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

Rothamsted Research

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89/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 12th year, s. beans, w. wheat.

For previous years see 78-88/R/CS/212.

Design: 3 randomised blocks of 8 plots.

Whole plot dimensions: 5.33 x 10.7.

Treatments:

PREVCROP Previous crops before w. wheat 1989:

	78	79	80	81	82	83	84	85	86	87	88
W9 W W	W	W	W	W	W	W	W	W	W	W	W
W2 BE W	BE	W	W	BE	W	W	BE	W	W	BE	W
BE2 W W	W	BE	W	W	BE	W	W	BE	BE	W	W
BE1 W W	W	W	W	W	W	W	W	W	BE	W	W
W2 W W	BE	W	W	BE	W	W	BE	W	W	W	W
W3 W W	W	W	BE	W	W	BE	W	W	W	W	W
W1 W BE	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 1989, yields not taken.

Standard applications:

Both crops: Manures: (0:18:36) at 920 kg. Fungicides: Prochloraz at 0.40 kg and carbendazim at 0.15 kg in 200 l. Insecticide: Pirimicarb at 0.14 kg in 200 l.

W. wheat: Manure: 'Nitram' at 400 kg. Weedkillers: Chlortoluron at 3.5 kg in 200 l. Mecoprop at 2.2 kg, bromoxynil at 0.28 kg and ioxynil at 0.28 kg with isoproturon at 2.0 kg in 200 l.

S. beans: Insecticide: Deltamethrin at 7.5 g in 400 l.

Seed: W. wheat: Avalon, sown at 190 kg.

S. beans: Alfred, sown at 200 kg.

Cultivations, etc.:-

Both crops: PK applied: 16 Sept, 1988. Ploughed: 21 Sept.

Fungicides applied: 10 May, 1989. Pirimicarb applied: 20 June.

W. wheat: Rotary harrowed, seed sown: 18 Oct, 1988. Chlortoluron applied: 21 Oct. N applied: 21 Apr, 1989. Remaining weedkillers applied: 5 May. Combine harvested: 9 Aug.

S. beans: Heavy spring-tine cultivated, rotary harrowed: 29 Mar, 1989. Seed sown: 30 Mar. Insecticide applied: 10 May. Combine harvested: 14 Aug.

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NOTE: Plant and soil samples were taken on nine occasions during the season to assess take-all. Post-harvest soil samples were taken to measure the suppressiveness of the soil to take-all.

GRAIN TONNES/HECTARE

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

PREVCROP	
W9 W W	5.28
W2 BE W	5.83
BE2 W W	5.75
BE1 W W	5.90
W2 W W	5.25
W3 W W	6.02
W1 W BE	5.51
Mean	5.65

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

PREVCROP
0.441

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	12	0.541	9.6
GRAIN MEAN DM%	89.0		
PLOT AREA HARVESTED	0.00289		