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72/R/CS/58 Crop Sequence and Take-all - S. Wheat

Rothamsted Research

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72/R/CS/58

CROP SEQUENCES AND TAKE-ALL

Object: To study the seasonal changes in amounts of take-all (*Gaeumannomyces graminis**) in continuous spring wheat and to compare these with behaviour after break crops - Harwoods Piece.

* Formerly known as *Ophiobolus graminis*.

Sponsor: D. Hornby.

The third year, spring wheat.

For previous years see 70/R/CS/58(t) and 71/R/CS/58(t).

Design: 3 randomised blocks of 3 plots, split into 4.

Whole plot dimensions: 4.27 x 63.7. Sub plot area harvested: 0.00280.

Treatments: Crop sequences (CS):-

1970 to whole plots	1971 to half plots	1972 to whole plots
Spring wheat (WS)	Spring wheat (WS) on both half plots	Spring wheat (WS)
Spring beans (BE)	Spring wheat (WS), spring beans (BE)	Spring wheat (WS)
Fallow (F)	Spring wheat (WS), fallow (F)	Spring wheat (WS)

Half plots were divided into quarter plots for sampling: None (0) and sampled (S). The same quarter plots were sampled each year. The continuous spring wheat was sampled on only one quarter plot per block.

Basal applications: 440 kg (20:15:15) combine drilled. Weedkiller: Ioxynil at 0.53 kg and mecoprop at 1.6 kg in 220 l.

Seed: Kleiber sown at 190 kg.

Cultivations, etc.: Ploughed: 18 Nov, 1971. Seed combine drilled: 22 Mar, 1972. Weedkiller applied: 17 May. Combine harvested: 5 Sept.

72/R/CS/58

NOTE: Soil samples were taken throughout the year and crop samples throughout the season and the following observations made:
 Estimates of take-all (*Gaeumannomyces graminis*) in the soil, in wheat seedlings and in wheat plants.
 Growth stages of wheat.

Standard error per plot. Grain, tonnes/hectare:
 Whole plot: 0.154 or 2.8% (11 d.f.)
 Sub plot: 0.296 or 5.4% (13 d.f.)

TABLE OF MEANS
 GRAIN: TONNES/HECTARE

1970 1971	CS					Mean
	BE BE	BE WS	F F	F WS	WS* WS	
SAMPLING						
O	6.16	5.42	5.88	5.58	5.36	5.63
S	5.31	5.08	5.59	5.11	5.17	5.24
Mean	5.73	5.25	5.74	5.34	5.26	5.43

Mean D.M. %: 81.2

STANDARD ERRORS OF DIFFERENCES

CS	Excluding WS WS	0.126
	WS WS v any of remainder	0.109
SAMPLING		0.099
CS	Excluding WS WS	0.212
SAMPLING	WS WS v any of remainder	0.184
	Unless same levels of CS	
	Excluding WS WS	0.242
	WS WS	0.171

* Duplicated treatment