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90/W/CS/346 Set-aside Study - W. Wheat, Forage Rape, Ryegrass, *Trefoil*

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90/W/CS/346

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Object: To compare different treatments of land temporarily withdrawn from arable cropping and to study their effects on nitrate leaching and on subsequent wheat crops - Woburn, White Horse.

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 first year, w. wheat, forage rape, ryegrass, trefoil.

Design: 3 randomised blocks of 7 plots.

Whole plot dimensions: 10.0 x 24.0.

Treatments:

1. **LAND TRT** Land treatment, after w. wheat 1989:
- | | |
|----------|---|
| 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 |

NOTE: Yields were taken only from CA WW.

Standard applications, seed and cultivations, etc.:-

- CA WW: W. wheat straw baled and carted: 22 Aug, 1989. Ploughed: 29 Aug. Rolled: 1 Sept. Rotary harrowed with crumbler attached, Mercia wheat seed sown at 150 kg: 2 Oct. Weedkillers: Isoxaben at 75 g with isoproturon at 1.5 kg in 200 l applied: 11 Dec. Bromoxynil at 0.34 kg, clopyralid at 0.07 kg with fluroxypyr at 0.15 kg in 220 l applied: 28 Apr, 1990. Manures: N applied at 40 kg: 8 Mar and at 160 kg: 17 Apr as 'Nitram'. Fungicides: Propiconazole at 0.12 kg with chlorothalonil at 0.50 kg in 300 l applied: 22 May. Combine harvested: 7 Aug.
- CA RA: W. wheat straw baled and carted: 22 Aug, 1989. Ploughed: 29 Aug. Rolled: 1 Sept. Rotary cultivated with crumbler attached, Italian ryegrass seed sown at 25 kg and rolled: 7 Sept. Topped: 18 May, 1990, 5 July and 11 Sept.
- SA CA FA: W. wheat straw chopped: 22 Aug, 1989. Ploughed: 29 Aug. Rolled: 1 Sept. Rotary cultivated with crumbler attached, Giant forage rape seed sown at 10 kg and rolled: 7 Sept. Topped: 18 May, 1990, 5 July and 11 Sept.
- CA CS: W. wheat straw baled and carted: 22 Aug, 1989. Ploughed: 29 Aug. Weedkillers: Paraquat at 0.80 kg ion in 250 l applied: 12 Jan, 1990 and 15 Mar. Cultivated with 'thistle bar': 25 May and 17 July.

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Standard applications, seed and cultivations, etc.:-

SA CS: W. wheat straw chopped: 22 Aug, 1989. Shallow-tine cultivated: 30 Apr, 1990 and 11 June.

WT: W. wheat straw baled and carted: 22 Aug, 1989. Topped: 18 May, 1990, 5 July and 11 Sept.

WT CS TS: W. wheat straw baled and carted: 22 Aug, 1989. Topped, ploughed, rotary harrowed, Virgo Pajayere trefoil seed, inoculated with Rhizobium, sown at 10 kg: 15 May, 1990. Topped: 11 Sept.

Previous crops: Potatoes 1988, w. wheat 1989.

NOTE: Soil nitrogen, dry matter and plant cover were assessed in autumn, spring and summer.

GRAIN TONNES/HECTARE (CA WW PLOT ONLY) 4.91

MEAN DM% 89.4

PLOT AREA HARVESTED 0.00528