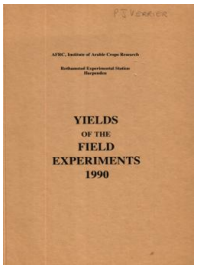
ROTHAMSTED RESEARCH

Yields of the Field Experiments 1990

Full Table of Content



90/R/EX/4 Exhaustion Land - S. Barley

Rothamsted Research

Rothamsted Research (1991) *90/R/EX/4 Exhaustion Land - S. Barley ;* Yields Of The Field Experiments 1990, pp 19 - 21 **- DOI: https://doi.org/10.23637/ERADOC-1-42**

90/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 - Hoosfield.

The 135th year, s. barley.

For previous years see 'Details' 1967, 1973 and 74-89/R/EX/4.

Treatments: All combinations of:-

Whole plots

1. **OLD RES** — Residues of manures applied annually 1876-1901:

O	None
D	Farmyard manure at 35 tonnes
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** — Phosphate applied annually from 1986 as superphosphate until 1987, triple superphosphate since:

O	None
P1	44 kg P
P2	87 kg P
P3	131 kg P

plus all combinations of:-

1. **OLD RES** — Residues of manures applied annually 1876-1901:

O	None
D	Farmyard manure at 35 tonnes
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

2. **N90** — Nitrogen fertilizer (kg N) as 'Nitro-Chalk' until 1985, as 'Nitram' since 1986 (basal until 1975, on a cyclic system since 1976):

0
48
96
144

NOTE: All plots of the combination OLD RES, P were given N at 144 kg as 'Nitram' and K at 83 kg as muriate of potash.

https://doi.org/10.23637/ERADOC-1-42

90/R/EX/4

Basal applications: Weedkillers: Glyphosate at 1.4 kg in 200 l. Mecoprop at 1.6 kg, bromoxynil at 0.20 kg and ioxynil at 0.20 kg applied with the fungicide in 200 l. Fungicide: Fenpropimorph at 0.75 kg. Insecticide: Demeton-s-methyl at 0.24 kg in 200 l.

Seed: Triumph, seed dressed triadimenol and fuberidazole, sown at 160 kg.

Cultivations, etc.:- Glyphosate applied: 2 Oct, 1989. P and K applied: 1 Dec. Ploughed: 8 Dec. Spring-tine cultivated twice, rotary harrowed, seed sown: 9 Mar, 1990. N applied: 11 Apr. Insecticide applied: 10 May. Remaining weedkillers applied with the fungicide: 14 May. Combine harvested: 3 Aug.

PHOSPHATE PLOTS

GRAIN TONNES/HECTARE

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

P	0	P1	P2	P3	Mean
OLD RES					
0	1.91	3.79	3.90	4.42	3.50
D	3.42	4.35	4.66	4.10	4.13
N	1.97	3.96	4.53	4.45	3.73
P	2.96	4.19	4.17	4.07	3.85
NPKNAMG	2.90	3.96	4.62	4.29	3.94
Mean	2.63	4.05	4.38	4.26	3.83

GRAIN MEAN DM% 87.1

STRAW TONNES/HECTARE

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

P	0	P1	P2	P3	Mean
OLD RES					
0	0.36	1.30	1.31	1.30	1.07
D	1.20	1.40	1.60	1.59	1.45
N	0.46	1.31	1.41	1.40	1.15
P	0.93	1.68	1.40	1.77	1.45
NPKNAMG	1.11	1.48	1.79	1.49	1.47
Mean	0.81	1.44	1.50	1.51	1.32

STRAW MEAN DM% 93.2

PLOT AREA HARVESTED 0.00589

https://doi.org/10.23637/ERADOC-1-42

90/R/EX/4

NITROGEN PLOTS

GRAIN TONNES/HECTARE

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

N90	0	48	96	144	Mean
OLD RES					
O	1.18	1.39	1.23	0.82	1.16
D	1.92	2.40	2.26	2.33	2.23
N*	1.57	1.74	1.75	1.47	1.63
PK	2.26	2.13	2.68	2.48	2.39
N*PK	1.80	2.06	2.64	2.35	2.22
Mean	1.75	1.95	2.11	1.89	1.92

GRAIN MEAN DM% 86.1

STRAW TONNES/HECTARE

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

N90	0	48	96	144	Mean
OLD RES					
O	0.29	0.28	0.28	0.28	0.28
D	0.65	0.65	0.66	0.75	0.68
N*	0.57	0.56	0.47	0.37	0.49
PK	0.56	0.56	0.93	0.83	0.72
N*PK	0.47	0.75	0.75	0.74	0.68
Mean	0.51	0.56	0.62	0.59	0.57

STRAW MEAN DM% 93.7

PLOT AREA HARVESTED 0.00589

https://doi.org/10.23637/ERADOC-1-42