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## Yields of the Field Experiments 1978

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### 78/W/CS/181 Green Manure - Barley

#### Rothamsted Research

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78/W/CS/181

GREEN MANURE

Object: To study the effects of a green manure sown at different dates and interactions with fertiliser nitrogen on the following crop - Woburn Great Hill III, Lansome III.

Sponsors: G.V. Dyke, G.E.G. Mattingly.

The third year, barley.

For previous years see 76-77/W/CS/181.

Design: 3 series, each a single replicate of 24 plots.

Whole plot dimensions: 4.26 x 6.10.

Treatments:

Series I (after barley 1977), Series II (after potatoes 1978): All combinations of:-

1. TREFOIL(768)      Trefoil to barley in 1976 and 1978:
 

NONE	None
US	Undersown in spring
US+SS	Undersown in spring, sown into stubble after harvest
OS/SS	Oversown in July before harvest and/or sown into stubble after harvest
  
2. N(77)      Amounts of nitrogen fertiliser in 1977 (kg N) (given basal N at 63 kg in 1978):

Series I To Barley	Series II To Potatoes	Series I To Barley	Series II Potatoes
0	0	0	0
50	100	50 to seedbed	100 to seedbed
100	200	100 to seedbed	200 to seedbed
150	300	150 to seedbed	300 to seedbed
50+50	100+100	50 to seedbed + 50 in May	100 to seedbed + 100 in June
100+50	200+100	100 to seedbed + 50 in May	200 to seedbed + 100 in June

Series IV (barley): All combinations of:-

1. TREFOIL(768)      Trefoil to barley in 1976, 1977 and 1978:
 

NONE	None
US	Undersown in spring
US+SS	Undersown in spring and sown into stubble after harvest
OS/SS	Oversown in July and/or sown into stubble after harvest

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2. N 78	Amounts of nitrogen fertiliser (kg N as 'Nitro-Chalk 25'):	
	1977 and 1978	1976
0	0	(0)
50	50 to seedbed	(30)
100	100 to seedbed	(60)
150	150 to seedbed	(90)
50+50	50 to seedbed + 50 in May	(120)
100+50	100 to seedbed + 50 in May	(150)

- NOTES: (1) N to Series IV in 1976 was all applied to the seedbed.  
(2) Series III was sown to barley in 1978 but yields were not recorded.  
(3) English common trefoil, inoculated with Rhizobium, at 26 kg, undersown in spring: 16 May, 1978, oversown: 12 July and sown into stubble: 13 Sept.

Standard applications:

- Barley, Great Hill III, Series I & II: Manures: (20:14:14) at 310 kg, combine drilled. Weedkillers: Dinoseb at 8.4 kg in 450 l.  
Barley, Lansome III, Series IV: Manures: (0:20:20) at 220 kg, combine drilled. Weedkiller: Dinoseb at 8.4 kg in 450 l.

Seed: Porthos, dressed with ethirimol, sown at 160 kg.

Cultivations, etc.:-

- Barley, Great Hill III, Series I & II: Ploughed: 9 Feb, 1978. Spring-tine cultivated with crumbler attached, seed sown: 10 Mar. Weedkiller applied: 19 May. Combine harvested: 23 Aug.  
Barley, Lansome III, Series IV: Ploughed: 9 Feb, 1978. Spring-tine cultivated: 9 Mar. Spring-tine cultivated with crumbler attached, seed sown, spring N applied: 10 Mar. Late N applied: 11 May. Weedkiller applied: 19 May. Combine harvested: 22 Aug.

NOTE: Samples of trefoil and weeds were dug just before ploughing on Series I and IV for the determination of dry matter and N.

78/W/CS/181 SERIES I

GRAIN TONNES/HECTARE

\*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

N(77) TREFOIL(768)	0	50	100	150	50+50	100+50	MEAN
NONE	3.53	2.52	3.21	3.00	2.97	3.50	3.12
US	2.62	3.72	3.04	4.01	3.08	3.26	3.29
US+SS	2.74	3.06	3.74	3.36	3.63	3.16	3.28
OS/SS	2.84	2.54	3.55	3.81	3.14	2.79	3.11
MEAN	2.93	2.96	3.38	3.54	3.21	3.18	3.20

GRAIN MEAN DM% 80.8

STRAW TONNES/HECTARE

\*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

N(77) TREFOIL(768)	0	50	100	150	50+50	100+50	MEAN
NONE	1.89	1.36	1.36	1.68	2.03	2.36	1.78
US	1.58	2.58	2.07	1.85	1.32	2.12	1.92
US+SS	1.81	2.66	2.39	2.26	2.71	2.56	2.40
OS/SS	1.68	1.43	1.76	1.70	2.09	1.32	1.66
MEAN	1.74	2.01	1.89	1.87	2.04	2.09	1.94

STRAW MEAN DM% 82.4 PLOT AREA HARVESTED 0.00173

78/W/CS/181 SERIES II

GRAIN TONNES/HECTARE

\*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

N(77) TREFOIL(768)	0	100	200	300	100+100	200+100	MEAN
NONE	4.21	4.08	4.30	4.93	4.06	3.37	4.16
US	4.79	4.80	4.25	4.75	4.75	4.21	4.59
US+SS	3.90	4.07	4.34	3.62	4.13	4.07	4.02
OS/SS	4.46	4.69	4.80	3.78	4.11	4.76	4.43
MEAN	4.34	4.41	4.42	4.27	4.26	4.10	4.30

GRAIN MEAN DM% 77.9

STRAW TONNES/HECTARE

\*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

N(77) TREFOIL(768)	0	100	200	300	100+100	200+100	MEAN
NONE	2.70	2.08	2.80	3.20	2.52	1.55	2.48
US	3.21	3.59	2.39	3.16	2.85	1.60	2.80
US+SS	2.13	2.76	1.89	2.40	1.87	1.75	2.13
OS/SS	2.95	3.33	2.38	2.66	2.05	3.11	2.75
MEAN	2.75	2.94	2.37	2.86	2.32	2.00	2.54

STRAW MEAN DM% 80.5 PLOT AREA HARVESTED 0.00173



78/W/CS/181 SERIES IV

GRAIN TONNES/HECTARE

\*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

N 78	0	50	100	150	50+50	100+50	MEAN
TREFOIL(768)							
NONE	0.70	3.03	4.55	5.99	1.02	5.59	3.48
US	0.77	2.66	5.81	6.26	4.82	6.82	4.52
US+SS	0.89	3.18	4.81	5.64	5.00	5.34	4.14
OS/SS	0.95	2.65	5.00	5.95	4.78	6.19	4.25
MEAN	0.83	2.88	5.04	5.96	3.90	5.99	4.10

GRAIN MEAN DM% 82.3

STRAW TONNES/HECTARE

\*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

N 78	0	50	100	150	50+50	100+50	MEAN
TREFOIL(768)							
NONE	0.44	1.54	2.11	3.81	2.19	3.44	2.26
US	0.29	1.37	3.14	3.01	2.55	3.32	2.28
US+SS	0.46	1.33	1.99	3.24	2.79	3.66	2.25
OS/SS	0.41	1.42	2.35	3.05	2.73	3.08	2.17
MEAN	0.40	1.41	2.40	3.28	2.57	3.38	2.24

STRAW MEAN DM% 72.5

PLOT AREA HARVESTED 0.00173