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87/R/CS/320

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 5.

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

The second year, w. wheat, s. wheat.

For previous year see 86/R/CS/320.

Design: 3 randomised blocks of 10 plots split into 2.

Whole plot dimensions: 2.5 x 8.0.

Treatments: All combinations of:-

Whole plots

1. PREVCROP	Crops in 1986:
W BEANS	W. field beans, Vicia faba
W OATS	W. oats
W RAPE	W. oilseed rape
W PEAS	W. peas, Pisum sativum
W WHEAT	W. wheat
S BEANS	S. field beans, Vicia faba
S LUPINS	S. lupins, Lupinus albus
S PEAS	S. peas, Pisum sativum
SNFLOWER	Sunflower
FALLOW	Fallow

Sub plots

2. SPRING N	Nitrogen fertilizer applied on 10 Apr, 1987:
O	None
N	Applied, amount depending on quantity in crop and soil in spring

NOTES: (1) Amounts of N applied (kg N) as 'Nitro-Chalk' were:

After PREVCROP	W RAPE, S PEAS, FALLOW	190
	W BEANS	200
	S BEANS, SUNFLOWERS	210
	W OATS, W WHEAT	230
	W PEAS, S LUPINS	240

(2) W. wheat after PREVCROP S LUPINS failed and was resown to s. wheat.

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Standard applications:

After all treatments except after lupins: Weedkillers: Terbutryne at 2.8 kg with paraquat at 0.40 kg ion in 220 l. Isoproturon at 2.1 kg (2.5 kg after s. beans and sunflowers) with mecoprop at 2.8 l (2.0 l after s. beans and sunflowers) in 220 l. Cyanazine at 0.35 kg, clopyralid at 0.06 kg and mecoprop at 1.7 l in 220 l applied with the fungicides. Fungicides: Prochloraz at 0.40 kg, carbendazim at 0.15 kg.

After lupins: Weedkillers: Bentazone at 0.80 kg, dichlorprop at 1.1 kg and MCPA at 0.64 kg in 220 l applied with the fungicide. Fungicide: Tridemorph at 0.52 Kg.

Seed: W. wheat: Avalon, sown at 200 kg.
S. wheat: Wembley, sown at 180 kg.

Cultivations, etc.:-

After w. beans, w. oats, w. rape, w. peas, w. wheat and s. peas. Deep-tine cultivated, rotary cultivated: 13 Aug, 1986 (after w. oats, w. rape, w. peas and fallow only). Shallow-tine cultivated, rotary cultivated: 15 Aug (after w. wheat only). Shallow-tine cultivated: 1 Sept (after s. peas only). Spring-tine cultivated: 11 Sept (after w. beans only). Rotary cultivated: 1 Sept (11 Sept after w. beans). Power harrowed, seed sown, rolled: 23 Sept. Terbutryne and paraquat applied: 24 Sept. Isoproturon and mecoprop applied: 29 Oct and 2 Apr, 1987. Cyanazine, clopyralid, mecoprop and fungicides applied: 16 Apr. Combine harvested: 1 Sept.

After s. beans and sunflowers: Spring-tine cultivated, rotary cultivated: 2 Oct, 1986 (after s. beans only). Ploughed: 13 Oct. Spring-tine cultivated, seed sown, rolled, terbutryne and paraquat applied: 14 Oct. Isoproturon and mecoprop applied: 2 Apr, 1987. Cyanazine, clopyralid, mecoprop, prochloraz and carbendazim applied: 16 Apr. Combine harvested: 1 Sept.

After lupins: W. wheat sown, spring-tine cultivated: 4 Dec, 1986. Spring-tine cultivated, s. wheat sown, rolled: 31 Mar, 1987. Bentazone, dichlorprop, MCPA and tridemorph applied: 19 May. Combine harvested: 10 Sept.

- NOTES: (1) Take-all was assessed in mid July.
(2) Amounts of ammonium and nitrate nitrogen in the soil were measured in autumn and late winter.
(3) N contents of grain were measured.
(4) The wrong rate of SPRING N was applied to two plots, those with treatment combinations S PEAS 0 and SNFLOWER N. Estimated values were used in the analysis.

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W. WHEAT (S. WHEAT AFTER S. LUPINS)

GRAIN TONNES/HECTARE

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

SPRING N PREVCROP	0	N	Mean
W BEANS	3.53	8.10	5.82
W OATS	2.18	8.13	5.16
W RAPE	4.10	8.63	6.37
W PEAS	3.28	7.83	5.56
W WHEAT	2.50	6.73	4.62
S BEANS	3.98	7.89	5.93
S LUPINS	3.26	4.93	4.09
S PEAS	3.43	7.88	5.65
SNFLOWER	2.71	7.78	5.24
FALLOW	5.28	7.94	6.61
Mean	3.42	7.59	5.50

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

Table	PREVCROP	SPRING N	PREVCROP SPRING N
s.e.d.	0.349	0.188	0.546
Except when comparing means with the same level(s) of PREVCROP			
			0.593

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	18	0.428	7.8
BLOCK.WP.SP	18	0.726	13.2

GRAIN MEAN DM% 83.2

PLOT AREA HARVESTED 0.00055