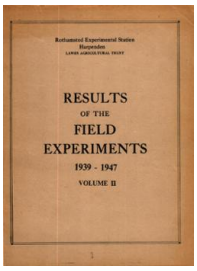
ROTHAMSTED RESEARCH

Yields of the Field Experiments 1939-1947 Volume 2



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K Wheat and Spring Sown Cereals

Rothamsted Research

Rothamsted Research (1948) *K Wheat and Spring Sown Cereals ;* Yields Of The Field Experiments 1939-1947 Volume 2, pp 65 - 97 **- DOI: https://doi.org/10.23637/ERADOC-1-186**

WHEAT

Observations on the incidence of Cercosporella herpotrichoides Fron. (Eyespot), and other diseases and pests, were taken on all wheat experiments, of which some were ordinary variety and fertilizer trials and some were specially laid down to test the effects of various treatments for the control of Eyespot.

The figures for percentage Eyespot infection are transformed to degrees for the purpose of analysis, and the mean percentages shown are derived from the transformed data.

Pennell's Piece and West Barnfield, 1941

Effects of rates and times of application of sulphate of ammonia on yield and extent of lodging of three varieties of wheat.

Design: 3 randomized blocks of 3 plots each, the plots being split into 3 for different rates and times of application of fertilizer, with confounding according to a Greco-Latin design.

Area of each sub-plot: Pennell's Piece, 0.0667 acre: W. Barnfield 0.0250 acre.

Treatments

Varieties; Desprez 80, Wilma, Red Standard

Sulphate of ammonia; 0.0, 0.3, 0.6 cwt. N per acre

Times of application of S/A; Early (early March), half early and half late, and late (middle May).

Crop Notes

	Pennell's Piece	West Barnfield
Sown	Oct. 26	Nov. 27
Harvested	Aug. 21	Sept. 1
Previous crop	Wheat	Spring oats

A third experiment of the same type was carried out at Woburn, but on account of bird damage and other causes, yields were very irregular; experimental errors were too high to allow any reliable results to be presented.

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Wheat - Pennell's Piece and W.Barnfield, 1941

Pennell's Piece

Variety	Desprez 80	Wilma	Red Standard	Mean
Grain, cwt. per acre ±0.65	18.4	15.0	14.4	15.9
Straw, cwt. per acre ±1.13	30.4	34.3	37.6	34.1
% Lodging in August	4	23	49	25
Percentage Eyespot at harvest	76	76	85	79
Cwt. N. per acre	0.0	0.3	0.6	Mean
Grain, cwt. per acre ±0.65	11.9	16.3	19.7	15.9
Straw, cwt. per acre ±1.13	26.5	34.0	41.7	34.1
% Lodging in August	22	20	34	25
Percentage Eyespot at harvest	79	81	79	79

Nitrogen applied	Early	Half early, half late	Late	Mean
Grain, cwt. per acre ±0.65	15.8	16.4	15.6	15.9
Straw, cwt. per acre ±1.13	35.3	33.8	33.1	34.1
% Lodging in August	36	18	21	25
Percentage Eyespot at harvest	83	79	75	79

Standard errors per plot (pooled whole-plot and sub-plot errors)

Grain	1.95 cwt. per acre or 12.2%, 14 d.f.
Straw	3.39 cwt. per acre or 10.0%, 14 d.f.

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West Barnfield

Variety	Desprez 80	Wilma	Red Standard	Mean
Grain, cwt. per acre ±0.88	27.0	27.4	23.2	25.8
Straw, cwt. per acre ±1.77	30.6	36.5	34.5	33.9
% Lodging in August	0	34	72	35
Percentage Eyespot at harvest		None		
Cwt. N per acre	0.0	0.3	0.6	Mean
Grain, cwt. per acre ±0.88	24.7	26.7	26.0	25.8
Straw, cwt. per acre ±1.77	30.6	34.1	37.0	33.9
% Lodging in August	28	37	41	35
Percentage Eyespot at harvest		None		
Nitrogen applied	Early	Half early, half late	Late	Mean
Grain, cwt. per acre ±0.88	25.2	26.2	26.2	25.8
Straw, cwt. per acre ±1.77	34.4	34.0	33.1	33.9
% Lodging in August	36	34	36	35
Percentage Eyespot at harvest		None		

Standard errors per plot (pooled whole plot and sub-plot errors)

Grain 2.63 cwt. per acre or 10.2%, 13 d.f.

Straw 5.31 cwt. per acre or 15.7%, 13 d.f.

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WHEAT

Pennell's Piece, 1942

Effects of two rates of application of sulphate of ammonia to ten varieties of wheat.

Design; 4 randomized blocks of 10 plots each, the plots being split into two for rate of application of fertilizer.

Area of each plot; Plots of varying sizes in the different blocks, from 0.004 to 0.006 acre per sub-plot.

Treatments

Varieties; Red Standard, Desprez 80, Rampton Rivett, Steadfast, Holdfast, Garton's 60, Juliana, Little Joss, Cotes d'Or, Vilmorin.

Sulphate of ammonia; 0.4, 0.8 cwt. N per acre.

Basal Manuring; 3 cwt. per acre superphosphate.

Crop Notes

Sown; Nov. 27. Harvested; Aug. 17.

Previous crop; Wheat.

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Variety	Grain: cwt. per acre Mean	Grain: cwt. per acre Response to N	Straw: cwt. per acre Mean	Straw: cwt. per acre Response to N
	±1.14	±1.60		
Red Standard	25.9	-0.6	46.2	3.6
Desprez 80	32.5	4.3	43.6	7.9
Rampton Rivett	26.6	4.1	60.3	-2.6
Steadfast	27.1	1.5	45.4	6.9
Holdfast	27.8	6.3	45.4	9.2
Garton's 60	27.3	1.4	40.8	-0.7
Juliana	30.1	1.7	48.5	3.8
Little Joss	25.0	1.2	48.2	-0.5
Cotes d'Or	27.1	2.3	44.8	6.0
Vilmorin	33.2	3.2	55.4	9.5
Mean	28.3	2.5	47.9	4.3
		±0.51		

Variety	Percentage Eyespot Transformed Mean	Percentage Eyespot Transformed Response to N	Percentage Eyespot Mean	Percentage Eyespot Response to N
	±2.33	±4.41		
Red Standard	26.5	2.2	20	3
Desprez 80	21.9	-2.6	14	-4
Rampton Rivett	20.2	-5.6	12	-6
Steadfast	21.4	-4.4	13	-5
Holdfast	29.2	0.4	24	0
Garton's 60	24.4	-3.1	17	-4
Juliana	27.0	-6.9	21	-10
Little Joss	25.2	-4.8	18	-6
Cotes d'Or	27.1	3.6	21	5
Vilmorin	21.4	-3.6	13	-5
Mean	24.4	-2.5	17	-3
		±1.39		

Standard errors per Plot:

Grain, per whole plot, 2.28 cwt. per acre or 8.1%, 27 d.f.
per sub-plot, 2.27 cwt. per acre or 8.0%, 28 d.f.

Transformed Percent: Eyespot

per whole plot, 4.66, 27 d.f.
per sub-plot, 6.24, 28 d.f.

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WHEAT

Foster's 1943

Effect on the yield and Eyespot infection of sulphuric acid spraying on four varieties, sulphate of ammonia applied in early and late spring, and time of sowing.

Design; 8 randomized blocks of 8 plots each, the plots being split in half for applications of sulphate of ammonia. Spraying effects and certain high-order interactions confounded with block differences.

Area of each sub-plot; 0.0125 acre.

Treatments

On blocks; Untreated, sprayed with sulphuric acid (100 gallons per acre 10% B.O.V.) immediately after second sowing date and before emergence of plants (S), sprayed with sulphuric acid as above after raking off stubble (RS), inoculated with stubble raked off blocks receiving the RS treatment (I).

On plots;

Varieties: Red Standard (R), Juliana (W), Vilmorin (V), Desprez 80 (D).
Time of sowing: Early (Oct.), late (Nov.)

