ROTHAMSTED RESEARCH

Yields of the Field Experiments 1985

Full Table of Content

85/R/CS/216 and 85/W/CS/216 Effects of Subsoiling and Deep P K - S. Barley

Rothamsted Research

Rothamsted Research (1986) *85/R/CS/216 and 85/W/CS/216 Effects of Subsoiling and Deep P K - S. Barley ;* Yields Of The Field Experiments 1985, pp 125 - 127 **- DOI: https://doi.org/10.23637/ERADOC-1-19**

85/R/CS/216 and 85/W/CS/216

EFFECTS OF SUBSOILING AND 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 eighth year, s. barley.

For previous years see 78-84/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
F00 F0	Farm standard, unwinged, subsoiler, no P or K, autumn 1977 and autumn 1979
N00 N0	N.C.A.E. winged subsoiler, no P or K, autumn 1977 and autumn 1979
NPK N0	N.C.A.E. winged subsoiler, P and K applied autumn 1977, subsoiled only autumn 1979
W00 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 P205, as triple superphosphate and 460 kg K20 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 and K this was distributed ahead of the rotary cultivator.

https://doi.org/10.23637/ERADOC-1-19

85/R/CS/216 and 85/W/CS/216

Basal applications:-
Delharding (R): Manures: (20:10:10) at 560 kg. Weedkillers: Clopyralid at 0.05 kg with bromoxynil octanoate at 0.24 kg and mecoprop at 1.8 kg with the fungicide in 200 l. Fungicide: Tridemorph at 0.52 kg.
Road Piece (W): Manures: (20:10:10) at 750 kg. Weedkillers: Clopyralid at 0.07 kg with bromoxynil octanoate at 0.34 kg and mecoprop at 2.1 kg with the fungicide in 250 l. Fungicide: Tridemorph at 0.52 kg.

Seed: Both sites: Triumph, dressed with triadimenol plus fuberidazole, sown at 160 kg.

Cultivations, etc.:-
Delharding (R): Ploughed: 8 Oct, 1984. Spring-tine cultivated, NPK applied, spring-tine cultivated second stroke, seed sown: 18 Mar, 1985. Rolled: 21 Mar. Weedkillers and fungicide applied: 10 May. Combine harvested: 23 Aug.
Road Piece (W): Disced: 17 Sept, 1984. Ploughed: 4 Dec. Spring-tine cultivated, NPK applied, seed sown: 14 Mar, 1985. Weedkillers and fungicide applied: 17 May. Combine harvested: 29 Aug.

https://doi.org/10.23637/ERADOC-1-19

85/R/CS/216

GRAIN TONNES/HECTARE DELHARDING (R)

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

TREATMNT	000 00	F00 F0	N00 N0	NPK N0	W00 00	WPK 00	MEAN
	6.45	7.08	6.67	6.64	6.56	7.24	6.77

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

TABLE	TREATMNT
SED	0.523

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

STRATUM	DF	SE	CV%
BLOCK.WP	10	0.641	9.5

GRAIN MEAN DM% 82.3

PLOT AREA HARVESTED 0.00260

85/W/CS/216

GRAIN TONNES/HECTARE ROAD PIECE (W)

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

TREATMNT	000 00	F00 F0	N00 N0	NPK N0	W00 00	WPK 00	MEAN
	7.71	8.10	7.76	8.36	7.57	7.85	7.89

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

TABLE	TREATMNT
SED	0.448

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

STRATUM	DF	SE	CV%
BLOCK.WP	10	0.549	7.0

GRAIN MEAN DM% 86.9

PLOT AREA HARVESTED 0.00251

https://doi.org/10.23637/ERADOC-1-19