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Yields of the Field Experiments 1952

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Short-term Experiments

Rothamsted Research

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52/Ca/1.1

WHEAT

Effect of various crop sequences on incidence of Eyespot (*Cercospora herpotrichoides*) - Little Knott 1952, the 3rd preliminary year.

Arrangement of previous treatment crops: 4 longitudinal and 3 cross strips.

Area of each plot: Variable. Area harvested: 0.034-0.050 acre.

Treatments:

Longitudinal strips, crops grown in 1950: Wheat; Ryegrass; Potatoes; fallow.

Cross strips, crops grown in 1951: Wheat; Ryegrass; Potatoes.

Basal manuring: $2\frac{1}{2}$ cwt sulphate of ammonia per acre.

Cultivations, etc.: Ploughed: Sept 3, 1951. Seed drilled at 3 bushels per acre: Oct 18. Sulphate of ammonia applied: Apr 16, 1952. Harvested: July 28. Variety: Squareheads Master 13/4.

Note. Yields of grain from two of the treatment crops (Oats (S.147) and Barley (Pioneer)) for the wheat test crop of 1953 were taken and are shown after the wheat figures.

Summary of Results

Crop in 1951	Crop in 1950				Mean
	Wheat	Rye- grass	Potatoes	Fallow	
Wheat, grain: cwt per acre					
Wheat	15.2	18.3	23.1	15.3	18.0
Ryegrass	16.3	28.6	30.5	24.3	24.9
Potatoes	26.5	28.0	30.0	22.7	26.8
Mean	19.3	25.0	27.9	20.8	23.2
Wheat, straw: cwt per acre					
Wheat	47.1	45.1	52.0	38.5	45.7
Ryegrass	44.3	52.5	59.6	61.8	54.6
Potatoes	53.7	54.8	64.8	55.0	57.1
Mean	48.4	50.8	58.8	51.8	52.5

N.B. The crop was damaged when ripe by birds, particularly on the 'Fallow - Potatoes' plot.

52/Ca/1.2

<u>Treatment Crops</u>					
Crop in 1951	Crop in 1950				Mean
	Wheat	Rye grass	Potatoes	Fallow	
Oats, grain: cwt per acre					
Wheat	32.5	37.4	38.2	35.2	35.8
Fallow	32.6	35.3	32.8	33.2	33.5
Mean	32.6	36.4	35.5	34.2	34.7
Barley, grain: cwt per acre					
Fallow	28.5	32.5	32.0	24.3	29.3

52/Ca/2.1

WHEAT

Control of Eyespot (*Cercospora Herpotrichoides*) - Great Field I 1952.

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 x seed rate interaction being confounded.

Area of each plot: 0.0197 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 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 manuring: None.

Cultivations, etc.: Ploughed: Oct 8. Seed drilled, T_1 applied:

Oct 25. T_2 applied: Mar 13. Sprayed 4 blocks: Mar 14. T_3

applied: Apr 16. Sprayed all plots with D.N.O.C.: Apr 18. T_4

T_4 applied: May 22. Harvested: Aug 19. Previous crop: Linseed.

Standard error per plot:

Grain: 2.92 cwt per acre or 10.9% (24 d.f.)

NB. (1) Counts of incidence of Eyespot were made and are available.

(2) 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 x R tables do not include the plots receiving no nitrogen.

52/Ca/2.2

Summary of Results

Grain: cwt per acre

	Unsprayed				Mean	Sprayed				Mean
	T ₁	T ₂	T ₃	T ₄		T ₁	T ₂	T ₃	T ₄	
	(±1.46)					(±1.46)				
V ₁	23.6	20.0	21.7	24.5	22.5	32.7	31.0	33.7	33.4	32.7
V ₂	37.9	33.0	31.7	31.7	33.6	46.4	45.5	45.7	42.9	45.1
Diff. (±2.06)	14.3	13.0	10.0	7.2	11.1 (±1.03)	13.7	14.5	12.0	9.5	12.4 (±1.03)
R ₁	34.1	28.2	28.6	30.2	30.3	39.4	36.8	40.9	41.3	39.6
R ₂	27.4	24.8	24.7	26.1	25.8	39.7	39.7	38.5	34.9	38.2
Diff. (±2.06)	-6.7	-3.4	-3.9	-4.1	-4.5 (±1.03)	+0.3	+2.9	-2.4	-6.4	-1.4 (±1.03)
N ₁	32.1	25.5	25.8	27.8	27.8	37.9	38.7	38.0	38.3	38.2
N ₂	29.4	27.5	27.5	28.4	28.2	41.2	37.8	41.4	38.0	39.6
Diff. (±2.06)	-2.7	+2.0	+1.7	+0.6	+0.4 (±1.03)	+3.3	-0.9	+3.4	-0.3	+1.4 (±1.03)
Mean (±1.03)	30.7	26.5	26.7	28.1	28.0	39.6	38.2	39.7	38.1	38.9

	Unsprayed		Diff.	Sprayed		Diff.
	R ₁	R ₂		R ₁	R ₂	
	(±1.03)		(±1.46)	(±1.03)		(±1.46)
V ₁	24.8	20.1	-4.7	33.3	32.1	-1.2
V ₂	35.7	31.4	-4.3	45.9	44.4	-1.5
Diff. (±1.46)	+10.9	+11.3	+0.4	+12.6	+12.3	-0.3

	Unsprayed			Mean	Sprayed			Mean
	N ₀	N ₁	N ₂		N ₀	N ₁	N ₂	
	(±1.46)	(±1.03)			(±1.46)	(±1.03)		
V ₁	22.4	22.0	22.9	22.4	31.2	33.5	31.9	32.4
V ₂	28.9	33.6	33.6	32.6	36.8	42.9	47.3	43.5
Diff. (±1.46)	+6.5 ⁽¹⁾	+11.6	+10.7	+10.2 (±0.84)	+5.6 ⁽¹⁾	+9.4	+15.4	+11.1 (±0.84)
	(±1.46)	(±1.03)			(±1.46)	(±1.03)		
R ₁	28.7	29.9	30.7	30.0	36.6	39.4	39.8	39.0
R ₂	22.6	25.7	25.8	25.1	31.5	37.0	39.4	36.9
Diff. (±1.46)	-6.1 ⁽¹⁾	-4.2	-4.9	-4.9 (±0.84)	-5.1 ⁽¹⁾	-2.4	-0.4	-2.1 (±0.84)
Mean (±0.73)	25.7 ⁽²⁾	27.8	28.2	27.5	34.0 ⁽²⁾	38.2	39.6	37.9