On sub-plots;

Sulphate of ammonia: None, 0.6 cwt. N per acre
Time of application of S/A: Early spring (E), late spring (L), half early and half late (EL).

Crop Notes

Stubble raked off RS plots and spread on I plots, Sept. 17.
Seed sown, Oct. 9 or Nov. 13. Harvested: Aug. 6
Previous crop: Barley.

Standard errors per plot:

Grain: Per block, 1.86 cwt. per acre or 10.5%, 4 d.f.
per whole plot, 1.58 cwt. per acre or 9.0%, 27 d.f.
per sub-plot, 1.41 cwt. per acre or 8.0%, 18 d.f.

Straw: Per block, 0.81 cwt. per acre or 3.3%, 4 d.f.
per whole plot, 2.42 cwt per acre or 9.9%, 27 d.f.
per sub-plot, 2.38 cwt. per acre or 9.8%, 18 d.f.

Transformed Percent. Eyespot: per block 2.22, 4 d.f.
per whole plot, 4.58, 27 d.f.
per sub-plot, 11.67, 18 d.f.

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Grain, cwt. per acre

	Mean	Variety R	W	V	D	Late-Early Sowing	O	I	S	RS
	(a)&(b)	(c)&(d)				(c)&(d)	(c)&(d)			
O	14.0	14.2	13.9	13.2	14.9	-0.7	12.6	13.1	14.6	15.9
E	20.0	19.8	18.1	20.9	21.3	-1.3	18.3	18.3	22.2	21.4
L	17.4	17.8	17.3	16.7	17.7	-0.1	14.8	16.9	18.2	19.7
EL	19.2	20.6	17.8	18.0	20.5	-2.0	16.3	19.2	19.7	21.6
		±0.40				±0.40				
Mean	17.7	18.1	16.8	17.2	18.6	-1.0				
Late-Early Sowing		±0.79								
		0.0	-2.4	-0.6	-1.0					
	±1.32	±0.79				±0.79				
O	15.5	16.7	14.8	14.5	16.0	-0.3				
I	16.9	18.6	15.0	15.3	18.5	-0.8				
S	18.7	18.4	17.8	18.5	19.9	-1.7				
RS	19.6	18.5	19.5	20.6	19.9	-1.3				

(a) 0.25 (c) 0.50 for use in comparisons of E v. L and O v. EL only
(b) 0.98 (d) 1.95 for use in all other within-block comparisons

Straw, cwt. per acre

	Mean	R	W	V	D	Late-Early Sowing	O	I	S	RS
	(a)&(b)	(c)&(d)				(c)&(d)	(c)&(d)			
O	18.5	20.3	18.9	16.4	18.7	-0.3	19.2	17.7	18.3	19.1
E	30.0	32.8	29.4	29.4	28.3	-1.3	30.3	27.7	30.7	31.1
L	22.1	23.7	22.6	20.8	21.2	-0.2	20.2	22.0	22.3	23.7
EL	26.8	31.6	24.9	24.1	26.5	-2.5	25.3	27.3	26.0	28.6
		±0.60				±0.60				
Mean	24.3	27.1	23.9	22.7	23.7	-1.1				
Late-Early Sowing		±1.21								
		-1.5	-1.4	-0.6	-1.0					
	±0.57	±1.21				±1.21				
O	23.8	28.3	23.5	21.2	22.0	-1.5				
I	23.7	27.4	21.2	21.7	24.4	-1.4				
S	24.3	25.8	24.5	23.2	23.7	-1.0				
RS	25.6	26.8	26.5	24.6	24.7	-0.6				

Standard Errors

(a) 0.42 (c) 0.84 for use in vertical comparisons of E v. L and O v. EL only.
(b) 0.59 (d) 1.18 for use in all other within-block comparisons

Standard errors shown for the block treatments O, I, S, RS are for use in within-block comparisons, except for the S.E.'s shown for the means of these treatments.

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Wheat - Foster's 1943

Transformed Percentage Eyespot

	Mean	Variety R	W	V	D	Late-Early Sowing	0	I	S	RS
	(a)&(b)		(c)&(d)			(c)&(d)		(c)&(d)		
0	49.2	52.7	49.6	49.4	45.2	2.1	51.9	49.3	46.8	49.0
E	53.7	55.0	55.0	53.1	51.6	1.4	55.5	54.4	50.7	54.1
L	50.5	51.0	49.8	48.1	53.2	1.0	54.0	48.9	49.7	49.5
EL	52.2	56.0	53.4	50.6	48.8	3.0	54.8	52.7	49.1	52.2
			±1.15			±1.15				
Mean	51.4	53.7	52.0	50.3	49.7	1.8				
Late-Early Sowing		3.4	±2.29 2.1	1.4	0.6					
	±1.57		±2.29			±2.29				
0	54.1	59.4	52.6	52.9	51.4	-0.1				
I	51.3	52.6	53.0	49.4	50.3	0.2				
S	49.1	50.8	49.8	48.4	47.4	3.1				
RS	51.2	52.0	52.5	50.6	49.7	4.1				

Standard errors

(a) 2.06 (c) 4.12 for use in vertical comparisons of E v. L and 0 v. EL only
(b) 1.38 (d) 2.75 for use in all other within -block comparisons

Percentage Eyespot

	Mean	R	W	V	D	Late-Early Sowing	0	I	S	RS
0	57.3	63.3	58.0	57.7	50.3	3.6	62.0	57.5	53.2	57.0
E	65.0	67.1	67.1	64.0	61.4	2.4	67.9	66.2	59.8	65.7
L	59.5	60.3	58.3	55.4	64.2	1.6	65.5	56.8	58.2	57.8
EL	62.5	68.7	64.5	59.7	56.7	5.2	66.8	63.3	57.2	62.5
Mean	61.0	65.0	62.2	59.2	58.2	3.2				
Late-Early Sowing		5.5	3.6	2.3	1.0					
0	65.7	74.1	63.2	63.7	61.0	-0.2				
I	60.8	63.2	63.8	57.7	59.2	0.3				
S	57.2	60.0	58.3	56.0	54.2	5.4				
RS	60.7	62.2	63.0	59.7	58.2	7.0				

Standard errors shown for the block treatments 0, I, S, RS are for use in within-block comparisons, except for the S.E. shown for the means of these treatments.

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WHEAT

Little Knott, 1944-1946

The interrelationship of Eyespot infection, time of sowing, and sulphate of ammonia for four varieties.

Design; 4 randomized blocks of 8 plots each, plots split for sulphate of ammonia, with certain interactions confounded with block differences.

Area of each sub-plot; 0.0167 acre.

Treatments

To blocks in 1944 season only; Inoculation; none, inoculated with stubble infected with Eyespot.
To blocks in 1946 only; none, sulphuric acid spray in March (100 gal. per acre 12½% B.O.V.)
To whole plots; Varieties, Red Standard (R), Wilma (W), Vilmorin (V), Desprez 80 (D). Time of sowing; Early, Late.
To sub-plots; Sulphate of Ammonia, none, 0.8 cwt. N per acre applied in Mid-March (E), Mid-May (L), half-early and half-late (EL).

Crop Notes

	Early Sown	Late	Harvested	
1944	20/10/43	16/11/43	Aug. 11	(Previous crop, Wheat)
1945	25/10/44	30/11/44	Aug. 21	
1946	13/10/45	7/11/45	Aug. 24	

Standard errors;		per whole plot	sub-plot (cwt. per acre)
1944	Grain	2.98 or 9.1%, 13 d.f.	2.51 or 7.6%, 20 d.f.
	Straw	4.43 or 8.6%, 13 d.f.	4.50 or 8.8%, 20 d.f.
	Transformed % Eyespot	2.43, 13 d.f.	4.16, 20 d.f.
1945	Grain	2.19 or 6.7%, 13 d.f.	1.87 or 5.7%, 19 d.f.
	Straw	2.83 or 4.7%, 13 d.f.	2.45 or 4.0%, 19 d.f.
	Transformed % Eyespot	5.73, 13 d.f.	7.34, 20 d.f.
1946	Grain	2.56 or 8.1%, 12 d.f.	2.35 or 7.4%, 18 d.f.
	Straw	3.79 or 6.3%, 13 d.f.	2.63 or 4.4%, 20 d.f.
	Transformed % Eyespot	6.73, 12 d.f.	5.38, 18 d.f.

