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

Rothamsted Research

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71/R/CS/58

CROP SEQUENCES AND TAKE-ALL

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

The second year, spring wheat and beans.

For previous year see 70/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: 0.00373.

Treatments: Whole plots (crops 1970) were divided into half plots for crops 1971:-

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

Half plots were divided into quarter plots for none (O) and sampling (S). Sampled quarter plots were the same as in 1970. The continuous spring wheat was sampled on only one quarter plot per block.

Basal applications: Weedkiller: Paraquat at 0.28 kg ion in 225 l.

Spring wheat: 437 kg (20:10:10) combine drilled. Weedkiller: Ioxynil octanoate, bromoxynil octanoate and the iso-octyl ester of dichlorprop ('Oxytril P' at 1.4 l in 225 l).

Spring beans: 404 kg (0:14:28) placement drilled. Insecticide: Demeton-s-methyl at 245 g in 438 l.

Cultivations, etc.: Paraquat applied: 18 Sept, 1970. Ploughed: 29 Oct.

Spring wheat: Seed combine drilled at 190 kg: 31 Mar, 1971.

'Oxytril P' applied: 18 May. Combine harvested: 1 Sept.

Variety: Kolibri.

Spring beans: Seed placement drilled at 224 kg: 27 Feb, 1971.

Insecticide applied: 1 July. Straw removed: 6 Sept (the crop was not worth harvesting). Variety: Maris Bead.

Fallow: Rotary cultivated: 2 June, 1971.

71/R/CS/58

NOTE: Soil and crop samples were taken throughout the season and the following observations made:

Estimates of take-all (*Ophiobolus graminis*) in the soil, in wheat seedlings and in wheat plants.

Growth stages of wheat.

Height of beans at each sampling date.

Standard errors per plot. Grain, tonnes/hectare:

Whole plot: 0.688 or 30.9% (6 d.f.)

Sub plot: 0.321 or 14.4% (8 d.f.)

71/R/CS/58

SUMMARY OF RESULTS

GRAIN: TONNES/HECTARE

	Not sampled 1971	Sampled 1971			Mean
	WS	WS	BE	F	
			(1) and (2)		(± 0.107)
O		2.15	3.31	1.89	2.45
S		1.83	2.73	1.74	2.10
Mean (± 0.397)	2.09	2.04	3.02	1.81	2.23*

(1) (± 0.419) For use in horizontal and diagonal comparisons only

(2) (± 0.185) For use in vertical and interaction comparisons only

Mean D.M. %: 81.6

* General mean