

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 2020

[Full Table of Content](#)



---

## 20/R/EX/4 Exhaustion Land (Hoosfield)

### Rothamsted Research

Rothamsted Research (2022) *20/R/EX/4 Exhaustion Land (Hoosfield)* ; Yields Of The Field Experiments 2020, pp 20 - 23 - DOI: <https://doi.org/10.23637/ERADOC-1-264>

Results of the Classics and other Long-term Experiments 2020

20/R/EX/4

## 20/R/EX/4 EXHAUSTION LAND (Hoosfield)

**Object:** To study the residual effects of manures applied 1856 - 1901, and of additional phosphate applied since 1986 (P test) and of additional potassium since 2007 (K test); on the yield of continuous spring barley up to 1991, winter wheat since – Hoosfield.

The 165<sup>th</sup> year, winter wheat.

For previous years see 'Details' 1977, 1973 and Yield Books for 74-19/R/EX/4

**Treatments:** All combinations of:

Whole plots (P test)

- OLD RES** Residues of manures applied annually 1876 – 1901:

Main plot

01	O	None
03	D	Farmyard manure at 35 t
05	N	96 kg N as ammonium salts
09	P	34 kg P as superphosphate
07	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

- P Maintenance P (20 kg P) applied annually from 2000

to maintain existing levels of available P in the soil. In 2009 maintenance P applications were changed from 20 kg P/ha to 15 kg P/ha. This was not recorded in the yield books for 2009-13. (P1) (P2) and (P3) are residues of P applied annually. From 2016 onward P was withheld from the P(P1) sub-plots.

1986–1992:

	2016-Present	2009-2015	2000-08	1986-92
O	None	None	None	None
P (P1)	None	15 kg P	20 kg P	44 kg P
P (P2)	15 kg P	15 kg P	20 kg P	87 kg P
P (P3)	15 kg P	15 kg P	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:

Main Plot

02	O	None
04	D	Farmyard manure at 35 t
06	N*	96 kg N as nitrate of soda
10	PK	34 kg P as superphosphate, 137 kg K as sulphate of potash
08	N*PK	N, P and K as above

Results of the Classics and other Long-term Experiments 2020

20/R/EX/4

2.	K	Potassium applied annually from 2007 as muriate of potash
	O	None (2 sub-plots within each treatment strip)
	K1	75 kg K <sub>2</sub> O (62.2 kg K)
	K2	150 kg K <sub>2</sub> O (124.5 kg K)

Whole plots

Nitrogen: 50 kg N as ammonium sulphate (to supply sufficient S) during first two weeks in March, 200 kg 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

Date		Application	Rate	Unit
18/09/2019	f	Applied triple superphosphate; Plots 011, 012, 021-024, 031, 032, 041-044, 051, 052, 061-064, 071, 072, 081-084, 091, 092, 101-104; JD6930 with Cascade Spreader	75	kg/ha
18/09/2019	f	Applied muriate of potash; Plots 023, 043, 063, 083, 103; JD6930 with Cascade Spreader	125	kg/ha
18/09/2019	f	Applied muriate of potash; Plots 011-014, 024, 031-034, 044, 051-054, 064, 071-074, 084, 091-094, 104; JD6930 with Cascade Spreader	250	kg/ha
26/09/2019	a	Ploughing; Thrown S; KV Five Furrow Plough with NHT7210	-	-
27/09/2019	a	Press ploughing; JD6145R with Philip Watkins Press	-	-
23/03/2020	a	Cultivation; JD6830 with Bomford Flexitine	-	-
24/03/2020	s	Drilled spring wheat, var: Tybalt; JD6830 with Accord Combination Drill No. 4	350	seeds/m <sup>2</sup>
15/05/2020	p	Sprayed Axial Pro; NH T6030 with Knight Sprayer	0.6	l/ha
15/05/2020	p	Sprayed Cello; NH T6030 with Knight Sprayer	1	l/ha
15/05/2020	p	Sprayed Presite SX; NH T6030 with Knight Sprayer	60	g/ha
15/05/2020	p	Sprayed Starane; NH T6030 with Knight Sprayer	0.4	l/ha
15/05/2020	p	Sprayed Stefes CCC 72; NH T6030 with Knight Sprayer	1	l/ha
20/05/2020	f	Applied ammonium sulphate (21% N 60% SO <sub>3</sub> ); JD6930 with Cascade Spreader	238	kg/ha
08/06/2020	f	Applied Nitram (34.5% N); JD6930 with Cascade Spreader	580	kg/ha
11/06/2020	f	Applied Nitram (34.5% N); JD6930 with Cascade Spreader	145	kg/ha

Results of the Classics and other Long-term Experiments 2020

20/R/EX/4

26/06/2020	f	Applied Kieserite; JD6930 with Cascade Spreader	80	kg/ha
26/06/2020	p	Sprayed Cello; NH T6030 with Knight Sprayer	1	l/ha
26/06/2020	p	Sprayed Envoy; NH T6030 with Knight Sprayer	0.2	l/ha
07/09/2020	a	Harvest Plots; Haldrup C-85	-	-
07/09/2020	a	Harvest odds and ends; Haldrup C-85	-	-
09/09/2020	a	Baled off all straw; JD6230 with Claas Baler	-	-
10/09/2020	a	Straw Weights; Tym T503 with New Holland Baler	-	-

**Yields**

**P TEST**

Grain Yield, tonnes/hectare

*Tables of means*

P_RES	O	(P1)	(P2)	(P3)	Mean
OLD_RES					
O	1.61	2.83	3.23	3.49	2.79
D	2.36	4.09	4.89	4.62	3.99
N	1.37	2.61	3.60	4.10	2.92
P	2.53	4.03	5.07	4.60	4.06
NPKNAMG	1.88	3.49	4.33	4.17	3.47
Mean	1.95	3.41	4.22	4.20	3.45

Grain mean DM% 84.2

Straw Yield, tonnes/hectare

*Tables of means*

P_RES	O	(P1)	(P2)	(P3)	Mean
OLD_RES					
O	0.56	0.93	1.04	0.98	0.88
D	0.76	1.22	1.39	1.34	1.18
N	0.40	0.82	1.02	1.01	0.81
P	1.22	1.08	1.45	1.23	1.25
NPKNAMG	0.71	0.99	1.16	1.14	1.00
Mean	0.73	1.01	1.21	1.14	1.02

Straw mean DM% 96.2

Plot area harvested 0.00512 ha.

Results of the Classics and other Long-term Experiments 2020

20/R/EX/4

**K TEST**

Grain Yield, tonnes/hectare

*Tables of means*

K_Test	K0	K1	K2	Mean
OLD_RES				
O	3.59	4.37	4.44	4.00
D	4.69	5.45	4.76	4.90
N*	3.63	3.99	4.24	3.87
PK	4.58	4.12	4.46	4.44
N*PK	4.27	4.41	4.44	4.35
Mean	4.15	4.47	4.47	4.31

Grain mean DM% 84.2

Straw Yield, tonnes/hectare

*Tables of means*

K_Test	K0	K1	K2	Mean
OLD_RES				
O	1.14	0.97	1.26	1.13
D	1.21	1.61	1.46	1.38
N*	0.78	0.93	1.04	0.88
PK	1.12	0.99	1.12	1.09
N*PK	1.04	1.24	1.34	1.16
Mean	1.06	1.15	1.24	1.13

Straw mean DM% 96.5

Plot area harvested 0.00512 ha