

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/216 and 83/W/CS/216 Effects of Subsoiling and Deep P K - S. Barley

Rothamsted Research

Rothamsted Research (1984) *83/R/CS/216 and 83/W/CS/216 Effects of Subsoiling and Deep P K - S. Barley* ; Yields Of The Field Experiments 1983, pp 132 - 134 - DOI:

<https://doi.org/10.23637/ERADOC-1-44>

83/R/CS/216 and 83/W/CS/216

EFFECTS OF SUBSOILING & DEEP PK

Object: To study the effects of subsoiling and of incorporating a large dressing of PK in the subsoil on yields and nutrient uptakes of a sequence of crops - Rothamsted (R) Delharding and Woburn (W) Road Piece.

Sponsors: J. McEwen, A.E. Johnston (R), M.K.V. Carr, R.J. Godwin (National College of Agricultural Engineering), I.B. Warboys, J.M. Wilkes (Wye College).

The sixth year, s. barley.

For previous years see 78-82/R&W/CS/216.

Design: 3 randomised blocks of 6 plots.

Whole plot dimensions: 4.27 x 13.7.

Treatments:

TREATMNT	Machines and incorporation of extra P and K into the subsoil:
000 00	Not subsoiled, no P or K
FOO FO	Farm standard, unwinged, subsoiler, no P or K, autumn 1977 & autumn 1979
NOO NO	N.C.A.E. winged subsoiler, no P or K, autumn 1977 & autumn 1979
NPK NO	N.C.A.E. winged subsoiler, P and K applied autumn 1977, subsoiled only autumn 1979
WOO 00	Wye double digger, no P or K, autumn 1977 only
WPK 00	Wye double digger, P and K applied, autumn 1977 only

- NOTES: (1) The rates of P and K were 1930 kg P₂O₅, as triple superphosphate and 460 kg K₂O as muriate of potash.
- (2) In autumn 1977 the Farm standard, unwinged, subsoiler was set to work at a depth of 38 cm at intervals of 50 cm Delharding (R) and at a depth of 50 cm at intervals of 70 cm Road Piece (W). In autumn 1979 it was set to work at a depth of 56 cm at intervals of 76 cm Delharding (R) and 142 cm Road Piece (W).
- (3) In autumn 1977 the N.C.A.E. winged subsoiler had a single tine set to work at a depth of 40 cm at intervals of 60 cm on plots not given P and K and at alternate depths of 30 cm and 40 cm spaced 30 cm apart on plots given P and K; fertilizer was applied behind the subsoiling points. In autumn 1979 the winged subsoiler had three tines, the centre tine preceding the others, all set to work at a depth of 40 cm spaced 40 cm apart.
- (4) The Wye double digger turned a furrow with a conventional plough to a depth of 23 cm and at the same time rotary cultivated the bottom of the furrow to a further depth of 15 cm. When applying P & K this was distributed ahead of the rotary cultivator.

83/R/CS/216 and 83/W/CS/216

Basal applications:-

Delharding (R): Manures: Ground chalk at 5.0 t. (20:10:10) at 560 kg. N at 70 kg as 'Nitro-Chalk'. Weedkillers: Dicamba with mecoprop and MCPA (as 'Herrisol' at 5.0 l) in 250 l.

Road Piece (W): Manures: (20:10:10) at 590 kg. N at 60 kg as 'Nitro-Chalk'. Weedkillers: Dicamba with mecoprop and MCPA (as 'Herrisol' at 5.0 l) in 250 l.

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

Cultivations, etc.:-

Delharding(R): Ploughed: 14 Sept, 1982. Chalk applied: 16 Sept. Spring-tine cultivated: 14 Mar, 1983. NPK applied: 15 Mar. Rotary harrowed: 17 Mar. Seed sown: 18 Mar. Weedkillers applied: 25 May. N applied: 26 May. Combine harvested: 8 Aug.

Road Piece (W): Discd: 24 Aug, 1982. Ploughed: 6 Oct. Spring-tine cultivated: 7 Mar, 1983. NPK applied: 8 Mar. Spring-tine cultivated with crumbler attached, seed sown: 9 Mar. Weedkillers applied: 26 May. N applied: 3 June. Combine harvested: 6 Aug.

83/R/CS/216 DELHARDING (R)

GRAIN TONNES/HECTARE

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

TREATMNT	000 00	FO0 FO	NO0 NO	NPK NO	W00 00	WPK 00	MEAN
	4.41	5.29	4.71	4.70	4.32	5.25	4.78

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

TABLE	TREATMNT
-----	-----
SED	0.423

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

STRATUM	DF	SE	CV%
BLOCK.WP	10	0.518	10.8

GRAIN MEAN DM% 84.8

PLOT AREA HARVESTED 0.00260

83/W/CS/216 ROAD PIECE (W)

GRAIN TONNES/HECTARE

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

TREATMNT	000 00	FO0 FO	NO0 NO	NPK NO	W00 00	WPK 00	MEAN
	2.80	3.04	2.73	3.19	2.97	2.68	2.90

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

TABLE	TREATMNT
-----	-----
SED	0.363

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

STRATUM	DF	SE	CV%
BLOCK.WP	10	0.445	15.3

GRAIN MEAN DM% 84.3

PLOT AREA HARVESTED 0.00251