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Yields of the Field Experiments 1981



Full Table of Content

81/R/CS/265 Soil Fumigation, Mycorrhiza and P - S. Wheat

Rothamsted Research

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81/R/CS/265

SOIL FUMIGATION, MYCORRHIZA AND P

Object: To study the effects on s. wheat of applications of mycorrhizal inoculum, methyl bromide and rates of phosphate fertiliser - Delharding.

Sponsors: J.A. Buwalda, D.P. Stribley, P.B. Tinker.

The first year, s. wheat.

Design: 3 randomised blocks of 8 plots split into 2.

Whole plot dimensions: 4.4 x 3.0.

Treatments:

All combinations of:-

Whole plots

STERILNT Soil sterilant:

NONE

None

METH BR

Methyl bromide at 980 kg

2. P Rates of phosphate fertiliser (kg P), as superphosphate:

0

15

30

60

Sub plots

INOCULUM Mycorrhizal inoculum:

NONE

None

G MOSSE

Glomus mosseae

NOTE: Inoculum was prepared by growing leeks in pots of soil infected with the mycorrhiza. After 20 weeks growth, soil and roots in the pots were chopped and applied to the seed furrows at 3.5 t per ha. Uninoculated plots received soil and roots at the same rate from pots growing uninfected leeks.

Basal applications: Manures: Dolomitic limestone at 12.5 t. Chalk at 3.0 t N at 125 kg as 'Nitro-Chalk', K at 50 kg as muriate of potash, Mg at 100 kg as Epsom salts. Weedkillers: Ioxynil at 0.42 l and mecoprop at 1.26 l in 250 l, applied with the fungicide. Fungicide: Tridemorph at 0.53 kg.

Seed: Highbury, sown at 350 seeds per m² (about 170 kg).

Cultivations, etc.:- Dolomitic limestone applied: 15 Sept, 1980. Epsom salts applied: 13 Jan, 1981. Basal chalk, N, and K and test P applied: 18 Mar. Methyl bromide applied: 13 Apr. Inoculum applied, seed sown: 23 Apr. Weedkillers applied: 7 June. Harvested by hand: 9 Sept.

NOTE: Plots were sampled five times during the season to assess mycorrhizal infection, and twice to measure P content of the leaves and soil.

81/R/CS/265 GRAIN TONNES/HECTARE ***** TABLES OF MEANS ***** P									
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81/R/CS/265

STRAW TONNES/HECTARE

**** TABLES OF MEANS ****

	11211110				
P STERILNT	0	15	30	60	MEAN
NONE METH BR	3.38 4.47	4.40 5.31	5.01 5.83	5.67 5.80	4.61 5.35
MEAN	3.93	4.85	5.42	5.73	4.98
INOCULUM STERILNT	NONE	G MOSSE	MEAN		
NONE METH BR	4.41 4.95	4.82 5.76	4.61 5.35		
MEAN	4.68	5.29	4.98		
INOCULUM P	NONE	G MOSSE	MEAN		
0 15 30 60	3.44 4.49 5.11 5.67	4.41 5.22 5.73 5.80	3.93 4.85 5.42 5.73		
MEAN	4.68	5.29	4.98		
STERILNT NONE	INOCULUM F (15 30 60	3.02 5 4.30 0 4.84	3.74 4.50 5.18 5.86		
METH BR	15 30 60	3.87 4.68 5.39	5.08 5.94 6.28 5.73		

NO DRY MATTER PERCENTAGES - CROP WEIGHED DRY

SUB PLOT AREA HARVESTED 0.00020