ROTHAMSTED RESEARCH

Yields of the Field Experiments 1954

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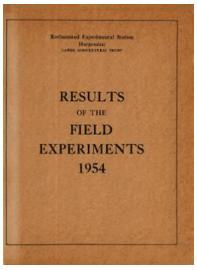

Short-term Experiments

Rothamsted Research

Rothamsted Research (1955) *Short-term Experiments ;* Yields Of The Field Experiments 1954, pp 63 - 94 **- DOI: https://doi.org/10.23637/ERADOC-1-184**

WHEAT

The effects of various crop sequences on the incidence of Eyespot (Cercosporella herpotrichoides) - Little Knott 1954, the 5th year.

Arrangement of previous treatment crops: 4 longitudinal and 8 cross strips, each plot being split into 2 for seed rates.

Area of each sub plot: In 3 longitudinal strips - 0.0249, in the other 0.0174. Area harvested: 0.0156 and 0.0108 acre, respectively.

Preparatory crops 1950-52:-

1950 North and South, strips of Fallow, Ryegrass, Wheat, Potatoes
1951 East and West, strips of Ryegrass, Wheat, Fallow, Potatoes
1952 East and West, strips ½ width Ryegrass, Wheat, Oats, Beans
Wheat, Oats, Barley, Wheat

giving 32 crop sequences in all.

In 1949 the field carried a crop of wheat heavily infested with Eyespot, Take-all (Ophiobolous graminis) and weeds. Wheat was grown on all plots in 1953.

Seed rates: 1½; 3 bushels per acre.

Basal dressing per acre: 1 cwt compound granular fertilizer (12% N, 12% P_2O_5, 12% K_2O) combine drilled with seed. 6 cwt nitrochalk in two equal applications in March and May.

Cultivations, etc: Ploughed: Sept 17, 1953. Seed combine drilled: Nov 6. 1st application of nitrochalk: Mar 13, 1954. 2nd application: May 10. Combine harvested: Sept 13. Variety: Cappelle. Previous crop: Wheat.

Note: Disease surveys were made and the results are available.

https://doi.org/10.23637/ERADOC-1-184

Summary of Results

Grain (at 85% D.M.): cwt per acre

Previous crop 1950	1951	1952	1953	Seed rate: bushels per acre 1½	3	1½ Mean	3 Mean
W	W	W	W	22.3	30.9	22.3	30.9
H	W	W	W	31.0	38.6		
P	W	W	W	36.3	39.9	31.3	38.3
F	W	W	W	26.6	36.3		
W	H	W	W	24.6	36.8		
W	P	W	W	30.9	38.9	27.1	35.7
W	F	B	W	25.8	31.4		
H	H	W	W	34.1	37.2		
P	H	W	W	35.1	38.6		
F	H	W	W	32.6	39.2		
H	P	W	W	31.9	39.0		
P	P	W	W	36.8	43.8	32.5	35.3
F	P	W	W	26.2	31.8		
H	F	B	W	31.7	27.6		
P	F	B	W	34.2	32.2		
F	F	B	W	30.2	28.3		
W	W	O	W	26.0	32.0	26.0	32.0
H	W	O	W	34.6	37.9		
P	W	O	W	43.1	46.1	37.1	38.3
F	W	O	W	33.8	30.8		
W	H	H	W	32.5	36.2		
W	F	O	W	32.0	38.3	32.7	37.0
W	P	Be	W	33.7	36.4		
H	F	O	W	43.0	42.8		
F	F	O	W	38.4	40.1		
P	F	O	W	42.7	45.2		
F	H	H	W	39.2	41.4		
F	P	Be	W	35.6	34.3	38.6	39.5
H	H	H	W	31.0	34.8		
P	H	H	W	36.3	39.1		
H	P	Be	W	40.9	39.6		
P	P	Be	W	40.7	38.5		
Mean						31.0	35.9

Mean dry matter % as harvested: 72.3

The plots are classified according to the occurrence in previous years of the more susceptible crops, wheat and barley.

Crop symbols: B - Barley. Be - Beans. F - Fallow. H - Ryegrass
O - Oats. P - Potatoes. W - Wheat.

https://doi.org/10.23637/ERADOC-1-184

WHEAT

The effects of Crop sequences, Varieties, Seed rates and Nitrogen on the incidence of Eyespot (Cercosporella herpotrichoides) - Long Hoos 1, 2 and 3, 1954. The 1st preliminary year.

System of replication: 8 randomized blocks of 4 plots each, the interaction VRN being confounded with block differences.

Area of each plot: 0.0212 acre. Area harvested: 0.0148 acre.

Treatments: All combinations of:-
Varieties: Holdfast; Cappelle.
Seed rates: 1½; 3 bushels per acre.
Nitrogen: 0.46; 0.93 cwt N per acre applied as nitrochalk, half in March, half in May.

Crop sequences:
During the preliminary years 1954 and 1955 four cropping systems will be set up, each on four blocks; in 1956 wheat will be taken over all 16 blocks. The crops will be:-

1954	1955	1956
Wheat	Wheat	Wheat
Wheat	Potatoes	Wheat
Potatoes	Wheat	Wheat
Beans	Potatoes	Wheat

In 1954 the 4 blocks of potatoes (Majestic) received 10 tons dung and 12 cwt compound fertilizer, (7% N, 7% P_2O_5, 10½% K_2O), the 4 blocks of beans received 4 cwt compound fertilizer, (16% P_2O_5, 16% K_2O).

Basal dressing, per acre: 1 cwt compound granular fertilizer (12% N, 12% P_2O_5, 15% K_2O) combine drilled with seed. To correct some acid areas 25 cwt ground chalk and 23 cwt hydrated lime was applied to certain blocks.

Cultivations, etc.: Ploughed: Oct 6, 1953. Seed combine drilled: Oct 26. Ground chalk applied: Dec 29. Hydrated lime applied: Jan 18 - Feb 24. 1st application of nitrochalk: Mar 9. 2nd application: May 10. Sprayed with M.C.P.A., medium volume, 2 pints per acre: May 27. Combine harvested: Sept 6-7. Varieties: Holdfast and Cappelle. Previous crop: Potatoes.

