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Yields of the Field Experiments 1971

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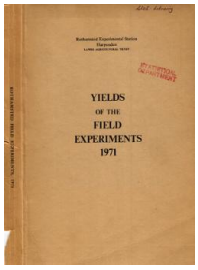

71/R/CS/49 and 71/W/CS/49 Fumigant and N - W. Wheat, S. Wheat

Rothamsted Research

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71/R/CS/49 and 71/W/CS/49

FUMIGANT AND N

Object: To study the direct and residual effects of formalin applied at different times on the development of take-all (Ophiobolus graminis) on winter and spring sown wheat - Rothamsted (R) Furzefield and Woburn (W) Butt Close.

The second year, winter and spring wheat.

For previous year see 70/R&W/CS/49(t).

Design: A single replicate of 4 x 4 x 2 x 2 in 4 blocks of 4 plots each of 4 sub plots.

Whole plot dimensions: 2.16 x 21.0. Sub plot area harvested: 0.00064.

Treatments: All combinations of:-

Whole plots:

1. Crops, sowing dates and times of application of formalin: Cappelle winter wheat sown in autumn, formalin applied in early autumn (WWA), Cappelle sown in spring, formalin applied early autumn (WWS), Kolibri spring wheat sown in spring, formalin applied in early autumn (WSS) or in early spring (WSS*).

Sub plots:

2. Nitrogen: 75, 125, 176, 226 kg N as 'Nitro-Chalk'.
3. Formalin in 1970: None (O), formalin (F) at 2990 l of 38% formaldehyde in 54,300 l. (N.B. The spring applications were in 40,700 l on Furzefield (R) and in 27,200 l on Butt Close (W).
4. Formalin in 1971: None (O), formalin (F) at 2990 l of 38% formaldehyde in 47,000 l.

Standard applications:

Furzefield (R): Autumn sowing, 314 kg (0:20:20), spring sowing, 336 kg (0:20:20) each broadcast.

Butt Close (W): Autumn sowing, 314 kg (0:20:20), spring sowing, 360 kg (0:20:20) each broadcast.

Weedkiller (both fields): Ioxynil at 0.63 kg and mecoprop at 1.89 kg in 337 l.

Cultivations, etc.:

Furzefield (R): Ploughed: 8 Sept, 1970. Formalin applied (WWA, WWS and WSS): 7 Oct. Winter wheat drilled at 202 kg: PK applied: 20 Oct. Formalin applied (WSS*): 8 Feb, 1971. Spring sown wheat drilled at 185 kg, PK applied: 25 Feb. N applied: 14 Apr. Weedkiller applied: 19 Apr. Combine harvested: 28 Aug.

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Butt Close (W): Ploughed: 3 Sept, 1970. Formalin applied (WWA, WWS and WSS): 9 Oct. PK applied, winter wheat drilled at 202 kg: 23 Oct. Formalin applied (WSS*): 9 Feb, 1971. PK applied, spring sown wheat drilled at 185 kg: 10 Mar. N applied: 7 Apr. Weedkiller applied: 8 Apr. Combine harvested: 27 Aug.

NOTES: (1) Incidence of root pathogens was recorded in spring and at harvest.
(2) On Butt Close (W) the yields have been adjusted for a linear trend North to South across each whole plot.

Standard errors per plot. Grain, tonnes/hectare:
Furzefield (R).
Whole plot: 0.393 or 7.8% (9 d.f.)
Sub plot: 0.581 or 11.6% (21 d.f.)
Butt Close (W).
Whole plot: 0.219 or 9.9% (9 d.f.)
Sub plot: 0.186 or 8.4% (20 d.f.)

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71/R/CS/49 and 71/W/CS/49

SUMMARY OF RESULTS

FURZEFIELD (R)

GRAIN: TONNES/HECTARE

	N1	N2	N3	N4	1970 RO	1970 RF	1971 FO	1971 FF	Mean
	(1) and (2)				(3) and (4)		(3) and (4)		(±0.196)
WWA	6.25	6.18	5.99	5.88	6.04	6.11	5.90	6.25	6.08
WWS	4.32	4.84	5.08	3.82	4.60	4.43	4.86	4.17	4.52
WSS	4.53	4.78	4.79	4.96	4.72	4.81	4.72	4.81	4.76
WSS*	4.55	4.77	4.73	4.86	4.76	4.70	4.53	4.93	4.73
					(±0.205)		(±0.205)		(±0.145)
				N1	4.75	5.08	4.97	4.86	4.91
				N2	5.09	5.20	5.05	5.23	5.14
				N3	5.16	5.14	5.08	5.21	5.15
				N4	5.13	4.63	4.91	4.85	4.88
							(±0.145)		(±0.103)
						RO	4.93	5.13	5.03
						RF	5.08	4.94	5.01
Mean (±0.103)							5.00	5.04	5.02

(1) (±0.319) (3) (±0.244) For use in vertical and diagonal comparisons only

(2) (±0.290) (4) (±0.205) For use in horizontal and interaction comparisons only

Mean D.M. %: 80.9

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BUTT CLOSE (W)

GRAIN: TONNES/HECTARE

	N1	N2	N3	N4	1970 RO	1970 RF	1971 FO	1971 FF	Mean
	(1) and (2)				(3) and (4)		(3) and (4)		(±0.109)
WWA	2.21	2.59	2.66	2.53	2.50	2.50	2.28	2.72	2.50
WWS	1.72	1.93	1.89	1.64	1.78	1.81	1.62	1.96	1.79
WSS	2.18	2.25	2.34	2.21	2.29	2.21	2.22	2.27	2.25
WSS*	2.30	2.32	2.21	2.29	2.27	2.29	2.23	2.33	2.28
					(±0.066)		(±0.066)		(±0.047)
				N1	2.13	2.08	1.99	2.22	2.11
				N2	2.25	2.30	2.09	2.46	2.27
				N3	2.30	2.25	2.14	2.41	2.28
				N4	2.16	2.17	2.14	2.20	2.17
							(±0.047)		(±0.033)
						RO	2.08	2.34	2.21
						RF	2.10	2.30	2.20
Mean (±0.033)							2.09	2.32	2.21

(1) (±0.136) (3) (±0.119) For use in vertical and diagonal comparisons only

(2) (±0.093) (4) (±0.066) For use in horizontal and interaction comparisons only

Mean D.M. %: 70.0

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