(1) ±2.06

(2) ±1.03

52/Ca/2.3

Straw: cwt per acre

	Unsprayed					Sprayed				
	T ₁	T ₂	T ₃	T ₄	Mean	T ₁	T ₂	T ₃	T ₄	Mean
V ₁	67.5	67.4	68.3	61.6	66.2	69.5	73.4	69.2	68.9	70.3
V ₂	59.4	61.0	59.4	48.5	57.1	57.0	61.3	56.2	49.8	56.1
Diff.	-8.1	-6.4	-8.9	-13.1	-9.1	-12.5	-12.1	-13.0	-19.1	-14.2
R ₁	62.7	62.9	62.7	55.9	61.0	61.0	66.1	62.9	57.7	61.9
R ₂	64.2	65.5	65.0	54.2	62.2	65.5	68.7	62.5	61.0	64.4
Diff.	+1.5	+2.6	+2.3	-1.7	+1.2	+4.5	+2.6	-0.4	+3.3	+2.5
N ₁	61.6	63.4	61.9	56.2	60.8	62.8	65.9	61.4	60.9	62.7
N ₂	65.3	65.0	65.7	53.9	62.5	63.7	68.9	64.0	57.8	63.6
Diff.	+3.7	+1.6	+3.8	-2.3	+1.7	+0.9	+3.0	+2.6	-3.1	+0.9
Mean	63.4	64.2	63.8	55.1	61.6	63.2	67.4	62.7	59.3	63.2

	R ₁	R ₂	Diff.	R ₁	R ₂	Diff.
V ₁	65.9	66.5	+0.6	68.7	71.8	+3.1
V ₂	56.2	58.0	+1.8	55.1	57.0	+1.9
Diff.	-9.7	-8.5	+1.2	-13.6	-14.8	-1.2

	N ₀	N ₁	N ₂	Mean	N ₀	N ₁	N ₂	Mean
V ₁	58.5	65.3	67.0	64.7	59.6	69.7	70.8	68.1
V ₂	46.0	56.2	57.9	54.9	47.3	55.8	56.4	54.3
Diff.	-12.5	-9.1	-9.1	-9.8	-12.3	-13.9	-14.4	-13.8
R ₁	53.5	60.7	61.4	59.5	52.3	61.0	62.8	60.0
R ₂	51.0	60.9	63.6	60.0	54.7	64.4	64.4	62.5
Diff.	-2.5	+0.2	+2.2	+0.5	+2.4	+3.4	+1.6	+2.5
Mean	52.3	60.8	62.5	59.8	53.5	62.7	63.6	61.2

52/Ca/3

WHEAT

Residual effect of dung - Little Hoos 1952.

System of replication: 4 randomized blocks of 12 plots each.

Area of each plot: 0.0318 acre.

Treatments: All combinations of:-

Dung: None; 5; 10; 15 tons per acre applied to potatoes 1950-51.

Methods of application: Ploughed in, in winter (1950); ploughed in, in spring (1951); placed in ridges (1951).

Basal dressing: 3 cwt sulphate of ammonia per acre.

Cultivations, etc: Cultivated twice: Oct 11. Seed drilled at 3 bushels per acre: Oct 19. Sulphate of ammonia applied: Apr 17. Sprayed with 2 gallons D.N.O.C. plus 6 lb sulphate of ammonia per acre: Apr 30. Harvested: July 29. Variety: Nord Desprez. Previous crop: Potatoes.

Standard error per plot:

Grain: 1.94 cwt per acre or 6.9% (35 d.f.)

Summary of Results

Method of application	Dung applied to potatoes 1950-51: tons per acre				Mean
	0	5	10	15	
Grain: cwt per acre					
		(±0.97)			(±0.56)
Ploughed in, in winter	28.6	29.9	29.2	29.2	
Ploughed in, in spring	25.9	29.2	30.1	28.4	
Placed in ridges	28.1	28.8	30.2	29.1	
Mean (±0.56)	25.1	27.5	29.3	29.8	27.9
Straw: cwt per acre					
Ploughed in, in winter	41.2	42.2	42.6	42.0	
Ploughed in, in spring	37.4	40.5	41.5	39.8	
Placed in ridges	39.0	40.5	43.0	40.9	
Mean	36.7	39.2	41.1	42.4	39.8

52/Ca/4

WHEAT

The control of wireworm by insecticides - Geescroft 1952.

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

Area of each plot: 0.0289 acre.

Treatments:

O = None (triplicate plots)

S = Gammexane seed dressing 2 oz per bushel

G = Gammexane combine drilled with seed at 56 lb per acre 3.5% dust

A = Aldrin " " " " 200 lb " " 1.78% "

C = Chlordane " " " " 100 lb " " 5% "

D = D.D.T. " " " " 150 lb " " 5% "

Basal dressing: 3 cwt sulphate of ammonia per acre.

Cultivations, etc: Ploughed: Nov 9. Seed drilled at 3 bushels per acre with insecticides: Dec 1. Sulphate of ammonia applied: Apr 21.

Sprayed with low volume M.C.P.A: May 7. Harvested: Aug 31.

Variety: Nord Desprez. Previous crop: Old Grass.

Standard error per plot:

Grain: 1.24 cwt per acre or 3.8% (16 d.f.)

Summary of Results

	O	S	G	A	C	D	Mean
Grain: cwt per acre							
Mean (± 0.71)	31.6 ⁽¹⁾	32.9	33.6	36.3	33.7	31.7	32.9
Increase (± 0.83)		1.3	2.0	4.7	2.1	0.1	
Straw: cwt per acre							
Mean	43.6	46.7	45.6	47.0	44.6	42.6	44.7
Increase		3.1	2.0	3.4	1.0	-1.0	

Standard error (1) 0.41.

52/Ca/5.1

WHEAT

Late application of nitrogen and methods of harvesting - Fosters 1952.

System of replication: 4 randomized blocks of 3 plots each, blocks and plots being split into 2 strips for different methods of harvesting.

Area of each plot: 0.0242 acre. Area harvested: 'binder' plots - 0.0202 acre, 'combine' plots - 0.0091 acre.

Treatments:

Nitrochalk: None; $1\frac{1}{2}$; 3 cwt per acre applied as top dressing.
Methods of harvesting: Binder; N.I.A.E. combine harvester.

Basal manuring: 3 cwt sulphate of ammonia per acre.

Cultivations, etc.: Ploughed: Sept 11. Seed drilled at 3 bushels per acre: Oct 24. Sulphate of ammonia applied: Apr 18. Sprayed with D.N.O.C.: May 15. Nitrochalk applied: June 28. Harvested: 'binder' plots - Aug 12, 'combine' plots - Aug 13. Variety: Yeoman. Previous crop: Wheat.

Standard errors per plot. Grain:

Strip: 1.72 cwt per acre or 8.9% (3 d.f.)
Whole plot: 1.32 cwt per acre or 6.9% (6 d.f.)
Sub plot: 1.68 cwt per acre or 8.7% (6 d.f.)

52/Ca/5.2

Summary of Results

	Nitrochalk: cwt per acre as top dressing			Mean
	None	1.5	3.0	
Grain: cwt per acre				
	(a) and (b)			
Binder	19.0	20.9	20.8	20.2
Combine	18.7	18.4	17.5	18.2
Mean (± 0.66)	18.8	19.7	19.2	19.2
Difference (± 1.55)	-0.3	-2.5	-3.3	-2.0 (± 1.21)

(a) ± 0.89 for use in horizontal comparisons only(b) ± 1.13 for use in diagonal comparisons onlyBinder Plots

Straw: cwt per acre				
	33.7	34.1	35.9	34.6
Crude Protein: cwt per acre				
Grain	2.11	2.44	2.43	
Increase		0.33	0.32	
Straw	0.68	0.68	0.74	
Increase		0.00	0.06	

Percentage uptake of added nitrogen

Grain	23	11	
Straw	1	2	

52/Cb/1.1

BARLEY

Late application of nitrogen and methods of harvesting - Great Field II 1952.

