

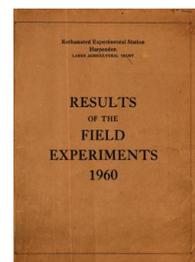
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60/R/CD/1 Cereals and Beans - Rotations

Rothamsted Research

Rothamsted Research (1961) *60/R/CD/1 Cereals and Beans - Rotations* ; Yields Of The Field Experiments 1960, pp 105 - 107 - DOI: <https://doi.org/10.23637/ERADOC-1-180>

60/Cd/1.1

CEREALS AND BEANS ROTATIONS

The effect of crop sequences on the incidence of cereal foot and root rot diseases - Great Field I 1960 - the 4th year.

Design: Three series each of 3 randomised blocks of 6 plots, starting in each of the years 1957, 1958 and 1959.

Area of each plot: 0.0305 acres. Area harvested (acres): Winter wheat, series starting 1957 - 0.0096; series starting 1958, Spring wheat, Oats, Barley and Beans - 0.0200.

Treatments:

Crop sequences for each series:

1st year:	WW	WW	WW	SW	O	B
2nd year:	WW	O	O	WW	WW	WW
3rd year:	SW	SW	Be	SW	SW	B

WW = Winter wheat, SW = Spring wheat, O = Oats, B = Barley, Be = Beans.

In the 4th year the plots are split for N and all cropped with winter wheat, the series starting in 1957 falling due for this treatment this year, and receiving N at 0.5, 1.0 cwt per acre in 2 doses on Mar 7 and May 2, 1960 as 'Nitro-Chalk'.

Basal dressing: 2 cwt compound fertiliser (16% P₂O₅, 16% K₂O) per acre combine drilled with seed (placed in sideband for beans); all blocks received 23 cwt ground chalk per acre in Nov 1956.

Nitrogen for cereals: 0.46 cwt N as 'Nitro-Chalk' 21 per acre to spring wheat and 0.31 cwt N as 'Nitro-Chalk' 21 per acre to oats and barley, all in seedbed. 0.93 cwt N as 'Nitro-Chalk' 21 per acre to winter wheat in the series started in 1959 as spring top dressing, half applied in March and half in May.

Cultivations, etc.: Ploughed: Sept 10, 1959. Winter wheat combine drilled at 2½ bushels per acre; beans placement drilled at 275 lb per acre: Oct 14. 'Nitro-Chalk' applied to oats: Mar 4, 1960. Oats combine drilled at 4 bushels per acre: Mar 5. 'Nitro-Chalk' applied to spring wheat, barley and winter wheat, barley combine drilled at 2 bushels per acre: Mar 7. Spring wheat combine drilled at 3 bushels per acre: Mar 8. Winter wheat sprayed with TCB/MCPA at 4 pints in 40 gallons per acre: Apr 21. 2nd application of 'Nitro-Chalk' to winter wheat: May 2. Spring wheat, barley and oats sprayed with TCB/MCPA at 4 pints in 40 gallons per acre: May 6. Combine harvested: Oats and barley - Aug 16; beans - Aug 19; winter wheat - Aug 31; spring wheat - Sept 12. Varieties: Beans - S.Q; winter wheat - Cappelle; spring wheat - Koga II; barley - Proctor; oats - Sun II.

-60/Cd/1.2

Note. Estimates of plant height, % area lodged, incidence of Eyespot (*Cercospora herpotrichoides*) and Take-all (*Ophiobolus graminis*) and counts of plant shoot and ear number were made.

For details of the previous years' results etc. see 'Results of the Field Experiments' 57/Cd/1, 58/Cd/1 and 59/Cd/1.

Standard errors per plot, Grain (at 85% dry matter):

Series starting:

1957	Winter wheat	
	Whole plot	2.38 cwt per acre or 7.8% (10 d.f.)
	Sub plot	2.83 cwt per acre or 9.2% (12 d.f.)
1958	Spring wheat	1.71 cwt per acre or 6.2% (6 d.f.)
1959	Winter wheat	2.11 cwt per acre or 6.8% (6 d.f.)

Summary of Results

Grain (at 85% dry matter): cwt per acre

Series starting in 1957

Winter wheat

Crop in 1957	WW	SW	O	WW	B	WW	Mean
1958	WW	WW	WW	O	WW	O	
1959	SW	SW	SW	SW	B	Be	
N cwt per acre	(±1.64) ⁽¹⁾		(±1.79) ⁽²⁾				
0.5	27.7	20.8	21.7	18.8	33.8	48.4	28.5
1.0	27.3	32.9	28.3	21.3	34.6	51.4	32.6
Mean (±1.36)	27.5	26.8	25.0	20.0	34.2	49.9	30.5
Diff. (±2.31)	-0.4	+12.1	+6.6	+2.5	+0.8	+3.0	+4.1 (±0.94)

Mean dry matter
% as harvested:

79.1

(1) for use in vertical and interaction comparisons

(2) for use in horizontal and diagonal comparisons

60/ca/1.3

Grain (at 85% dry matter): cwt per acre

Crop in 1958 1959	Series starting in 1958					Mean	Barley	Winter beans
	Spring wheat				B		W	
	W	SW	O	W	W		O	
	28.7	26.4	24.7	31.3	27.8	43.5	20.9	
	(±0.99)							
Mean dry matter % as harvested:		81.4				82.1	74.8	

Crop in 1959	Series starting in 1959					Mean	Oats
	Winter wheat				WW		
	W	SW	B	O	WW		
	25.2	21.2	30.2	47.5	31.0	38.5	
	(±1.21)						
Mean dry matter % as harvested:		78.3				83.7	