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

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92/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 fourth year, w. wheat, w.oats.

For previous years see 89-91/R/CS/331

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 in the first year (1989), none since:
NONE O W	None (w. oats 1992, alternating with w. wheat)
NONE W O	None (w. wheat 1992, alternating with w. oats)
NONE W W	None (continuous w. wheat)
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 drilled with the seed
N CD	Non-infective inoculum combine drilled with the seed

Experimental diary:

17-Sep-91 : B : Ploughed and furrow pressed.
18-Sep-91 : T : **INOCMETH** NONE OW: Rotary harrowed, Image drilled at 120 kg.
 : T : All treatments except **INOCMETH** NONE OW: Rotary harrowed. Mercia drilled at 160 kg.
18-Sep-91 : B : Rolled.
27-Nov-91 : B : Stefes IPU at 2.5 l and Stomp 400 at 3.3 l in 200 l.
02-Apr-92 : B : 34.5% N at 580 kg.
04-May-92 : B : Dorin at 1.0 l and Chiltern Olé at 1.0 l in 200 l.
23-Jun-92 : B : Mistral at 0.50 l and Radar at 0.50 l in 200 l.
29-Aug-92 : B : Combine harvested.

NOTE: Plant samples were taken on five occasions between March and July to assess take-all on roots. Take-all patches and lodging were assessed in July. Take-all inoculation was measured by bioassay of soil cores taken after harvest.

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GRAIN TONNES/HECTARE

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

INOCMETH	
NONE W O	7.50
NONE W W	7.54
I PRE PL	7.56
N PRE PL	7.63
I PRE SO	7.35
N PRE SO	7.22
I CD	7.44
N CD	7.49
Mean	7.47

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

INOCMETH
0.281

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	21	0.397	5.3
GRAIN MEAN DM%	76.0		
PLOT AREA HARVESTED	0.00506		