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92/W/CS/356 Set-aside Study - W. Wheat, Fallow

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92/W/CS/356

SET-ASIDE STUDY

Object: To compare different treatments of land temporarily withdrawn from arable cropping and to study their effects on nitrate leaching and on subsequent wheat crops - Woburn, Horsepool Lane Close I.

Sponsors: R.D. Prew, E.T.G. Bacon, M.V. Hewitt, D.P. Yeoman, J.F. Jenkyn, R.J. Gutteridge, W. Powell, J. Ashby.

Associate sponsors: D.L.O. Smith, I. Shield, M.D. Helps.

The second year, w. wheat.

For first year see 91/W/CS/356.

Design: 3 randomised blocks of 7 plots split into 8.

Whole plot dimensions: 10.0 x 24.0.

Treatments: All combinations of:-

Whole plot

1. **LAND TRT[91]** Land treatment in 1991, after w. wheat 1990 (all treatments ploughed autumn 1991 before w. wheat):
 - CA WW Cultivated in autumn, sown to w. wheat
 - CA RA Cultivated in autumn, sown to ryegrass in autumn, topped in spring
 - SA CA FA Straw chopped and spread in autumn, cultivated in autumn, sown to forage rape in autumn, topped in spring
 - CA CS Cultivated in autumn, cultivated in spring
 - SA CS Straw chopped and spread in autumn, cultivated in spring
 - WT Weeds topped
 - WT CS TS Weeds topped, cultivated in spring, trefoil sown in spring, topped

Sub plots

2. **N** Nitrogen fertilizer (kg N) as 'Nitro-Chalk':
 - 0
 - 80
 - 120
 - 160
 - 200
 - 240
 - 280

NOTE: An additional fallow sub plot was present, systematically arranged on one side of each whole plot.

92/W/CS/356

Experimental diary.

W. wheat:

- 18-Sep-91 : B : Ploughed.
- 25-Sep-91 : T : Rolled.
- 02-Oct-91 : T : Rotary cultivated, Mercia drilled at 140 kg.
- 18-Mar-92 : T : Folimat at 1.12 l in 200 l.
- 01-Apr-92 : T : Duplosan New System CMPP at 2.0 l and Asset at 2.0 l in 200 l.
- 09-Apr-92 : T : N 80, 120, 160, 200, 240 and 280: Applied as 27% N.
- 15-May-92 : T : Dorin at 1.0 l and Ally at 0.03 kg in 300 l.
- 08-Jun-92 : T : Halo at 2.0 l in 200 l.
- 29-Jul-92 : T : Barclay Gallup at 2.0 l with Team at 0.30 l in 300 l.
- 01-Sep-92 : T : Combine harvested.

Fallow:

- 18-Sep-91 : B : Ploughed.
- 25-Apr-92 : T : Rotary cultivated.

NOTE: Amounts of soil nitrogen and plant dry matter were measured in autumn and spring. Assessment of plant cover was made in spring. Diseases were assessed in spring and summer.

GRAIN TONNES/HECTARE

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

	N	0	80	120	160	200	240	280	Mean
LAND TRT[91]									
CA WW	5.37	6.65	6.24	6.25	6.21	7.27	6.46	6.35	
CA RA	4.26	6.53	6.86	6.91	7.29	7.42	7.47	6.68	
SA CA FA	5.08	6.19	7.35	7.31	7.39	6.35	6.76	6.63	
CA CS	7.62	7.56	7.61	7.08	7.30	6.58	6.46	7.17	
SA CS	6.45	7.90	7.50	7.64	7.27	7.75	7.14	7.38	
WT	5.88	7.16	6.74	7.35	7.43	7.69	7.70	7.13	
WT CS TS	7.56	7.18	7.39	7.30	6.62	6.34	5.16	6.79	
Mean	6.03	7.02	7.10	7.12	7.07	7.06	6.74	6.88	

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

LAND TRT[91]	N	LAND TRT[91]
		N
	0.262	0.273
Except when comparing means with the same level(s) of		0.718
LAND TRT[91]		0.722

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	12	0.321	4.7
BLOCK.WP.SP	84	0.884	12.9

GRAIN MEAN DM% 83.0 SUB PLOT AREA HARVESTED 0.00199