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# Yields of the Field Experiments 1987

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## 87/R/EX/4 Exhaustion Land - S. Barley

### Rothamsted Research

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87/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 - Hoosfield.

The 132nd year, s. barley.

For previous years see 'Details' 1967, 1973 and 74-86/R/EX/4.

Treatments: All combinations of:-

Whole plots

1. OLD RES                      Residues of manures applied annually 1876-1901:
  - 0                                  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:
  - 0                                  None
  - P1                                 44 kg P as superphosphate
  - P2                                 87 kg P as superphosphate
  - P3                                 131 kg P as superphosphate

plus all combinations of:-

1. OLD RES                      Residues of manures applied annually 1876-1901:
  - 0                                  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. N87                              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 in the combination OLD RES, P were given N at 144 kg as 'Nitram' and K at 83 kg as muriate of potash.

Basal applications: Weedkillers: Clopyralid at 0.07 kg and bromoxynil at 0.34 kg with mecoprop at 2.5 kg in 200 l. Fungicide: Tridemorph at 0.52 kg in 200 l.

87/R/EX/4

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

Cultivations, etc.:- P and K applied: 10 Oct, 1986. Ploughed: 6 Nov. Spring-tine cultivated, seed sown: 19 Mar, 1987. N applied: 23 Apr. Weedkillers applied: 28 May. Fungicide applied: 24 June. Combine harvested: 21 Aug.

PHOSPHATE PLOTS

GRAIN TONNES/HECTARE

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

	P	0	P1	P2	P3	Mean
OLD RES						
O		2.80	4.31	4.52	4.57	4.05
D		3.79	4.72	4.82	5.05	4.60
N		2.57	4.17	4.70	4.33	3.94
P		4.07	4.43	4.69	4.37	4.39
NPKNAMG		3.75	4.47	4.77	4.98	4.49
Mean		3.39	4.42	4.70	4.66	4.29

GRAIN MEAN DM% 87.4

STRAW TONNES/HECTARE

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

	P	0	P1	P2	P3	Mean
OLD RES						
O		1.17	2.63	2.88	2.48	2.29
D		2.35	3.15	3.24	3.39	3.03
N		1.13	2.32	3.05	2.74	2.31
P		2.26	3.14	2.90	2.88	2.79
NPKNAMG		2.19	2.87	2.94	3.00	2.75
Mean		1.82	2.82	3.00	2.90	2.63

STRAW MEAN DM% 76.5

PLOT AREA HARVESTED 0.00728

87/R/EX/4

NITROGEN PLOTS

GRAIN TONNES/HECTARE

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

	N87	0	48	96	144	Mean
OLD RES						
0	0.66	1.71	1.32	1.58	1.32	
D	2.17	4.54	3.28	3.45	3.36	
N*	1.11	1.77	1.25	1.51	1.41	
PK	1.36	2.60	2.03	2.45	2.11	
N*PK	1.47	3.82	2.38	2.35	2.51	
Mean	1.35	2.89	2.05	2.27	2.14	

GRAIN MEAN DM% 86.6

STRAW TONNES/HECTARE

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

	N87	0	48	96	144	Mean
OLD RES						
0	0.41	0.75	0.77	0.88	0.70	
D	1.06	1.96	1.64	2.06	1.68	
N*	0.63	0.89	0.64	0.94	0.77	
PK	0.95	1.67	1.67	1.99	1.57	
N*PK	1.09	1.59	1.22	1.45	1.34	
Mean	0.83	1.37	1.19	1.46	1.21	

STRAW MEAN DM% 72.9

PLOT AREA HARVESTED 0.00728