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96/W/RN/12 Organic Manuring - W. Wheat

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96/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 32nd year, w. wheat.

For previous years see 'Details' 1973 and 74-95/W/RN/12.

Design: 4 blocks of 8 plots split into 6 sub-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, 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. 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.

Whole blocks

- | | |
|------------|---|
| 1. CROPSEQ | Crop sequence: |
| WHEAT 5 | 5th wheat, after w. wheat 1988, potatoes 1989, w. wheat 1990, w. beans 1991 |
| WHEAT 6 | 6th wheat, after w. wheat 1987, potatoes 1988, w. wheat 1989, w. beans 1990 |

Whole plots

- | | |
|-------------|--|
| 2. TREATMNT | Previous treatments: |
| LC 8 GM | Eight-year clover/grass ley until 1987 (WHEAT 5) or 1986 (WHEAT 6), 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 5) or 1986 (WHEAT 6), 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 5) or 1985 (WHEAT 6) 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) |

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Sub-plots

3. N Residual effects of nitrogen fertilizer applied in
1994 (kg N) as 'Nitro-Chalk':

(0)
(50)
(100)
(150)
(200)
(250)

NOTE: In 1995 and 1996, 100 kg N was applied to all plots.

Experimental diary:

15-Sep-95 : B : Ploughed.
23-Sep-95 : B : Rolled.
03-Oct-95 : B : Rotary harrowed, Mercia, dressed Sibutol, drilled at 375
seeds per m².
13-Nov-95 : B : Panther at 2.0 l in 200 l.
02-Apr-96 : B : Vytel Manganese at 3.0 l in 300 l.
16-Apr-96 : B : 34.5% N at 290 kg.
30-Apr-96 : B : Halo at 1.5 l in 200 l.
06-Jun-96 : B : Silvacur at 1.0 l in 300 l.
17-Aug-96 : B : Combine harvested.

NOTE: Samples of grain were taken for chemical analysis.

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CROPSEQ WHEAT 5

GRAIN TONNES/HECTARE

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

TREATMNT	N	(0)	(50)	(100)	(150)	(200)	(250)	Mean
LC 8 GM		5.45	5.40	5.93	5.04	5.65	5.18	5.44
LC 8 PT		6.01	6.11	5.51	6.04	5.66	5.75	5.85
LC 6 LC		6.62	5.19	5.57	5.93	5.78	5.88	5.83
LC 6 LN		6.29	6.43	6.95	6.99	5.90	6.09	6.44
FYM		6.49	5.82	6.14	6.37	6.31	6.21	6.22
STRAW		6.45	6.83	6.70	6.47	6.72	6.97	6.69
FERT-FYM		4.95	4.91	5.34	5.20	4.75	5.26	5.07
FERT-STR		5.93	5.85	5.76	5.52	5.66	6.11	5.81
Mean		6.02	5.82	5.99	5.94	5.80	5.93	5.92

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

TREATMNT	N	TREATMNT
		N
	0.730	0.167
		0.849
Except when comparing means with the same level(s) of		
TREATMNT		0.473

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	7	0.730	12.3
BLOCK.WP.SP	40	0.473	8.0

GRAIN MEAN DM% 87.9

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CROPSEQ WHEAT 6

GRAIN TONNES/HECTARE

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

TREATMNT	N	(0)	(50)	(100)	(150)	(200)	(250)	Mean
LC 8 GM		6.08	6.53	6.61	6.26	6.45	6.36	6.38
LC 8 PT		6.05	6.11	6.13	6.07	6.25	6.46	6.18
LC 6 LC		6.28	5.91	6.25	6.63	6.05	6.30	6.24
LC 6 LN		6.62	6.58	6.96	6.63	6.84	6.62	6.71
FYM		6.36	6.37	6.67	6.32	6.05	6.24	6.33
STRAW		5.84	5.51	5.47	5.75	6.13	5.92	5.77
FERT-FYM		5.44	5.47	6.23	5.26	5.61	5.61	5.60
FERT-STR		5.09	5.20	5.09	5.28	5.09	5.76	5.25
Mean		5.97	5.96	6.17	6.03	6.06	6.16	6.06

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

TREATMNT	N	TREATMNT
		N
	0.610	0.122
Except when comparing means with the same level(s) of TREATMNT		0.686
		0.345

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	7	0.610	10.1
BLOCK.WP.SP	40	0.345	5.7

GRAIN MEAN DM% 86.4

SUB PLOT AREA HARVESTED 0.00183