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82/R/CS/265 Soil Fumigation, Mycorrhiza and P - W. Barley

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82/R/CS/265

SOIL FUMIGATION, MYCORRHIZA AND P

Object: To study the residual effects on w. barley of applications of mycorrhizal inoculum, methyl bromide and rates of phosphate fertilizer to s. wheat in 1981 - Delharding.

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

The second year, w. barley.

For previous year see 81/R/CS/265.

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

Whole plot dimensions: 3.0 x 4.4.

Treatments: All combinations of:-

Whole plots

1. STERILNT(81) Soil sterilant in 1981:

NONE	None
METH BR	Methyl bromide at 900 kg

2. P(81) Rates of phosphate fertilizer (kg P), as superphosphate in 1981:

0
15
30
60

Sub plots

3. INOCULUM(81) Mycorrhizal inoculum in 1981:

NONE	None
G MOSSE	Glomus mosseae

NOTES: (1) Treatments were applied to s. wheat in 1981.

(2) 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.

(3) Total above-ground dry matter was measured in June, grain yields were not taken.

Basal applications: Manures: N at 30 kg and a further application at 100 kg as 'Nitro-Chalk'. Weedkiller: Chlortoluron at 5.6 l in 280 l applied with the fungicide. Fungicide: Tridemorph at 0.53 kg.

Seed: Igri, with no seed dressing, direct drilled at 160 kg.

Cultivations, etc.: First N applied: 21 Sept, 1981. Seed sown: 14 Oct. Weedkiller with fungicide applied: 27 Oct. Second N applied: 2 Mar, 1982. Harvested by hand: 15 June.

82/R/CS/265

- NOTES: (1) Plots were sampled three times during the season to assess mycorrhizal infection of roots and once to measure P content of the leaves.
 (2) Grain yields were not taken, crop was harvested green on 15 June.

TOTAL DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

INOCULUM(81)	NONE	G MOSSE	MEAN		
STERILNT(81)					
NONE	3.81	4.03	3.92		
METH BR	4.44	4.91	4.68		
MEAN	4.12	4.47	4.30		
P(81)	0	15	30	60	MEAN
STERILNT(81)					
NONE	3.11	3.47	4.25	4.84	3.92
METH BR	3.75	4.25	4.77	5.95	4.68
MEAN	3.43	3.86	4.51	5.39	4.30
P(81)	0	15	30	60	MEAN
INOCULUM(81)					
NONE	3.25	3.74	4.34	5.16	4.12
G MOSSE	3.60	3.98	4.68	5.62	4.47
MEAN	3.43	3.86	4.51	5.39	4.30
STERILNT(81)	P(81)	0	15	30	60
INOCULUM(81)					
NONE	NONE	3.02	3.48	4.11	4.62
	G MOSSE	3.19	3.47	4.39	5.06
METH BR	NONE	3.47	4.00	4.57	5.71
	G MOSSE	4.02	4.49	4.96	6.18

82/R/CS/265

TOTAL DRY MATTER TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	STERILNT(81)	P(81)	INOCULUM(81)	STERILNT(81) P(81)
SED	0.087	0.123	0.059	0.175

TABLE	STERILNT(81) INOCULUM(81)	P(81) INOCULUM(81)	STERILNT(81) P(81) INOCULUM(81)
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REP	12	6	3
SED	0.105	0.149	0.211
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
STERILNT(81)	0.083		
P(81)		0.118	
STERILNT(81). P(81)			0.167

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	14	0.214	5.0
BLOCK.WP.SP	16	0.205	4.8

SUB PLOT AREA HARVESTED 0.00020