System of replication: 4 randomized blocks of 3 plots each, blocks and plots being split into 2 strips for different methods of harvesting.

Area of each plot: 0.0242 acre. Area harvested: 'binder' plots - 0.0242 acre, 'combine' plots - 0.0091 acre.

Treatments:

Nitrochalk: None; $1\frac{1}{2}$; 3 cwt per acre applied as top dressing.
Methods of harvesting: Binder; N.I.A.E. combine harvester.

Basal manuring per acre: $2\frac{1}{4}$ cwt sulphate of ammonia; 1 cwt super-phosphate combine drilled with seed.

Cultivations, etc.: Sulphate of ammonia applied to linseed: Mar 19.
Harrowed in linseed which had failed: May 12. Seed and super-phosphate drilled: May 13. Sprayed with M.C.P.A., medium volume, 5 pints in 30 gallons water per acre: June 9. Nitrochalk applied: June 16. Harvested: 'binder' plots - Sept 16, 'combine' plots - Sept 19. Variety: Plumage Archer. Previous crop: Permanent grass.

Standard errors per plot. Grain:

Strip: 1.09 cwt per acre or 7.6% (3 d.f.)
Whole plot: 1.05 cwt per acre or 7.4% (6 d.f.)
Sub plot: 1.18 cwt per acre or 8.3% (6 d.f.)

52/Cb/1.2

Summary of Results

	Nitrochalk: cwt per acre as top dressing			Mean
	None	1.5	3.0	
Grain: cwt per acre				
	(a) and (b)			
Binder	13.1	13.5	13.1	13.2
Combine	14.7	15.6	15.5	15.3
Mean (± 0.53)	13.9	14.5	14.3	14.2
Difference (± 1.03)	1.6	2.1	2.4	2.1 (± 0.77)

(a) ± 0.67 for use in horizontal comparisons only(b) ± 0.79 for use in diagonal comparisons only

Straw: cwt per acre				
Binder	19.6	18.3	19.2	19.0

Crude Protein: cwt per acre				
Grain: Binder	1.76	1.84	1.78	
Increase		0.08	0.02	
Combine	2.07	2.16	2.14	
Increase		0.09	0.07	
Straw: Binder	1.17	1.11	1.12	
Increase		-0.06	-0.05	

Percentage uptake of added nitrogen			
Grain: Binder	6	1	
Combine	6	2	
Straw: Binder	-4	-2	

52/Cb/2

BARLEY

Nitrophosphates placement - Highfield 3 1952.

System of replication: 4 randomized blocks of 6 plots each.

Area of each plot (average): 0.0143 acre.

Treatments: Nitrochalk at 0.5 cwt N per acre broadcast (two plots per block), and all combinations of:-

Manures: Nitrophosphate (British) 13.9% N, 14.6% P₂O₅; Nitrochalk and Granular Superphosphate. Each manure provided 0.5 cwt N and 0.53 cwt P₂O₅ per acre.

Method of placement: Broadcast; Combine drilled.

Basal dressing: None.

Cultivations, etc.: Ploughed: Sept 18. Seed drilled at 3½ bushels per acre and all fertilizers applied: Mar 15. Harvested: July 30. Variety: Plumage Archer. Previous crop: Linseed.

Standard errors per plot: Grain.

Yield: 2.37 cwt per acre or 11.0% (16 d.f.)

P₂O₅ uptake: 0.0180 cwt per acre or 16.0% (16 d.f.)Summary of Results

	Nitrochalk broadcast	Nitrophosphate broadcast	combine drilled	Nitrochalk and superphosphate broadcast	combine drilled	Mean
Yield: cwt per acre						
Grain (±1.18)	18.9 ⁽¹⁾	21.9	24.4	22.0	22.6	21.4
Increase (±1.45)		3.0	5.5	3.1	3.7	
Straw	32.6	30.5	36.7	33.2	32.9	33.1
Increase		-2.1	+4.1	+0.6	+0.3	
P ₂ O ₅ uptake: cwt per acre						
Grain (±0.0090)	0.098 ⁽²⁾	0.115	0.132	0.117	0.114	0.112
Increase (±0.0110)		0.017	0.034	0.019	0.016	
Straw	0.028	0.023	0.030	0.030	0.026	0.027
Increase		-0.005	+0.002	+0.002	-0.002	

(1) ±0.84
(2) ±0.0064

52/Cc/1

SPRING OATS

Late application of nitrogen - Long Hoos III 1952.

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

Area of each plot: 0.0145 acre.

Treatments: Nitrochalk: None; $1\frac{1}{2}$; 3 cwt per acre applied as a late top dressing.

Basal dressing: $2\frac{1}{2}$ cwt sulphate of ammonia per acre; 1 cwt superphosphate per acre drilled with the seed.

Cultivations, etc.: Ploughed: Dec 10. Sulphate of ammonia applied: Mar 3. Seed drilled at 4 bushels per acre with superphosphate: Mar 15. Sprayed with M.C.P.A. low volume, $2\frac{1}{2}$ pints in 10 gallons of water: May 13. Nitrochalk applied: June 30. Harvested: July 24. Variety: Star. Previous crop: Wheat.

Standard errors per plot:

Grain*: 1.74 cwt per acre or 4.9% (14 d.f.)

Straw*: 2.39 cwt per acre or 5.2% (14 d.f.)

Summary of Results

	Nitrochalk: cwt per acre, as top dressing			Mean
	None	1½	3	
Yield: cwt per acre				
Grain* (±0.62)	35.5	36.4	35.2	35.7
Straw* (±0.84)	45.5	45.5	45.6	45.5
Crude protein: cwt per acre				
Grain	3.57	3.87	3.81	
Increase		0.30	0.24	
Straw	0.87	0.92	0.97	
Increase		0.05	0.10	
Percentage uptake of added nitrogen				
Grain		21	8	
Straw		3	3	

*Corrected to 85% dry matter owing to variable conditions during harvesting.

52/Cd/1.1

SPRING BEANS

Fertilizer placement - Great Harpenden II 1952.

System of replication: 8 randomized blocks of 9 plots each.

Area of each plot: 0.0152 acre. Area harvested: 0.0126 acre.

Treatments: All combinations of:-

Superphosphate, cwt per acre: None; 2.6 broadcast on seed bed;
2.6 drilled in band 2" to side of seed.

Sulphate of potash, cwt per acre: None; 1.6 broadcast on seed bed;
1.6 drilled in band 2" to side of seed.

Basal manuring: None.

Cultivations, etc.: Ploughed: Oct 30. 40 cwt ground chalk per acre
applied: Mar 13. Seed drilled at 4 bushels per acre, fertilizers
applied: Mar 18. Sprayed with Nicotine against blackfly: June 19
and again July 7. Harvested: Aug 6. Variety: Ashwells Selection.
Previous crop: Oats.

Standard error per plot:

Grain, Dry Matter: 1.13 cwt per acre or 20.6% (55 d.f.)

