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90/R/CS/337 Previous Crops and N - W. Barley

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90/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 second year, w. barley.

For first year see 89/R/CS/337.

Design: 3 randomised blocks of 5 plots split into 6 sub plots.

Whole plot dimensions: 21.0 x 20.0.

Treatments: All combinations of:-

Whole plots

- | | |
|-------------|--|
| 1. PREVCROP | Crops in 1989, all w. barley in 1990: |
| W BARLEY | W. barley |
| W BEANS | W. beans |
| W OATS | W. oats |
| RAPE | W. oilseed rape, resown to s. oilseed rape |
| POTATOES | Potatoes |

Sub plots

- | | |
|------|--|
| 2. N | Nitrogen fertilizer (kg N) as 'Nitro-Chalk' (27% N): |
| 0 | |
| 50 | |
| 75 | |
| 100 | |
| 125 | |
| 150 | |

Basal applications: Weedkillers: Glyphosate at 0.27 kg in 200 l. Isoproturon at 1.7 kg in 200 l. Mecoprop at 2.0 kg in 200 l. Bromoxynil at 0.28 kg, ioxynil at 0.28 kg and mecoprop at 2.2 kg with the prochloraz in 200 l. Fungicides: Prochloraz at 0.60 kg. Propiconazole at 0.12 kg in 200 l.

Seed: Halcyon, sown at 160 kg.

Cultivations, etc.:- Glyphosate applied: 14 Sept, 1989. Ploughed: 16 Sept. Rotary harrowed: 20 Sept. Rotary harrowed, seed sown: 21 Sept. Isoproturon applied: 29 Nov. Mecoprop applied: 4 Jan, 1990. Bromoxynil, ioxynil and mecoprop with prochloraz applied: 9 Apr. Propiconazole applied: 3 May. Combine harvested: 24 July.

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- NOTES: (1) Soil samples taken in November and March were analysed for nitrate and ammonium contents.
 (2) Plant samples taken from November to May were analysed for nitrate-N contents.
 (3) Crop samples were taken from March to maturity to measure plant and shoot numbers, dry weights and nitrogen uptakes.
 (4) Components of yield were measured at maturity.

GRAIN TONNES/HECTARE

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

	N	0	50	75	100	125	150	Mean
PREVCROP								
W BARLEY		3.03	4.59	4.97	5.61	5.80	6.22	5.04
W BEANS		3.77	5.43	6.18	6.70	7.02	7.54	6.11
W OATS		3.43	5.28	5.96	6.52	7.05	7.32	5.93
RAPE		3.61	5.26	5.57	6.66	6.81	7.25	5.86
POTATOES		4.40	6.46	6.55	7.67	7.73	7.71	6.75
Mean		3.65	5.40	5.85	6.63	6.88	7.21	5.94

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

	PREVCROP	N	PREVCROP
	0.278	0.116	0.366
Except when comparing means with the same level(s) of PREVCROP			0.260

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	8	0.341	5.7
BLOCK.WP.SP	50	0.318	5.4

GRAIN MEAN DM% 89.3

SUB PLOT AREA HARVESTED 0.00204