Standard error per plot:
Grain (at 85% D.M.): 2.71 cwt per acre or 6.6% (18 d.f.)

https://doi.org/10.23637/ERADOC-1-184

Summary of Results

Response to	Mean	Responses to treatments: Variety: Hold-fast	Variety: Capp-elle	Seed rate bushels per acre: 1½	Seed rate bushels per acre: 3	Nitrogen: cwt per acre: 0.46	Nitrogen: cwt per acre: 0.93
Grain (at 85% Dry Matter): Mean yield 41.0 cwt per acre							
	(±0.96)				(±1.36)		
Variety (Cappelle - Holdfast)	+3.4	-	-	-1.3	+8.1	+3.4	+3.4
Seed rate (3-1½)	+4.8	+0.1	+9.5	-	-	+4.7	+4.9
Nitrogen (0.93 - 0.46)	+3.2	+3.2	+3.2	+3.1	+3.3	-	-

Mean Dry Matter % as harvested: 78.0

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

https://doi.org/10.23637/ERADOC-1-184

WHEAT

Residual effects of Dung, N, P and K - West Barnfield I, 1954.

System of replication - 4 randomized blocks of 8 plots each, the interaction DNPK being confounded with block differences.

Area of each plot: 0.0318 acre. Area harvested: 0.0150 acre.

Treatments, applied to potatoes in 1953: All combinations of:-
Dung: None; 10 tons per acre
N: None; 0.6 cwt per acre applied as sulphate of ammonia
P_2O_5: None; 0.6 cwt per acre applied as superphosphate
K_2O: None; 1.0 cwt per acre applied as muriate of potash.

Basal dressing: 2½ cwt sulphate of ammonia per acre in spring.

Cultivations, etc.: Cultivated: Oct 7, 1953. Seed drilled at 3 bushels per acre: Nov 6. Sprayed with D.N.O.C. at high volume: Apr 26, 1954. Sulphate of ammonia applied: Apr 30. Combine harvested: Sept 9. Variety: Cappelle. Previous crop: Potatoes.

Standard error per plot:
Grain (at 85% D.M.): 1.79 cwt per acre or 4.5% (18 d.f.)

Note: For details of the preceding potato experiment see 53/Ce/1.

Summary of Results

Responses to Treatments

Response to	Mean	Dung: tons per acre 0.0	Dung: tons per acre 10	N cwt per acre 0.0	N cwt per acre 0.6	P_2O_5 cwt per acre 0.0	P_2O_5 cwt per acre 0.6	K_2O cwt per acre 0.0	K_2O cwt per acre 1.0
Grain (at 85% dry matter): Mean yield 39.9 cwt per acre	(±0.63)			(±0.90)					
Dung	+4.3	-	-	+3.4	+5.2	+3.9	+4.7	+3.7	+4.9
N	+2.2	+1.3	+3.1	-	-	+2.6	+1.8	+2.6	+1.8
P_2O_5	+0.3	-0.1	+0.7	+0.7	-0.1	-	-	-0.6	+1.2
K_2O	+1.8	+1.2	+2.4	+2.2	+1.4	+0.9	+2.7	-	-

Mean dry matter % as harvested: 74.7

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WHEAT

The residual effects of insecticides on the control of wireworm, 3rd year - Geescroft 1954.

System of replication: 3 randomized blocks of 8 plots each.

Area of each plot: 0.0289 acre. Area harvested: 0.0205 acre.

Treatments, applied autumn 1951 for wheat:

None (three plots per block)		(O)
Gammexane seed dressing	2 oz per bushel	(S)
Gammexane combine drilled with seed at	56 lb per acre 3.5% dust	(G)
Aldrin " " " " "	200 lb " " 1.78% "	(A)
Chlordane " " " " "	100 lb " " 5% "	(C)
D.D.T. " " " " "	150 lb " " 5% "	(D)

Basal dressing, per acre: 1¼ cwt compound granular fertilizer (12% N, 12% P_2O_5, 15% K_2O) combine drilled with seed. 2½ cwt sulphate of ammonia in spring.

Cultivations, etc.: Ploughed: Sept 23, 1953. Seed treated with mercurial seed dressing, combine drilled at 2½ bushels per acre: Nov 5. Sulphate of ammonia applied: Apr 30, 1954. Sprayed with M.C.P.A. high volume, 2 pints per acre: May 24. Combine harvested: Sept 7. Variety: Cappelle. Previous crop: Wheat.

Standard error per plot:
Grain (at 85% D.M.): 1.79 cwt per acre or 6.1% (16 d.f.)

Summary of Results

	O	S	G	A	C	D	Mean
Grain (at 85% dry matter): cwt per acre							
Mean (±1.03)	27.2(1)	29.4	32.9	31.0	29.7	29.2	29.2
Increase (±1.19)		2.2	5.7	3.8	2.5	2.0	

(1) ±0.60 Mean dry matter % as harvested: 74.9.

Note: Wireworm counts were made and are available.

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54/Ca/5

WHEAT

Methods of harvesting square plots and two N levels - West Barnfield II 1954.

System of replication: 4 randomized blocks of 4 plots each.

Area of each plot: 0.0265 acre. Area harvested: Binder - full area, Combine - 0.0225 acre.

Treatments: All combinations of:-
N: 0.3; 0.6 cwt per acre applied as Nitrochalk.
Methods of harvesting: Binder - full area; Combine (Massey Harris 780, 10' cut) - 3 cuts each of 0.0075 acre, recorded separately.

Basal dressing: None

Cultivations, etc.: Ploughed: Sept 24, 1953. Seed drilled at 3 bushels per acre: Nov 7. Nitrochalk applied: May 8, 1954. Harvested: Binder plots - Sept 1, Combine plots - Sept 13. Variety: Cappelle. Previous crop: Wheat

Standard error per plot:
Grain (at 85% D.M.): 3.33 cwt per acre or 11.8% (9 d.f.)

Estimated % S.E. (whole plot) measured by combine:-
3 cuts 11.8%
2 cuts 12.6%
1 cut 14.9%

Summary of Results

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

Methods of Harvesting	N: cwt per acre 0.3	0.6	Mean
	(±1.67)		(±1.18)
Binder	26.2	29.5	27.9
Combine	29.7	27.7	28.7
Mean (±1.18)	28.0	28.6	28.3

Mean dry matter % as weighed: Binder plots - 80.8; Combine plots - 72.3.

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54/Ca/6.1

WHEAT

Methods of harvesting, narrow plots and 2 levels of N - West Barnfield II 1954.

System of replication: Plots harvested along the rows - 2 randomized blocks of 10 plots each; Across the rows - 2 randomized blocks of 8 plots each.

Area of each whole plot: 0.0231 acre. Areas harvested: Binder - full area. Combine - 0.0164 acre.

Treatments: All combinations of
N: 0.3; 0.6 cwt N per acre applied as nitrochalk.
Methods of harvesting: Binder: Whole plot, or plot harvested as half and 2 adjacent quarter plots separately. Combine: Single cut full length of plot, single cut on half and 2 adjacent quarter plots separately, or single cut full length of plot between blank rows.

Basal dressing: None.