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K/10

Wheat - Little Knott, 1944-46

Grain, cwt. per acre

Time of applicn. of N	Mean	R	W	V	D	Late-early sowing	Inocn. effect	Spraying effect
				1944				
	(a)&(b)			(c)&(d)		(c)&(d)	(c)&(d)	(c)&(d)
0	32.9	35.5	30.3	31.7	34.0	-3.9	1.3	
E	32.7	34.9	32.6	31.5	31.7	-5.6	-0.8	
L	33.2	35.5	32.1	32.3	33.1	-5.9	-1.9	
EL	32.6	32.9	31.5	32.5	33.4	-3.4	2.0	
				1945				
0	31.9	31.0	30.8	30.6	35.3	0.2	0.3	
E	32.5	31.7	28.7	35.1	34.4	-1.6	1.9	
L	33.6	35.0	29.9	33.9	35.7	-0.9	0.6	
EL	33.5	32.7	28.3	35.4	37.7	-0.7	1.1	
				1946				
0	29.9	27.6	32.4	27.5	32.2	1.3	-4.3	1.3
E	31.2	26.3	40.5	30.9	26.9	-2.9	1.3	-1.1
L	33.0	30.3	39.3	32.4	30.1	-3.7	-1.7	-2.3
EL	31.9	29.7	35.1	33.2	29.6	-1.2	-0.2	-0.7

Variety	Mean	Late-early sowing	Inoculation effect	Spraying effect
		1944		
	±1.05	±2.11	±2.11	
R	34.7	1.0	-3.0	
W	31.6	-3.8	-0.6	
V	32.0	-13.2	-0.8	
D	33.0	-3.1	4.9	
Mean	32.8	-4.8		
		1945		
	±0.77	±1.55	±1.55	
R	32.6	3.3	0.3	
W	29.4	-0.1	1.1	
V	33.8	2.2	-0.5	
D	35.8	-8.4	3.2	
Mean	32.9	-0.7		
		1946		
	±0.91	±1.81	±1.81	±1.81
R	28.4	2.5	-0.5	1.7
W	36.8	-0.3	-1.3	0.9
V	31.0	-1.0	-1.4	1.0
D	29.8	-7.6	-1.7	-6.4
Mean	31.5	-1.6		

Standard errors;

	1944	1945	1946
(a)	0.63	0.47	0.59
(b)	0.87	0.64	0.76
(c)	1.26	0.94	1.18
(d)	1.73	1.28	1.52

(a) and (c) are for use in vertical comparisons E v. L and O v. EL, (b) and (d) are for use in all other comparisons

Inoculation and spraying effects were confounded with block differences; the standard errors quoted are for use in vertical comparisons.

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Straw, cwt. per acre

Time of applicn. of N	Mean	R	W	V	D	Late-early sowing	Inocn. effect	Spraying effect
	(a)&(b)		1944 (c)&(d)			(c)&(d)	(c)&(d)	(c)&(d)
0	51.5	53.9	53.1	44.1	55.0	-7.0	1.4	
E	51.5	53.0	59.4	44.0	49.5	-7.3	-2.8	
L	52.4	54.7	55.0	45.5	54.6	-10.1	-4.1	
EL	49.8	50.0	51.3	45.6	52.3	-10.0	3.3	
			1945					
0	54.9	54.9	56.4	54.3	54.0	- 0.2	4.2	
E	62.8	64.2	64.6	62.2	60.2	- 3.2	-2.0	
L	60.2	62.6	61.8	59.4	57.2	0.6	1.0	
EL	63.4	63.6	63.8	65.0	61.2	- 1.2	4.6	
			1946					
0	54.1	54.2	55.0	53.8	53.3	- 0.8	2.8	0.2
E	60.6	62.0	68.1	58.8	53.7	- 8.9	2.7	1.7
L	62.6	65.3	63.6	62.3	59.0	- 6.4	-0.1	-1.8
EL	62.0	62.4	65.3	60.4	60.1	- 5.5	3.9	-2.1

Variety	Mean	Late-early sowing	Inoculation effect	Spraying effect
		1944		
	±1.57	±3.14	±3.14	
R	52.8	0.4	-2.9	
W	54.6	-8.1	-0.5	
V	44.8	-19.8	0.2	
D	52.8	- 6.9	1.1	
Mean	51.2	- 8.6		
		1945		
	±1.00	±2.00	±2.00	
R	61.4	1.4	2.7	
W	61.7	-2.6	3.0	
V	60.2	-0.1	1.7	
D	58.2	-2.9	0.5	
Mean	60.4	-1.0		
		1946		
	±1.34	±2.68	±2.68	±2.68
R	61.0	-5.3	2.4	-0.9
W	63.0	-4.4	4.2	0.2
V	58.8	-7.3	1.7	3.3
D	56.6	-4.7	1.3	-4.5
Mean	59.8	-5.5		

Standard errors;

	1944	1945	1946
(a)	1.13	0.61	0.66
(b)	1.36	0.83	1.06
(c)	2.25	1.22	1.32
(d)	2.72	1.66	2.11

(a) and (c) are for use in vertical comparisons E v. L and O v. EL

(b) and (d) are for use in all other comparisons

Inoculation and spraying effects were confounded with block differences; the standard errors quoted are for use in vertical comparisons.

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K/12

Wheat - Little Knott 1944-46

Transformed Percentage Eyespot infection at harvest

Time of applicn. of N	Mean	R	W	V	D	Late-early Sowing	Inocn. effect	Spraying effect
				1944				
	(a)&(b)	(c)&(d)				(c)&(d)	(c)&(d)	(c)&(d)
0	19.8	19.7	23.3	20.2	16.1	-2.7	23.8	
E	16.6	20.7	17.8	16.0	12.0	-0.6	21.6	
L	19.3	23.0	20.6	14.9	18.8	-5.2	26.4	
EL	17.2	21.3	17.1	15.3	14.9	-2.3	26.5	
				1945				
0	24.5	32.3	30.0	26.2	9.6	-21.2	12.1	
E	26.3	32.7	32.7	25.7	14.3	-17.9	3.3	
L	22.6	29.6	25.6	24.2	10.8	-16.4	1.1	
EL	24.7	33.2	35.9	14.9	14.7	-20.8	11.4	
				1946				
0	25.1	29.9	25.4	22.1	22.9	- 7.3	-3.9	-14.4
E	25.5	32.8	20.2	27.5	21.6	-16.3	-4.5	-8.7
L	22.2	33.3	18.6	18.7	18.2	-13.2	-1.2	-10.3
EL	24.1	29.0	23.8	23.4	20.2	-5.0	1.6	-5.0

Variety	Mean	Late-early sowing	Inocn. effect	Spraying effect
		1944		
	±0.86	±1.72	±1.72	
R	21.2	-3.8	28.8	
W	19.7	-1.8	31.4	
V	16.6	-3.5	19.1	
D	15.4	-1.7	19.1	
Mean	18.2	-2.7		
		1945		
	±2.03	±4.05	±4.05	
R	32.0	-25.5	8.9	
W	31.0	-19.7	12.1	
V	22.8	-20.1	6.1	
D	12.4	-11.1	0.7	
Mean	24.5	-19.1		
		1946		
	±2.38	±4.76	±4.76	±4.76
R	31.2	-14.1	3.1	-15.5
W	22.0	-12.2	1.8	-6.8
V	22.9	-9.0	-1.8	-3.8
D	20.7	-6.6	-11.1	-12.3
Mean	24.2	-10.4		

Standard Errors;

	1944	1945	1946
(a)	1.04	1.83	1.35
(b)	0.95	1.93	1.93
(c)	2.08	3.67	2.69
(d)	1.91	3.86	3.87

(a) and (c) are for use in vertical comparisons E v. L and 0 v. EL
(b) and (d) are for use in all other comparisons.

