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# Yields of the Field Experiments 1985

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## 85/W/RN/16 Effects of Deep P K - S. Barley

### Rothamsted Research

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85/W/RN/16

EFFECTS OF DEEP PK

Object: To study the residual effects of subsoiling and of incorporating a large dressing of PK in either the subsoil or topsoil, on yields and nutrient uptakes of s. barley - Woburn Butt Furlong.

Sponsors: J. McEwen, A.E. Johnston.

The 11th year, s. barley.

For previous years see 74-84/W/RN/16.

Design: 4 series (for crops) each of 3 randomised blocks of 4 plots.

Whole plot dimensions: 4.27 x 2.59.

Treatments: All combinations of:-

Series

1. PREVCROP Previous crop in 1984, all s. barley in 1985:

FALLOW  
OATS  
BARLEY

Plots

2. PK SUB Extra PK and subsoil treatment (applied autumn 1973):

|       | Extra PK             | Subsoil (25-50 cm) treatment |
|-------|----------------------|------------------------------|
| - - - | None                 | None                         |
| - - S | None                 | Subsoiled                    |
| P K T | To topsoil (0-25 cm) | None                         |
| P K S | To subsoil           | Subsoiled                    |

- NOTES: (1) The rates of P and K were 1930 kg P205, as superphosphate and 460 kg K20 as muriate of potash. These quantities, applied to subsoil, were chosen to equalize available P and K in top and subsoil.
- (2) Subsoiling was done by spade, after removing the topsoil which was then replaced. PK to subsoil was worked in by forking.
- (3) PK to topsoil was applied half before ploughing in autumn half soon after on the plough furrow.
- (4) One series was fallow in 1985.

Basal applications:

Series I, III and IV: S. barley: Manures: (20:10:10) at 750 kg.  
Weedkillers: Dicamba with mecoprop and MCPA (as 'Herrisol' at 5.0 l) in 250 l with fungicide: Fungicide: Tridemorph at 0.52 kg.

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

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Cultivations, etc.:-

Series I, III and IV: S. barley: Ploughed: 10 Dec, 1984. Spring-tine cultivated with crumbler attached, NPK applied, seed sown: 14 Mar, 1985. Weedkillers with fungicide applied: 17 May. Combine harvested: 21 Aug.

Series II: Fallow: Ploughed: 10 Dec, 1984. Spring-tine cultivated with crumbler attached: 14 Mar, 1985. Rotary cultivated: 30 May, 26 July.

S.BARLEY

GRAIN TONNES/HECTARE

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

| PK SUB<br>PREVCROP | - - - | - - S | P K T | P K S | MEAN |
|--------------------|-------|-------|-------|-------|------|
| FALLOW             | 7.87  | 7.67  | 7.78  | 7.72  | 7.76 |
| OATS               | 7.68  | 7.90  | 7.65  | 8.01  | 7.81 |
| BARLEY             | 7.02  | 7.28  | 7.34  | 6.78  | 7.10 |
| MEAN               | 7.52  | 7.62  | 7.59  | 7.50  | 7.56 |

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

| TABLE | PK SUB | PREVCROP*<br>PK SUB |
|-------|--------|---------------------|
| ----- | -----  | -----               |
| SED   | 0.113  | 0.196               |

\* WITHIN THE SAME LEVEL OF PREVCROP ONLY

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

| STRATUM         | DF | SE    | CV% |
|-----------------|----|-------|-----|
| SERIES.BLOCK    | 6  | 0.166 | 2.2 |
| SERIES.BLOCK.WP | 18 | 0.240 | 3.2 |

GRAIN MEAN DM% 75.0

SUB PLOT AREA HARVESTED 0.00057