Cultivations, etc.: Ploughed: Sept 24, 1953. Seed drilled at 3 bushels per acre: Nov 7. Nitrochalk applied: May 8, 1954. Harvested: Binder plots - Sept 1, Combine plots - Sept 13. Variety: Cappelle. Previous crop: Wheat.

Standard errors per plot: Grain (at 85% dry matter).
Whole plot: 2.73 cwt per acre or 9.2% (16 d.f.)
Sub plot: 3.30 cwt per acre or 11.1% (14 d.f.)

54/Ca/6.2

Summary of Results

Grain (at 85% dry matter): Mean 29.8 cwt per acre

Method of Harvesting	Harvested Along the rows	Harvested Across the rows	N: cwt per acre 0.3	N: cwt per acre 0.6	Harvested as ¼ plots	Harvested as ½ plots	Harvested as whole plots	Mean
	(±0.97)		(±0.97)		(1) and (2)		(±0.97)	(±0.68)
Binder	30.6	27.4	30.2	27.8	27.5	29.4	29.5	29.0
Combine	31.9	28.4	28.5	31.7	30.6	30.2	29.8	30.1
Mean (±0.68)	31.2	27.9	29.4	29.7	29.0(3)	29.8(3)	29.7	29.6

Whole plots. Harvested along the rows by Combine

	N: cwt per acre 0.3	N: cwt per acre 0.6	Mean
	(±1.93)		(±1.37)
Single cut	30.2	34.4	32.2
Area between blank rows	31.0	32.2	31.6

(1) ±1.17 for use in horizontal comparisons only.
(2) ±1.51 for use in all others
(3) ±0.82

54/Ca/7.1

WHEAT

Varieties, seed rates, levels and time of N - Woburn, Roadpiece 1954.

System of replication: 4 randomized blocks of 8 plots each, certain high order interactions being confounded with block differences. In addition each block contained 2 plots with no nitrogen, the variety x seed rate interaction being confounded.

Area of each plot: 0.0159 acre.

Treatments: All combinations of:-
Varieties: Holdfast; Cappelle.
Seed rates: 1½; 3 bushels per acre.
Nitrogen: 0.5; 1.0 cwt N per acre as nitrochalk.
Time of application of N: In seed bed; in early March; early April; mid-May.

Basal dressing: None

Cultivations, etc.: Cultivated after potatoes: Oct 21, 1953. Seed-bed nitrogen applied: Oct 26. Seed drilled: Nov 6. March top dressing applied: March 2, 1954. April top dressing applied: April 6. All plots sprayed with D.N.O.C. at 6 lb per acre in 100 gallons, May top dressing applied: May 11. Harvested: Sept 15. Varieties: Holdfast and Cappelle. Previous crop: Potatoes.

Standard error per plot:
Grain: 4.10 cwt per acre or 14.9% (12 d.f.)

Note: Records of incidence of disease (Take-all and Eyespot) and counts of plants, shoots and ear numbers were made.

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Summary of Results

Grain: cwt per acre

	T_1	T_2	T_3	T_4	Mean
Mean (±1.45)	21.6	30.2	35.6	30.1	29.4
		(±2.05)			(±1.02)
V_1	21.4	25.7	33.7	28.1	27.2
V_2	21.8	34.7	37.6	32.1	31.5
Difference (±2.90)	+0.4	+9.0	+3.9	+4.0	+4.3 (±1.45)
R_1	19.8	29.4	33.0	28.2	27.6
R_2	23.4	31.0	38.3	32.0	31.1
Difference (±2.90)	+3.6	+1.6	+5.3	+3.8	+3.5 (±1.45)
N_1	22.8	25.3	29.2	26.5	26.0
N_2	20.4	35.1	42.1	33.6	32.8
Difference (±2.90)	-2.4	+9.8	+12.9	+7.1	+6.8 (±1.45)

	R_1	R_2	Diff.	N_0	N_1	N_2	Mean
Mean (±1.02)				19.7 (2)	26.0	32.8	27.4
	(±1.45)		(±2.05)	(±2.05)	(±1.45)		(±0.92)
V_1	26.0	28.4	+2.4	20.5	24.2	30.2	25.9
V_2	29.2	33.9	+4.7	18.9	27.7	35.4	29.0
Diff. (±2.05)	+3.2	+5.5	+2.3	-1.6 (1)	+3.5	+5.2	+3.1
				(±2.05)	(±1.45)		(±0.92)
R_1				18.9	23.6	31.6	25.9
R_2				20.5	28.3	34.0	29.0
Diff. (±2.05)				+1.6 (1)	+4.7	+2.4	+3.1

(1) ±2.90 (2) ±1.45

Treatments

V_1 Holdfast
V_2 Cappelle

R_1 1½ bushels per acre
R_2 3 bushels per acre

N_0 No N
N_1 0.5 cwt N per acre
N_2 1.0 cwt N per acre

T_1 Nitrochalk in seedbed
T_2 Nitrochalk in early March
T_3 Nitrochalk 5 weeks after T_2
T_4 Nitrochalk 5 weeks after T_3

The V × R table does not include the plots receiving no nitrogen.

https://doi.org/10.23637/ERADOC-1-184

Straw: cwt per acre

	T_1	T_2	T_3	T_4	Mean
Mean	23.7	37.1	40.2	32.3	33.3
V_1	25.5	35.2	43.2	34.3	34.5
V_2	22.0	38.9	37.2	30.3	32.1
Difference	-3.5	+3.7	-6.0	-4.0	-2.4
R_1	20.4	36.2	36.1	29.4	30.5
R_2	27.1	37.9	44.2	35.2	36.1
Difference	+6.7	+1.7	+8.1	+5.8	+5.6
N_1	25.7	29.7	32.9	28.7	29.2
N_2	21.8	44.4	47.5	35.9	37.4
Difference	-3.9	+14.7	+14.6	+7.2	+8.2

	R_1	R_2	Diff.	N_0	N_1	N_2	Mean
Mean				21.0	29.2	37.4	30.9
V_1	32.2	36.9	+4.7	22.6	30.6	38.5	32.2
V_2	28.9	35.3	+6.4	19.5	27.9	36.3	29.6
Difference	-3.3	-1.6	+1.7	-3.1	-2.7	-2.2	-2.6
R_1				20.8	26.1	34.9	28.6
R_2				21.3	32.4	39.9	33.2
Difference				+0.5	+6.3	+5.0	+4.6

Treatments

V_1 Holdfast
V_2 Cappelle

R_1 1½ bushels per acre
R_2 3 bushels per acre

N_0 No N
N_1 0.5 cwt N per acre
N_2 1.0 cwt N per acre

T_1 Nitrochalk in seedbed
T_2 Nitrochalk in early March
T_3 Nitrochalk 5 weeks after T_2
T_4 Nitrochalk 5 weeks after T_3

The V × R table doesnot include the plots receiving no nitrogen.

https://doi.org/10.23637/ERADOC-1-184

54/Cb/1

BARLEY

Seed rates and levels of nitrogen - Long Hoos V 1954.