Inoculation and spraying effects were confounded with block differences; the standard errors quoted are for use in vertical comparisons

https://doi.org/10.23637/ERADOC-1-186

Percentage Eyespot at harvest

Time of applicn. of N	Mean	R	W	V	D	Late-early sowing	Inocn. effect	Spraying effect
			1944					
0	11.5	11.4	15.6	11.9	7.7	-3.0	25.9	
E	8.2	12.5	9.3	7.6	4.3	-0.6	20.1	
L	10.9	15.2	12.4	6.6	10.4	-5.6	27.8	
EL	8.7	13.2	8.6	7.0	6.6	-2.3	25.1	
			1945					
0	17.1	28.6	25.0	19.5	2.8	-27.2	15.8	
E	19.6	29.2	29.2	18.9	6.1	-24.4	4.6	
L	14.8	24.4	18.7	16.8	3.5	-20.0	1.4	
EL	17.4	30.0	34.3	6.6	6.4	-26.9	15.0	
			1946					
0	18.0	24.9	18.4	14.1	15.1	-9.7	-5.2	-19.2
E	18.6	29.3	11.9	21.3	13.6	-21.9	-6.1	-11.8
L	14.2	30.2	1[illegible].2	10.3	9.8	-16.0	-1.4	-12.5
EL	16.6	23.5	16.2	15.8	11.9	-6.4	2.1	-6.4

Variety	Mean	Late-early sowing	Inoculation effect	Spraying effect
		1944		
R	13.1	-4.5	32.4	
W	11.4	-2.0	33.0	
V	8.2	-3.4	18.0	
D	7.1	-1.5	16.8	
Mean	9.8	-2.8		
		1945		
R	28.1	-38.7	13.9	
W	26.5	-29.7	18.4	
V	15.0	-24.5	7.6	
D	4.6	-8.0	0.5	
Mean	17.1	-24.8		
		1946		
R	26.8	-21.6	4.7	-23.8
W	14.0	-14.6	2.1	-8.2
V	15.1	-11.1	-2.2	-4.7
D	12.5	-7.6	-12.7	-14.0
Mean	16.8	-13.5		

https://doi.org/10.23637/ERADOC-1-186

K/14

Wheat - Little Knot 1944-46

Percentage Area Lodged at Harvest

Time of applicn. of N	Mean	R	W	V	D	Late-early sowing	Inocn. effect	Spraying effect
				1944				
0	0.8	3.0	0	0	0	-1.5	1.5	
E	0.3	1.2	0	0	0	0.6	0.6	
L	0.2	1.0	0	0	0	-0.5	0.5	
EL	0.6	2.5	0	0	0	-0.8	1.2	
				1945				
0	9.8	33.2	6.2	0.0	0.0	-19.0	8.0	
E	19.2	41.2	24.0	11.5	0.0	-34.1	10.4	
L	15.1	38.8	18.8	2.5	0.2	-27.7	7.4	
EL	13.7	38.5	6.2	8.8	1.2	-25.8	3.6	
				1946				
0	13.1	26.2	23.8	1.8	0.5	-15.7	-3.7	-9.9
E	16.2	44.2	8.2	0.0	12.5	-27.5	-6.3	-20.7
L	10.2	38.0	2.2	0.2	0.5	-18.3	-5.3	-17.7
EL	22.2	39.2	34.5	15.0	0.2	-24.7	7.5	-23.3

Variety	Mean	Late-early sowing	Inocn. effect	Spraying effect
		1944		
R	2.0	-2.1	3.9	
W	0	0	0	
V	0	0	0	
D	0	0	0	
Mean	0.5	-0.6		
		1945		
R	38.0	-67.4	9.1	
W	13.8	-27.4	18.6	
V	5.6	-11.1	1.1	
D	0.4	-0.8	0.5	
Mean	14.4	-26.7		
		1946		
R	37.0	-39.7	11.1	-31.7
W	17.2	-32.1	-9.6	-24.6
V	4.2	-8.3	-2.3	-8.5
D	3.4	-6.1	-6.9	-6.9
Mean	15.4	-21.5		

https://doi.org/10.23637/ERADOC-1-186

WHEAT

Hoosfield, 1944

Effects of time of sowing, sulphate of ammonia and sulphuric acid spraying, on yield and Eyespot infection.

Design; 4 randomized blocks of 8 plots each, the plots being split into two for different rates of application of sulphate of ammonia

Area of each sub-plot; 0.0164 acre

Treatments

On blocks

Time of sowing: Early (Oct. 19), late (Nov. 5)

On whole plots

Time and rate of spraying; None, November (at single and double rates).

February, early March, late March, April (all at single rate).

Rates of spraying: 100 galls. per acre 12.5% or 22.2% B.O.V.

On sub-plots

Sulphate of ammonia: 0.6, 1.2 cwt. N per acre as top dressing in Spring

Crop Notes

Harvested; Aug. 16. Variety; Red Standard

Previous crop; Wheat

Standard errors per plot:

Grain;

per whole plot	1.49 cwt. per acre or 6.7%, 16 d.f.
per sub-plot	3.28 cwt. per acre or 14.7%, 24 d.f.

Straw;

per whole plot	2.03 cwt. per acre or 7.5%, 16 d.f.
per sub-plot	3.70 cwt. per acre or 13.7%, 24 d.f.

Transformed Percentage Eyespot at harvest

per whole plot	3.41, 16 d.f.
per sub-plot	3.48, 24 d.f.

https://doi.org/10.23637/ERADOC-1-186 *pp 16*

K/16

Wheat - Hoosfield 1944

	Mean	Response to N	Late-early sowing	Mean	Response to N	Late-early sowing
	Grain; cwt. per acre			Straw; cwt. per acre		
Time of spraying	±0.74	±2.32	±1.49	±1.02	±2.62	±2.03
None	23.2[a]	4.3[b]	3.2[c]	28.8[d]	6.0[e]	3.5[f]
November	24.4	2.4	0.4	29.9	5.0	2.9
Nov.(double rate)	24.1	1.9	-0.8	30.2	4.7	-0.4
February	20.7	8.5	-1.2	24.0	9.8	0.2
Early March	22.4	4.1	-0.7	26.0	5.4	1.1
Late March	22.9	3.1	1.8	26.7	4.5	2.9
April	18.4	0.5	0.4	22.3	2.4	1.9
Time of sowing		±1.16			±1.31	
Early	22.0	5.2		26.1	6.8	
Late	22.8	2.0		28.0	4.1	
		±0.82			±0.93	
Mean	22.4	3.6		27.1	5.4	
	Transformed % Eyespot			% Eyespot at harvest		
Time of Spraying	±1.71	±2.46	±3.41			
None	35.5[g]	-2.0[h]	-5.7[j]	33.7	-3.2	-9.4
November	32.5	0.1	2.9	28.9	0.2	4.7
Nov. (double rate)	29.7	-2.1	1.9	24.6	-3.1	2.9
February	21.4	0.8	-5.6	13.3	0.9	-6.6
Early March	24.4	3.5	0.4	17.0	4.6	0.5
Late March	29.2	3.5	-1.7	23.8	5.2	-2.5
April	38.0	5.0	-3.6	37.8	8.5	-6.2
Time of sowing		±1.23				
Early	31.8	-0.7		27.8	-1.1	
Late	29.7	2.4		24.6	3.6	
		±0.87				
Mean	30.8	0.8		26.2	1.2	

Standard Errors (a) 0.53 (b) 1.64 (c) 1.05 (d) 0.72 (e) 1.85 (f) 1.44
(g) 1.21 (h) 1.74 (j) 2.41

Standard errors shown in the "Late-Early sowing" columns are only for use in vertical comparisons.

https://doi.org/10.23637/ERADOC-1-186

Pennell's Piece and Exhaustion Land 1945

Control of Eyespot by burning and spraying.

