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Yields of the Field Experiments 1989

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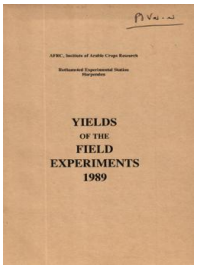

89/R/CS/331 Take-all Inoculation - W. Wheat, W. Oats

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89/R/CS/331

TAKE-ALL INOCULATION

Object: To compare a range of methods of artificially inoculating take-all (Gaeumannomyces graminis) and to relate amounts of disease established to the yield and grain quality of w. wheat - Great Harpenden I.

Sponsors: D. Hornby, G.L. Bateman, R.J. Gutteridge.

The first year, w. wheat.

Design: 4 randomised blocks of 9 plots.

Whole plot dimensions: 3.0 x 22.0.

Treatments:

INOCMETH	Methods of inoculating take-all to w. wheat:
NONE	None (duplicated)
I PRE PL	Infective inoculum applied to soil surface pre-ploughing
N PRE PL	Non-infective inoculum applied to soil surface pre-ploughing
I PRE SO	Infective inoculum applied by fertilizer drill to 10 cm depth before rotary harrowing and sowing wheat
N PRE SO	Non-infective inoculum applied as above
I CD	Infective inoculum combine drilled with the seed
N CD	Non-infective inoculum combine drilled with the seed

NOTES: (1) Inoculum was prepared on autoclaved oat seed sown at 212 kg.
(2) The sequence of cultivations was identical for all treatments: Plough to 23 cm on 5 Oct, 1988, cultivate to level on 22 Oct, traverse with fertilizer drill to 10 cm on 26 Oct, rotary harrow to 10 cm and sow wheat with combine drill on 27 Oct.
(3) An additional treatment, required for comparisons in future years, was sown with w. oats.

Basal applications: Manures: (0:18:36) at 920 kg. 'Nitram' at 580 kg. Weedkillers: Paraquat at 0.60 kg ion in 200 l. Methabenzthiazuron at 1.6 kg in 200 l. Mecoprop at 2.2 kg, bromoxynil at 0.28 kg and ioxynil at 0.28 kg in 200 l. Fungicides: Prochloraz at 0.40 kg and carbendazim at 0.15 kg in 200 l.

Seed: W. wheat: Mercia, sown at 190 kg.
W. oats: Image, sown at 190 kg.

Cultivations, etc.:- Rotary cultivated: 19 Aug, 1988. PK applied: 16 Sept. Paraquat applied: 19 Sept. Methabenzthiazuron applied: 3 Nov. N applied: 18 Apr, 1989. Mecoprop, bromoxynil and ioxynil applied: 4 May. Fungicides applied: 10 May. Combine harvested: 4 Aug (w. wheat), 17 Aug (w. oats). Previous crops: W. beans 1987, w. oats 1988.

NOTE: Plant samples were taken on six occasions between mid-March and mid-July to assess take-all. Quality assessments were made on the grain. Soil cores were taken after harvest to assess take-all infectivity, before and after cultivations.

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89/R/CS/331

GRAIN TONNES/HECTARE

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

INOCMETH	
NONE	7.11
I PRE PL	6.96
N PRE PL	7.11
I PRE SO	6.88
N PRE SO	7.35
I CD	6.58
N CD	7.12
Mean	7.03

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

INOCMETH	
0.168	min.rep
0.145	max-min

	INOCMETH
max-min	NONE v any of the remainder
min.rep	any of the remainder

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	22	0.237	3.4

GRAIN MEAN DM% 87.1

PLOT AREA HARVESTED 0.00506

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