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## Yields of the Field Experiments 1998

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### 98/W/RN/12 Organic Manuring - W. Wheat

#### Rothamsted Research

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## 98/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:** P.R. Poulton.

The 34th year, w. wheat.

For previous years see 'Details' 1973 and 74-97/W/RN/12.

**Design:** 4 blocks of 8 plots.

**Whole plot dimensions:** 8.0 x 30.5.

**Treatments:** From 1966 to 1971 the experiment had a preliminary period designed to build up organic matter 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. A second test phase began when leys on the first pair of blocks were ploughed for the 1st test crop in 1987 and on the second pair for the 1st test crop in 1988. From 1988 two blocks, and 1989 the other two, to 1994, plots were split into 6 sub-plots to test five levels of nitrogen and nil. From 1995 to 1997 residual effects of that nitrogen were measured. In 1998 yields were taken from whole plots only.

#### Whole blocks

1. <b>CROPSEQ</b>	Crop sequence:
WHEAT A	W. wheat, after w. wheat 1988, potatoes 1989, w. wheat 1990, w. beans 1991, w. wheat 1992-6, w. rye 1997
WHEAT B	W. wheat, after w. wheat 1987, potatoes 1988, w. wheat 1989, w. beans 1990, w. wheat 1991-6, w. rye 1997

#### Whole plots

2. <b>TREATMNT</b>	Previous treatments:
LC 8 GM	Eight-year clover/grass ley until 1987 (WHEAT A) or 1986 (WHEAT B), green manure in the preliminary period
LC 8 PT	As above, peat in the preliminary period
LC 6 LC	Six-year clover/grass ley until 1987 (WHEAT A) or 1986 (WHEAT B), clover/grass ley in the preliminary period
LC 6 LN	As above, grass ley with N in the preliminary period
FYM	Farmyard manure annually 1981 to 1986 (WHEAT A) or 1985 (WHEAT B) and in the preliminary period
STRAW	Straw in both periods
FERT-FYM	Fertilizers only in both periods, rates of P, K & Mg equivalent to amounts in FYM
FERT-STR	Fertilizers only in both periods, rates of P, K & Mg equivalent to amounts in straw (+P)

98/W/RN/12

**Experimental diary:**

17-Sep-97 : B : Ploughed. Rolled.  
 29-Sep-97 : B : PK as (0:20:32) at 500 kg.  
 30-Sep-97 : B : Rotary harrowed, Hereward, dressed Sibutol, drilled at 385 seeds per m<sup>2</sup>.  
 13-Nov-97 : B : Stomp 400 SC at 2.0 l with Isoproturon 500 at 1.0 l and Cyperkill 10 at 0.25 l in 200 l.  
 19-Mar-98 : B : Mn and Cu as Phosyn Manganese at 2.0 l with Profol Copper at 0.25 l in 200 l.  
 31-Mar-98 : B : 34.5% N at 278 kg.  
 04-May-98 : B : Alto 100 SL at 0.6 l in 200 l.  
 29-May-98 : B : Ally at 15 g in 200 l.  
 31-May-98 : B : Opus at 0.8 l in 200 l.  
 12-Jun-98 : B : Folicur at 0.3 l with Bavistin DF at 0.3 kg in 200 l.  
 02-Aug-98 : B : Roundup Biactive at 3.0 l in 200 l.  
 12-Aug-98 : B : Combine harvested.

**NOTE:** Samples of grain were taken for chemical analysis.

**GRAIN TONNES/HECTARE**

\*\*\*\*\* Tables of means \*\*\*\*\*

CROPSEQ	WHEAT A	WHEAT B	Mean
<b>TREATMNT</b>			
LC 8 GM	4.24	5.92	5.08
LC 8 PT	4.66	5.46	5.06
LC 6 LC	3.82	5.40	4.61
LC 6 LN	4.57	6.03	5.30
FYM	6.31	5.65	5.98
STRAW	5.85	5.66	5.75
FERT-FYM	4.79	5.11	4.95
FERT-STR	5.25	5.01	5.13
Mean	4.94	5.53	5.23

\*\*\* Standard errors of differences of means \*\*\*

CROPSEQ	TREATMNT	CROPSEQ TREATMNT
0.537	0.438	0.790

Except when comparing means with the same level(s) of  
**CROPSEQ** 0.620

\*\*\*\*\* Stratum standard errors and coefficients of variation \*\*\*\*\*

Stratum	d.f.	s.e.	cv%
BLOCK.WP	14	0.620	11.8
GRAIN MEAN DM%	88.0	PLOT AREA HARVESTED	0.01219