Design; Pennell's Piece, 3 randomized blocks of 8 plots each, plots split for sulphate of ammonia.

Exhaustion Land, 2 randomized blocks of 8 plots each, plots split for sulphate of ammonia.

Area of each plot; Pennell's Piece, 0.0125, 0.0094 and 0.0062 acres in different blocks.

Exhaustion Land, 0.0167 acre.

Treatments

None, stubble burnt with flame gun, sprayed with sulphuric acid in October, February, early March, late March and April.
Sulphate of ammonia: 0.6 and 1.2 cwt. N per acre on split plots as top dressing in March.

Crop Notes

Pennell's Piece

Stubble burnt with flame gun: Oct. 11 and Nov. 2. Seed sown; Oct.27. Harvested; Aug. 20. Variety; Red Standard. Previous crop; Wheat

Exhaustion Land

Seed sown; Oct. 30. Stubble burnt with flame gun; Nov. 2.
Harvested; Aug. 15. Variety; Red Standard. Previous crop; Wheat.

Standard errors per plot: Pennell's Piece: Grain, per whole plot 2.35 cwt. or 9.6%, 15 d.f.
per split plot .24 cwt. or 21.4%, 17 d.f.
Straw. per whole plot 5.64 cwt. or 9.7%, 15 d.f.
per split plot 6.11 cwt. or 10.5%, 17 d.f.
Transf. % Eyespot at harvest, per whole plot 8.1%, 15 d.f.
per split plot 17.53, 17 d.f.

Exhaustion Land: Grain, per whole plot 1.31 cwt. or 4.9%, 8 d.f.
per split plot 1.48 cwt. or 5.5%, 9 d.f.
Straw, per whole plot 2.44 cwt. or 5.2%, 8 d.f.
per split plot 2.29 cwt. or 4.9%, 9 d.f.
Transf. % Eyespot at harvest, per whole plot 5.60, 8 d.f.
per split plot 3.43, 9 d.f.

https://doi.org/10.23637/ERADOC-1-186 *pp 18*

K/18

Wheat - Pennell's Piece and Exhaustion Land, 1945

Pennell's Piece

	None	Stubble burnt	Sprayed with sulphuric acid October	February	E.March	L.March	April	Mean
Grain: cwt. per acre								
Mean	22.2[a]	24.2	24.2	25.9	25.7	25.4	25.8	24.4
Response to N ±4.27	0.4[b]	-1.3	-4.3	-2.0	3.6	-3.9	4.4	-0.4[c]
±1.36								
Straw: cwt. per acre								
Mean	57.1[d]	63.4	58.2	62.6	59.0	55.5	53.6	58.3
Response to N ±4.98	12.8[e]	7.2	11.4	5.2	9.3	3.4	22.5	10.6[f]
±3.25								
Transformed Percentage Eyespot								
Mean	43.6[g]	39.4	39.1	37.1	35.4	35.8	36.2	38.8
Response to N ±4.3	-4.9[h]	1.0	-2.6	-4.8	20.0	4.7	-2.7	0.7[j]
±4.7								
Percentage Eyespot								
Mean	47.5	40.3	39.8	36.3	33.5	34.2	34.8	39.3
Response to N	-8.7	1.7	-4.5	-8.1	32.3	7.7	-4.4	1.2
Percentage area lodged at harvest								
Mean	69.2	61.7	67.8	46.2	39.5	49.2	54.2	57.1
Response to N	-15.9	3.3	11.0	11.0	52.4	28.3	-8.3	8.2

Standard errors (a) 0.96 (b) 3.02 (c) 1.51 (d) 2.30 (e) 3.52 (f)1.76 (g) 3.3
(h)10.1 (j) 5.1

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Exhaustion Land

		None	Stubble burnt	Sprayed with sulphuric acid: October	February	E.March	L.March	April	Mean
				Grain; cwt. per acre					
Mean	±0.93	26.2[a]	28.5	26.5	27.0	27.6	29.2	24.4	26.9
Response to N	±1.48	4.0[b]	2.2	6.2	3.8	-1.0	3.5	1.8	3.1[c]
				Straw; cwt. per acre					
Mean	±1.73	48.2[d]	49.8	52.0	45.2	44.0	47.0	38.5	46.6
Response to N	±2.29	5.6[e]	5.9	5.6	4.5	0.2	6.8	5.8	5.0[f]
				Transformed Percentage Eyespot					
Mean	±3.96	33.8[g]	31.8	26.6	20.4	21.7	26.7	29.7	28.1
Response to N	±3.43	-4.8[h]	2.1	5.6	-1.4	1.5	-6.1	-1.0	-1.1[j]
				Percentage Eyespot					
Mean		31.0	27.8	20.0	12.2	13.7	20.1	24.6	22.1
Response to N		-7.6	3.3	7.9	-1.6	1.7	-8.6	-1.5	-1.6

Standard Errors (a) 0.66 (b) 1.04 (c) 0.52 (d) 1.22 (e) 1.62 (f) 0.81 (g) 2.80 (h) 2.42 (j) 1.21.

K/20

WHEAT

Little Knott 1945

Effect of Eyespot disease on the yield of wheat.

Design; 6 randomized blocks of 3 plots each.

Area of each plot: 0.0227 acre

Treatments

Not inoculated.
Inoculated with "Eyespot" at light rate
Stubble put on plots Nov. 1st., and spread Nov. 6th
Inoculated at heavy rate.
3 boxes of infected plants put on each plot Oct. 31st.,
3 more boxes put on each plot Nov. 1st., stubble put on plots Nov.1st and spread Nov. 6th.

Crop Notes

Seed sown; Oct. 25th Harvested; Aug. 22 Variety; Red Standard.
Previous crop: Wheat

Standard errors per plot:
Grain, 0.715 cwt. per acre or 2.4%, 10 d.f.
Straw, 1.33 cwt. per acre or 2.3%, 10 d.f.
Transformed Percent. Eyespot at harvest 4.32, 10 d.f.

	Inoculation			
	None	Light	Heavy	Mean
Grain: cwt. per acre ±0.30	26.9	31.3	30.1	29.5
Straw: cwt. per acre ±0.54	55.3	57.8	57.6	56.9
Percentage Eyespot in April	54.7	53.8	46.0	51.5
Transformed Percent.Eyespot at harvest ±1.76	59.3	46.0	47.5	50.9
Percentage Eyespot at harvest	74.0	51.8	54.3	60.2
Percentage area lodged at harvest	94.8	70.8	69.2	78.3

https://doi.org/10.23637/ERADOC-1-186

WHEAT

Little Knott, 1946-1948

The effects of depth and rate of sowing, of sulphate of ammonia, and of spraying, on yield and Eyespot infection.

Design; 3×3×3 in 6 blocks of 9 plots each, certain three-factor interactions and the effect of spraying being confounded with block differences.

Area of each plot; 0.0152 acre

Treatments

Rate of sowing; $1\frac{1}{2}$, $2\frac{1}{2}$ or $3\frac{1}{2}$ (1946), and 1, 2, 3 (1947) bushels per acre (R_0, R_1, R_2)

Depth of sowing; Approximately $\frac{1}{2}$", $1\frac{1}{2}$", 3" (1946), and $\frac{3}{4}$", $1\frac{1}{2}$", $2\frac{1}{2}$" (1947) (D_0, D_1, D_2)

Sulphate of ammonia; None, 0.4, 0.8 (1946) and None, 0.3, 0.6 (1947), cwt. N per acre applied as top dressing in March.

Spraying; 3 blocks sprayed each year with sulphuric acid in autumn before germination and again in March, each time with 100 gals. per acre $12\frac{1}{2}$% B.O.V.

