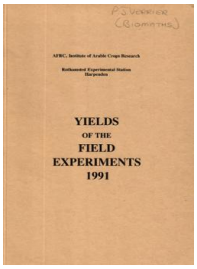
ROTHAMSTED RESEARCH

Yields of the Field Experiments 1991

Full Table of Content



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

Rothamsted Research

Rothamsted Research (1992) *91/R/CS/331 Take-all Inoculation - W. Wheat, W. Oats ;* Yields Of The Field Experiments 1991, pp 81 - 82 **- DOI: https://doi.org/10.23637/ERADOC-1-46**

91/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 third year, w. wheat, w. oats.

For previous years see 89-90/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, none to w. wheat in 1990:
NONE O W	None (w. oats 1991, alternating with w. wheat)
NONE W O	None (w. wheat 1991, 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 combine drilled with the seed
N CD	Non-infective inoculum combine drilled with the seed

NOTES: (1) Inoculum was prepared on autoclaved oat seed.
(2) The sequence of cultivations in the first year was identical for all treatments: Plough to 23 cm, cultivate to level, traverse with fertilizer drill to 10 cm, rotary harrow to 10 cm and sow wheat with combine drill. In the second year the cultivations, all basal, were: Ploughed, rotary harrowed three times and seed sown. In the third year basal cultivations were: Ploughed on 10 Sept, 1990, rotary harrowed and seed sown, 26 Sept.
(3) The weedkillers applied to wheat were in error also applied to oats. No yields recorded.

Basal applications: Manures: (0:16:36) at 980 kg. 'Nitram' at 120 kg and later at 580 kg. Weedkillers: Isoproturon at 1.3 kg and pendimethalin at 1.3 kg with the insecticide in 200 l. Fungicides: Fenpropimorph at 0.38 kg in 200 l. Chlorothalonil at 0.49 kg and flutriafol at 0.08 kg with fenpropimorph at 0.38 kg in 200 l. Insecticide: Deltamethrin at 6.2 g.

Seed: W. wheat: Mercia, sown at 170 kg.
W. oats: Image, sown at 120 kg.

https://doi.org/10.23637/ERADOC-1-46

91/R/CS/331

Cultivations, etc.:- PK applied: 3 Sept, 1990. Weedkillers with the insecticide applied: 15 Nov. N applied: 13 Mar, 1991 and later on 3 Apr. Fenpropimorph alone applied: 10 May. Fenpropimorph with chlorothalonil and flutriafol applied: 20 June. Combine harvested: 20 Aug (wheat), 27 Aug (oats).

NOTE: Plants were sampled 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.

GRAIN TONNES/HECTARE

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

INOCMETH	
NONE W O	8.21
NONE W W	7.85
I PRE PL	8.01
N PRE PL	8.05
I PRE SO	8.03
N PRE SO	7.91
I CD	7.93
N CD	8.20
Mean	8.02

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

INOCMETH
0.180

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	21	0.254	3.2

GRAIN MEAN DM% 87.7

PLOT AREA HARVESTED 0.00506

https://doi.org/10.23637/ERADOC-1-46