System of replication: 3 randomized blocks of 9 plots each.

Area of each plot: 0.0112 acre.

Treatments: All combinations of:-
Seed rates: 1; 2; 3 bushels per acre.
Nitrogen: 0.3; 0.6; 0.9 cwt N per acre applied as sulphate of ammonia.

Basal dressing: None.

Cultivations, etc.: Ploughed: Sept 16, 1953 and again Nov 25. Sulphate of ammonia applied, seed drilled at 3 bushels per acre: Mar 18, 1954. Sprayed with M.C.P.A. medium volume, 2½ pints per acre: May 14. Combine harvested: Sept 2. Variety: Proctor. Previous crop: Beans.

Standard error per plot:
Grain (at 85% D.M.): 1.49 cwt per acre or 3.5% (16 d.f.)

Summary of Results

N cwt per acre	Seed rates: bushels per acre 1	2	3	Mean
Grain (at 85% dry matter): cwt per acre				
		(±0.86)		(±0.50)
0.3	41.3	43.5	43.7	42.8
0.6	42.3	43.9	44.5	43.6
0.9	39.7	43.4	43.4	42.1
Mean (±0.50)	41.1	43.6	43.9	42.9

Mean dry matter % as harvested: 77.9

Estimates of % area lodged and counts of plant, straw and ear numbers were made. There was no Eyespot or Take-All.

https://doi.org/10.23637/ERADOC-1-184

54/Cb/2

BARLEY

Methods of harvesting square plots and two N levels - Great Harpenden I 1954.

System of replication: 4 randomized blocks of 4 plots each.

Area of each plot: 0.0265 acre. Area harvested: Binder - full area, Combine - 0.0225 acre.

Treatments: All combinations of:-
N: 0.3; 0.6 cwt per acre applied as Nitrochalk in seedbed.
Methods of harvesting: Binder - full area; Combine (Massey Harris 780, 10' cut) - 3 cuts each of 0.0075 acre, recorded separately.

Basal dressing: None

Cultivations, etc.: Ploughed: Nov 13, 1953. Nitrochalk applied: Mar 23, 1954. Seed drilled at 3 bushels per acre: Mar 24. Sprayed with M.C.P.A., low volume, 2 pints per acre: May 19. Harvested: Binder plots - Aug 26, Combine plots - Aug 30. Variety: Herta. Previous crop: Barley.

Standard error per plot:
Grain (at 85% D.M.): 0.988 cwt per acre or 2.8% (9 d.f.)

Estimated % S.E. (whole plot) measured by combine:-
3 cuts 2.8%
2 cuts 4.3%
1 cut 7.2%

Summary of Results

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

Methods of Harvesting	N: cwt per acre 0.3	0.6	Mean
		(±0.49)	(±0.35)
Binder	32.7	38.0	35.3
Combine	33.9	36.8	35.4
Mean (±0.35)	33.3	37.4	35.3

Mean dry matter % as weighed: Binder plots - 84.0; Combine plots - 82.1.

54/Cb/3.1

BARLEY

Methods of harvesting, narrow plots and 2 N levels - Great Harpenden I 1954.

System of replication: Plots harvested along the rows - 2 randomized blocks of 10 plots each; Across the rows 2 randomized blocks of 8 plots each.

Area of each whole plot: 0.0231 acre. Area harvested: Binder - full area. Combine - 0.0164 acre.

Treatments: All combinations of:
N: 0.3; 0.6 cwt N per acre applied as nitrochalk.
Methods of harvesting: Binder: Whole plot, or plot harvested as half and 2 adjacent quarter plots separately.
Combine: Single cut full length of plot, single cut on half and 2 adjacent quarter plots separately, or single cut full length of plot between blank rows.

Basal dressing: None.

Cultivations, etc.: Ploughed: Nov 13, 1953. Nitrochalk applied: Mar 23, 1954. Seed drilled at 3 bushels per acre: Mar 24. Sprayed with M.C.P.A., low volume, 2 pints per acre: May 19. Harvested: Binder plots - Aug 26, Combine plots - Aug 30. Variety: Herta. Previous crop: Barley.

Standard errors per plot: Grain (at 85% dry matter).
Whole plot: 2.51 cwt per acre or 7.0% (16 d.f.)
Sub plot: 1.17 cwt per acre or 3.1% (14 d.f.)

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Summary of Results

Grain (at 85% dry matter): Mean 35.6 cwt per acre

Method of Harvesting	Harvested Along the rows	Harvested Across the rows	N: cwt per acre 0.3	N: cwt per acre 0.6	Harvested as ¼ plots	Harvested as ½ plots	Harvested as whole plots	Mean
	(±0.89)		(±0.89)		(1) and (2)		(±0.89)	(±0.63)
Binder	37.0	36.2	34.4	38.9	38.2	38.2	35.1	36.6
Combine	34.4	33.6	32.2	35.9	35.6	35.0	32.8	34.0
Mean (±0.63)	35.7	35.0	33.3	37.4	36.9(3)	36.6(3)	33.9	35.3

Whole plots. Harvested along the rows by Combine

	N: cwt per acre 0.3	N: cwt per acre 0.6	Mean
	(±1.77)		(±1.25)
Single cut	33.2	32.8	33.0
Area between blank rows	35.2	40.2	37.7

(1) ±0.39 for use in horizontal comparisons
(2) ±0.97 for use in all others
(3) ±0.28

54/Cc/1.1

WINTER BEANS

Control of Weeds - Little Knott I 1954.

System of replication: 4 randomized blocks of 8 plots each.

Area of each plot: 0.0175 acre.

Treatments: Additional cultivations:-

None	(1)
Harrow (only)	(2)
Mechanical weeder (only)	(3)
Extra horse hoeing	(4)
Harrow and extra horse hoeing	(5)
Weeder and extra horse hoeing	(6)
Clean weeding by hand pulling	(7)
Clean weeding by hand hoeing	(8)

Basal cultivations: A single horse hoeing.

Basal dressing: 5 cwt compound granular fertilizer (16% P_2O_5, 16% K_2O) per acre.

Cultivations, etc.: Ploughed: Sept 18, 1953. Seed drilled at 280 lb per acre: Oct 20. Fertilizer applied: Oct 21. Horse hoed all plots: May 5, 1954. Dusted with 3% nicotine dust: June 24. Harvested: Sept 11. Variety: Deneb (stock strain). Previous crop: Barley.