Basal Manuring; None in 1946, 3 cwt. per acre superphosphate and 1 cwt. per acre muriate of potash in 1947.

Crop Notes

	Sown	Harvested	
1946	15.10.45	Aug. 24	(Previous crop, Wheat)
1947	21.10.46	Aug. 6	

Variety, Squareheads Master 13/4

See also 1948 Report of Field Experiments, 48/Ca/1

Standard errors per plot;

	1946	1947	
Grain, cwt. per acre	1.95 or 7.2%	2.09 or 8.0%	All
Straw, cwt. per acre	5.00 or 7.4%	3.83 or 10.4%	with
Transformed Percent.			24 d.f.
Eyespot	8.15	6.18	

https://doi.org/10.23637/ERADOC-1-186 *pp 22*

K/22

Wheat - Little Knott 1946-48

1946

Grain: cwt. per acre

	R0	R1 (±0.79)	R2	Mean ±0.46	Effect of spraying ±0.92(1)
D0	27.4	26.4	26.9	26.9	1.0
D1	26.8	27.1	26.4	26.8	2.3
D2	26.5	27.2	28.1	27.3	2.1
	N0	N1	N2		
D0	27.1	26.7	26.9		
D1	26.6	27.2	26.6		
D2	26.0	29.1	26.7		
R0	26.5	27.4	26.7	26.9	1.5
R1	26.9	27.6	26.2	26.9	2.5
R2	26.2	28.0	27.3	27.1	1.5
Mean ±0.46	26.5	27.7	26.7	27.0	
Effect of spraying ±0.92(1)	0.0	2.3	3.1		

Straw: cwt. per acre

	R0	R1 (±2.04)	R2	Mean ±1.18	Effect of spraying ±2.36(1)
D0	65.8	68.3	67.5	67.2	1.3
D1	69.7	64.8	67.1	67.2	2.0
D2	68.9	68.2	67.4	68.2	-0.3
	N0	N1	N2		
D0	62.6	68.4	70.7		
D1	62.1	69.9	69.5		
D2	62.4	69.6	72.4		
R0	66.3	67.9	70.2	68.1	1.5
R1	61.3	69.8	70.1	67.1	-1.1
R2	69.6	70.2	72.4	67.4	1.6
Mean ±1.18	62.4	69.3	70.9	67.5	
Effect of spraying ±2.36 (1)	1.8	1.0	0.2		

(1) S.E. only for comparison between effects.

8C

1946

Transformed Percent. Eyespot at harvest

	±3.33 R0	R1	R2	Mean ±1.92	Effect of spraying ±3.85(1)
D0	38.8	58.4	52.4	49.9	-19.8
D1	48.4	49.[illegible]	51.0	49.5	-22.7
D2	43.1	43.7	44.6	43.8	-19.6
	N0	N1	N2		
D0	46.2	46.5	56.9		
D1	46.4	51.1	51.2		
D2	41.4	41.4	48.6		
R0	41.3	37.5	51.7	43.5	-12.6
R1	47.9	49.4	54.0	50.4	-26.7
R2	44.8	52.2	51.0	49.3	-22.8
Mean ±1.92	44.7	46.3	52.2	47.7	
Effect of spraying ±3.85(1)	-18.7	-20.6	-22.8		

Percentage Eyespot at harvest

	R0	R1	R2	Mean	Effect of spraying
D0	39	73	63	59	-34
D1	56	57	60	58	-38
D2	47	48	49	48	-34
	N0	N1	N2		
D0	52	53	70		
D1	52	61	61		
D2	44	44	56		
R0	44	37	62	47	-21
R1	55	58	65	59	-45
R2	50	62	60	57	-38
Mean	49	52	62	55	
Effect of spraying	-32	-35	-37		

(1) S.E. only for comparison between effects.

https://doi.org/10.23637/ERADOC-1-186

K/24

Wheat - Little Knott 1946-48

1946

Percentage Area Lodged

	R0	R1	R2	Mean	Effect of spraying
D0	54	79	79	71	-60
D1	56	61	80	66	-70
D2	48	60	67	58	-60
	N0	N1	N2		
D0	66	69	79		
D1	57	68	73		
D2	42	55	77		
R0	55	37	66	53	-74
R1	59	68	74	67	-73
R2	52	84	87	76	-42
Mean	55	64	76	65	
Effect of spraying	-79	-68	-45		

1947

Grain: cwt. per acre

	R0	±0.85 R1	R2	Mean ±0.49)	Effect of spraying ±0.99(1)
D0	24.3	26.9	27.2	26.1	2.1
D1	24.5	25.5	26.3	25.5	0.9
D2	25.4	26.8	27.0	26.4	1.8
	N0	N1	N2		
D0	23.3	26.9	28.3		
D1	22.0	26.0	28.3		
D2	24.0	26.7	28.4		
R0	22.3	25.1	26.9	24.7	1.9
R1	24.0	26.9	28.4	26.4	1.2
R2	23.1	27.7	29.8	26.8	1.8
Mean ±0.49	23.1	26.5	28.3	26.0	
Effect of spraying ±0.99 (1)	0.5	2.8	1.5		

(1) S.E. only for comparison between effects.

https://doi.org/10.23637/ERADOC-1-186 *pp 25*

1947

Straw: cwt. per acre

	R0	±1.56 R1	R2	Mean ±0.90	Effect of spraying ±1.81(1)
D0	35.1	38.0	37.5	36.9	-0.1
D1	36.8	35.0	37.2	36.3	-1.3
D2	35.6	36.7	38.0	36.8	-1.6
	N0	N1	N2		
D0	32.5	37.8	40.3		
D1	30.7	37.6	40.7		
D2	31.7	37.1	41.5		
R0	31.8	35.9	39.7	35.8	-1.6
R1	32.3	37.5	40.0	36.6	-1.9
R2	30.7	39.2	42.8	37.6	0.6
Mean ±0.90	31.6	37.5	40.8	36.7	
Effect of spraying ±1.81(1)	-1.5	0.3	-1.7		

Transformed Percent. Eyespot at harvest

	R0	±2.52 R1	R2	Mean ±1.46	Effect of spraying ±2.91(1)
D0	28.7	28.7	25.9	27.8	-7.0
D1	31.2	25.1	24.2	26.8	-8.3
D2	26.4	23.0	22.4	23.9	-6.4
	N0	N1	N2		
D0	24.9	28.6	29.8		
D1	24.3	27.8	28.4		
D2	22.0	21.8	27.9		
R0	27.5	27.9	30.9	28.8	-9.9
R1	24.4	26.6	25.8	25.6	-4.2
R2	19.3	23.8	29.3	24.2	-7.6
Mean ±1.46	23.7	26.1	28.7	26.2	
Effect of spraying ±2.91(1)	-7.5	-6.6	-7.5		

(1) S.E. only for comparison between effects.

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K/26

Wheat - Little Knott 1946-48

1947

Percentage Eyespot at harvest

	R0	R1	R2	Mean	Effect of spraying
D0	23.1	23.1	19.1	21.8	-3.1
D1	26.8	18.0	16.8	20.3	-4.0
D2	19.8	15.3	14.5	16.4	-2.0
	N0	N1	N2		
D0	17.7	22.9	24.7		
D1	16.9	21.8	22.6		
D2	14.0	13.8	21.9		
R0	21.3	21.9	26.4	23.2	-6.3
R1	17.1	20.0	18.9	18.7	-1.0
R2	10.9	16.3	23.9	16.8	-2.8
Mean	16.2	19.4	23.1	19.5	
Effect of spraying	-2.8	-2.5	-3.8		

Percentage Area Covered by Weeds

	R0	R1	R2	Mean	Effect of spraying
D0	70.0	53.3	49.2	57.5	-47.2
D1	78.3	41.7	40.8	53.6	-38.3
D2	57.5	61.7	42.5	53.9	-40.0
	N0	N1	N2		
D0	45.0	65.8	61.7		
D1	45.8	55.0	60.0		
D2	37.5	62.5	61.7		
R0	56.7	74.2	75.0	68.6	-31.7
R1	36.7	60.0	60.0	52.2	-48.9
R2	35.0	49.2	48.3	44.2	-45.0
Mean	42.8	61.1	61.1	55.0	
Effect of spraying	-30.0	-44.4	-51.1		

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WINTER WHEAT AND BARLEY

Woburn Stackyard, Series C, 1944-46

Control of "Take-All" (Ophiobolus)

Design; 4 randomized blocks of 12 plots each, certain interactions being confounded with block differences.

