

Thank you for using eradoc, a platform to publish electronic copies of the Rothamsted Documents. Your requested document has been scanned from original documents. If you find this document is not readable, or you suspect there are some problems, please let us know and we will correct that.



ROTHAMSTED  
RESEARCH

# Yields of the Field Experiments 1983

[Full Table of Content](#)



## 83/R/CS/246 Effects of Subsoiling and Deep P K- S. Barley

### Rothamsted Research

Rothamsted Research (1984) *83/R/CS/246 Effects of Subsoiling and Deep P K- S. Barley* ; Yields Of The Field Experiments 1983, pp 147 - 148 - DOI: <https://doi.org/10.23637/ERADOC-1-44>

83/R/CS/246

EFFECTS OF SUBSOILING AND DEEP PK

Object: To study the effects of thorough subsoil disturbance and the incorporation of P and K into the subsoil on soil and crop parameters and on yield of s. barley - Gt. Field I.

Sponsors: J. McEwen, A.E. Johnston, D.P. Yeoman.

The fourth year, s. barley.

For previous years see 80-82/R/CS/246.

Whole plot dimensions: 4.27 x 17.7.

Design: 2 replicates of 28 plots, fully randomised.

Treatments: All combinations of:-

1. PK SUB      Extra PK and subsoil treatment (applied autumn/winter 1979/80 only):

|       |  |
|-------|--|
| - - - | None, mouldboard ploughed (duplicated) |
| - - S | Subsoiled                              |
| P - S | P to subsoil                           |
| - K S | K to subsoil                           |
| P K S | PK to subsoil                          |
| P K T | PK to topsoil, mouldboard ploughed     |

2. N            Nitrogen fertilizer (kg N)  
(cumulative to previous years):

|        |                                       |
|--------|---------------------------------------|
| 0+0    | None                                  |
| 40+80  | 40 on 16 Mar, 1983 plus 80 on 26 May  |
| 80+80  | 80 on 16 Mar, 1983 plus 80 on 26 May  |
| 120+80 | 120 on 16 Mar, 1983 plus 80 on 26 May |

- NOTES: (1) Rates of P and K were 1000 kg P<sub>2</sub>O<sub>5</sub>, as superphosphate, 500 kg K<sub>2</sub>O, as muriate of potash.
- (2) Subsoiling was done with the Wye double-digger which turns a furrow with a conventional plough share, to a depth of 23 cm, and at the same time rotary cultivates the bottom of the adjacent furrow to a further depth of 15 cm. When applying P and K this was distributed ahead of the rotary cultivator.
- (3) The topsoil PK dressing was equally divided before and after ploughing.
- (4) All treatments were mouldboard ploughed for 1981, 1982 and 1983.
- (5) Nitrogen applied on 26 May was required because of exceptional leaching of seedbed N.

Basal applications: Manures: (0:20:20) at 310 kg, combine drilled.  
Weedkillers: Dicamba, mecoprop and MCPA (as 'Herrisol' at 5.0 l) in 250 l.

Seed: Triumph, seed dressed with ethirimol, sown at 160 kg.

83/R/CS/246

Cultivations, etc.:- Ploughed: 10 Nov, 1982. Spring-tine cultivated on two occasions: 8 Mar, 11 Mar, 1983. Rotary harrowed: 17 Mar. Seed sown: 18 Mar. Weedkillers applied: 24 May. Combine harvested: 8 Aug.

GRAIN TONNES/HECTARE

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

|        | N | 0+0  | 40+80 | 80+80 | 120+80 | MEAN |
|--------|---|------|-------|-------|--------|------|
| PK SUB |   |      |       |       |        |      |
| - - -  |   | 1.41 | 4.13  | 4.71  | 5.95   | 4.05 |
| - - S  |   | 1.31 | 4.18  | 5.47  | 6.18   | 4.28 |
| P - S  |   | 1.59 | 4.00  | 5.10  | 5.85   | 4.14 |
| - K S  |   | 1.00 | 4.59  | 5.24  | 6.49   | 4.33 |
| P K S  |   | 1.94 | 4.71  | 5.47  | 6.11   | 4.56 |
| P K T  |   | 2.16 | 4.49  | 5.21  | 6.14   | 4.50 |
| MEAN   |   | 1.55 | 4.32  | 5.13  | 6.10   | 4.27 |

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

| TABLE | PK SUB | N     | PK SUB<br>N |         |
|-------|--------|-------|-------------|---------|
| SED   | 0.280  |       | 0.560       | MIN REP |
|       | 0.242  | 0.212 | 0.485       | MAX-MIN |
|       |        |       | 0.396       | MAX REP |

PK SUB  
 MAX REP - - -  
 MAX-MIN - - - V ANY OF REMAINDER  
 MIN REP ANY OF REMAINDER

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

| STRATUM | DF | SE    | CV%  |
|---------|----|-------|------|
| WP      | 32 | 0.560 | 13.1 |

GRAIN MEAN DM% 85.0

STRAW TONNES/HECTARE

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

|        | N | 0+0  | 40+80 | 80+80 | 120+80 | MEAN |
|--------|---|------|-------|-------|--------|------|
| PK SUB |   |      |       |       |        |      |
| - - -  |   | 0.43 | 1.71  | 1.71  | 3.17   | 1.76 |
| - - S  |   | 0.49 | 1.40  | 2.02  | 2.92   | 1.71 |
| P - S  |   | 0.50 | 1.77  | 2.04  | 2.64   | 1.74 |
| - K S  |   | 0.50 | 1.64  | 2.17  | 3.03   | 1.83 |
| P K S  |   | 0.63 | 1.91  | 2.41  | 3.41   | 2.09 |
| P K T  |   | 0.64 | 1.77  | 2.16  | 3.17   | 1.94 |
| MEAN   |   | 0.52 | 1.70  | 2.03  | 3.07   | 1.83 |

STRAW MEAN DM% 93.1 PLOT AREA HARVESTED 0.00217