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92/W/CS/347 Green Crops for Set-aside - Leys, Tumbledown, W. Oats

Rothamsted Research

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92/W/CS/347

GREEN CROPS FOR SET-ASIDE

Object: To obtain information on the establishment and maintenance of sown crops and unsown vegetation in a long-term, up to five-year, set-aside area given no chemical inputs. Effects on soil nitrate and leaching after ploughing are also studied - Woburn, Horsepool Lane Close II.

Sponsors: R.D. Prew, E.T.G. Bacon, M.V. Hewitt, D.P. Yeoman.

Design: 6 randomised blocks of 6 plots.

Whole plot dimensions: 6.5 x 26.0.

The third year, w. oats, ryegrass, clover, tumbledown.

For previous years see 90-91/W/CS/347.

Treatments:

CROPS	Crops, cumulative since 1990:
RY LF	Ryegrass, cuttings left in situ
RY+CL LF	Ryegrass + clover, cuttings left in situ
RY+CL RE	Ryegrass + clover, cuttings removed
RY+N RE	Ryegrass given 100 kg N in spring, cuttings removed
TU LF	Tumbledown, natural regrowth, cuttings left in situ
W OATS	Winter oats

NOTES: (1) Yields were taken from the w. oats and from the ley plots, from which cuttings were removed.
(2) Ryegrass and clover were sown in 1989.

Experimental diary:

18-Sep-91 : T : CROPS W OATS: Ploughed.
21-Sep-91 : T : CROPS W OATS: Rolled.
25-Sep-91 : T : CROPS W OATS: Rotary cultivated, Image drilled at 152 kg rolled.
20-Mar-92 : T : CROPS RY+CL RE: 21 kg P₂O₅ and 84 kg K₂O to balance PK in crop removed last year.
RY+N RE: 53 kg P₂O₅ and 264 kg K₂O to balance PK in crop removed last year.
10-Apr-92 : T : CROPS W OATS: 34.5% N at 290 kg.
15-May-92 : T : CROPS W OATS: Dorin at 1.0 l and Ally at 30 g in 300 l.
27-May-92 : T : CROPS RY LF, RY+CL LF, RY+CL RE and RY+N RE: Cut.
28-May-92 : T : CROPS TU LF: Cut.
02-Jun-92 : T : CROPS RY+CL RE and RY+N RE: Cuttings removed.
15-Jul-92 : T : CROPS RY LF, RY+CL LF, RY+CL RE, RY+N RE and TU LF: Cut.
15-Jul-92 : T : CROPS RY+CL RE and RY+N RE: Cuttings removed.
31-Jul-92 : T : CROPS W OATS: Combine harvested.
15-Sep-92 : T : CROPS RY LF, RY+CL LF, RY+CL RE and RY+N RE: Cut.
16-Sep-92 : T : CROPS TU LF: Cut.
16-Sep-92 : T : CROPS RY+CL RE and RY+N RE: Cuttings removed.

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NOTE: Soil nitrogen was measured in autumn 1991 and spring 1992. Ground cover, plant numbers, plant height and growth stages were estimated in spring and autumn 1992. Soil seedbank samples were taken in autumn 1992.

GRASS

1ST CUT (27/5/92) DRY MATTER TONNES/HECTARE

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

CROPS	RY+CL RE	RY+N RE	Mean
	1.44	4.27	2.85

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

CROPS
0.280

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	5	0.484	17.0

1ST CUT MEAN DM% 23.3

2ND CUT (15/7/92) DRY MATTER TONNES/HECTARE

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

CROPS	RY+CL RE	RY+N RE	Mean
	1.22	0.37	0.79

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

CROPS
0.116

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	5	0.201	25.3

2ND CUT MEAN DM% 23.3

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GRASS

3RD CUT (15/9/92) DRY MATTER TONNES/HECTARE

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

CROPS	RY+CL RE	RY+N RE	Mean
	2.02	0.75	1.38

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

CROPS
0.170

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	5	0.295	21.3

3RD CUT MEAN DM% 27.4

TOTAL OF 3 CUTS DRY MATTER TONNES/HECTARE

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

CROPS	RY+CL RE	RY+N RE	Mean
	4.67	5.38	5.03

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

CROPS
0.478

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	5	0.828	16.5

TOTAL OF 3 CUTS MEAN DM% 24.7

PLOT AREA HARVESTED 0.00264

W. OATS

GRAIN TONNES/HECTARE 4.65

GRAIN MEAN DM% 86.5

PLOT AREA HARVESTED 0.00572