Area of each plot: 0.02 acre

Crops; Winter wheat in 1944, barley in 1945 and 1946.

Treatments

Inoculations: None, inoculated with "Take-All" in December 1943.
Time of ploughing: Early (early autumn) and late - (February) with stubble cleaning during winter where trefoil was not grown.
Straw: None, 30 cwt. per acre ploughed in on plots which were ploughed early.
Trefoil: None, trefoil undersown in preceding crop on plots which were to be ploughed late.
Sulphate of ammonia: None, 0.4 cwt. N per acre applied either to trefoil soon after preceding corn crop was cut or to straw when ploughed in. None, 0.4 cwt. N per acre applied to present crop at sowing (as top dressing in 1944 only).
Superphosphate and sulphate of potash: 0.4 cwt. P_2O_5 per acre and 0.5 cwt. K_2O per acre, applied to blocks 1 and 3 at sowing time.

Of the above treatments the wheat crop in 1944 received only three: inoculation with "Take-All", late application of sulphate of ammonia (as a top dressing) and application of superphosphate and sulphate of potash (in seed-bed).

Basal manuring: 8 cwt. per acre carbonate of lime.

Crop Notes

		Sown	Harvested	Variety	Trefoil undersown
1944	Wheat	24.9.43	Aug.9	Red Standard	May 15
1945	Barley	Mar.2	Aug.10	Plumage Archer	Mar.2
1946	Barley	Mar.19	Aug.23	Plumage Archer	

Previous year, Fallow (the experiment was begun in 1943 season but was ploughed up on account of weeds)

Standard errors per plot:

Wheat 1944: grain, 2.70 cwt. per acre or 15.2%, 36 d.f.
straw, 7.13 " " " " 16.1%, 36 d.f.

Barley 1945 grain, 1.88 cwt. per acre or 15.2%, 14 d.f.
straw, 2.51 " " " " 17.3%, 14 d.f.
Transformed % Take-All, 7.53, 14 d.f.

Barley 1946 grain, 1.40 cwt. per acre or 14.7%, 14 d.f.
Transformed % Take-All, 6.72, 14 d.f.

https://doi.org/10.23637/ERADOC-1-186 *pp 28*

K/28

Winter Wheat and Barley, 1944-46

Differential Responses

	Mean effect	Ploughed Early	Ploughed Late	Inoculation Abs.	Inoculation Pres.	N Abs.	N Pres.	PK Abs.	PK Pres.
1944 Wheat Grain, cwt. per acre. Mean yield, 17.7									
	±0.78					±1.10			
Inoculation	-0.3			-	-	-1.9	1.4	-0.8	0.2
N top-dressing	2.3			0.6	3.9	-	-	3.3	1.3
1944 Wheat Straw, cwt. per acre. Mean yield, 44.3									
	±2.06					±2.91			
Inoculation	2.9			-	-	0.4	5.4	2.5	3.1
N top-dressing	4.0			1.5	6.4	-	-	6.1	1.9
1945 Barley Grain, cwt. per acre. Mean yield, 12.3									
	±0.54				±0.77				
Late-early plough.	3.7	-		2.6	4.8	4.6	2.7	3.0	4.3
Inoculation	0.8	-0.3	1.8	-	-	0.8	0.8	0.9	0.7
N at sowing	5.1	6.1	4.2	5.1	5.1	-	-	4.9	5.2
1945 Barley Straw, cwt. per acre. Mean yield, 14.5									
	±0.72					±1.03			
Late-early plough.	2.2	-	-	1.8	2.5	3.4	0.8	2.0	2.3
Inoculation	0.3	0.0	0.7	-	-	0.1	0.5	-0.8	1.5
N at sowing	4.9	6.2	3.6	4.7	5.1	-	-	5.0	4.8
1945 Barley. Transformed % Take-All. Mean, 31.7									
	±2.17					±3.07			
Late-early plough.	-6.3	-	-	-4.5	-8.0	-6.1	-6.4	-12.3	-0.2
Inoculation	3.4	5.1	1.6	-	-	1.9	4.9	3.7	3.1
N at sowing	-13.5	-13.3	-13.6	-15.0	-12.0	-	-	-12.0	-15.0
1945 Barley. Percentage Take-All. Mean, 28									
Late-early plough.	-10	-	-	6	-13	-10	-8	-19	0
Inoculation	5	9	2	-	-	3	6	6	5
N at sowing	-21	-22	-20	-22	-19	-	-	-19	-22
1946 Barley Grain, cwt. per acre. Mean yield, 9.5									
	±0.40					±0.57			
Late-early plough.	3.9	-	-	3.8	4.0	3.4	4.4	2.5	5.3
Inoculation	-0.5	-0.6	-0.5	-	-	-1.2	0.1	-0.9	-0.2
N at sowing	3.4	2.9	3.9	2.7	4.1	-	-	3.3	3.5
1946 Barley. Transformed % Take-All. Mean, 33.0									
	±1.94					±2.74			
Late-early plough.	-0.2	-	-	1.8	-2.4	3.6	-4.0	-2.8	2.4
Inoculation	-1.4	0.7	-3.5	-	-	-1.6	-1.2	-3.6	0.9
N at sowing	-7.2	-3.4	-11.0	-7.4	-7.0	-	-	-7.6	-6.7
1946 Barley. Percentage Take-All. Mean, 30									
Late-early plough.	0	-	-	3	-3	6	-6	-5	4
Inoculation	-2	1	-5	-	-	-3	-2	-6	2
N at sowing	-12	-6	-18	-12	-11	-	-	-13	-11

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Differential Responses

	Ploughed early			Ploughed late		
	No straw or S/A	Straw	Straw and S/A	No trefoil or S/A	Trefoil	Trefoil and S/A
1945 Barley Grain, cwt. per acre						
		±1.33			±1.33	
Inoculation	-1.1	-0.1	0.2	3.6	-0.2	2.0
N at sowing	6.6	4.9	6.7	3.6	4.0	4.8
PK	-2.0	-0.8	3.1	-1.0	2.0	3.2
Mean ±0.66	12.3	8.8	10.4	13.1	14.2	15.3
1945 Barley Straw, cwt. per acre						
		±1.77			±1.77	
Inoculation	0.4	-0.4	0.0	1.3	-0.9	1.3
N at sowing	5.6	6.4	6.8	3.0	3.9	3.7
PK	-1.3	0.0	2.7	-1.2	1.1	2.2
Mean ±0.89	14.4	12.6	13.2	15.1	15.0	16.5
1945 Barley. Transformed % Take-All						
		±5.32			±5.32	
Inoculation	0.3	6.9	8.1	-0.1	4.5	0.5
N at sowing	-11.5	-11.9	-16.5	-9.3	-14.0	-17.6
PK	-16.0	-9.6	-2.0	6.1	-6.9	9.4
Mean ±2.66	33.2	38.6	32.6	34.4	24.4	26.8
1945 Barley. Percentage Take-All						
Inoculation	0	12	13	0	6	1
N at sowing	-19	-20	-26	-15	-18	-24
PK	-25	-16	-3	10	-9	14
Mean	30	39	29	32	17	20
1946 Barley Grain, cwt. per acre						
		±0.99			±0.99	
Inoculation	-1.0	-1.0	0.1	0.5	-0.6	-1.3
N at sowing	3.7	3.7	1.3	6.1	3.2	2.3
PK	1.1	0.4	0.9	2.4	4.5	3.9
Mean ±0.49	6.5	6.3	10.0	7.6	12.5	14.2
1946 Barley. Transformed % Take-All						
		±4.75			±4.75	
Inoculation	5.0	0.0	-3.0	-8.2	-1.0	-1.3
N at sowing	-3.0	-7.2	0.0	-9.9	-11.9	-9.3
PK	-4.8	-8.4	-8.4	-4.1	-4.3	2.5
Mean ±2.38	34.3	36.3	28.8	36.2	30.5	32.0
1946 Barley. Percentage Take-All						
Inoculation	8	0	-4	-14	-1	-2
N at sowing	-5	-12	0	-16	-18	-17
PK	-8	-14	-13	-6	-7	4
Mean	32	35	23	35	26	28

The PK main effect was confounded with blocks. Standard errors quoted for PK effects are for use in comparisons only.

https://doi.org/10.23637/ERADOC-1-186

K/30

WHEAT

Delharding 1943 - 1944

Effects of basic slag and triple superphosphate, powdered or granular, broadcast or drilled.

