

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 2003

[Full Table of Content](#)

Results of the
Classical
and other
Long-term Experiments
2003

Rothamsted Research

03/R/EX/4 - Exhaustion Land

Rothamsted Research

Rothamsted Research (2004) *03/R/EX/4 - Exhaustion Land* ; Yields Of The Field Experiments 2003, pp 18 - 20 - DOI: <https://doi.org/10.23637/ERADOC-1-260>

03/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 148th year, w. wheat.

For previous years see 'Details' 1977, 1973 and 74-02/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:
- | | 2000-03 | 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:

K test:

01-Oct-02 : T : P : P basal:(triple superphosphate at 98 kg), plots 2, 4, 6, 8 & 10.

P test:

01-Oct-02 : 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

05-Sep-02 : B : : Flat-lifted
: B : : Rolled.
01-Oct-02 : B : : Kieserite at 200 kg.
03-Oct-02 : B : : Chalk at 4 t.
: B : : Ploughed 25 cm wide furrows.
05-Oct-02 : B : : Rolled.
07-Oct-02 : B : : Combination drilled, Hereward, tr. Sibutol at 400 seeds/m².
08-Oct-02 : B : : Rolled.

03/R/EX/4

Experimental diary:

All plots

17-Feb-03 : B : : tm)Lexus 50 DF at 20 g in 200 l.
 : B : : tm)Stomp 400 SC at 3.0 l in 200 l.
 10-Mar-03 : B : : Sulphur Gold (30% N, 7.6% S) at 167 kg
 29-Apr-03 : B : : 33.5% N at 448 kg.
 07-May-03 : B : : tm)Ally at 30 g in 200 l.
 : B : : tm)Starane 2 at 0.75 l in 200 l.
 10-May-03 : B : : tm)Opus at 0.5 l in 200 l.
 : B : : tm)Amistar at 0.6 l in 200 l.
 28-May-03 : B : : tm)Opus at 0.5 l in 200 l.
 : B : : tm)Twist at 1.0 l in 200 l.
 26-Jul-03 : B : : Touchdown at 4.0 l in 200 l.
 06-Aug-03 : B : : Combine harvested, plots for yield.
 07-Aug-03 : B : : Combine harvested discards, Sampled, baled and weighed straw.

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
OLD RES						
O	2.48	6.07	6.57	5.73	5.22	
D	4.20	6.23	6.39	6.97	5.95	
N	2.84	6.33	6.62	6.12	5.48	
P	5.18	6.78	6.60	6.33	6.22	
NPKNAMG	4.59	6.17	5.91	7.08	5.94	
Mean	3.86	6.31	6.42	6.45	5.76	

GRAIN MEAN DM% 90.5

STRAW TONNES/HECTARE

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

	P	O	P(P1)	P(P2)	P(P3)	Mean
OLD RES						
O	0.88	2.20	3.07	2.54	2.17	
D	1.41	2.47	2.67	3.17	2.43	
N	1.27	2.71	2.47	2.53	2.25	
P	1.63	2.16	2.50	2.25	2.13	
NPKNAMG	1.42	2.26	2.30	2.97	2.24	
Mean	1.32	2.36	2.60	2.69	2.24	

STRAW MEAN DM% 89.0

PLOT AREA HARVESTED 0.00538

03/R/EX/4

K TEST

GRAIN TONNES/HECTARE

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

OLD RES

O	3.77
D	4.91
N*	3.99
PK	4.97
N*PK	4.69

Mean 4.47

GRAIN MEAN DM% 90.5

STRAW TONNES/HECTARE

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

OLD RES

O	1.68
D	2.22
N*	1.80
PK	1.82
N*PK	2.19

Mean 1.94

STRAW MEAN DM% 89.5

PLOT AREA HARVESTED 0.00538