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89/R/CS/337 Previous Crops and N - W. Barley, W. Oats, W. Beans, W. Oilseed Rape, Potatoes

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89/R/CS/337

PREVIOUS CROPS AND N

Object: To study the effects of a range of crops on the nitrogen requirements, quality and yield of a subsequent w. barley crop - Webbs.

Sponsors: D.G. Christian, N.L. Carreck.

The first year, w. barley, w. oats, w. beans, s. oilseed rape, potatoes.

Design: 3 randomised blocks of 5 plots.

Whole plot dimensions: 21.0 x 20.0.

Treatments:

CROP	Crops:
W BARLEY	W. barley
W BEANS	W. beans
W OATS	W. oats
W RAPE	W. oilseed rape
POTATOES	Potatoes

NOTE: Winter oilseed rape failed and was replaced by s. oilseed rape, yields not taken.

Standard applications:

All crops: Manures: (0:18:36) at 920 kg.
W. barley: Manure: 'Nitram' at 360 kg. Weedkiller: Isoproturon at 2.5 kg in 200 l. Fungicide: Propiconazole at 0.12 kg in 200 l.
W. beans: Weedkillers: Simazine at 0.17 kg and trietazine at 1.2 kg in 200 l. Insecticide: Deltamethrin at 7.5 g in 400 l.
W. oats: Manure: 'Nitram' at 290 kg. Weedkiller: Methabenzthiazuron at 1.6 kg in 200 l.
W. oilseed rape (failed): Manure: 'Nitram' at 220 kg (to two of three plots only). Weedkiller: Propyzamide at 0.70 kg in 200 l.
S. oilseed rape: Manure: 'Nitram' at 220 kg (to two plots given N to w.oilseed rape) and 440 kg to remaining plot. Weedkiller: Propachlor at 4.3 kg in 450 l.
Potatoes: Manure: 'Nitram' at 640 kg. Weedkiller: Metribuzin at 1.0 kg in 300 l. Fungicides: Mancozeb at 1.4 kg in 200 l on three occasions and at 1.0 kg in 200 l on a fourth occasion.

Seed: W. barley: Halcyon, sown at 150 kg.
W. beans: Bourdon, dressed with thiabendazole and thiram, sown at 240 kg.
W. oats: Image, sown at 190 kg.
W. oilseed rape: Ariana, dressed gamma HCH, thiram and fenpropimorph, sown at 8 kg.
S. oilseed rape: Topaz, dressed gamma HCH, thiram and fenpropimorph, sown at 8 kg.
Potatoes: Desiree.

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Cultivations, etc.:-

All crops: Heavy spring-tine cultivated: 30 Aug, 1988. PK applied: 9 Sept.

W. barley: Rotary harrowed, seed sown: 18 Oct, 1988. Weedkiller applied: 16 Nov. N applied: 30 Mar, 1989. Fungicide applied: 16 May. Combine harvested: 21 July.

W. beans: Rotary harrowed, seed sown: 18 Oct, 1988. Weedkillers applied: 4 Nov. Insecticide applied: 10 May. Combine harvested: 14 Aug.

W. oats: Rotary harrowed, seed sown: 18 Oct, 1988. Weedkiller applied: 29 Oct. N applied: 18 Apr, 1989. Combine harvested: 25 July.

W. oilseed rape: Seed sown: 9 Sept, 1988. Weedkiller applied: 4 Nov. N applied (to two plots): 23 Feb, 1989. Crop destroyed by cultivating with rotary grubber: 15 Apr.

S. oilseed rape: N applied: 20 Apr, 1989. Rotary harrowed twice, seed sown: 21 Apr. Weedkiller applied: 1 June. Cut with forage harvester: 29 Aug.

Potatoes: Ploughed: 19 Oct, 1988. N applied: 20 Apr, 1989. Rotary harrowed: 24 Apr. Planted: 3 May. Rotary ridged: 26 May. Metribuzin applied: 31 May. Mancozeb applied: 3 July, 17 July, 28 July, 14 Aug. Haulm mechanically destroyed: 21 Aug. Lifted: 8 Sept.

Previous crops: W. oilseed rape 1987, w. wheat 1988.

NOTES: (1) Soil samples were taken from rape plots in April 1989, to determine N content.

(2) Crop samples were taken from each crop in August, just before harvest, to determine total dry matter yield and N content.

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GRAIN TONNES/HECTARE

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

CROP	
W BARLEY	6.85
W BEANS	5.38
W OATS	6.73
Mean	6.32

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

CROP
0.743

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	4	0.910	14.4
GRAIN MEAN DM%	87.3		
PLOT AREA HARVESTED	0.00230		

POTATOES

TOTAL TUBERS TONNES/HECTARE

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

CROP	POTATOES
	26.4