Treatment cultivations:

Treatments 2 and 5 harrowed: May 10.
" " 3 and 6 cleaned by mechanical weeder: May 10.
" " 4, 5, 6 horse hoed: May 21 and again June 5.
" " 7 hand weeded: May 24-26 and again June 5.
" " 8 hand hoed: May 20-26.

Standard error per plot:
Grain: 2.65 cwt per acre or 12.7% (21 d.f.)

https://doi.org/10.23637/ERADOC-1-184

54/Cc/1.2

Summary of Results

	Treatment Cultivations 1	2	3	4	5	6	7	8	Mean
				Grain: cwt per acre					
Mean (±1.33)	19.0	21.7	22.3	18.9	21.1	23.0	20.7	21.0	21.0
Increase (±1.88)		+2.7	+3.3	-0.1	+2.1	+4.0	+1.7	+2.0	
				Straw: cwt per acre					
Mean	30.8	32.5	35.1	30.9	30.2	34.5	28.9	31.2	31.8
Increase		+1.7	+4.3	+0.1	-0.6	+3.7	-1.9	+0.4	

Treatment Cultivations

1. None
2. Harrow (only)
3. Mechanical weeder (only)
4. Extra horse hoeing
5. Harrow and extra horse hoeing
6. Weeder and extra horse hoeing
7. Clean weeding by hand pulling
8. Clean weeding by hand hoeing

https://doi.org/10.23637/ERADOC-1-184

54/Cc/2.1

BEANS

Control of Black Aphis - Little Hoos 1954.

System of replication: 4 pairs of randomized blocks of 5 plots each.

Area of each plot: 0.0361 acre.

Treatments:
Blocks. Time of sowing: Autumn (A); Spring (S).
Plots. Insecticidal sprays 80 gallons per acre: None (1); Systox (0.05% active ingredient) applied three times (2); Systox applied once (3); D.D.T. emulsion (0.2% active ingredient) applied four times (4); D.D.T. suspension (0.2% active ingredient) applied once (5).

Basal dressing: 5 cwt compound fertilizer (16% P_2O_5, 16% K_2O) per acre.

Cultivations, etc.: Ploughed: Sept 23, 1953. Basal dressing applied on all blocks, beans drilled at 280 lb per acre on 'A' blocks: Oct 20. Ploughed 'S' blocks: Dec 15. Beans drilled at 190 lb per acre on 'S' blocks: Mar 12, 1954. Harvested: 'A' blocks - Sept 9, 'S' blocks - Sept 20. Varieties: Autumn sown - P/L 14, Spring sown - Garton's Yearling.

Sprayings:	(2)	(3)	(4)	(5)
	June 4	June 21	June 4	June 21
	June 21		June 21	
	July 17		July 3	
			July 18	

Standard error per plot:
Grain: 3.36 cwt per acre or 14.3% (24 d.f.).

Note: Aphis counts were made and are available.

https://doi.org/10.23637/ERADOC-1-184

Summary of Results

Time of Sowing	Insecticides 1	2	3	4	5	Mean
Grain: cwt per acre						
			(±1.68)*			
Autumn	11.8	27.5	28.8	15.3	12.9	19.3
Spring	16.8	37.5	35.5	23.9	25.2	27.8
Mean (±1.19)	14.3	32.5	32.1	19.6	19.0	23.5
Difference (±2.38)**	5.0	10.0	6.7	8.6	12.3	8.5
Straw: cwt per acre						
Autumn	19.7	27.5	29.1	22.6	23.6	24.5
Spring	23.4	39.8	36.9	28.1	28.9	31.4
Mean	21.5	33.7	33.0	25.4	26.2	28.0
Difference	3.7	12.3	7.8	5.5	5.3	6.9

*For use in horizontal comparisons only.

**For use in comparison of two differences only.

Insecticides

1 None
2 Systox applied three times
3 Systox applied once
4 D.D.T. emulsion applied four times
5 D.D.T. suspension applied once.

https://doi.org/10.23637/ERADOC-1-184

54/Cd/1

POTATOES

Dung, N, P and K - Sawyers I 1954.

System of replication: 4 randomized blocks of 8 plots each, the interaction DNPK being confounded with block differences.

Area of each plot: 0.0210 acre. Area harvested: 0.0140 acre.

Treatments: All combinations of:-
Dung: None; 10 tons per acre.
N: None; 0.6 cwt per acre applied as sulphate of ammonia.
P_2O_5: None; 0.6 cwt per acre applied as superphosphate.
K_2O: None; 1.0 cwt per acre applied as muriate of potash.

Basal dressing: None.

Cultivations, etc.: Dung applied: Nov 30, 1953. Ploughed: Dec 2. Ridged and fertilizers applied in ridges: Apr 23, 1954. Potatoes hand planted: Apr 24. Earthed up: July 6. Sprayed with copper fungicide, low volume, 5 lb in 10 gallons per acre: July 29 and again Aug 23. Sprayed with 15% sulphuric acid: Sept 25. Lifted: Oct 16 and again Oct 23. Variety: Majestic S.S. Previous crop: Dredge corn.

Standard error per plot:
Total tubers: 0.997 tons per acre or 11.4% (18 d.f.)

Summary of Results

Responses to Treatments

Response to	Mean	Dung: tons per acre		cwt per acre N		P_2O_5		K_2O	
		0	10	0.0	0.6	0.0	0.6	0.0	1.0
Total tubers: Mean yield 8.75 tons per acre									
	(±0.352)			(±0.498)					
Dung	+2.04	-	-	+1.56	+2.52	+2.28	+1.80	+4.03	+0.05
N	+2.08	+1.60	+2.56	-	-	+1.11	+3.05	+1.17	+2.99
P_2O_5	+0.67	+0.91	+0.43	-0.30	+1.64	-	-	+0.83	+0.51
K_2O	+1.56	+3.55	-0.43	+0.65	+2.47	+1.72	+1.40	-	-
Percentage ware ($1\frac{1}{2}$" riddle): Mean 82.9									
Dung	+2.1	-	-	+0.7	+3.5	+1.5	+2.7	+6.1	-1.9
N	+2.6	+1.2	+4.0	-	-	+0.9	+4.3	+0.3	+4.9
P_2O_5	-2.4	-3.0	-1.8	-4.1	-0.7	-	-	-0.2	-4.6
K_2O	+3.1	+7.1	-0.9	+0.8	+5.4	+5.3	+0.9	-	-

https://doi.org/10.23637/ERADOC-1-184

POTATOES

Methods of planting, Levels of compound fertilizer and Late N and K - Deacons Field 1954.

System of replication: 4 randomized blocks of 12 plots each, plots being split into 2 for the late application of N and K with the NK interaction confounded with whole plot differences and certain high order interactions confounded with block differences.

