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

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93/R/CS/331

TAKE-ALL INOCULATION

Object: To compare a range of methods of artificially inoculating take-all (*Gaeumannomyces graminis*) and seed treatments 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 fifth year, w. wheat, w.oats.

For previous years see 89-92/R/CS/331

Design: 4 randomised blocks of 9 plots.

Whole plot dimensions: 3.0 x 22.0.

Treatments:

INOC+SDT	Methods of inoculating take-all to w. wheat in the first year (1989), none since, plus levels of seed treatment to control take-all:
NONE O W	None (w. oats 1993, alternating with w. wheat)
NONE W O	None (w. wheat 1993, alternating with w. oats)
NONE W W	None (continuous w. wheat)
I PRE PL	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
I CD	Infective inoculum drilled with the seed
SEEDTR 0	No seed treatment
SEEDTR 1	Seed treatment at 100 g a.i.
SEEDTR 2	Seed treatment at 150 g a.i.

NOTE: Experimental seed treatment was applied at a.i. rates per 100 kg w. wheat seed drilled.

Experimental diary:

21-Sep-92 : B : Ploughed and furrow pressed.
07-Oct-92 : B : Heavy spring-tine cultivated.
08-Oct-92 : T : **INOC+SDT:** SEEDTR 0, SEEDTR 1, SEEDTR 2: Rotary harrowed, Riband drilled at 380 seeds per square metre.
 : T : **INOC+SDT** NONE O W: Rotary harrowed, Image, dressed Ceresol, drilled at 350 seeds per square metre.
 : T : **INOC+SDT** NONE W O, NONE W W, I PRE PL, I PRE SO, I CD: Rotary harrowed, Mercia, dressed Cerevax, drilled at 380 seeds per square metre.
05-Mar-93 : B : 34.5% N at 120 kg.
12-Mar-93 : B : Hytane 500 FW at 3.0 l and Stomp 400 at 2.5 l in 200 l.
16-Apr-93 : B : 34.5% N at 460 kg.
30-Apr-93 : B : Cheetah R at 2.5 l and Starane 2 at 1.0 l in 200 l.
04-Jun-93 : B : Mistral at 0.50 l in 200 l.
18-Aug-93 : B : Combine harvested.

93/R/CS/331

NOTE: Plant samples were taken on five occasions from March to July for take-all assessment. Soil cores were taken after harvest to assess take-all infectivity.

GRAIN TONNES/HECTARE

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

INOC+SDT	
NONE W O	7.92
NONE W W	7.37
I PRE PL	7.53
I PRE SO	7.62
I CD	7.06
SEEDTR 0	8.93
SEEDTR 1	9.30
SEEDTR 2	9.52

Mean	8.15
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*** Standard errors of differences of means ***

INOC+SDT
0.264

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	21	0.374	4.6

GRAIN MEAN DM% 85.9

PLOT AREA HARVESTED 0.00501