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Yields of the Field Experiments 1977

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77/W/CS/99 Effects of Breaks on Take-all - Barley, Beans

Rothamsted Research

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77/W/CS/99

EFFECTS OF BREAKS ON TAKE-ALL

Object: To study the phenomenon of take-all (*Gaeumannomyces graminis*) decline in barley - Woburn Butt Furlong.

Sponsor: D. Hornby.

The sixth year, barley, spring beans.

For previous years see 72/W/CS/99(t) and 73-76/W/CS/99.

Design: 2 blocks of 9 plots.

Whole plot dimensions: 5.33 x 15.2.

Treatments: Previous crops:-

PREVCROP	1968-71	1972	1973	1974	1975	1976	
BBBBB	B	B	B	B	B	B	(2 plots/block)
FBBBB	B	F	B	B	B	B	
FBE BBB	B	F	BE	B	B	B	
BFBE BB	B	B	F	BE	B	B	
BBFBEB	B	B	B	F	BE	B	
BBBBFBE	B	B	B	B	F	BE	

B = Barley, BE = Beans, F = Fallow

Standard applications:

Barley: Manures: (20:14:14) at 420 kg combine drilled. Weedkiller: Ioxynil at 0.53 kg plus mecoprop at 1.6 kg in 220 l.

Spring beans: Manures: (0:14:28) at 400 kg. Insecticide: Pirimicarb at 0.14 kg in 340 l.

Seed: Barley: Julia, dressed with ethirimol, sown at 160 kg.
Spring beans: Minden, sown at 220 kg.

Cultivations, etc.:-

All plots: Ploughed: 1 Nov, 1976. Spring-tine cultivated: 7 Mar, 1977.
Spring-tine cultivated with crumbler attached: 8 Mar.

Barley: Seed sown: 9 Mar, 1977. Weedkiller applied: 15 May. Combine harvested: 15 Aug.

Spring beans: Spring-tine cultivated: 17 Aug, 1976. PK applied: 30 Mar, 1977. Fine-tooth harrowed: 10 May. Tractor hoed: 30 May. Insecticide applied: 20 July. Combine harvested: 12 Sept.

Fallow: Rotary cultivated: 4 May, 1977. Spring-tine cultivated: 30 May. Rotary cultivated: 8 July.

- NOTES: (1) Soil samples were taken before sowing and after harvest and plant samples in July for incidence of take-all (*Gaeumannomyces graminis*).
- (2) Yields of spring beans were not taken.
- (3) An examination of the results showed a fertility trend coinciding with the contours of the field. The yields presented have been adjusted for this trend. The yields for the years 1972-76 have also been adjusted and the revised figures are presented.

77/W/CS/99

BARLEY

GRAIN TONNES/HECTARE

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

PREVCROP	BBBBB	FBBBB	FEBBBB	BFEBBB	BBFBEB	BBBBFBE	MEAN
	3.14	3.91	3.47	3.92	4.26	4.03	3.79

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	PREVCROP
SED	0.245 MIN REP 0.212 MAX-MIN

PREVCROP
MAX-MIN BBBBB V ANY OF REMAINDER
MIN REP ANY OF REMAINDER

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	6	0.229	6.2
GRAIN MEAN DM%	79.7		
PLOT AREA HARVESTED	0.00434		

76/W/CS/99

BARLEY

GRAIN TONNES/HECTARE

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

PREVCROP	B/B/B/B	F/B/B/B	F/BE/B/B	B/F/BE/B	B/B/F/BE	MEAN
	1.71	2.03	1.93	2.13	2.61	1.98

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	PREVCROP
SED	0.311 MIN REP 0.254 MAX-MIN

PREVCROP
MAX-MIN B/B/B/B V ANY OF REMAINDER
MIN REP ANY OF REMAINDER

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	7	0.299	15.1

75/W/CS/99

BARLEY

GRAIN TONNES/HECTARE

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

PREVCROP	B/B/B/B	B/F/B/B	B/F/BE/B	B/B/F/BE	MEAN
	1.49	2.02	2.20	1.94	1.73

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	PREVCROP
SED	0.216 MIN REP 0.170 MAX-MIN

PREVCROP
MAX-MIN B/B/B/B V ANY OF REMAINDER
MIN REP ANY OF REMAINDER

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	8	0.207	12.0

74/W/CS/99

BARLEY

GRAIN TONNES/HECTARE

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

PREVCROP	B/B/B	B/F/B	B/F/BE	MEAN
	4.00	4.26	4.18	4.06

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	PREVCROP
SED	0.287 MIN REP 0.223 MAX-MIN

PREVCROP
MAX-MIN B/B/B/B V ANY OF REMAINDER
MIN REP ANY OF REMAINDER

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	9	0.284	7.0

73/W/CS/99

BARLEY

GRAIN TONNES/HECTARE

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

PREVCROP	B/B	B/F	MEAN
	3.86	4.49	3.95

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	PREVCROP
-----	-----
SED	0.202

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	10	0.263	6.7

72/W/CS/99

BARLEY

GRAIN TONNES/HECTARE

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

CS	1	4	5	6	7	8	9	MEAN
	3.67	4.28	3.86	3.57	4.05	4.30	4.12	3.98

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	CS
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SED	0.577

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	5	0.492	12.4