Note: The yield of grain, dry matter, has been adjusted to allow for
the omission to spray four of the plots.

52/Cd/1.2

Summary of Results

Sulphate of potash: 1.6 cwt per acre	Superphosphate: 2.6 cwt per acre			Mean
	None	Broadcast on seed bed	Drilled in band 2" to side of seed	

Grain, Dry Matter: cwt per acre				
		(± 0.40)		(± 0.23)
None	4.1	4.9	4.5	4.5
Broadcast on seed bed	5.5	4.6	4.7	4.9
Drilled in band 2" to side of seed	7.0	6.7	7.2	7.0
Mean (± 0.23)	5.5	5.4	5.5	5.5

Plant number: thousands per acre				
None	166	163	157	162
Broadcast on seed bed	166	165	156	163
Drilled in band 2" to side of seed	172	167	165	168
Mean	168	165	159	164

Mean Dry Matter %: 79.2

52/Ca/2

SPRING BEANS

Control of Black Aphis - Great Harpenden II 1952.

System of replication: 2* randomized blocks of 7 plots each.

Area of each plot: 0.00831 acre.

Treatments - Insecticidal sprays at 300 gallons per acre.

None.	(O)
Parathion, 0.02% technical W/V.	(A)
Pyrethrum, 0.05% W/V total pyrethrins.	(B)
DDT emulsion, 0.1% W/V DDT.	(C)
DDT suspension, 0.1% W/V DDT.	(D)
Systox, 0.05% W/V.	(E)
Nicotine, 0.1% V/V technical nicotine alkaloid.	(F)

Basal dressing, per acre: 1½ cwt nitrochalk, 3 cwt superphosphate, 1½ cwt sulphate of potash.

Cultivations, etc.: Ploughed: Oct 30. 40 cwt ground chalk per acre applied: Mar 13. Basal fertilizers applied: Mar 15. Beans drilled at 4 bushels per acre: Mar 18. Spray treatments applied: June 12. Harvested: Aug 2. Variety: Ashwells selection. Previous crop: Oats.

Standard error per plot:

Grain: 4.50 cwt per acre or 49.7% (6 d.f.)

*Note. The experiment was originally designed as one of 4 blocks of 7, but as at spraying time 2 of the blocks carried a very poor crop these were not used in the experiment.

Summary of Results

	Spray							
	O	A	B	C	D	E	F	Mean
Grain: cwt per acre								
Mean (±3.19)	1.4	11.8	10.3	11.8	1.3	12.0	14.8	9.1
Increase (±4.50)		10.4	8.9	10.4	-0.1	10.6	13.4	
Straw: cwt per acre								
Mean	14.2	19.3	14.4	15.4	15.4	16.7	18.3	16.2
Increase		5.1	0.2	1.2	1.2	2.5	4.1	

52/Ca/3

BROAD BEANS

Fertilizer placement - Great Harpenden II 1952.

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

Area of each plot: 0.00344 acre.

Treatments: No fertilizer; and all combinations of:-

Compound granular PK fertilizer ($13\frac{3}{4}\%$ P₂O₅; $13\frac{3}{4}\%$ K₂O): 2.7; 4.9 cwt per acre.

Method of placement: Broadcast on seed bed; drilled in band beside seed.

Basal dressing per acre: $1\frac{1}{2}$ cwt nitrochalk; 3 cwt superphosphate; $1\frac{1}{2}$ cwt sulphate of potash.

Cultivations, etc.: Ploughed: Oct 30. 40 cwt ground chalk per acre applied: Mar 13. Basal fertilizers applied: Mar 15. Beans sown: Mar 18. Harvested: July 1. Variety: Seville Long Pod. Previous crop: Spring Oats.

Standard error per plot:

Yield of green beans in pod: 2.45 cwt per acre or 9.1% (12 d.f.)

Summary of Results

Compound PK fertilizer: cwt per acre						
	2.7		4.9			
None	Broadcast	Drilled	Broadcast	Drilled		Mean
Yield of green beans in pod: cwt per acre						
Mean (± 1.22)	22.8	24.5	29.5	26.6	31.8	27.0
Increase (± 1.73)		1.7	6.7	3.8	9.0	

52/Ce/1.1

POTATOES

Application of dung - West Barnfield II 1952.

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

Area of each sub plot: 0.0175 acre. Area harvested: 0.0140 acre.

Treatments: All combinations of:-

Whole plots Dung: None; 5; 10; 15 tons per acre.
Method of application: Ploughed in, in winter (W);
Ploughed in, in spring (S); Placed in the ridges
in spring (R).

Sub plots N: None; 0.6 cwt per acre applied as sulphate of
ammonia.
 $P_{25}O_5$: None; 0.6 cwt per acre applied as super-
phosphate.
 K_2O : None; 1.0 cwt per acre applied as muriate of
potash.

Basal dressing: None.

Cultivations, etc.: Dung applied to 'W' plots, ploughed all plots:
Sept 26. Dung applied to 'S' plots, ploughed all plots: Mar 12.
Ridged all plots: May 5. Dung applied to 'R' plots, fertilizers
applied in the ridges, potatoes planted: May 6. Earthed up:
July 17. Sprayed with copper fungicide 5 lb per acre: Aug 12
and again Sept 5. Sprayed with sulphuric acid, 20% B.O.V.:
Sept 24. Lifted: Oct 9. Variety: Majestic. Previous crop:
Wheat.

Standard errors per plot: Total tubers.

Whole plot: 0.755 tons per acre or 7.4% (32 d.f.)
Sub plot: 1.060 tons per acre or 10.4% (29 d.f.)*

* 1 missing value.

52/Ce/1.2

Summary of Results

Total tubers: tons per acre

	Dung: tons per acre				Mean
	None	5	10	15	
Mean (± 0.218)	7.76	9.64	11.09	12.45	10.24
<u>Method of application</u>	(± 0.378)				(± 0.218)
Ploughed in, in winter		9.12	10.63	11.28	10.34
Ploughed in, in spring		9.17	11.16	12.90	11.08
Placed in ridges in spring		10.64	11.50	13.15	11.76
<u>N: cwt per acre</u>	$(\pm 0.307)^*$				
None	7.02	8.72	10.58	11.75	9.52
0.6	8.51	10.57	11.60	13.15	10.96
Response to N (± 0.433)	1.49	1.85	1.02	1.40	1.44 ⁽¹⁾
<u>P₂₀₋₅: cwt per acre</u>	$(\pm 0.307)^*$				
None	7.65	9.05	10.50	12.18	9.85
0.6	7.88	10.24	11.68	12.71	10.63
Response to P (± 0.433)	0.23	1.19	1.18	0.53	0.78 ⁽¹⁾
<u>K₂₀: cwt per acre</u>	$(\pm 0.307)^*$				
None	5.69	8.49	10.47	11.92	9.14
1.0	9.84	10.80	11.72	12.97	11.33
Response to K (± 0.433)	4.15	2.31	1.25	1.05	2.19 ⁽¹⁾

(1) ± 0.216

*Standard error for use in comparisons other than vertical.

