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# Yields of the Field Experiments 1985

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## 85/R/B/8 Nitrophosphates - S. Barley

### Rothamsted Research

Rothamsted Research (1986) *85/R/B/8 Nitrophosphates - S. Barley* ; Yields Of The Field Experiments 1985, pp 252 - 253 - DOI: <https://doi.org/10.23637/ERADOC-1-19>

85/R/B/8

SPRING BARLEY

NITROPHOSPHATES

Object: To study the effect of different amounts of water-soluble phosphate in nitrophosphate fertilizers on the growth and P uptake of spring barley - Highfield V.

Sponsor: K.G. Copestake.

Design: 3 randomised blocks of 13 plots.

Whole plot dimensions: 3.0 x 21.0.

Treatments: All combinations of:-

1. P SOL            Phosphate water solubility (%):
  - 59            Compound fertilizer 16.4 : 14.2 : 17.5 with 59% of the P2O5 water soluble
  - 73            Compound fertilizer 15.9 : 16.2 : 15.3 with 73% of the P2O5 water soluble
  - 95            Compound fertilizer 15.0 : 15.0 : 15.0 with 95% of the P2O5 water soluble
2. P RATE            Rate of phosphate (kg P2O5):
  - 20
  - 40
  - 60

plus one extra treatment:

EXTRA

NONE            No phosphate fertilizer (quadruplicated)

NOTE: The compound fertilizers used to apply the phosphate treatments supplied differing amounts of the total 120 kg N and 72.5 kg K2O required on all plots. Additional amounts of N (as 'Nitrotop' 33.5% N) and K2O (as muriate of potash 60% K2O) were applied as needed to achieve this total. Combinations with P SOL 59 received 74.0 kg K2O in error.

Basal applications: Manures: Chalk at 5.0 t, on two occasions.  
Weedkillers: Clopyralid at 0.05 kg and bromoxynil at 0.24 kg with mecoprop (as 'CMPP' at 3.0 l) applied with the fungicide in 200 l.  
Fungicide: Tridemorph at 0.52 kg.

Seed: Klaxon, sown at 160 kg.

Cultivations, etc.: - Discd: 14 Aug, 1984. First chalk applied: 23 Aug. Ploughed: 11 Sept. Second chalk applied: 2 Oct. Fertilizer treatments applied, spring-tine cultivated, rotary harrowed, seed sown: 21 Mar, 1985. Weedkillers and fungicide applied: 16 May. Combine harvested: 23 Aug. Previous crops: S. barley 1983, w. oats 1984.

85/R/B/8

NOTE: Soil was sampled for nutrient analysis before fertilizer application and again after harvest. Emergence and stem counts were made. Samples were taken for fresh and dry weight crop components throughout the season.

GRAIN TONNES/HECTARE

\*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

P RATE	20	40	60	MEAN
P SOL				
59	7.92	7.76	7.94	7.87
73	7.75	7.91	8.00	7.88
95	8.01	7.56	8.22	7.93
MEAN	7.89	7.74	8.05	7.90
NONE	7.02			
GRAND MEAN	7.63			

\*\*\*\*\* STANDARD ERRORS OF DIFFERENCES OF MEANS \*\*\*\*\*

TABLE	P SOL	P RATE	P SOL P RATE
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SED	0.188	0.188	0.326

SED FOR COMPARING NONE WITH ANY ITEM  
IN P SOL.P RATE TABLE IS 0.258

\*\*\*\*\* STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION \*\*\*\*\*

STRATUM	DF	SE	CV%
BLOCK.WP	27	0.400	5.2

GRAIN MEAN DM% 80.4

PLOT AREA HARVESTED 0.00224