

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

Results of the Classical and Other Long-term Experiments 2005

Results of the
Classical
and other
Long-term Experiments
2005

Rothamsted Research

[Full Table of Content](#)

05/R/EX/4 - Exhaustion Land

Rothamsted Research

Rothamsted Research (2006) *05/R/EX/4 - Exhaustion Land* ; Results Of The Classical And Other Long-Term Experiments 2005, pp 18 - 20 - DOI: <https://doi.org/10.23637/ERADOC-1-262>

05/R/EX/4

EXHAUSTION LAND

Object: To study the residual effects of manures applied 1856-1901, and of additional phosphate applied since 1986, on the yield of continuous s. barley up to 1991, w. wheat since - Hoosfield.

The 150th year, w. wheat.

For previous years see 'Details' 1977, 1973 and 74-04/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:

	2000-04	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 |

Whole plots

Nitrogen: 50 kg N as ammonium sulphate (to supply sufficient S) during first two weeks in March, 200kg N as ammonium nitrate at GS31/mid-April (whichever comes first) and 50 kg N as ammonium nitrate at GS37 (not later than mid-May)

Experimental diary:

K test:

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

P test:

29-Sep-04 : T : K : K basal/124.5 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

29-Sep-04 : B : : Ploughed 25 cm wide furrows.
30-Sep-04 : B : : Cultipress.

05-Oct-04 : B : : Flexitined, combination drilled, Xi/19, tr. Sibutol
Secur at 350 seeds/m².
: B : : Rolled.
25-Nov-04 : B : : tm)Hawk at 2.0 l in 200 l.
: B : : tm)Alpha iPU 500 at 2.5 l in 200 l.
: B : : tm)Nufarm Cropoil at 1.0 l in 200 l.
: B : : tm)Hallmark with Zeon Technology at 50 ml in 200 l.
15-Mar-05 : B : : Ammonium sulphate (21% N) at 238 kg
14-Apr-05 : B : : 34.5% N at 580 kg.
29-Apr-05 : B : : tm)Opus at 0.75 l in 200 l.
: B : : tm)Bravo 500 at 1.0 l in 200 l.
: B : : tm)Atlas Chlormequat 700 at 2.25 l in 200 l.
03-May-05 : B : : Ally SX at 30 g in 200 l.
10-May-05 : B : : 34.5% N at 145 kg.
15-May-03 : B : : tm)Bravo 500 at 1.0 l in 200 l.
: B : : tm)Opus at 0.75 l in 200 l.
: B : : tm)Starane 2 at 0.5 l in 200 l.
31-May-05 : B : : tm)Opus at 0.75 l in 200 l.
: B : : tm)Amistar Opti at 1.5 l in 200 l.
07-Jun-05 : B : : tm)Amistar at 0.3 l in 200 l.
: B : : tm)Folicur at 0.3 l in 200 l.
: B : : tm)Dursban 4 at 0.6 l in 200 l.
25-Jul-05 : B : : Rotavate down paths
16-Aug-05 : B : : Combine harvested, plots for yield, straw swathed.
17-Aug-05 : B : : Straw sampled and weighed.

* this is wrongly entered for the 2001 - 2004 Yield Books which
incorrectly stated that the basal K was 100 kg K.

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	4.35	9.80	9.75	9.50	8.35
D	7.85	9.98	9.61	9.42	9.21
N	4.85	9.57	10.37	9.35	8.53
P	7.84	10.18	10.35	9.55	9.48
NPKNAMG	6.59	9.44	9.49	9.79	8.83
Mean	6.30	9.79	9.91	9.52	8.88

GRAIN MEAN DM% 87.1

STRAW TONNES/HECTARE

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

P	O	P(P1)	P(P2)	P(P3)	Mean
OLD_RES					
O	1.87	4.70	5.23	4.84	4.16
D	3.24	5.38	5.63	5.62	4.97
N	2.13	4.16	5.19	4.47	3.99
P	3.44	5.28	5.58	5.27	4.89
NPKNAMG	2.95	5.09	5.33	4.60	4.49
Mean	2.73	4.92	5.39	4.96	4.50

STRAW MEAN DM% 88.4

PLOT AREA HARVESTED 0.00538

05/R/EX/4

K TEST

GRAIN TONNES/HECTARE

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

OLD_RES	
O	6.31
D	6.72
N*	6.50
PK	7.79
N*PK	7.00
Mean	6.87

GRAIN MEAN DM% 87.7

STRAW TONNES/HECTARE

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

OLD_RES	
O	3.44
D	4.18
N*	3.51
PK	4.41
N*PK	3.62
Mean	3.83

STRAW MEAN DM% 89.7

PLOT AREA HARVESTED 0.00538