

Thank you for using eradoc, a platform to publish electronic copies of the Rothamsted Documents. Your requested document has been scanned from original documents. If you find this document is not readable, or you suspect there are some problems, please let us know and we will correct that.



ROTHAMSTED  
RESEARCH

# Yields of the Field Experiments 2002

[Full Table of Content](#)

Yields of the  
Classical  
and other  
Long-term Experiments  
2002

IACR - Rothamsted

---

## 02/R/EX/4 - Exhaustion Land

### Rothamsted Research

Rothamsted Research (2003) *02/R/EX/4 - Exhaustion Land* ; Yields Of The Field Experiments 2002, pp 26 - 28 - DOI: <https://doi.org/10.23637/ERADOC-1-259>

02/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 147th year, w. wheat.

For previous years see 'Details' 1977, 1973 and 74-01/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,<br>16 kg Na as sulphate of soda, 11 kg Mg as sulphate<br>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:  

|       |         |          |
|-------|---------|----------|
|       | 2000-02 | 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)

- |                |                                                              |
|----------------|--------------------------------------------------------------|
| <b>OLD RES</b> | 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<br>potash |
| N*PK           | N, P and K as above                                          |

## Experimental diary:

K test:

04-Oct-01 : T : P : P basal:(triple superphosphate at 98 kg), plots 2,  
4, 6, 8 & 10.

P test:

04-Oct-01 : T : K : K basal/100 kg (muriate of potash at 250 kg),  
plots 1, 3, 5, 7 & 9.  
                                         : T : P : P test:(triple superphosphate at 98 kg), plots  
011-013, 031-033, 051-053, 071-073, & 091-093.

All plots

04-Oct-01 : B : : Subsoiled.  
                                         : B : : Ploughed.  
13-Oct-01 : B : : Combination drilled, Hereward, tr. Sibutol at 350  
seeds/m<sup>2</sup>.  
11-Dec-01 : B : : tm)Hawk at 2.0 l in 200 l.

```

: B : : tm)Tolkan liquid at 1.0 l in 200 l.
: B : : tm)Phase II at 1.0 l in 200 l.
04-Apr-02 : B : : tm)Opus at 0.4 l in 100 l.
: B : : tm)Twist at 0.6 l in 100 l.
: B : : tm)BASF 3C Chlormequat 720 at 1.25 l in 100 l.
: B : : tm)Moddus at 0.2 l in 100 l.
29-Apr-02 : B : : 33.5% N at 567 kg.
20-May-02 : P : : Rotavated down paths.
31-May-02 : B : : Starane 2 at 0.75 l in 200 l.
: B : : tm)Opus at 0.5 l in 200 l.
: B : : tm)Twist at 0.8 l in 200 l.
04-Jul-02 : B : : Rogued wild oats.
01-Aug-02 : B : : Roundup Biactive at 3.0 l in 100 l.
13-Aug-02 : T : : Combine harvested, plots for yield. Swathed straw.
: : : Sampled, baled and weighed straw.
24-Aug-02 : B : : Carted bales.

```

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

#### P TEST

##### GRAIN TONNES/HECTARE

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

| P RES   | O    | P1   | P2   | P3   | Mean |
|---------|------|------|------|------|------|
| OLD RES |      |      |      |      |      |
| O       | 1.04 | 4.94 | 5.96 | 5.96 | 4.47 |
| D       | 4.02 | 6.91 | 7.62 | 7.43 | 6.49 |
| N       | 1.15 | 5.28 | 6.14 | 4.66 | 4.31 |
| P       | 4.00 | 6.52 | 6.72 | 6.46 | 5.93 |
| NPKNAMG | 3.04 | 6.27 | 7.10 | 6.30 | 5.68 |
| Mean    | 2.65 | 5.99 | 6.71 | 6.16 | 5.38 |

GRAIN MEAN DM% 82.6

##### STRAW TONNES/HECTARE

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

| P RES   | O    | P1   | P2   | P3   | Mean |
|---------|------|------|------|------|------|
| OLD RES |      |      |      |      |      |
| O       | 1.04 | 2.47 | 3.18 | 2.65 | 2.33 |
| D       | 2.64 | 3.56 | 3.99 | 3.75 | 3.49 |
| N       | 1.71 | 2.93 | 3.16 | 2.74 | 2.63 |
| P       | 2.99 | 2.93 | 2.96 | 3.08 | 2.99 |
| NPKNAMG | 2.36 | 3.35 | 3.33 | 2.81 | 2.96 |
| Mean    | 2.15 | 3.05 | 3.32 | 3.00 | 2.88 |

STRAW MEAN DM% 74.4

PLOT AREA HARVESTED 0.00538

02/R/EX/4

K TEST

GRAIN TONNES/HECTARE

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

| OLD RES |      |
|---------|------|
| O       | 5.96 |
| D       | 6.92 |
| N*      | 6.05 |
| PK      | 5.92 |
| N*PK    | 6.28 |
| Mean    | 6.23 |

Grain Mean Dm% 83.1

K TEST

STRAW TONNES/HECTARE

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

| OLD RES |      |
|---------|------|
| O       | 2.85 |
| D       | 3.60 |
| N*      | 3.19 |
| PK      | 3.43 |
| N*PK    | 3.49 |
| Mean    | 3.31 |

STRAW MEAN DM% 75.7

PLOT AREA HARVESTED 0.00538