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# Yields of the Field Experiments 1986

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## 86/R/B/6 Nitrophosphates - S. Barley

### Rothamsted Research

Rothamsted Research (1987) *86/R/B/6 Nitrophosphates - S. Barley* ; Yields Of The Field Experiments 1986, pp 232 - 233 - DOI: <https://doi.org/10.23637/ERADOC-1-36>

86/R/B/6

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.H.G. Copestake.

Design: 3 randomised blocks of 13 plots.

Whole plot dimensions: 3.0 x 15.5.

Treatments: All combinations of:-

- | 1. P SOL | Phosphate water solubility (%):   |
|----------|---|
| 59       | Compound fertilizer (16.4 : 14.2 : 17.5) with 59% of the P205 water soluble |
| 73       | Compound fertilizer (15.9 : 16.2 : 15.3) with 73% of the P205 water soluble |
| 94       | Compound fertilizer (3.7 : 37.5 : 0) with 94% of the P205 water soluble     |
| 95       | Compound fertilizer (15.0 : 15.0 : 15.0) with 95% of the P205 water soluble |

- | 2. P RATE | Rate of phosphate (kg P205): |
|-----------|------------------------------|
| 20        |                              |
| 40        |                              |
| 60        |                              |

plus one extra treatment:

EXTRA

NONE No phosphate fertilizer

NOTE: The compound fertilizers used to apply the phosphate treatments supplied differing amounts of the total 120 kg N and 74 kg K<sub>2</sub>O required on all plots. Additional amounts of N (as 'Nitrotop' 33.5% N) and K<sub>2</sub>O (as muriate of potash 60% K<sub>2</sub>O) were applied as needed to achieve this total.

Basal applications: Weedkillers: Clopyralid at 0.05 kg, bromoxynil octanoate at 0.24 kg and mecoprop at 2.1 kg in 200 l applied with the fungicide. Fungicide: Tridemorph at 0.52 kg.

Seed: Klaxon, sown at 160 kg.

Cultivations, etc.:- Ploughed: 18 Nov, 1985. Fertilizer treatments applied: 29 Apr, 1986. Spring-tine cultivated, rotary harrowed, seed sown: 30 Apr. Weedkillers and fungicide applied: 2 June. Combine harvested: 6 Sept. Previous crops: W. oats 1984, s. oats 1985.

86/R/B/6

NOTE: Emergence and stem counts were made. Green crop and sheaf samples were taken for fresh and dry weight measurements. Components of yield were measured and P contents of crop determined. Nutrients in soil were determined before application of fertilizer and after harvest.

GRAIN TONNES/HECTARE

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

P RATE	20	40	60	MEAN
P SOL				
59	5.61	5.88	6.09	5.86
73	5.81	5.80	6.03	5.88
94	5.67	5.99	6.01	5.89
95	5.36	6.03	6.01	5.80
MEAN	5.61	5.92	6.03	5.86
NONE	4.97			
GRAND MEAN	5.79			

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

TABLE	P SOL	P RATE	P SOL P RATE & NONE
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SED	0.128	0.111	0.222

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

STRATUM	DF	SE	CV%
BLOCK.WP	24	0.272	4.7
GRAIN MEAN DM%	82.9		
PLOT AREA HARVESTED	0.00224		