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88/R/CS/333 Comparison of Combinable Crops - W. Rape, W. Oats, W. Beans, S. Beans, W. Peas, S. Peas, Sunflower, Lupins, W. Wheat

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

Design: 3 randomised blocks of 12 plots.

Whole plot dimensions: 2.5 x 8.0.

Treatments:

CROP	Crops:
W BEANS	W. beans
W OATS	W. oats
W PEAS	W. peas
W RAPE	W. rape
W WHEAT	W. wheat
S BEANS	S. beans
S LUPINS	S. lupins, <i>Lupinus albus</i>
S PEAS	S. peas
SNFLOWER	Sunflowers

NOTE: There were three additional treatments from which yields were not taken. A cultivated fallow, an uncultivated fallow with paraquat and grass, cut with produce returned.

Standard applications:

- W. beans and w. peas: Weedkillers: Trietazine at 1.2 kg and simazine at 0.17 kg in 220 l. Fungicides: Benomyl at 0.50 kg applied with the deltamethrin in 220 l. Chlorothalonil at 1.0 kg with benomyl at 0.50 kg in 220 l, applied on a second occasion, with the pirimicarb, to w. peas only. Insecticides: Deltamethrin at 0.075 kg. Pirimicarb at 0.14 kg.
- W. rape: Manure: N at 200 kg as 'Nitro-Chalk'. Weedkillers: Tebutam at 3.6 kg in 220 l. Clopyralid at 0.07 kg and propyzamide at 0.70 kg in 220 l. Fungicide: Iprodione at 0.50 kg applied with the insecticide in 220 l. Insecticide: Deltamethrin at 0.075 kg.
- W. wheat and w. oats: Manure: N at 230 kg (w. wheat) and 120 kg (w. oats) as 'Nitro-Chalk'. Weedkillers: Terbutryne at 2.8 kg in 220 l to w. wheat only. Cyanazine at 0.46 kg, clopyralid at 0.08 kg with mecoprop at 1.8 kg applied with the prochloraz and carbendazim in 220 l. Fungicides: Prochloraz at 0.27 kg, carbendazim at 0.10 kg. Fenpropimorph at 0.75 kg with chlorothalonil at 1.0 kg applied with the pirimicarb in 220 l. Carbendazim at 0.25 kg and maneb at 1.6 kg in 220 l. Insecticides: Deltamethrin at 0.062 kg in 220 l. Pirimicarb at 0.14 kg.

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Standard applications:

- S. beans: Weedkillers: Trietazine at 1.2 kg, simazine at 0.17 kg in 220 l. Fungicides: Benomyl at 0.50 kg applied with the insecticide in 220 l. Chlorothalonil at 1.0 kg with benomyl at 0.50 kg in 220 l. Insecticide: Deltamethrin at 0.075 kg.
- S. lupins: Weedkillers: Terbutryne at 0.98 kg, terbuthylazine at 0.42 kg in 220 l. Fungicides: Benomyl at 0.50 kg applied with the deltamethrin in 220 l. Chlorothalonil at 1.0 kg with benomyl at 0.50 kg applied with the pirimicarb in 220 l. Insecticides: Deltamethrin at 0.075 kg. Pirimicarb at 0.14 kg.
- S. peas: Weedkillers: Terbutryne at 0.98 kg, terbuthylazine at 0.42 kg in 220 l. Fungicides: Benomyl at 0.50 kg applied with the deltamethrin in 220 l. Chlorothalonil at 1.0 kg with benomyl at 0.50 kg in 220 l on five occasions, applied with the pirimicarb on the second. Insecticides: Deltamethrin at 0.075 kg. Pirimicarb at 0.14 kg.
- Sunflowers: Weedkillers: Trifluralin at 1.1 kg in 220 l. Linuron at 0.50 kg.
- Cultivated fallow: None.
- Uncultivated fallow: Weedkiller: Paraquat on four occasions, at 1.0, 0.60, 0.40, 0.60 kg ion respectively in 220 l.

