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90/R/CS/212 Seasonal Effects of Take-all - W. Wheat, S. Beans

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90/R/CS/212

SEASONAL EFFECTS OF TAKE-ALL

Object: To study the incidence of take-all (*Gaeumannomyces graminis*) in continuous w. wheat and in first, second and third w. wheats after a break - Great Harpenden I.

Sponsors: D. Hornby, R.J. Gutteridge.

The 13th year, s. beans, w. wheat.

For previous years see 78-89/R/CS/212.

Design: 3 randomised blocks of 8 plots.

Whole plot dimensions: 5.33 x 10.0.

Treatments:

PREVCROP	Previous crops before w. wheat 1990:											
	78	79	80	81	82	83	84	85	86	87	88	89
W12	W	W	W	W	W	W	W	W	W	W	W	W
BE2 W3	W	BE	W	W	BE	W	W	BE	BE	W	W	W
BE1 W3	W	W	W	W	W	W	W	W	BE	W	W	W
BE1 W5	BE	W	W	BE	W	W	BE	W	W	W	W	W
BE1 W6	W	W	BE	W	W	BE	W	W	W	W	W	W
BE1 W1	W	BE	W	W	BE	W	W	BE	W	W	BE	W
BE1	W	W	BE	W	W	BE	W	W	BE	W	W	BE

BE = s. beans, W = w. wheat

NOTE: One additional crop sequence was in s. beans 1990, yields not taken.

Standard applications:

W. wheat: Manure: 'Nitram' at 410 kg. Weedkillers: Isoproturon at 1.7 kg in 200 l. Fluroxypyr at 0.15 kg with bromoxynil at 0.24 kg, clopyralid at 0.05 kg applied with the prochloraz in 200 l. Fungicides: Prochloraz at 0.40 kg. Propiconazole at 0.12 kg with carbendazim at 0.25 kg and maneb at 1.6 kg in 200 l. Insecticide: Deltamethrin at 6.2 g in 200 l.

Seed: W. wheat: Avalon, sown at 180 kg.
S. beans: Alfred, sown at 260 kg.

Cultivations, etc.:-

Both crops: Ploughed: 31 Aug, 1989. Rotary harrowed twice: 2 Oct.
Rotary harrowed: 3 Oct.

W. wheat: Seed sown: 4 Oct, 1989. Isoproturon applied: 20 Nov.
Insecticide applied: 22 Feb, 1990. N applied: 17 Apr. Remaining weedkillers with prochloraz applied: 25 Apr. Remaining fungicides applied: 14 June. Combine harvested: 10 Aug.

S. beans: Spring-tine cultivated, rotary harrowed, seed sown: 6 Mar, 1990. Combine harvested: 16 Aug.

90/R/CS/212

NOTE: Plant and soil samples were taken frequently during the season to assess take-all. Additional soil samples were taken to measure the suppressiveness of the soil to the take-all fungus.

GRAIN TONNES/HECTARE

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

PREVCROP	
W12	4.15
BE2 W3	3.65
BE1 W3	4.19
BE1 W5	4.05
BE1 W6	4.27
BE1 W1	4.71
BE1	5.98
Mean	4.43

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

PREVCROP
0.286

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	12	0.350	7.9
GRAIN MEAN DM%	89.2		
PLOT AREA HARVESTED	0.00220		