2.63	2.71	2.65	2.87	2.64
9.81	8.98	8.60	8.58	8.88	7.53	8.69	9.44	7.99	8.71	8.72

1ST CUT

2ND CUT

TOTAL OF 2 CUTS

Mean D.M. %  
 1st cut: 24.6  
 2nd cut: 30.4  
 Total of 2 cuts: 27.5

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DRY MATTER: TONNES/HECTARE

NEWTREAT - Grass

MANURE

(D)N	BN	(N)P2N	(P)P1N	(K)P2KN	(-)P2H	(FK)P1KN	(NK)P2KN	(NP)P1N	(NPK)P1KN	Meas.
7.23	4.75	5.09	4.93	5.75	4.82	5.90	6.34	5.47	6.31	5.66
1ST CUT										
2.98	2.87	2.59	2.82	2.90	3.06	3.10	3.29	2.91	3.01	2.95
2ND CUT										
10.21	7.62	7.68	7.74	8.65	7.88	9.00	9.63	8.38	9.33	8.61
TOTAL OF 2 CUTS										

Mean D.M. % 1st cut: 42.2  
 2nd cut: 20.2  
 Total of 2 cuts: 31.2