52/Ce/1.3

Total tubers: tons per acre

	Method of application of dung		
	Ploughed in, in winter	Ploughed in, in spring	Placed in ridges in spring
<u>N: cwt per acre</u>	$(\pm 0.307)^*$		
None	9.70	10.32	11.03
0.6	10.99	11.83	12.50
Response to N (± 0.433)	1.29	1.51	1.47
<u>P₂₀₋₅: cwt per acre</u>	$(\pm 0.307)^*$		
None	9.86	10.55	11.32
0.6	10.83	11.60	12.21
Response to P (± 0.433)	0.97	1.05	0.89
<u>K₂₀: cwt per acre</u>	$(\pm 0.307)^*$		
None	9.23	10.13	11.51
1.0	11.46	12.02	12.01
Response to K (± 0.433)	2.23	1.89	0.50

*Standard error for use in comparisons other than vertical.

Response to:	Responses to treatments (± 0.307)**					
	N		P		K	
	Abs.	Pres.	Abs.	Pres.	Abs.	Pres.
N	-	-	1.24	1.64	1.12	1.76
P	0.58	0.98	-	-	0.17	1.39
K	1.87	2.51	1.58	2.80	-	-

**Standard error of horizontal difference between two responses 0.436.

52/Ce/1.4

Percentage Ware ($1\frac{1}{2}$ " riddle)

	Dung: tons per acre				Mean
	None	5	10	15	
Mean	75.8	82.5	84.8	86.0	82.3
<u>Method of application</u>					
Ploughed in, in winter		82.0	84.7	85.5	84.0
Ploughed in, in spring		82.2	87.2	88.5	85.9
Placed in ridges in spring		83.3	82.6	84.1	83.3
<u>N: cwt per acre</u>					
None	75.1	82.6	85.4	86.5	82.4
0.6	76.6	82.4	84.2	85.5	82.2
Response to N	+1.5	-0.2	-1.2	-1.0	-0.2
<u>P₂O₅: cwt per acre</u>					
None	81.8	84.9	86.1	87.5	85.1
0.6	69.9	80.0	83.5	84.5	79.5
Response to P	-11.9	-4.9	-2.6	-3.0	-5.6
<u>K₂O: cwt per acre</u>					
None	65.7	77.7	82.0	85.0	77.6
1.0	86.0	87.3	87.6	87.0	87.0
Response to K	+20.3	+9.6	+5.6	+2.0	+9.4

52/Ce/1.5

Percentage Ware ($1\frac{1}{2}$ " riddle)

	Method of application of dung		
	Ploughed in, in winter	Ploughed in, in spring	Placed in ridges in spring
<u>N: cwt per acre</u>			
None	83.8	86.0	84.7
0.6	84.3	85.9	81.9
Response to N	+0.5	-0.1	-2.8
<u>P₂₋₅: cwt per acre</u>			
None	87.2	86.5	84.9
0.6	80.9	85.4	81.8
Response to P	-6.3	-1.1	-3.1
<u>K₂₋₀: cwt per acre</u>			
None	79.6	83.6	81.6
1.0	88.5	88.3	85.1
Response to K	+8.9	+4.7	+3.5

Responses to treatments

Response to:	N		P		K	
	Abs.	Pres.	Abs.	Pres.	Abs.	Pres.
N	-	-	-0.1	-0.5	+0.7	-1.3
P	-5.4	-5.8	-	-	-7.9	-3.3
K	+10.4	+8.4	+7.1	+11.7	-	-

52/Ce/2.1

POTATOES

Methods of planting and fertilizer application - West Barnfield II
1952.

System of replication: 4 randomized blocks of 18 plots each.

Area of each plot: 0.021 acre. Area harvested: 0.014 acre.

Treatments: 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 at once (A);
Ridge, and expose ridges for 7 days, broadcast fertilizer over
ridges, hand plant same time as A, 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); Broadcast fertilizer on flat, plant in ridges with
dropper (E); Plant in ridges with dropper, fertilizer placed
2" to side of seed (F).

Basal dressing: None.

Cultivations, etc.: Ploughed: Sept 27 and again Mar 12. Ridged 'B'
plots: May 3. Fertilizers applied to 'C' and 'E' plots: May 5.
Ridged 'A' plots, fertilizers applied and potatoes planted on 'A'
and 'B' plots: May 9. Fertilizers applied and potatoes planted
on 'C', 'D', 'E' and 'F' plots: May 10. Earthed up: July 17.
Sprayed with copper fungicide 5 lb per acre: Aug 12 and again
Sept 5. Sprayed with sulphuric acid, 20% B.O.V.: Sept 4.
Lifted: Oct 10. Variety: Majestic. Previous crop: Wheat.

Standard error per plot:

Total tubers: 0.857 tons per acre or 9.1% (51 d.f.)*

*2 missing values.

Note: Treatment B was included to test whether the drying out of the
ridges would depress the yield. Since there was considerable
rain during the period of exposure this effect could not be tested.

52/Ce/2.2

Summary of Results

Compound Fertilizer cwt per acre	Hand planted		Planted by dropper				Mean
	ridges planted at once	Broadcast ridges exposed	From flat Broadcast on flat	in ridges Fertilizer Placed	Broadcast on flat	Placed	

Total tubers: tons per acre

							(± 0.175)
None	4.67	4.96	5.46 ⁽¹⁾		4.94 ⁽¹⁾		5.07
7½ (± 0.428)	9.97	10.53	7.90	11.54	8.24	10.71	9.81
15	14.03	14.15	11.54	14.36	11.06	14.71	13.31
Mean excluding none (± 0.303)	12.00	12.34	9.72	12.95	9.65	12.71	9.40 [Ⓜ]

Percentage Ware (1½" riddle)

None	72.5	68.5	76.7		74.0		73.7
7½	82.8	80.3	82.4	86.5	86.4	84.8	83.9
15	82.3	85.5	82.6	84.6	84.6	87.5	84.5
Mean excluding none	82.6	82.9	82.5	85.6	85.5	86.2	80.7 [Ⓜ]

(1) ± 0.303 [Ⓜ]General mean.

52/Ce/3.1

POTATOES

Control of Blight - Little Hoes 1952.

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

Area of each sub plot: 0.014 acre.

Treatments:

Whole plots: No Spray; Copper fungicide 5 lb per acre sprayed twice in summer; 100 gallons Sulphuric acid, 15% B.O.V. per acre 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: The 4 inner rows damaged by three passages of the tractor were compared with the 4 outer and undamaged rows.

Basal dressing: 10 cwt compound granular fertilizer (7% N, 7% P₂O₅, 10½% K₂O) per acre.

Cultivations, etc.: Dung applied: Sept 27. Ploughed: Sept 29 and again Feb 4. Basal fertilizer broadcast, ridged: Apr 24. Potatoes planted: Apr 25. Earthed up: July 7. Sprayed appropriate plots with copper fungicide: Aug 13 and again Sept 4. Sprayed appropriate plots with sulphuric acid: Oct 7. Lifted: Nov 3. Variety: Majestic. Previous crop: Wheat.

Standard errors per plot: Total tubers.

Whole plot: 0.984 tons per acre or 13.5% (6 d.f.)

Sub plot: 0.614 tons per acre or 8.4% (12 d.f.)

Blight counts were made and are available. The mean level of infection was only 0.2%.

