ROTHAMSTED RESEARCH

Yields of the Field Experiments 1990

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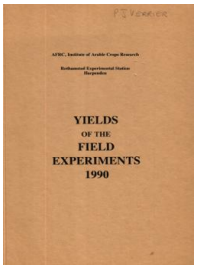

90/R/RN/8 Cultivation/WEEDKILLER - W. Barley

Rothamsted Research

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90/R/RN/8

CULTIVATION/WEEDKILLER

Object: To study the long-term effects of different methods of primary cultivation on a sequence of crops; weedkillers were also tested until 1981 - Great Harpenden I.

Sponsor: R. Moffitt.

The 30th year, w. barley.

For previous years see 'Details' 1967 and 1973 and 74-89/R/RN/8.

Design: 2 randomised blocks of 12 plots.

Whole plot dimensions: 12.8 x 12.2.

Treatments: All combinations of:-

Whole plots

1. **CLT CHOP** — Primary cultivations annually; straw chopped since 1985:

PLOUGH	Ploughed: 17 Aug, 1989
ROTA DIG	Cultivated by rotary digger: 17 Aug
DEEPTINE	Deep-tine cultivated, twice: 17 Aug

2. **SUBSOIL[82]** — Subsoiling in September 1982:

NONE	None
CNVNTIAL	Conventional vertical tine
PARAPLOW	'Paraplow'

XTR BURN — plus three extra treatments with straw burnt since 1985, direct drilled until 1984, heavy spring-tine cultivated on 19 July, 1989, in addition to basal cultivating, differing in subsoiling in September 1982:

NONE	None
CNVNTIAL	Conventional vertical tine
PARAPLOW	'Paraplow'

NOTES: (1) Straw was chopped on 18 July, 1989 and was burnt on XTR BURN on 19 July.

(2) The conventional vertical tine subsoiler had tines 76 cm apart and worked at a depth of about 50 cm.

(3) The 'Paraplow' had rigid tines set at a 45 degree angle. The tip of each tine was in line with the attachment of an adjacent tine. The tines were 51 cm apart and worked at a depth of about 38 cm.

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90/R/RN/8

Basal applications: Manure: 'Nitram' at 460 kg. Weedkillers: Glyphosate at 0.27 kg in 200 l. Isoproturon at 1.7 kg with mecoprop at 2.0 kg in 200 l. Mecoprop at 2.2 kg, bromoxynil at 0.28 kg and ioxynil at 0.28 kg applied with the carbendazim and prochloraz in 200 l. Fungicides: Carbendazim at 0.15 kg and prochloraz at 0.40 kg. Propiconazole at 0.12 kg in 200 l. Insecticide: Deltamethrin at 5.0 g in 200 l.

Seed: Magie, sown at 160 kg.

Cultivations, etc.:- Glyphosate applied: 14 Sept, 1989. Heavy spring-tine cultivated, rotary harrowed twice, (CLT CHOP - PLOUGH plots rotary harrowed three times), seed sown: 26 Sept. Isoproturon with mecoprop applied: 17 Nov. Deltamethrin applied: 23 Nov. N applied: 22 Mar, 1990. Mecoprop, bromoxynil, ioxynil with carbendazim and prochloraz applied: 9 Apr. Propiconazole applied: 4 May. Combine harvested: 24 July.

GRAIN TONNES/HECTARE

***** Tables of means *****

SUBSOIL[82]	NONE	CNVNTIAL	PARAPLOW	Mean
CLT CHOP				
PLOUGH	7.19	6.82	6.47	6.83
ROTA DIG	7.73	7.07	7.61	7.47
DEEPTINE	7.53	7.49	7.46	7.49
Mean	7.49	7.13	7.18	7.26

XTR BURN	NONE	CNVNTIAL	PARAPLOW	Mean
	8.14	7.75	7.25	7.71

Grand mean 7.38

*** Standard errors of differences of means ***

XTR BURN	**CLT CHOP**	**SUBSOIL[82]**	**CLT CHOP SUBSOIL[82]**
0.370	0.214	0.214	0.370

***** Stratum standard errors and coefficients of variation *****

Stratum	d.f.	s.e.	cv%
BLOCK.WP	11	0.370	5.0

GRAIN MEAN DM% 89.5

PLOT AREA HARVESTED 0.00280

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