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92/W/CS/375 Take-all Epidemics - W. Wheat

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92/W/CS/375

TAKE-ALL EPIDEMICS

Object: To determine whether severe take-all (*Gaeumannomyces graminis*) can be caused by artificial inoculum in winter wheat and to determine the distribution of such infection within the crop - Woburn, Butt Close I.

Sponsors: G. L. Bateman, D. Hornby.

The first year, w. wheat

Design: 3 randomised blocks of 6 x 2, plus 2 extra plots.

Whole plot dimensions: 6.0 x 2.50.

Treatments: All combinations of:-

1. SOW DATE	Date of sowing:		
E	Early		
L	Late (4 weeks later)		
2. INOCULTN	Weight (kg) of inoculated oat seed applied by combine drill in autumn and spring:		
	Autumn (E)	Autumn (L)	Spring
0	Nil	Nil	-
1	Nil	200	-
2	200	200	-
3	400	200	-
30	400	200	Nil
3S	400	200	500

plus 2 extra plots, systematically arranged with treatments 0 and 2:

NOTE: INOCULTN 0, 1, 30: Nil occurs where empty drill drawn across plots.

Experimental diary:

- 19-Sep-91 : B : Sub-soiled and ploughed.
- 23-Sep-91 : B : Rotary harrowed.
- : T : INOCULTN 0 and 1: Empty drill drawn across plots.
- INOCULTN 2, 3, 30 and 3S: Inoculated oat seed applied by combine drill.
- : T : SOW DATE E: Mercia, undressed, drilled at 180 kg.
- 14-Oct-91 : T : SOW DATE L: Rotary harrowed.
- : T : INOCULTN 0: Empty drill drawn across plots.
- INOCULTN 1, 2, 3, 30 and 3S: Inoculated oat seed applied by combine drill.
- : T : SOW DATE L: Mercia, undressed, drilled at 180 kg.
- 06-Jan-92 : B : PK as (0:16:36) at 740 kg.
- 31-Jan-92 : B : Stomp 400 at 2.5 l and Stefes IPU at 1.0 l in 200 l.
- 10-Mar-92 : B : 34.5% N at 116 kg.
- 25-Mar-92 : T : INOCULTN 30: Empty drill drawn across plots.
- INOCULTN 3S: Inoculated oat seed applied by combine drill.

92/W/CS/375

Experimental diary:

22-Apr-92 : B : 34.5% N at 464 kg.
 09-Jun-92 : B : Impact Excel at 2.0 l in 200 l.
 29-Aug-92 : B : Combine harvested.

Previous crops: Potatoes 1990, navy beans 1991.

NOTE: Plant samples were taken for take-all assessment in autumn, spring and summer. Extra plots were sampled throughout the growing season to measure take-all and plant growth in relation to growth stage.

GRAIN TONNES/HECTARE

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

INOCULTN	0	1	2	3	30	3S	Mean
SOW DATE							
E	4.27	2.77	2.81	2.50	1.38	2.61	2.72
L	3.75	2.40	2.08	1.04	1.24	1.63	2.03
Mean	4.01	2.59	2.45	1.77	1.31	2.12	2.37

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

SOW DATE	INOCULTN	SOW DATE INOCULTN
0.342	0.592	0.837

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	22	1.025	43.2

GRAIN MEAN DM% 81.7

PLOT AREA HARVESTED 0.00132