52/Ce/3.2

Summary of Results

	Spray				
	None	Copper fungicide	Sulphuric Acid	Copper fungicide and Sulphuric Acid	Mean
Total tubers: tons per acre					
					(± 0.538)*
Undamaged rows	7.45	7.55	7.17	6.99	7.29
Damaged rows	7.36	7.80	7.26	6.63	7.26
Mean (± 0.492)	7.40	7.67	7.22	6.81	7.28
Difference (± 0.434)	-0.09	+0.25	+0.09	-0.36	-0.03 (± 0.217)
Percentage Ware**					
	86.1	90.7	84.9	84.1	86.4

* for use in all comparisons other than vertical.

** estimated from produce of damaged rows only.

52/Ce/4

POTATOES

Nitrophosphates - Highfield 5 1952.

System of replication: 6 x 6 Latin Square.

Area of each plot: 0.0196 acre. Area harvested: 0.0147 acre.

Treatments: None; Superphosphate at 0.3 and 0.6 cwt P₂O₅ per acre; British nitrophosphate (14.2% N, 14.4% P₂O₅) at 0.45 cwt P₂O₅ per acre; French nitrophosphate (12.1% N, 11.9% P₂O₅, 13.0% K₂O) at 0.45 cwt P₂O₅ per acre; Dutch nitrophosphate (19.3% N, 20.2% P₂O₅) at 0.45 cwt P₂O₅ per acre.

Treatments received extra sulphate of ammonia and muriate of potash to bring them to the level of 0.6 cwt N and 1.0 cwt K₂O per acre.

Basal dressing: None.

Cultivations, etc.: Ploughed: Mar 18. Ridged: Apr 30. Fertilizers applied, potatoes planted: May 1. Earthed up: July 9. Sprayed with copper fungicide 5 lb per acre: Aug 13 and again Sept 5. Sprayed with sulphuric acid, 20% B.O.V.: Oct 8. Lifted: Oct 17. Variety: Majestic. Previous crop: Kale.

Standard error per plot:

Total tubers: 1.25 tons per acre or 9.0% (20 d.f.)

Summary of Results

	No fert- ilizer	Superphosphate at 0.3 cwt P ₂ O ₅ per acre	0.6 cwt P ₂ O ₅ per acre	Nitrophosphate at 0.45 cwt P ₂ O ₅ per acre			Mean
				British	French	Dutch	
Total tubers: tons per acre							
Mean (±0.511)	13.87	12.97	14.89	14.00	13.89	13.41	13.84
Increase (±0.722)		-0.90	+1.02	+0.13	+0.02	-0.46	
Percentage Ware (1½" riddle)							
Mean	82.1	80.4	78.4	81.2	81.9	79.8	80.6
Increase		-1.7	-3.7	-0.9	-0.2	-2.3	

52/Cf/1.1

LUCERNE

Fertilizer placement - Highfield 5 1952.

System of replication: 8 randomized blocks of 8 plots each, a high order interaction being confounded with block differences.

Area of each plot: 0.0136 acre.

Treatments: All combinations of:-

Superphosphate: None; 1.0 cwt P_2O_5 per acre.

Muriate of Potash: None; 1.0 cwt K_2O per acre.

Method of placement: Broadcast on seed bed (B): Ploughed in 10" (D)

Starter: None; 2 cwt granular superphosphate per acre placed beneath seed.

Basal dressing: None.

Cultivations, etc.: 'D' fertilizers applied: Mar 17. Ploughed: Mar 18. 'B' fertilizers applied: May 2. Starter applied, seed drilled at 20 lb per acre: May 7. Dusted with D.D.T: June 5. Cut and weighed. green: July 29 and again Oct 10. Variety: Du Puit. Previous crop: Kale.

Standard errors per plot: Dry Matter.

1st cut: 1.18 cwt per acre or 11.8% (42 d.f.)

2nd cut: 1.78 cwt per acre or 8.6% (42 d.f.)

52/Cf/1.2

Summary of Results

Dry Matter: cwt per acre

Starter	No ferti- lizer	Superphosphate		Muriate of potash		Superphosphate and Muriate of potash		Mean
		Broad- cast	Ploughed in	Broad- cast	Ploughed in	Broad- cast	Ploughed in	
		1st cut [‡]						
None (±0.57)	6.8 ⁽¹⁾	7.7	9.0	6.5	7.6	9.0	10.1	7.9
Granular Super	12.0 ⁽¹⁾	10.7	12.2	12.5	12.2	12.9	13.2	12.2
Mean (±0.42)	9.4 ⁽²⁾	9.2	10.6	9.5	9.9	10.9	11.6	10.1
Difference (±0.78)	5.2 ⁽³⁾	3.0	3.2	6.0	4.6	3.9	3.1	4.3 ⁽²⁾

(1) ± 0.42 (2) ± 0.30 (3) ± 0.59

Mean Dry Matter %: 27.7

^{*} Adjusted for block effects

2nd cut

None (± 0.89)	18.8 ⁽⁴⁾	19.5	19.4	18.6	18.6	20.6	20.6	19.4
Granular Super	21.9 ⁽⁴⁾	21.6	21.6	22.2	22.2	21.4	22.3	21.9
Mean (± 0.63)	20.3 ⁽⁵⁾	20.6	20.5	20.4	20.4	21.0	21.5	20.6
Difference (± 1.26)	3.1 ⁽⁶⁾	2.1	2.2	3.6	3.6	0.8	1.7	2.5 ⁽⁵⁾

(4) ± 0.63 (5) ± 0.45 (6) ± 0.89

Mean Dry Matter %: 22.9

52/Cg/1

PERMANENT GRASS

Residual of nitrophosphates - Highfield 9 1952.

System of replication: 6 x 6 Latin Square.

Area of each plot: 0.0102 acre. Area harvested: 0.0093 acre.

Treatments, applied 1951: None; Sulphate of ammonia; Superphosphate; Sulphate of ammonia and superphosphate; British nitrophosphate (12.8% N, 15.25% P₂O₅); Dutch nitrophosphate (20% N, 20.3% P₂O₅). The dressings supply 0.39 cwt N and 0.39 cwt P₂O₅ per acre, the British nitrophosphate receiving extra N to reach this standard.

Basal dressing: $1\frac{1}{3}$ cwt muriate of potash per acre.

Cultivations, etc.: Muriate of potash applied: Mar 12. Cut: June 19 and weighed green.

Standard errors per plot:

Hay, dry matter: 1.97 cwt per acre or 5.2% (20 d.f.)

P₂O₅ uptake: 0.00822 cwt per acre or 4.7% (20 d.f.)Summary of Results

	Fertilizers applied 1951						Mean
	None	Sulphate of Ammonia	Super-phosphate	Sulphate of Ammonia and Super-phosphate	British Nitro-phosphate	Dutch Nitro-phosphate	

Hay, dry matter: cwt per acre

Mean (±0.80)	37.3	37.0	38.7	37.1	39.2	38.8	38.0
Increase (±1.14)		-0.3	+1.4	-0.2	+1.9	+1.5	
P ₂ O ₅ uptake: cwt per acre							
Mean (±0.0034)	0.163	0.160	0.184	0.172	0.174	0.187	0.173
Increase (±0.0047)		-0.003	+0.021	+0.009	+0.011	+0.024	

Mean Dry Matter %: 39.6

52/Ch/1

GLOBE BEET

Fertilizer placement - Long Hoos IV 1952.