Area of each sub plot: 0.0140 acre. Area harvested: 0.0105 acre.

Treatments:

Whole plots: All combinations of:-

Compound granular fertilizer (7% N, 7% P_2O_5, 10.5% K_2O): None; $7\frac{1}{2}$; 15 cwt per acre.

Methods of planting and fertilizer application: Ridge, broadcast fertilizer, hand plant and split back ridges at once (A); Ridge, expose ridges for 7 days, broadcast fertilizer, hand plant same time as A and split back ridges (B); Broadcast fertilizer on flat, plant from flat with dropper (C); Plant from flat with dropper, fertilizer placed 2" to side of seed (D).

Sub plots: All combinations of:-

N: None; 0.53 cwt per acre applied as sulphate of ammonia.

K_2O: None; 0.79 cwt per acre applied as muriate of potash.

Both N and K_2O were applied as top dressings before the final earthing up.

Basal dressing: None.

Cultivations, etc.: Ploughed: Oct 21, 1953. Ridged 'B' plots: Apr 23, 1954. Ridged 'A', fertilizers applied to 'B' and 'C': Apr 28. Applied fertilizer to 'A', planted 'A' and 'B', machine planted 'C' and 'D' with placed fertilizer on 'D': Apr 29. Late NK dressings applied: July 7. Earthed up: July 9. Sprayed with copper fungicide, low volume, 5 lb in 10 gallons per acre: July 29 and again Aug 26. Sprayed with sulphuric acid, 20% B.O.V.: Oct 6. Lifted: Oct 26. Variety: Majestic. Previous crop: Barley.

Standard errors per plot: Total tubers.

Whole plot: 1.26 tons per acre or 12.1% (33 d.f.)

Sub plot: 0.860 tons per acre or 8.2% (24 d.f.)*

*2 missing sub plot values.

Summary of Results

	Compound fertilizer: cwt per acre												
	None			7.5				15.0					
	A	B	C+D	A	B	C	D	A	B	C	D	Mean	
Total tubers: tons per acre													
	(±0.701)*		(±0.496)*	(±0.701)*									
N: cwt per acre													
None	5.99	7.31	8.06	10.77	10.93	10.42	10.17	12.78	11.72	11.75	12.01	10.00	
0.53	7.89	9.60	9.31	12.57	11.03	12.23	11.65	11.70	11.53	11.50	12.23	10.88	
Difference (±0.608)	+1.90	+2.29	+1.25(1)	+1.80	+0.10	+1.81	+1.48	-1.08	-0.19	-0.25	+0.22	+0.88	(±0.175)
	(±0.701)*		(±0.496)*	(±0.701)*									
K_2O: cwt per acre													
None	6.51	8.13	8.47	11.68	10.66	11.44	11.25	12.11	12.30	12.43	12.21	10.47	
0.79	7.38	8.78	8.90	11.66	11.30	11.21	10.58	12.37	10.96	10.82	12.03	10.41	
Difference (±0.608)	+0.87	+0.65	+0.43(1)	-0.02	+0.64	-0.23	-0.67	+0.26	-1.34	-1.61	-0.18	-0.06	(±0.175)
Mean (±0.632)	6.94	8.46	8.68(2)	11.67	10.98	11.33	10.91	12.24	11.63	11.62	12.12	10.44	

(1) ±0.430 (2) ±0.447

*for use in comparisons other than vertical.

A. Ridge, broadcast fertilizer, hand plant and split back ridges at once.
B. Ridge land, expose for 7 days then broadcast fertilizer over ridges, hand plant, split back ridges.
C. Broadcast fertilizer on flat, plant from flat with dropper,
D. Plant from flat with dropper, fertilizer placed 2" to side of seed.

K_2O: cwt per acre	N: cwt per acre None	0.53
	(±0.365).	
None	10.07	10.86
0.79	9.92	10.90

54/Cd/2.2

	Compound fertilizer: cwt per acre											
	None			7.5				15.0				
	A	B	C+D	A	B	C	D	A	B	C	D	Mean
	Percentage ware											
N: cwt per acre												
None	76.6	79.8	76.5	78.6	77.7	76.7	72.8	79.8	78.5	78.0	69.3	76.7
0.53	75.9	80.4	72.6	79.3	77.2	75.7	74.1	73.9	73.3	67.4	71.8	74.5
Difference	-0.7	+0.6	-3.9	+0.7	-0.5	-1.0	+1.3	-5.9	-5.2	-10.6	+2.5	-2.2
K_2O: cwt per acre												
None	77.8	78.1	73.7	81.1	79.6	76.9	74.6	77.6	74.5	76.3	69.6	76.1
0.79	74.7	82.2	75.5	76.8	75.3	75.5	72.3	76.2	77.3	69.1	71.5	75.2
Difference	-3.1	+4.1	+1.8	-4.3	-4.3	-1.4	-2.3	-1.4	+2.8	-7.2	+1.9	-0.9
Mean	76.2	80.1	74.6	78.9	77.4	76.2	73.5	76.9	75.9	72.7	70.6	75.6

A. Ridge, broadcast fertilizer, hand plant and split back ridges at once.
B. Ridge land, expose for 7 days then broadcast fertilizer over ridges, hand plant, split back ridges.
C. Broadcast fertilizer on flat, plant from flat with dropper.
D. Plant from flat with dropper, fertilizer placed 2" to side of seed.

	N: cwt per acre	
	None	0.53
K_2O: cwt per acre		
None	77.7	74.5
0.79	75.8	74.5

54/Cd/2.3

54/Cd/3

POTATOES

Control of Blight - Great Field I 1954.

System of replication: 4 × 4 Latin Square, plots being split into 2 for determination of tractor damage.

Area of each sub plot: 0.0140 acre.

Treatments:

Whole plots: No Spray; Copper fungicide 5 lb in 40 gallons per acre sprayed twice; 100 gallons sulphuric acid, 20% B.O.V. sprayed to destroy haulms; Copper fungicide and sulphuric acid sprayed as above. The tractor used for spraying was driven over all the plots on each occasion.

Sub plots: 4 rows damaged by three passages of the tractor were compared with 4 undamaged rows.

Basal dressing, per acre: 10 tons F.Y.M. and 10 cwt compound granular fertilizer (7% N, 7% P_2O_5, 10½% K_2O).

Cultivations, etc.: F.Y.M. applied: Jan 18. Ploughed: Jan 20 - Feb 24. Fertilizer applied: Apr 21. Ridged: Apr 22. Planted: Apr 23. Cultivated with mechanical weeder: June 1, 25, 29. Ridged: June 3 and again July 14. Fungicide treatment applied: July 30 and again Aug 16. Sulphuric acid treatment applied: Sept 13. Lifted: Oct 23. Variety: Majestic S.S. Previous crop: Wheat.

