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91/W/CS/342 Catch Crops - W. Barley

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91/W/CS/342

CATCH CROPS

Object: To compare a range of catch crops for their ability to take up N during the autumn, to measure rates of mineralization of N after incorporating them in spring and to measure their effects on the yield of a subsequent spring barley crop in the first year and on winter barley in the second - Woburn, Road Piece.

Sponsors: D.G. Christian, D.S. Powlson.

The second year, w. barley.

For first year see 90/W/CS/342.

Design: 3 randomised blocks of 11 plots split into 2 sub plots criss-cross.

Whole plot dimensions: 8.0 x 10.0.

Treatments: All combinations of:-

Whole plots

1. **CROP RES** Catch crops and subsequent crops in 1990, all w. barley in 1991:

	Sown 1989, ploughed in March 1990 and s. barley sown:
AL CL SB	Alsike clover
FA CU SB	Fallow, cultivated to keep soil bare
FA UC SB	Fallow, uncultivated, weeds and volunteers allowed to grow
FO RA SB	Forage rape
PH TA SB	Phacelia tanacetifolia
RY GR SB	Ryegrass
RYE SB	Rye
WH MU SB	White mustard
WM+RY SB	White mustard + rye
WW SB	Winter wheat

	Sown 1989, taken to normal maturity:
W WHEAT	Winter wheat

Sub plots

2. **N RES** Nitrogen fertilizer (kg N) in 1990:

(0)
(50)

Basal applications: Manure: 'Nitram' at 116 kg followed by 232 kg. Weedkillers: Diflufenican at 0.10 kg and isoproturon at 1.0 kg applied with the insecticide in 220 l. Fungicides: Triadimefon at 0.12 kg with tridemorph at 0.26 kg in 210 l. Propiconazole at 0.12 kg in 300 l. Insecticide: Deltamethrin at 5.0 g.

Seed: Magie sown at 140 kg.

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Cultivations, etc.:- Straw chopped on plots: 18 Aug, 1990. Disced: 19 Aug. Ploughed and rolled: 7 Sept. Rotary harrowed with crumbler attached, seed sown: 21 Sept. Weedkiller and insecticide applied: 8 Nov. N applied: 19 Mar, 1991 and 16 Apr. Triadimefon and tridemorph applied: 23 Apr. Propiconazole applied: 21 May. Combine harvested: 6 Aug.

GRAIN TONNES/HECTARE

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

	N RES	(0)	(50)	Mean
CROP RES				
AL CL SB		8.79	8.76	8.77
FA CU SB		8.05	7.76	7.91
FA UC SB		8.60	7.73	8.16
FO RA SB		7.95	8.59	8.27
PH TA SB		8.09	8.15	8.12
RY GR SB		8.30	8.36	8.33
RYE SB		8.64	8.16	8.40
WH MU SB		8.20	8.23	8.22
WM+RY SB		8.12	7.81	7.97
WW SB		8.88	7.96	8.42
W WHEAT		7.89	8.38	8.13
Mean		8.32	8.17	8.25

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

	CROP RES	N RES	CROP RES N RES
	0.433	0.120	0.516
Except when comparing means with the same level(s) of CROP RES			0.397

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	20	0.531	6.4
BLOCK.WP.SP	22	0.487	5.9
GRAIN MEAN DM%	84.0		

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STRAW TONNES/HECTARE

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

N RES	(0)	(50)	Mean
CROP RES			
AL CL SB	4.17	4.25	4.21
FA CU SB	3.42	3.18	3.30
FA UC SB	4.30	3.17	3.74
FO RA SB	3.73	4.24	3.98
PH TA SB	4.62	4.06	4.34
RY GR SB	3.89	4.42	4.16
RYE SB	3.36	3.82	3.59
WH MU SB	4.09	3.72	3.91
WM+RY SB	3.77	4.11	3.94
WW SB	3.96	3.95	3.96
W WHEAT	3.94	4.06	4.00
Mean	3.93	3.91	3.92

STRAW MEAN DM% 89.3

SUB PLOT AREA HARVESTED 0.00100