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

Area of each plot: 0.00344 acre.

Treatments: No fertilizer; and all combinations of:-

National Compound fertilizer No. 1A (8% N; 6% P₂O₅; 10½% K₂O):
2.5; 5.0 cwt per acre.

Method of placement: Broadcast on seed bed; drilled in band
beside seed.

Note. On calibration, the levels of fertilizer actually drilled were
found to be 2.0 and 4.5 cwt per acre.

Basal dressing: None.

Cultivations, etc.: Ploughed: Feb 5. Seed drilled at 8 lb per acre,
fertilizer applied: May 13. Lifted: Aug 6. Variety: Crimson
Globe. Previous crop: Barley.

Standard error per plot:

Saleable produce*: 1.60 tons per acre or 45.2% (12 d.f.)

Summary of Results

Compound fertilizer: cwt per acre						
None	2.5 Broadcast	2.0 Drilled	5.0 Broadcast	4.5 Drilled	Mean	
Saleable produce*: tons per acre						
Mean (± 0.80)	3.99	3.18	3.25	3.20	4.03	3.53
Increase (± 1.13)		-0.81	-0.74	-0.79	+0.04	
Total produce*: tons per acre						
Mean	5.50	4.72	4.58	4.65	5.31	4.95
Increase		-0.78	-0.92	-0.85	-0.19	

*Bulbs and tops.

52/Ci/1.1

SUGAR BEET

Control of Virus Yellows - Great Harpenden II 1952.

System of replication: 5 randomized blocks of 3 plots each, plots being split into 3 for singling dates.

Area of each sub plot: 0.0208 acre. Area harvested: 0.0181 acre.

Treatments:

Whole plots: Sowing date. 1 - As early as possible; 2 - As soon as first sowing above ground; 3 - As soon as second sowing above ground.

Sub plots: Singling date. A - Early (Cotyledons and first leaf less than 1"); B - Normal (Cotyledons and 4 leaves); C - Late (8-12 leaves).

Basal dressing per acre: 3 cwt nitrate of soda; 4 cwt superphosphate; 2 cwt sulphate of potash; 5 cwt salt.

Cultivations, etc.: Ploughed: Oct 30, 1951. 2 tons ground chalk per acre applied: Mar 4, 1952. Basal fertilizers except nitrate of soda applied: Mar 15. Nitrate of soda applied, seed drilled at 18 lb per acre: '1' plots - Mar 17, '2' plots - Apr 17, '3' plots - May 6. DDT dust applied to '1' plots: Apr 15. Singled: Plots '1A' - May 13, '1B' and '2A' - May 22, '1C', '2B' and '3A' - May 29, '2C' and '3B' - June 6, '3C' - June 17. Lifted: Jan 5, 1953. Variety: Klein E. Previous crop: Oats.

Standard errors per plot:

Total sugar: whole plot, 4.18 cwt per acre or 9.5% (8 d.f.)
sub plot, 6.18 cwt per acre or 14.0% (24 d.f.)

Percentage Virus Yellows

(transformed values): whole plot, 3.17 or 14.7% (8 d.f.)
sub plot, 5.14 or 23.9% (24 d.f.)

Note. The analysis of the incidence of Virus Yellows has been carried out on percentages transformed to degrees, and all tests of significance should be applied to the transformed values.

Summary of Results

Sowing Date	Singling Date			Mean
	Early	Normal	Late	
Roots (washed): tons per acre				
17th March	14.86	16.98	13.68	15.17
17th April	16.52	15.95	12.60	15.02
6th May	13.36	12.25	10.35	11.99
Mean	14.91	15.06	12.21	14.06

52/Ci/1.2

Sowing Date	Singling Date			Mean
	Early	Normal	Late	
Sugar Percentage				
17th March	15.70	15.96	15.68	15.78
17th April	15.94	15.84	15.15	15.64
6th May	15.54	15.27	15.21	15.34
Mean	15.73	15.69	15.35	15.59
Total Sugar: cwt per acre				
	(a and b)			(± 1.87)
17th March	46.7	54.2	43.1	48.0
17th April	52.6	50.6	38.6	47.3
6th May	41.5	37.4	31.5	36.8
Mean (± 1.60)	46.9	47.4	37.7	44.0
Plant Number: thousands per acre				
17th March	27.5	29.4	27.6	28.2
17th April	29.9	28.3	23.1	27.1
6th May	28.2	28.6	22.0	26.2
Mean	28.5	28.7	24.2	27.2
Noxious Nitrogen: mg per 100 g.				
17th March	15.0	15.0	19.0	16.3
17th April	18.0	17.0	22.0	19.0
6th May	17.0	21.0	22.0	20.0
Mean	16.7	17.7	21.0	18.4

- (a) - ± 2.76 for use in horizontal comparisons only.
 (b) ± 2.93 for use in all other comparisons.

52/Ci/1.3

Sowing Date	Singling Date			Mean
	Early	Normal	Late	
Percentage Virus Yellows (means calculated from transformed values)				
17th March	12.6	15.6	12.8	13.7
17th April	18.3	10.8	19.4	15.9
6th May	10.7	10.8	11.7	11.0
Mean	13.7	12.2	14.4	13.4

Percentage Virus Yellows (transformed values)				
	(a and b)			(±1.42)
17th March	20.8	23.3	20.9	21.7
17th April	25.3	19.2	26.1	23.5
6th May	19.1	19.2	20.0	19.4
Mean (±1.33)	21.7	20.5	22.3	21.5

- (a) ±2.30 for use in horizontal comparisons only.
 (b) ±2.35 for use in all other comparisons.

52/Ci/2.

SUGAR BEET

Krilium - Rothamsted, Great Harpenden II; Woburn, Butt Close, 1952.

System of replication: Rothamsted - 3×3 Latin square. Woburn -
3 randomized blocks of 3 plots each.

Area of each plot: 0.00083 acre.

Treatments:

Krilium: None; 5 cwt per acre broadcast and harrowed into seed
bed; 1 cwt per acre drilled in 3" band.Basal manuring per acre: 2 cwt sulphate of potash; 4 cwt superphosphate;
3 cwt nitrate of soda; 5 cwt salt.

