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53/CA/2 Wheat - Eyespot, Varieties, Seed Rates and Time of Applying N - Rothamsted

Rothamsted Research

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53/Ca/2.1

WHEAT

The effects of varieties, seed rates and time of applying N on the incidence of Eyespot - Great Field 1953, the 2nd year.

System of replication: 8 randomized blocks of 8 plots each, certain high order interactions and the effect of spraying being confounded with block differences. In addition each block contained two extra plots with no nitrogen, the variety \times seed rate interaction being confounded.

Area of each plot: 0.0197 acre. Area harvested: 0.0129 acre.

Treatments: All combinations of

Variety: Squareheads Master 13/4; Bersee (V_1 ; V_2).

Seedrate: $1\frac{1}{2}$; 3 bushels per acre (R_1 ; R_2).

Nitrogen: 0.4; 0.8 cwt per acre applied as sulphate of ammonia (N_1 ; N_2).

Time of application of N: At time of autumn sowing; early March; mid-April; 3rd week May (T_1 ; T_2 ; T_3 ; T_4).

Spraying: 4 blocks sprayed with $12\frac{1}{2}\%$ sulphuric acid at 100 gallons per acre.

Basal dressing: None.

Cultivations, etc.: Ploughed: Sept 2, 1952. Seed drilled: V_1 - Oct 17, V_2 - Oct 21. T_1 applied: Oct 24. Sprayed 4 blocks with sulphuric acid: Mar 4, 1953. T_2 applied: Mar 5. T_3 applied: Apr 11. T_4 applied: May 22. Combine harvested: Aug 22. Previous crop: Wheat.

Standard error per plot:

Grain (at 85% D.M.): 3.41 cwt per acre or 16.3% (24 d.f.)

N.B. (1) In the Summary of Results:-

(a) The standard errors given are not valid for testing the effects of spraying for any particular treatment level; the interactions of spraying with treatments may however be tested.

(b) The $V \times R$ tables do not include the plots receiving no nitrogen

(2) Records of incidence of disease (Take-all and Eyespot) and counts of plant, shoot and straw numbers were made.

Estimates of % area lodged were also recorded.

Summary of Results

Grain (at 85% Dry Matter): cwt per acre

	Unsprayed				Mean
	T ₁	T ₂	T ₃	T ₄	
Mean (±1.20)	20.6	21.8	21.4	23.5	21.8 (±0.85)
V ₁	17.1	18.9	18.6	23.4	19.5
V ₂	24.1	24.8	24.1	23.7	24.2
Difference (±2.41)	+7.0	+5.9	+5.5	+0.3	+4.7 (±1.20)
R ₁	21.5	22.0	23.7	27.2	23.6
R ₂	19.7	21.7	19.0	19.9	20.1
Difference (±2.41)	-1.8	-0.3	-4.7	-7.3	-3.5 (±1.20)
N ₁	17.5	23.1	18.8	22.0	20.3
N ₂	23.7	20.6	24.0	25.0	23.3
Difference (±2.41)	+6.2	-2.5	+5.2	+3.0	+3.0 (±1.20)

	R ₁	R ₂	Diff.	N ₀	N ₁	N ₂	Mean
Mean (±0.85)				15.1 ⁽²⁾	20.3	23.3	20.5
	(±1.20)		(±1.70)	(±1.70)	(±1.20)		(±0.76)
V ₁	22.1	16.9	-5.2	11.7	19.1	19.9	17.9
V ₂	25.2	23.2	-2.0	18.5	21.6	26.8	23.1
Diff. (±1.70)	+3.1	+6.3	+3.2	+6.8 ⁽¹⁾	+2.5	+6.9	+5.2
				(±1.70)	(±1.20)		(±0.76)
R ₁				16.2	22.2	25.1	22.1
R ₂				14.1	18.5	21.6	18.9
Diff. (±1.70)				-2.1 ⁽¹⁾	-3.7	-3.5	-3.2

(1) ±2.41 (2) ±1.70 Mean D.M. %: 87.3

Treatment symbols

V₁ Squareheads Master 13/4 R₁ 1½ bushels per acre N₀ No N
 V₂ Bersee R₂ 3 bushels per acre N₁ 0.4 cwt N per acre
 N₂ 0.8 cwt N per acre

T₁ Sulphate of ammonia at time of autumn sowing
 T₂ Sulphate of ammonia in early March
 T₃ Sulphate of ammonia mid-April
 T₄ Sulphate of ammonia 3rd week May

53/Ca/2.3

Grain (at 85% Dry Matter): cwt per acre

	Sprayed				Mean
	T ₁	T ₂	T ₃	T ₄	
Mean (± 1.20)	22.6	22.9	21.0	21.0	21.9 (± 0.85)
V ₁	20.0	21.8	18.3	19.3	19.8
V ₂	25.2	24.1	23.7	22.7	23.9
Difference (± 2.41)	+5.2	+2.3	+5.4	+3.4	+4.1 (± 1.20)
R ₁	25.1	22.0	22.8	24.7	23.6
R ₂	20.1	23.9	19.1	17.4	20.1
Difference (± 2.41)	-5.0	+1.9	-3.7	-7.3	-3.5 (± 1.20)
N ₁	21.2	25.1	18.8	23.2	22.1
N ₂	24.0	20.8	23.1	18.9	21.7
Difference (± 2.41)	+2.8	-4.3	+4.3	-4.3	-0.4 (± 1.20)

	R ₁	R ₂	Diff.	N ₀	N ₁	N ₂	Mean
Mean (± 0.85)				18.7 ⁽²⁾	22.1	21.7	21.2 (± 0.76)
	(± 1.20)		(± 1.70)	(± 1.70)	(± 1.20)		
V ₁	22.0	17.7	-4.3	19.0	19.7	19.9	19.7
V ₂	25.3	22.6	-2.7	18.3	24.4	23.5	22.8
Diff. (± 1.70)	+3.3	+4.9	+1.6	-0.7 ⁽¹⁾	+4.7	+3.6	+3.1 (± 0.76)
				(± 1.70)	(± 1.20)		
R ₁				24.7	24.0	23.3	23.8
R ₂				12.6	20.2	20.1	18.6
Diff. (± 1.70)				-12.1 ⁽¹⁾	-3.8	-3.2	-5.2

(1) ± 2.41 (2) ± 1.20 Mean D.M. %: 85.3

Treatment symbols

V₁ Squareheads Master 13/4 R₁ 1½ bushels per acre N₀ No N
 V₂ Bersee R₂ 3 bushels per acre N₁ 0.4 cwt N per acre
 N₂ 0.8 cwt N per acre

T₁ Sulphate of ammonia at time of autumn sowing
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