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94/W/CS/399 Cover Crops and N Cycling - W. Barley

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94/R/CS/399

COVER CROPS AND N CYCLING

Object: To assess how effectively cover crops take up nitrogen and to assess how much of that nitrogen is subsequently made available to the following crop - Webbs.

Sponsors: P.R. Poulton, D.G. Christian, A.J. Macdonald.

The second year, w. barley.

Design: 3 blocks of 5 plots split into 2 sub-plots.

Whole plot dimensions: 9.0 x 12.0.

Treatments: All plots ploughed in autumn 1993 and sown to w. barley:

Whole plots

- | | |
|--------------------|---|
| 1. LAND TRT | Residues of cover crops, sown in autumn 1992, tumbledown and fallow. Plots ploughed in spring 1993 and sown to s. barley: |
| (FALLOWSB) | Fallow |
| (FO RA SB) | Forage rape |
| (RYE SB) | Rye |
| (TUMBDN SB) | Tumbledown |

Sub-plots

- | | |
|-------------|---|
| 2. N | Residues of nitrogen fertilizer (kg N) to s. barley 1993: |
| (0) | |
| (75) | |

plus one extra treatment

Whole plot

- | | |
|-----------------|--|
| 1. EXTRA | |
| (W BARLEY) | Residues of w. barley, sown in autumn 1992, taken to maturity: |

Sub-plot

- | | |
|-------------------|---|
| 2. N EXTRA | Residues of nitrogen fertilizer (kg N) to w. barley, sown in autumn 1992: |
| (0) | |
| (150) | |

94/R/CS/399

Experimental diary:

13-Sep-93 : B : Ploughed.
 08-Oct-93 : B : Rotary harrowed, Puffin, dressed Cerevax Extra, drilled at 350 seeds per m².
 12-Nov-93 : B : Optimol at 15 kg.
 19-Apr-94 : B : 34.5% N at 346 kg.
 19-Apr-94 : B : Briotril Plus 19/19 at 2.0 l with Hytane 500 SC at 2.0 l in 200 l.
 06-May-94 : B : Radar at 0.5 l with Standon Tridemorph 750 at 0.5 l in 200 l.
 31-May-94 : B : Mistral at 0.5 l with Radar at 0.5 l in 200 l.
 25-Jul-94 : B : Combine harvested.

NOTE: Soil water samples were taken for N analysis during the winter. Soil and crop samples were taken for N analysis during the summer.

GRAIN TONNES/HECTARE

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

	N	(0)	(75)	Mean
LAND TRT				
(FALLOWSB)		6.15	5.99	6.07
(FO RA SB)		6.37	6.01	6.19
(RYE SB)		6.74	6.87	6.80
(TUMBDN SB)		6.93	6.74	6.84
Mean		6.55	6.40	6.48

WINTER BARLEY

	N	(0)	(150)	Mean
N EXTRA		4.81	5.23	5.02

GRAND MEAN 6.19

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

	LAND TRT	N	LAND TRT N & N EXTRA
	0.512	0.154	0.557
Except when comparing means with the same level(s) of			
CROPS			0.309

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	8	0.627	10.1
BLOCK.WP.SP	10	0.379	6.1
GRAIN MEAN DM%	88.3		
SUB PLOT AREA HARVESTED		0.00082	