Cultivations, etc.:

Rothamsted. Ploughed: Oct 30, 1951. 2 cwt ground chalk per acre
applied: Mar 4, 1952. Sulphate of potash and superphosphate
drilled: Mar 15. Krilium applied, seed drilled at 18 lb per acre:
Mar 21. Nitrate of soda applied: Mar 26. Singled: May 17.
Lifted: Jan 12, 1953. Variety: Klein E.Woburn. Ploughed: Apr 5, 1952. Krilium and basal fertilizers
applied, seed drilled at 18 lb per acre: Apr 28. Singled: May 27
Lifted: Dec 10. Variety: Klein E.Summary of Results

<u>Rothamsted</u>				<u>Woburn</u>			
Krilium: cwt per acre				Krilium: cwt per acre			
5	1			5	1		
None	Broadcast	Drilled	Mean	None	Broadcast	Drilled	Mean
Clean Beet: tons per acre							
16.11	17.84	15.95	16.63	12.07	15.39	15.37	14.28
Sugar Percentage							
16.35	16.16	16.07	16.19	15.83	16.47	15.95	16.08
Total Sugar: cwt per acre							
52.7	57.6	51.3	53.8	38.8	50.6	49.0	46.2
Tops: tons per acre							
8.93	9.91	9.11	9.32	12.14	14.46	16.61	14.40
Plant Number: thousands per acre							
30.0	28.0	28.8	28.9	29.6	31.6	31.6	30.9
Noxious Nitrogen: mg. per 100 g.							
15.0	15.0	18.3	16.1	28.3	28.3	28.3	28.3

52/Cj/1.1

CLOVER, RYEGRASS, RED BEET AND CARROTS

Krillium - Rothamsted, Fosters and Barnfield; Woburn, Stackyard and Warren Field.

System of replication: 4×4 Latin square.

Area of each plot: 0.00207 acre. Area harvested: Clover and Ryegrass - 0.000275 acre, Red beet and Carrots - 0.000689 acre.

Treatments:

Krillium per acre: None; 3 cwt broadcast and twice rotary cultivated in (K_1); 6 cwt broadcast and twice rotary cultivated in (K_2); 3 cwt broadcast and raked into seed bed (K_3).

Basal manuring: 5 cwt Compound fertilizer (7% N, 7% P_2O_5 , 10.5% K_2O) per acre.

Cultivations, etc.:

Rothamsted

Ploughed: Feb 13. K_1 and K_2 applied, all plots rotor tilled: May 14. Rotor tilled 2nd time, applied K_3 , seeds drilled: May 15. Dusted red beet with DDT: June 4. 1st cut ryegrass: Fosters - July 25, Barnfield - Aug 27. Clover cut: Aug 29. 2nd cut ryegrass: Sept 18. Carrots lifted: Nov 13. Beet, Barnfield lifted: Nov 14. The beet on Fosters were damaged by sheep and the yields were not taken. Varieties: Clover - Crimson; Ryegrass - Western Walth; Carrots - James Scot Intermediate; Red Beet - Detroit.

Woburn

Ploughed: Stackyard - Sept 17 1951 and Jan 4 1952. Warren Field - Feb 22. K_1 and K_2 applied, all plots rotor tilled: May 14. Applied K_3 and basal manures, rotor tilled, seeds drilled: May 15. Owing to rabbit damage the clover ryegrass and carrots on Warren Field were not harvested. Clover and ryegrass harvested: Aug 22. Beet lifted: Sept 12. Carrots lifted: Oct 30. Varieties: Clover - Scarlet Isles Tribium; Ryegrass - Italian; Carrots - Scarlet Intermediate; Red Beet - Detroit.

52/Cj/1.2

Standard errors per plot:

Clover, fresh weight.

Fosters:	9.66 cwt per acre or 14.1% (6 d.f.)
Barnfield:	3.73 cwt per acre or 12.0% (6 d.f.)
Stackyard:	19.3 cwt per acre or 31.6% (6 d.f.)

Ryegrass, fresh weight.

Fosters, 1st cut:	2.09 cwt per acre or 22.0% (6 d.f.)
2nd cut:	10.9 cwt per acre or 17.3% (6 d.f.)
Barnfield, 1st cut:	5.86 cwt per acre or 9.9% (5 d.f.)*
2nd cut:	1.37 cwt per acre or 9.7% (6 d.f.)
Stackyard:	14.3 cwt per acre or 11.4% (6 d.f.)

Red Beet, weight of bulbs.

Barnfield:	0.960 tons per acre or 18.8% (6 d.f.)
Stackyard:	3.62 tons per acre or 39.9% (6 d.f.)
Warren Field:	0.436 tons per acre or 8.2% (6 d.f.)

Carrots, roots.

Fosters:	1.02 tons per acre or 7.8% (6 d.f.)
Barnfield:	0.525 tons per acre or 19.9% (6 d.f.)
Stackyard:	1.15 tons per acre or 33.5% (6 d.f.)

*1 missing value.

Summary of Results

Krillium: cwt per acre					Mean
None	Broadcast 3	Broadcast in 6	Broadcast in seedbed 3		
Clover, fresh weight: cwt per acre					
<u>Fosters</u>					
Mean (± 4.83)	67.0	66.8	68.2	72.8	68.7
Increase (± 6.83)		-0.2	+1.2	+5.8	
<u>Barnfield</u>					
Mean (± 1.87)	30.4	31.0	31.0	32.2	31.2
Increase (± 2.64)		+0.6	+0.6	+1.8	
<u>Stackyard</u>					
Mean (± 9.6)	60.7	63.2	62.4	58.3	61.1
Increase (± 13.6)		+2.5	+1.7	-2.4	

52/Cj/1.3

Krillium: cwt per acre				
None	Broadcast 3	6	Broadcast in seedbed 3	Mean

Ryegrass, fresh weight: cwt per acre

<u>Fosters, 1st cut</u>					
Mean (± 1.05)	9.2	9.2	9.7	9.9	9.5
Increase (± 1.48)		0.0	+0.5	+0.7	
<u>Fosters, 2nd cut</u>					
Mean (± 5.43)	71.1	60.8	61.3	58.2	62.8
Increase (± 7.68)		-10.3	-9.8	-12.9	
<u>Barnfield, 1st cut</u>					
Mean (± 2.93)	58.7	57.4	58.3	62.1	59.1
Increase (± 4.14)		-1.3	-0.4	+3.4	
<u>Barnfield, 2nd cut</u>					
Mean (± 0.68)	15.5	14.2	12.4	14.5	14.1
Increase (± 0.97)		-1.3	-3.1	-1.0	
<u>Stackyard</u>					
Mean (± 7.1)	132.2	123.0	124.5	123.0	125.7
Increase (± 10.1)		-9.2	-7.7	-9.2	

Red Beet, weight of bulbs: tons per acre

<u>Barnfield</u>					
Mean (± 0.480)	5.56	5.49	4.57	4.83	5.11
Increase (± 0.679)		-0.07	-0.99	-0.73	
<u>Stackyard</u>					
Mean (± 1.81)	9.01	10.26	9.61	7.47	9.09
Increase (± 2.56)		+1.25	+0.60	-1.54	
<u>Warren Field</u>					
Mean (± 0.218)	5.61	4.12	5.93	5.64	5.32
Increase (± 0.308)		-1.49	+0.32	+0.03	

Carrots, roots: tons per acre

<u>Fosters</u>					
Mean (± 0.510)	13.37	11.59	13.77	13.74	13.12
Increase (± 0.721)		-1.78	+0.40	+0.37	
<u>Barnfield</u>					
Mean (± 0.263)	2.50	2.88	2.31	2.88	2.65
Increase (± 0.371)		+0.38	-0.19	+0.38	
<u>Stackyard</u>					
Mean (± 0.577)	3.34	3.35	3.49	3.60	3.45
Increase (± 0.816)		+0.01	+0.15	+0.26	