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

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74/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 third year, barley, spring beans.

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

Design: 2 blocks of 9 plots.

Whole plot dimensions: 5.33 x 15.2. Area harvested: Barley - 0.00434, spring beans - 0.00406.

Treatments: Previous crops:-

PREVCROP

1968-71	1972	1973	
B	B	B (5 plots per block)	B/B/B
B	F	B	B/F/B
B	F	BE	B/F/BE

B = Barley, BE = Beans, F = Fallow

Standard applications:

All plots: Weedkiller: Paraquat at 0.56 kg ion in 370 l.

Barley: Manures: (20:15:15) at 410 kg combine drilled. Weedkiller:

Ioxynil at 0.53 kg and mecoprop at 1.6 kg in 280 l.

Spring beans: Manures: (0:14:28) at 400 kg placement drilled.

Weedkiller: Simazine at 1.1 kg in 390 l. Insecticide: Demeton-s-methyl at 0.25 kg in 390 l.

Seed: Barley: Julia, dressed with ethirimol, sown at 160 kg.

Spring beans, Minor sown at 200 kg.

Cultivations, etc.:-

All plots: Paraquat applied: 12 Sept, 1973. Ploughed: 25 Oct - 5 Nov.

Spring-tine cultivated with crumbler: 7 Mar, 1974.

Barley: Spring-tine cultivated with crumbler second time: 22 Mar, 1974.

Seed sown: 26 Mar. Weedkiller applied: 8 May. Combine harvested: 21 Aug.

Spring beans: Seed sown: 7 Mar, 1974. Weedkiller applied: 23 Mar.

Insecticide applied: 21 June. Combine harvested: 17 Sept.

Fallow: Spring-tine cultivated with crumbler second time: 22 Mar, 1974.

Power harrowed: 7 May.

NOTE: Soil samples were taken before sowing and after harvest and plant samples in July for incidence of 'take-all' (*Gaeumannomyces graminis*).

Standard error per plot.

Barley. Grain: tonnes/hectare: 0.328 or 8.1% (10 d.f.)

74/W/CS/99

TABLES OF MEANS

BARLEY. GRAIN: TONNES/HECTARE

PREVCROP

B/B/B	B/F/B	B/F/BE	Mean
3.98	4.34	4.20	4.06

STANDARD ERRORS OF DIFFERENCES

PREVCROP

B/B/B v B/F/B or B/F/BE	0.254
B/F/B v B/F/BE	0.328

SPRING BEANS. GRAIN: TONNES/HECTARE

Mean 3.84

Mean D.M. $\frac{1}{2}$ 77.4