- Seed:**
- W. beans: Bourdon, sown at 220 kg.
 - W. oats: Peniarth, sown at 180 kg.
 - W. peas: Frijaune, sown at 220 kg.
 - w. rape: Ariana, sown at 8 kg.
 - W. wheat: Mercia, sown at 200 kg.
 - S. beans: Minden, sown at 240 kg.
 - S. lupins: Vladimir, sown at 210 kg.
 - S. peas: Progreta, sown at 230 kg.
 - Sunflowers: Asmer, sown at 120,000 seeds per hectare.
 - Grass (R): Manhattan PRG at 27 kg.

Cultivations, etc.:-

- W. beans and w. peas: Deep-tine cultivated, w. beans only: 6 Oct, 1987. Ploughed: 27 Oct. Rotary harrowed, seed sown: 29 Oct. Trietazine and simazine applied: 30 Oct. Benomyl and deltamethrin applied: 25 May, 1988. Chlorothalonil and benomyl applied: 30 June, repeated, with pirimicarb, to w. peas only: 18 July. Combine harvested, w. peas: 2 Aug, w. beans: 8 Sept.
- W. rape: Rotary harrowed twice, seed sown: 21 Sept, 1987. Tebutam applied: 25 Sept. Clopyralid and propyzamide applied: 27 Nov. N applied: 19 Feb, 1988. Fungicide and insecticide applied: 25 May. Combine harvested: 22 Aug.
- W. wheat and w. oats: Rotary harrowed twice, and seed sown, w. wheat only: 24 Sept, 1987. Terbutryne applied, w. wheat only: 25 Sept. Deep-tine cultivated, rotary harrowed, seed sown, w. oats only: 6 Oct. Deltamethrin applied: 21 Jan, 1988. N applied: 18 Apr. Cyanazine, clopyralid, mecoprop, prochloraz and carbendazim applied: 28 Apr. Fenpropimorph, chlorothalonil and pirimicarb applied: 25 May. Carbendazim and maneb applied: 20 June. Combine harvested, w. oats: 16 Aug, w. wheat: 2 Sept.
- S. beans: Ploughed: 27 Oct, 1987. Spring-tine cultivated, seed sown: 28 Mar, 1988. Weedkillers applied: 30 Mar. Benomyl and deltamethrin applied: 25 May. Chlorothalonil and benomyl applied: 30 June. Combine harvested: 8 Sept.

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Cultivations, etc.:-

S. lupins: Ploughed: 27 Oct, 1987. Spring-tine cultivated, seed sown: 28 Mar, 1988. Weedkillers applied: 30 Mar. Benomyl and deltamethrin applied: 25 May. Chlorothalonil, benomyl and pirimicarb applied: 15 July. Hand harvested: 4 Oct.

S. peas: Ploughed: 27 Oct, 1987. Spring-tine cultivated, seed sown: 29 Mar, 1988. Weedkillers applied: 30 Mar. Benomyl and deltamethrin applied: 25 May. Chlorothalonil and benomyl applied: 30 June, 2 Aug, 11 Aug, 23 Aug and with pirimicarb: 18 July. Combine harvested: 5 Sept.

Sunflowers: Ploughed: 27 Oct, 1987. Trifluralin applied, rotary harrowed, seed sown: 8 Apr, 1988. Linuron applied: 11 Apr. Combine harvested: 8 Sept.

Cultivated fallow: Ploughed: 27 Oct, 1987. Rotary cultivated: 26 May, 1988 and 4 Aug.

Uncultivated fallow: Paraquat applied: 15 Dec, 1987, 5 May, 1988, 15 June and 16 Aug.

Grass: Rotary harrowed: 17 Sept, 1987. Rotary harrowed, seed sown: 21 Sept. Topped: 23 May, 1988, 15 June and 4 Aug.

Previous crops: S. barley 1986 and 1987.

GRAIN TONNES/HECTARE

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

CROP	
W BEANS	5.92
W OATS	5.23
W PEAS	0.54
W RAPE	2.20
W WHEAT	8.12
S BEANS	4.56
S LUPINS	0.09
S PEAS	2.97
SNFLOWER	0.71
Mean	3.37

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

CROP
0.454

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	16	0.557	16.5

GRAIN MEAN DM% 73.6

PLOT AREA HARVESTED 0.00125 W RAPE
0.00123 W WHEAT, W OATS
0.00115 OTHER CROPS