Standard errors per plot: Total tubers.
Whole plot: 0.594 tons per acre or 5.8% (6 d.f.)
Sub plot: 0.969 tons per acre or 9.5% (12 d.f.)

Note: Blight counts were made and are available.

Summary of Results

	Spray				
	None	Copper fungicide	Sulphuric Acid	Copper fungicide and Sulphuric Acid	Mean
	Total tubers: tons per acre (±0.454)*				
Undamaged rows	9.30	12.56	9.56	12.52	10.99
Damaged rows	8.01	9.99	9.12	10.91	9.51
Mean (±0.297)	8.66	11.27	9.34	11.71	10.25
Difference (±0.685)	-1.29	-2.57	-0.44	-1.61	-1.48 (±0.343)
	Percentage ware				
Undamaged rows	86.2	87.0	86.8	82.4	85.6

*for use in comparisons other than vertical.

POTATOES

Placement of N and K - Deacons Field 1954.

System of replication: 6 randomized blocks of 12 plots each with levels of N by levels of K partially confounded with block differences.

Area of each plot: 0.0141 acre. Area harvested: 0.00566 acre.

Treatments: All combinations of:-
N: None; 0.5; 1.0 cwt per acre as sulphate of ammonia.
K_2O: None; 0.75; 1.5 cwt per acre as sulphate of potash.
Methods of placement: Broadcast on flat before planting;
Side band placement at planting.

Basal dressing: 1.0 cwt P_2O_5 per acre as superphosphate, placement drilled as above.

Cultivations etc.: Ploughed: Oct 21, 1953. Applied broadcast fertilizers, machine planted with placed fertilizers: Apr 26, 1954. Earthed up: July 9. Sprayed with copper fungicide, low volume, 5 lb in 10 gallons per acre: July 29 and again Aug 26. Sprayed with sulphuric acid, 20% B.O.V.: Oct 6. Lifted: Oct 15. Variety: Majestic. Previous crop: Barley.

Standard error per plot:
Total tubers: 0.999 tons per acre or 9.9% (31 d.f.)

Summary of Results

Total tubers: tons per acre

K_2O: cwt per acre	N: cwt per acre					Mean
	None	Broadcast 0.5	Broadcast 1.0	Placed 0.5	Placed 1.0	
	(±0.385)	(±0.545)				(±0.204)
None	8.06	9.22	11.27	9.69	11.51	9.64
	(±0.545)	(±0.771)				(±0.288)
Broadcast						
0.75	7.84	10.55	11.73	10.82	11.88	10.11
1.5	8.13	9.53	11.54	11.12	12.08	10.09
Placed						
0.75	7.94	10.30	11.05	11.58	14.69	10.58
1.5	8.67	11.20	11.88	9.60	12.80	10.47
Mean	8.12 (±0.204)	10.00	11.46	10.42	12.41	10.09
		(±0.288)				

54/Ce/1.1

LUCERNE

Fertilizer placement and potash top dressings - Highfield, 5 1954 - the 3rd year.

System of replication: 8 randomised blocks of 8 plots each, a high order interaction being confounded with block differences. After first cut, plots split into two for potash top dressing.

Area of each plot: 0.0136 acre. Area of each sub plot: 0.0068 acre.

Treatments, applied 1952: All combinations of:-
P_2O_5: None; 1.0 cwt per acre applied as superphosphate.
K_2O: None; 1.0 cwt per acre applied as muriate of potash.
Method of placement: Broadcast on seedbed; Ploughed in 10".
Starter: None; 2 cwt granular superphosphate per acre placed beneath seed.
Applied 1954 to sub plots (after 1st cut):-
None; 1.0 cwt K_2O per acre as muriate of potash.

Basal dressing: None.

Cultivations, etc.: 1st cut: June 8. Applied potash top dressing: June 18. 2nd cut: Aug 15. 3rd cut: Nov 3.

Standard errors per plot. Dry Matter:

1st cut, whole plot:	2.89 cwt per acre or 12.6%	(42 d.f.)
2nd cut, whole plot:	2.10 cwt per acre or 10.1%	(42 d.f.)
2nd cut, sub plot:	2.18 cwt per acre or 10.5%	(48 d.f.)
3rd cut, whole plot:	1.19 cwt per acre or 20.2%	(42 d.f.)
3rd cut, sub plot:	0.83 cwt per acre or 14.1%	(48 d.f.)
Total of 3 cuts, whole plot:	4.35 cwt per acre or 8.8%	(42 d.f.)

Note: For previous year's results see 53/Cg/1 and 52/Cf/1.

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Summary of Results

Dry Matter: cwt per acre

Treatments applied 1952

	No fertilizer	Superphosphate Broadcast	Superphosphate Ploughed in	Muriate of Potash Broadcast	Muriate of Potash Ploughed in	Superphosphate and Muriate of Potash Broadcast	Superphosphate and Muriate of Potash Ploughed in	Mean
1st cut								
Mean (±1.02)	21.8 (1)	22.2	21.8	23.4	23.5	24.3	24.3	22.9
Starter	(±1.02)			(±1.44)				
None	21.3	22.7	19.8	25.1	23.3	24.0	24.7	22.8
Super	22.3	21.7	23.9	21.7	23.7	24.6	23.9	23.0
Difference (±2.04)	+1.0 (2)	-1.0	+4.1	-3.4	+0.4	+0.6	-0.8	+0.2 (1)
2nd cut								
Mean (±0.74)	20.2 (1)	18.7	19.0	22.8	21.5	22.8	21.2	20.8
Starter	(±0.74)			(±1.05)				
None	20.1	19.6	20.5	22.0	22.0	21.9	21.0	20.9
Super	20.3	17.8	17.5	23.6	20.9	23.7	21.3	20.7
Difference (±1.49)	+0.2 (2)	-1.8	-3.0	+1.6	-1.1	+1.8	+0.3	-0.2 (1)
K_2O+: cwt per acre	(±0.65)*			(±0.92)*				
None	19.0	16.6	18.9	20.1	20.2	21.5	19.7	19.4
1.0	21.5	20.9	19.1	25.5	22.8	24.1	22.6	22.2
Difference (±1.09)	+2.5 (3)	+4.3	+0.2	+5.4	+2.6	+2.6	+2.9	+2.8 (4)

(1) ±0.72
(2) ±1.44

(1) ±0.53 (3) ±0.77
(2) ±1.05 (4) ±0.38

*for use in comparisons other than vertical.

+applied June 1954.

