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# Yields of the Field Experiments 1986

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## 86/W/RN/12 Organic Manuring - S. Oats, W. Rye, Ley

### Rothamsted Research

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86/W/RN/12

ORGANIC MANURING

Object: To study, from crop yields and soil analyses, the effects of a range of types of organic matter - Woburn, Stackyard B.

Sponsor: A.E. Johnston.

The 22nd year, s. oats, w. rye, ley.

For previous years see 'Details' 1973 and 74-85/W/RN/12.

Design for s. oats and w. rye: 2 blocks of 4 plots  
5th, 6th, 7th and 8th year leys: 2 blocks of 2 plots.

Whole plot dimensions: 8.53 x 30.5.

Treatments: From 1966 to 1971 the experiment had a preliminary period designed to build up organic matter, derived from different sources. An arable rotation was started on two blocks in 1972 and the remaining two blocks in 1973. After a period of testing the residues built up, a further period of accumulation was started; on two blocks (which included ley sown in 1979) in 1981 and on the other two (which included ley sown in 1980) in 1982. In addition to leys the first pair included s. oats in 1986 and the second pair w. rye.

S. oats and w. rye tested:

MANURE	Organic manures and fertilizers in 1986 (not applied for oats in 1986), cumulative to 1985, 1983 and 1982 (both crops) and to 1981 (oats only) and to those applied in the preliminary period:
FYM	Farmyard manure at 50 tonnes
STRAW	Straw at 7.5 tonnes plus P205 at 140 kg, K20 at 140 kg, MgO at 50 kg
FERT-FYM	P205 at 280 kg, K20 at 560 kg, MgO at 100 kg
FERT-STR	P205 at 140 kg, K20 at 280 kg, MgO at 50 kg

All leys are clover/grass (LC) without N. 5th and 6th year leys tested:

PREV LEY	Previous ley:
LC(LC)	Clover/grass ley in preliminary period
LC(LN)	Grass ley with N in preliminary period

7th and 8th year leys tested:

PREV MAN	Previous manure:
LC(GM)	Green manures in preliminary period
LC(PT)	Peat in preliminary period

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Standard applications:

S. oats: Manures: N at 90 kg as 'Nitram'. Weedkillers: Clopyralid at 0.05 kg with bromoxynil octanoate at 0.24 kg and mecoprop at 1.8 kg with the fungicide in 250 l. Fungicide: Tridemorph at 0.56 kg.

W. rye: Manures: N at 30 kg as 'Nitram'.

Leys, 5th, 6th, 7th and 8th years: Manures: P205 at 140 kg, K20 at 280 kg as (0:18:36). MgO at 50 kg as kieserite.

Seed: S. oats: Dula, sown at 180 kg.

W. rye: Animo, sown at 220 kg.

Cultivations, etc.:-

S. oats: Ploughed: 4 Dec, 1985. Rotary harrowed, seed sown: 10 Apr, 1986. N applied: 30 Apr. Weedkillers and fungicide applied: 30 May. Combine harvested: 14 Aug.

W. rye: Half PK and Mg applied to FERT-FYM plots: 7 Oct, 1985. Treatment FYM and STRAW applied, all plots ploughed, remaining PK applied to FERT-FYM, PK applied to FERT-STRAW, PK applied to STRAW plots: 7 Nov. Rolled, Mg applied to FERT-FYM, FERT-STRAW and STRAW plots: 8 Nov. Heavy spring-tine cultivated: 12 Nov. Rotary harrowed, seed sown: 13 Nov. N applied: 30 Apr, 1986. Combine harvested: 29 Aug.

Leys, 5th, 6th, 7th and 8th years: PK and Mg applied: 29 Nov, 1985.

All leys cut: 16 June, 1986. 6th and 8th year leys topped: 25 July. 5th and 7th year leys cut: 12 Nov.

S. OATS

GRAIN TONNES/HECTARE

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

MANURE	FYM	STRAW	FERT-FYM	FERT-STR	MEAN
	4.86	4.55	4.09	4.15	4.41

GRAIN MEAN DM% 79.5

STRAW TONNES/HECTARE

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

MANURE	FYM	STRAW	FERT-FYM	FERT-STR	MEAN
	1.92	2.67	1.81	1.94	2.09

STRAW MEAN DM% 71.8

PLOT AREA HARVESTED 0.00796

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W. RYE

GRAIN TONNES/HECTARE

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

MANURE	FYM	STRAW	FERT-FYM	FERT-STR	MEAN
	5.62	4.31	3.68	4.33	4.48

GRAIN MEAN DM% 80.4

STRAW TONNES/HECTARE

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

MANURE	FYM	STRAW	FERT-FYM	FERT-STR	MEAN
	5.92	4.34	3.98	4.18	4.61

STRAW MEAN DM% 87.8

PLOT AREA HARVESTED 0.00796

5TH YEAR LEY

DRY MATTER TONNES/HECTARE

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

	1ST CUT (16/6/86)	2ND CUT (12/11/86)	TOTAL OF 2 CUTS
PREV LEY			
LC(LC)	4.42	1.63	6.05
LC(LN)	4.68	1.76	6.43
MEAN	4.55	1.69	6.24
MEAN DM%	26.1	26.0	26.1

6TH YEAR LEY

DRY MATTER TONNES/HECTARE

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

	1ST AND ONLY CUT (16/6/86)
PREV LEY	
LC(LC)	5.40
LC(LN)	5.76
MEAN	5.58
MEAN DM%	25.6

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7TH YEAR LEY

DRY MATTER TONNES/HECTARE

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

	1ST CUT (16/6/86)	2ND CUT (12/11/86)	TOTAL OF 2 CUTS
PREV MAN			
LC(GM)	3.49	1.52	5.01
LC(PT)	3.91	1.77	5.67
MEAN	3.70	1.64	5.34
MEAN DM%	26.3	25.1	25.7

8TH YEAR LEY

DRY MATTER TONNES/HECTARE

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

	1ST AND ONLY CUT (16/6/86)
PREV MAN	
LC(GM)	4.86
LC(PT)	3.88
MEAN	4.37
MEAN DM%	25.0