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

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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 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* PK SUB
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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