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## Yields of the Field Experiments 1989

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### 89/R/CS/333 Comparison of Combinable Crops - W. Wheat

#### Rothamsted Research

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89/R/CS/333

### COMPARISON OF COMBINABLE CROPS

**Object:** To compare yields and other attributes of a range of combinable crops and to study their effects on a following crop of w. wheat - Long Hoos VI/VII 1.

**Sponsors:** J. McEwen, D.P. Yeoman, R.J. Darby, M.V. Hewitt.

The second year, w. wheat.

For previous year see 88/R/CS/333.

**Design:** 3 randomised blocks of 12 plots split into 2.

**Whole plot dimensions:** 2.5 x 8.0.

**Treatments:** All combinations of:-

Whole plots

1. **PREVCROP** Crops in 1988:

W BEANS	W. beans, <i>Vicia faba</i>
W OATS	W. oats
W PEAS	W. peas, <i>Pisum sativum</i>
W RAPE	W. oilseed rape
W WHEAT	W. wheat
S BEANS	S. beans, <i>Vicia faba</i>
S LUPINS	S. lupins, <i>Lupinus albus</i>
S PEAS	S. peas, <i>Pisum sativum</i>
SNFLOWER	Sunflowers
FALLOW/C	Fallow, cultivated
FALLOW/P	Fallow, paraquat applied on four occasions
RYEGRASS	One-year ryegrass, cut and produce returned

Sub plots

2. **SPRING N** Nitrogen fertilizer applied on 18 Apr, 1989:

O	None
N	N applied, amount depending on quantity in crop and soil in spring.

**NOTE:** Amounts of N applied (kg N) as 'Nitro-Chalk' were:

After <b>PREVCROP</b>	FALLOW/C	170
	W PEAS, S BEANS, S PEAS	180
	FALLOW/P	190
	W BEANS, W RAPE	200
	S LUPINS	210
	SUNFLOWERS	220
	W WHEAT, RYEGRASS	230
	W OATS	240

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**Standard applications:** Weedkillers: Paraquat at 0.60 kg ion in 220 l except after lupins. Isoproturon at 2.5 kg with mecoprop at 1.5 kg in 220 l except after lupins. Isoproturon at 2.5 kg with mecoprop at 0.42 kg in 220 l after lupins only. Isoproturon at 2.5 kg with mecoprop at 1.7 kg with cyanazine at 0.46 kg and clopyralid at 0.08 kg in 220 l to all plots. Difenzoquat at 0.99 kg applied with a wetting agent ('Agral' at 1.0 l) in 220 l. Fungicides: Propiconazole at 0.12 kg in 220 l. Carbendazim at 0.15 kg, maneb at 1.6 kg and tridemorph at 0.38 kg in 220 l. Molluscicide: Metaldehyde at 0.60 kg.

**Seed:** W. wheat: Mercia, sown at 200 kg.

**Cultivations, etc.:-** Paraquat applied except after lupins: 9 Sept, 1988. Deep-tine cultivated, except after lupins: 12 Sept. Rotary cultivated and seed sown except after lupins: 19 Sept. After lupin plots spring-tine cultivated, seed sown: 4 Oct. Isoproturon and mecoprop applied except after lupins: 19 Oct, and after lupins: 31 Oct and again to all plots with cyanazine and clopyralid: 6 Jan, 1989. Difenzoquat applied: 8 Feb. Propiconazole applied: 8 Mar. Metaldehyde applied: 15 Mar. Carbendazim, maneb and tridemorph applied: 26 Apr. Combine harvested: 28 July.

**NOTE:** Because the grain was spilt before weighing, the yield of one plot was lost, with treatment S BEANS N. An estimated value was used in the analysis.

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GRAIN TONNES/HECTARE

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

SPRING N PREVCROP	O	N	Mean
W BEANS	6.75	9.63	8.19
W OATS	3.82	8.81	6.31
W PEAS	6.82	9.17	7.99
W RAPE	6.61	9.24	7.92
W WHEAT	2.51	7.20	4.85
S BEANS	7.47	9.80	8.64
S LUPINS	6.66	9.42	8.04
S PEAS	6.96	9.51	8.24
SNFLOWER	4.86	9.14	7.00
FALLOW/C	8.10	9.70	8.90
FALLOW/P	7.43	9.75	8.59
RYEGRASS	3.68	7.55	5.62
Mean	5.97	9.08	7.52

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

	PREVCROP	SPRING N	PREVCROP SPRING N
	0.380	0.157	0.541
Except when comparing means with the same level(s) of PREVCROP			0.545

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	22	0.465	6.2
BLOCK.WP.SP	23	0.667	8.9

GRAIN MEAN DM% 88.0

SUB PLOT AREA HARVESTED 0.00055