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Dry Matter: cwt per acre

Treatments applied 1952

	No fertilizer	Superphosphate Broadcast	Superphosphate Ploughed in	Muriate of Potash Broadcast	Muriate of Potash Ploughed in	Superphosphate and Muriate of Potash Broadcast	Superphosphate and Muriate of Potash Ploughed in	Mean
3rd cut								
Mean (±0.42)	5.2 (1)	4.7	5.4	7.0	6.6	6.3	6.8	5.9
Starter	(±0.42)			(±0.60)				
None	4.9	5.4	5.3	6.0	6.3	6.2	7.0	5.8
Super	5.4	4.0	5.5	8.1	6.8	6.4	6.5	6.0
Difference (±0.84)	+0.5 (2)	-1.4	+0.2	+2.1	+0.5	+0.2	-0.5	+0.2 (1)
K_2O+: cwt per acre	(±0.33)*			(±0.47)*				
None	4.2	3.2	4.6	6.1	5.2	5.3	5.9	4.8
1.0	6.2	6.1	6.2	8.0	8.0	7.3	7.7	7.0
Difference (±0.42)	+2.0 (3)	+2.9	+1.6	+1.9	+2.8	+2.0	+1.8	+2.2 (4)

(1) ±0.30 (3) ±0.29
(2) ±0.60 (4) ±0.15

Total of 3 cuts

Mean (±1.54)	47.2 (1)	45.6	46.3	53.2	51.6	53.4	52.2	49.6
Starter	(±1.54)			(±2.18)				
None	46.3	47.7	45.6	53.1	51.7	52.2	52.8	49.5
Super	48.1	43.5	46.9	53.4	51.4	54.7	51.7	49.7
Difference (±3.08)	+1.8 (2)	-4.2	+1.3	+0.3	-0.3	+2.5	-1.1	+0.2 (1)

(1) ±1.09
(2) ±2.18

*for use in comparisons other than vertical

+applied June 1954.

54/Cf/1

BROCCOLI

Effect of manuring on Virus spread - Stackyard Field 1954.

System of replication: 5 randomized blocks of 6 plots each.

Area of each plot: 0.0167 acre. Area harvested: 0.0116 acre.

Treatments: All combinations of:
Hoof: None; 5; 10 cwt per acre.
Dung: None; 20 tons per acre.

Basal dressing, per acre: 4 cwt superphosphate and 2 cwt muriate of potash.

Cultivations, etc.: Ploughed: Oct 22, 1952. Dung applied: Mar 5,1953. Ploughed: Mar 9. Hoof applied: June 12. Basal fertilizers applied, broccoli planted: June 15. Harvested: Various days Apr 1954 - May 1954. Variety: St. George. Previous crop: Wheat.

Standard error per plot:
No. of saleable curds: 0.681 thousands per acre or 26.7% (20 d.f.)

Summary of Results

Dung: tons per acre	Hoof: cwt per acre None	5	10	Mean	
No. of saleable curds: thousands per acre					
		(±0.305)			
None	3.17	2.93	1.93	2.67	
20	2.93	2.36	1.98	2.42	
Mean (±0.215)	3.05	2.64	1.95	2.55	
Difference (±0.431)	-0.24	-0.57	+0.05	-0.25	(±0.249)
Weight per saleable curd: lb					
None	0.84	0.89	0.75	0.83	
20	0.83	0.90	0.81	0.85	
Mean	0.84	0.90	0.78	0.84	
Difference	-0.01	+0.01	+0.06	+0.02	
Percentage of plants surviving at harvest					
None	69.4	65.0	51.0	61.8	
20	63.8	57.0	47.9	56.2	
Mean	66.6	61.0	49.4	59.0	
Difference	-5.6	-8.0	-3.1	-5.6	

General means: Total no. of curds: 4.99 thousands per acre
Plant no. at harvest: 7.64 " " "
Percentage saleable curds out of total no. of curds: 50.1 .

Records of incidence of Cauliflower Mosaic were made.

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CARROTS

Residual effects of soil conditioners - Rothamsted (R), Long Hoos VI and Stackyard; Woburn (W), Stackyard and Warren Field.

System of replication: 4 × 4 Latin square.

Area of each plot: 0.00207 acre. Area harvested: 0.00138 acre.

Treatments applied in 1953:
None and 3 proprietary soil conditioners A, B and C each at 10 cwt per acre active material, rotary cultivated in to 6".

Basal dressing: 5 cwt compound fertilizer (7% N; 7% P_2O_5; 10.5% K_2O) per acre.

Cultivations, etc.:
Long Hoos VI (R). Ploughed: Dec 30, 1953 and again Mar 17, 1954. Roto tilled twice: Apr 23 and Apr 26. Basal fertilizer applied, seed hand drilled at 8 lb per acre: Apr 26. Thinned: July 21. Lifted: Dec 15.
Stackyard (R). Ploughed: Mar 17 and again Apr 14. Roto tilled 3 times: Apr 23, 24, 26. Basal fertilizer applied, seed hand drilled at 8 lb per acre: Apr 26. Thinned: Aug 9. Lifted: Dec 15.
Stackyard (W). Roto tilled: May 10. Basal fertilizer applied, seed drilled: May 18. Singled: Aug 18. Lifted: Dec 15.
Warren Field (W). Roto tilled: May 6. Basal fertilizer applied, seed drilled: May 17. Lifted: Dec 3.
All fields. Variety: James' Scarlet Intermediate.

Standard errors per plot. Roots: tons per acre.
Long Hoos VI (R): 1.49 tons per acre or 7.8% (6 d.f.)
Stackyard (R): 1.41 tons per acre or 28.7% (6 d.f.)
Stackyard (W): 1.04 tons per acre or 13.1% (3 d.f.)*
Warren Field (W): 0.386 tons per acre or 6.8% (6 d.f.)

*1 row of the Latin square received incorrect treatments.

Summary of Results

	Soil conditioners 10 cwt per acre active material applied 1953				
	None	A	B	C	Mean
Roots: tons per acre					
Rothamsted, Long Hoos VI					
Mean (±0.746)	18.94	20.48	19.36	18.09	19.22
Increase (±1.055)		+1.54	+0.42	-0.85	
Rothamsted, Stackyard					
Mean (±0.706)	5.13	4.72	3.96	5.87	4.92
Increase (±0.999)		-0.41	-1.17	+0.74	
Woburn, Stackyard					
Mean (±0.639)	7.67	7.95	7.14	9.07	7.96
Increase (±0.904)		+0.28	-0.53	+1.40	
Woburn, Warren Field					
Mean (±0.193)	5.08	5.55	5.52	6.37	5.63
Increase (±0.273)		+0.47	+0.44	+1.29	

General Means:	Plant number thousands per acre	Percentage over $1\frac{1}{2}$" diameter
Woburn, Stackyard	137	51.6