Design; 4 randomized blocks of 12 plots each.

Area of each plot: 0.0250 acre.

Treatments:

Levels of phosphate: None, 0.3, 0.6 cwt. P_2O_5 per acre
Types of phosphate: Basic slag, powdered or granular triple superphosphate.
Method of application: Drilled with seed or broadcast. In 1943 the powdered triple superphosphate was drilled at rates of 0.27 and 0.52 cwt. P_2O_5 per acre, the balance of the dressings being broadcast, and basic slag was broadcast only.

Ground chalk; In 1943 only, 39 cwt. per acre applied to blocks I and III.

Basal Manuring; Sulphate of ammonia, 2 cwt. per acre as top dressing in spring.

Crop Notes

	Sown	Harvested	Variety	
1943	Nov.13	Aug.10	Wilma.	Previous crop, Oats
1944	Nov. 3	Aug.10	Wilma.	

Standard errors per plot: 1943 Grain, 2.09 cwt. per acre or 9.9%, 24 d.f.
Straw, 3.29 cwt. per acre or 7.5%, 23 d.f.
1944 Grain, 2.01 cwt. per acre or 9.4%, 26 d.f.
Straw, 2.99 cwt. per acre or 7.6%, 26 d.f.

1943
Grain: cwt. per acre

		Cwt. P_2O_5 per acre 0	0.3	0.6	Mean	Without Chalk	With Chalk
Basic slag	±1.04		21.1	20.3	20.7[a]	21.4	20.1
Triple super. (powdered)	±0.74		20.6	22.5	21.6[b]	22.0	21.1
Triple super. (granular)	±0.74		20.7	22.9	21.8[b]	22.5	21.1
Mean	±0.47	19.8[a]	20.7	22.2	21.2		-
Without chalk	±0.66	21.4[c]	21.0	23.2	-	-	-
With chalk		18.2[c]	20.5	21.3	-	-	-

Triple Super.	Powdered	Granular	Cwt. P_2O_5 per acre 0.3	0.6	Mean ±0.52
Broadcast ±0.74	22.3	22.0	21.3	23.0	22.2
Drilled	20.8	21.6	20.0	22.4	21.2
Mean ±0.52	21.6	21.8	20.6	22.7	21.7

Standard errors (a) 0.74 (b) 0.52 (c) 1.04

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1943

Straw: cwt. per acre

	Cwt. P_2O_5 per acre 0	0.3	0.6	Mean	Without Chalk	With Chalk
Basic slag ±1.64		43.3	41.6	42.4[d]	43.0	41.9
Triple super. (powdered) ±1.16		42.9	45.4	44.2[e]	45.7	42.6
Triple super (granular) ±1.16		44.3	47.6	46.0[e]	47.4	44.4
Mean ±0.74	39.2[d]	43.5	45.5	43.7	-	-
Without chalk ±1.04	42.6[f]	45.9	45.8	-	-	-
With chalk	35.9[f]	41.2	45.3	-	-	-

Triple Super.	Powdered	Granular	Cwt. P205 per acre 0.3	0.6	Mean ±0.82
Broadcast ±1.16	45.2	44.8	43.0	47.0	45.0
Drilled	43.1	47.1	44.2	46.0	45.1
Mean ±0.82	44.2	46.0	43.6	46.5	45.0

Standard errors (d) 1.16 (e) 0.82 (f) 1.64

Note: Standard errors referring to "with and without chalk" apply to interactions only and not to main effects of chalk.

1944

	None	Super. Powd.	Super. Gran.	Basic Slag	Mean		
Grain: cwt. per acre ±0.71					±0.41		
Broadcast		20.8	20.9	20.4	20.7		
Drilled		23.4	22.8	22.1	22.7		
Cwt. P205 per acre						Broadcast	drilled
0.3		21.4	21.8	20.1	21.1	19.8 ±0.58	22.4
0.6		22.8	22.0	22.4	22.4	21.7	23.0
Mean	19.4 (±0.71)	22.1	21.9 ±0.50	21.2	21.4		
Straw: cwt. per acre ±1.06					±0.61		
Broadcast		37.7	37.8	38.8	38.1		
Drilled		42.3	43.2	39.6	41.7		
Cwt. P205 per acre						Broadcast	drilled
0.3		38.6	39.9	38.1	38.9	±0.86 36.4	41.4
0.6		41.4	41.2	40.4	41.0	39.8	42.2
Mean	34.9 (±1.06)	40.0	40.5 ±0.75	39.2	39.2		

A similar experiment was carried out on white turnips in 1942 on Deacon's Field, but the results are unreliable owing to the late sowing of the crop.

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K/32

SPRING SOWN CEREALS

Long Hoos V, 1947

Comparison of barley, spring oats and two varieties of wheat, and of the effects on them of four levels of sulphate of ammonia, of superphosphate and of muriate of potash.
Similar experiments were made in 1948 and 1949.

Design; 4 randomized blocks of four plots each, each plot being split into 4, crop differences and certain first-order interactions of artificials being confounded with differences between whole plots.

Area of each sub-plot; 0.0150 acre.

Treatments

Crops: Oats (S.84), wheat (Atle and Bersee) and barley (Plumage Archer).
Sulphate of ammonia: None, 0.3, 0.6, 0.9 cwt. N per acre.
Superphosphate : None, 0.6 cwt. P_2O_5 per acre.
Muriate of potash: None, 0.6 cwt. K_2O per acre

Crop Notes

All seed drilled: April 12. Harvested: oats, Aug. 7; barley, Aug.12: Atle wheat, Aug.18; Bersee wheat, Aug.20.
Previous crop: Beans.

Standard errors: Grain
per whole plot, 1.26 cwt. per acre or 4.8%, 6 d.f.
per sub-plot, 1.30 cwt. per acre or 5.0%, 24 d.f.

https://doi.org/10.23637/ERADOC-1-186 *pp 33*

	Grain: cwt. per acre				Straw: cwt. per acre			
	Oats	Wheat (Atle)	Wheat (Bersee)	Barley	Oats	Wheat (Atle)	Wheat (Bersee)	Barley
Mean	26.0	22.5	27.2	29.2	37.7	27.5	33.5	28.7
Sulphate of ammonia		(a) and (b)						
None	20.5	19.1	23.9	26.3	31.6	21.9	25.3	24.8
0.3 cwt. N per acre	25.2	22.1	26.7	29.3	38.2	26.6	32.0	28.1
0.6 cwt. N per acre	28.3	24.2	29.0	31.3	38.9	30.4	36.4	30.7
0.9 cwt. N per acre	29.9	24.5	29.1	30.0	42.1	20.9	40.3	31.3
		±0.65						
Response to P	1.8	-0.7	1.2	1.0	0.6	-0.7	0.3	0.6
Response to K	0.3	-1.1	0.8	2.4	-0.3	-0.6	0.2	1.7

Standard Errors (a) ±0.65 for vertical comparisons only

(b) ±0.85 for all other comparisons

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