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86/R/CS/320 Comparison of Combinable Crops - W. Beans, W. Oats, W. Oilseed Rape, W. Peas, W. Wheat, S. Beans, S. Lupins, S. Peas, Sunflowers and Fallow

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86/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.

The first year, w. beans, w. oats, w. oilseed rape, w. peas, w. wheat, s. beans, s. lupins, s. peas, sunflowers and fallow.

Design: 3 randomised blocks of 10 plots.

Whole plot dimensions: 2.5 x 8.0.

Treatments:

CROP	Crops:
W BEANS	W. field beans, <i>Vicia faba</i>
W OATS	W. oats
W RAPE	W. oilseed rape
W PEAS	W. peas, <i>Pisum sativum</i>
W WHEAT	W. wheat
S BEANS	S. field beans, <i>Vicia faba</i>
S LUPINS	S. lupins, <i>Lupinus albus</i>
S PEAS	S. peas, <i>Pisum sativum</i>
SNFLOWER	Sunflower

NOTE: One plot in each block was fallowed.

Standard applications:

- All crops and fallow: Manures: Muriate of potash at 520 kg.
Weedkiller: Glyphosate at 0.72 kg in 220 l.
- All winter crops only: Insecticide: Deltamethrin at 0.0075 kg in 220 l.
- W. beans only: Weedkillers: Simazine at 0.17 kg and trietazine at 1.2 kg with paraquat at 0.28 kg ion in 220 l. Insecticide: Pirimicarb at 0.14 kg in 220 l.
- W. oats only: Manures: 'Nitro-Chalk' at 440 kg. Weedkillers: Methabenzthiazuron at 3.1 kg with paraquat at 0.28 kg ion in 220 l.
- W. rape only: Manures: 'Nitro-Chalk' at 170 kg and later at 730 kg. Weedkillers: Propyzamide and clopyralid (as 'Matrikerb' at 1.2 kg) in 220 l. Desiccant: Diquat at 0.60 kg ion with a wetting agent ('Cittowet' at 0.10 l) in 220 l.
- W. and s. peas only: Insecticide: Pirimicarb at 0.14 kg in 220 l.
- W. wheat only: Manures: 'Nitro-Chalk' at 730 kg. Weedkillers: Isoproturon at 2.1 kg with paraquat at 0.28 kg ion in 220 l.
- S. lupins only: Fungicide: Benomyl at 0.56 kg in 220 l.
- S. beans only: Insecticide: Pirimicarb at 0.14 kg in 220 l.
- Sunflowers only: Manures: 'Nitro-Chalk' at 290 kg. Bird repellent: 'Hoppit' at 3.0 l in 220 l.

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Seed: W. beans: Banner, sown at 120 kg.
W. oats: Bulwark, sown at 180 kg.
W. rape: Bienvenu, sown at 8 kg.
W. peas: Frijaune, sown at 220 kg.
W. wheat: Avalon, sown at 200 kg.
S. beans: Minden, sown at 220 kg.
S. lupins: Vladimir, sown at 250 kg.
S. peas: Progreta, sown at 230 kg.
Sunflowers: Asmer 077 sown at 80,000 seeds per hectare.

Cultivations, etc.:-

Fallow only: Glyphosate applied: 16 Sept, 1985. K applied, deep-tine cultivated: 18 Sept. Ploughed: 11 Nov. Spring-tine cultivated: 9 May, 1986. Rotary cultivated: 25 June. Deep-tine and rotary cultivated: 13 Aug.

All winter crops: Glyphosate applied: 16 Sept, 1985. K applied, deep-tine cultivated: 18 Sept. Deltamethrin applied: 30 Oct.

W. beans only: Rotary cultivated, seed sown, spring-tine cultivated: 4 Oct, 1985. Weedkillers applied: 11 Oct. Pirimicarb applied: 11 July, 1986. Combine harvested: 11 Sept.

W. oats and w. wheat: Rotary cultivated, seed sown, spring-tine cultivated: 4 Oct, 1985. Weedkiller applied: 11 Oct. N applied: 9 Apr, 1986. Combine harvested: 12 Aug (w. oats), 14 Aug (w. wheat).

W. rape only: Rotary cultivated, seed sown: 18 Sept, 1985. First N applied: 19 Sept. Weedkillers applied: 22 Oct. Second N applied: 11 Mar, 1986. Desiccant with wetting agent applied: 11 Aug. Combine harvested: 13 Aug.

W. peas only: Ploughed: 11 Nov, 1985. Rotary harrowed twice, seed sown: 12 Nov. Pirimicarb applied: 11 July, 1986. Harvested by hand: 28 July.

All spring crops: Glyphosate applied: 16 Sept, 1985. K applied: 18 Sept. Ploughed: 11 Nov. Spring-tine cultivated, seed sown: 8 May, 1986.

S. beans and s. peas only: Pirimicarb applied: 11 July, 1986. Combine harvested: 1 Sept (s. peas), 2 Oct (s. beans).

S. lupins only: Fungicide applied: 10 July, 1986. Harvested by hand and combine threshed: 19 Nov.

Sunflowers only: N applied: 29 May, 1986. Bird repellent applied: 13 Aug. Harvested by hand and combine threshed: 8 Oct. Previous crops: Potatoes 1984, s. barley 1985.

NOTE: Oat and wheat plots were assessed for take-all at the beginning of July.

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VARIOUS CROPS

GRAIN TONNES/HECTARE

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

CROP	
W BEANS	3.76
W OATS	4.83
W RAPE	2.58
W PEAS	0.07
W WHEAT	6.81
S BEANS	4.91
S LUPINS	2.60
S PEAS	3.31
SNFLOWER	1.76
MEAN	3.40

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

TABLE	CROP
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SED	0.463

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

STRATUM	DF	SE	CV%
BLOCK.WP	16	0.568	16.7

GRAIN MEAN DM% 67.9

PLOT AREA HARVESTED

W BEANS, W PEAS, S PEAS, S BEANS, S LUPINS	0.00115
W OATS, W RAPE, W WHEAT, SNFLOWER	0.00125