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## Yields of the Field Experiments 2000

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### 00/R/EX/4 Exhaustion Land - W. Wheat

#### Rothamsted Research

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00/R/EX/4

EXHAUSTION LAND

**Object:** To study the residual effects of manures applied 1876-1901, and of additional phosphate applied since 1986, on the yield of continuous s. barley up to 1991, w. wheat since - Hoosfield.

The 145th year, w. wheat.

For previous years see 'Details' 1977, 1973 and 74-99/R/EX/4.

**Treatments:** All combinations of:-

Whole plots (P test)

1. **OLD RES** Residues of manures applied annually 1876-1901:
- |         |  |
|---------|--|
| O       | None   |
| D       | Farmyard manure at 35 t  |
| N       | 96 kg N as ammonium salts  |
| P       | 34 kg P as superphosphate  |
| NPKNAMG | N and P as above plus 137 kg K as sulphate of potash, 16 kg Na as sulphate of soda, 11 kg Mg as sulphate of magnesia |
2. **P** Maintenance P (20 kg P) applied annually from 2000 to maintain existing levels of available P in the soil. (P1) (P2) and (P3) are residues of P applied annually 1986-1992:
- |       |         |          |
|-------|---------|----------|
|       | 2000    | 1986-92  |
| O     | None    | None     |
| P(P1) | 20 kg P | 44 kg P  |
| P(P2) | 20 kg P | 87 kg P  |
| P(P3) | 20 kg P | 131 kg P |

**NOTE:** P treatments were applied at 61.5 kg P in error in 2000.

plus

Whole plots (K test, previously N test until 1991)

- OLD RES** Residues of manures applied annually 1876-1901:
- |      |   |
|------|---|
| O    | None  |
| D    | Farmyard manure at 35 t                                   |
| N*   | 96 kg N as nitrate of soda                                |
| PK   | 34 kg P as superphosphate, 137 kg K as sulphate of potash |
| N*PK | N, P and K as above                                       |

**Experimental diary:**

P test:

- 10-Sep-99 : **T** : Muriate of potash at 250 kg.  
          : **T** : Triple superphosphate at 300 kg.

K test:

- 10-Sep-99 : **T** : Triple superphosphate at 300 kg.

All plots:

- 12-Sep-99 : **B** : Ploughed.  
15-Sep-99 : **B** : Combination drilled, Hereward, tr. Sibutol, at 300 seeds/m<sup>2</sup> with the Accord drill.  
14-Dec-99 : **B** : Lexus 50 DF at 20 g with Stomp 400 SC at 2.5 l and Toppel 10 at 250 ml in 200 l.  
03-May-00 : **B** : 34.5% N at 580 kg.

00/R/EX/4

**Experimental diary:**

All plots:

09-May-00 : B : Opus at 0.7 l in 100 l.  
 24-May-00 : B : Amistar at 0.8 l with Folicur at 0.75 l in 100 l.  
 17-Jul-00 : B : Hand rogued wild oats.  
 12-Aug-00 : B : Combine harvested.

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

**P TEST**

**GRAIN TONNES/HECTARE**

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

	P	O	P(P1)	P(P2)	P(P3)	Mean
<b>OLD RES</b>						
O		0.58	3.51	3.97	3.77	2.96
D		2.11	3.59	3.95	4.00	3.41
N		0.79	3.91	3.43	3.92	3.01
P		1.71	3.75	4.07	3.81	3.33
NPKNAMG		1.87	3.64	3.83	3.68	3.25
Mean		1.41	3.68	3.85	3.84	3.19

GRAIN MEAN DM% 84.4

**STRAW TONNES/HECTARE**

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

	P	O	P(P1)	P(P2)	P(P3)	Mean
<b>OLD RES</b>						
O		0.34	3.98	5.27	4.21	3.45
D		2.27	4.15	4.49	4.29	3.80
N		0.89	3.07	3.83	3.61	2.85
P		2.06	4.20	4.36	4.65	3.82
NPKNAMG		2.47	4.77	4.17	4.45	3.96
Mean		1.60	4.03	4.42	4.24	3.58

STRAW MEAN DM% 81.8

PLOT AREA HARVESTED 0.00614

00/R/EX/4

K TEST

GRAIN TONNES/HECTARE

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

OLD RES

O	3.52
D	3.25
N*	3.08
PK	4.21
N*PK	3.39

Mean 3.49

GRAIN MEAN DM% 84.9

STRAW TONNES/HECTARE

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

OLD RES

O	3.44
D	3.99
N*	2.97
PK	3.83
N*PK	4.08

Mean 3.66

STRAW MEAN DM% 85.2

PLOT AREA HARVESTED 0.00614