ROTHAMSTED RESEARCH

Yields of the Field Experiments 1960

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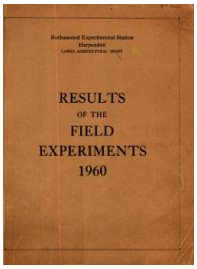

Short-term Experiments

Rothamsted Research

Rothamsted Research (1961) *Short-term Experiments ;* Yields Of The Field Experiments 1960, pp 83 - 137 **- DOI: https://doi.org/10.23637/ERADOC-1-180**

WINTER WHEAT

Sowing dates, seed rates and levels of nitrogen (after non-cereal crop) - Great Knott III 1960.

Design: 3 randomized blocks of 12 plots each, plots being split into 2 for the application of nitrogen.

Area of each sub plot: 0.0193 acres. Area harvested: 0.0126 acres.

Treatments. All combinations of:-

Whole plots. Sowing dates: Oct 2; Oct 21; Nov 23; Dec 18, 1959.
Seed rates: 2; 3; 4 bushels per acre.

Sub plots. Nitrogen (in addition to basal): 0.46; 0.92 cwt N per acre applied as 'Nitro-Chalk' in two equal parts on Feb 17 and Apr 28.

Basal dressing: 3 cwt compound fertilizer (10% P_2O_5, 20% K_2O) per acre broadcast in seed bed, 3 cwt compound fertilizer (5% N, 12½% P_2O_5, 12½% K_2O) per acre combine drilled with seed.

Cultivations, etc.: Ploughed: Sept 8, 1959. Compound fertilizer applied: First sowing - Sept 28; second sowing - Oct 20; third sowing - Nov 17; fourth sowing - Dec 17. Sprayed with TCB/MCPA at 4 pints in 40 gallons per acre: Apr 22, 1960. Combine harvested: Aug 30. Variety: Cappelle. Previous crops: 1957 - Spring wheat; 1958 - Spring beans; 1959 - Early potatoes.

Note. Counts of plant shoot and ear number, and estimates of plant height and % area lodged were made.

Standard errors per plot, Grain (at 85% dry matter):
Whole plot: 1.93 cwt per acre or 4.0% (22 d.f.)
Sub plot: 2.00 cwt per acre or 4.1% (24 d.f.)

https://doi.org/10.23637/ERADOC-1-180

60/Ca/1.2

Summary of Results

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

Seed rate: bushels per acre	Date of sowing: Oct 2nd	Oct 21st	Nov 23rd	Dec 18th	N: cwt per acre (including basal) 0.6	1.1	Diff.	Mean
	(±1.11)				(±0.69)*		(±0.82)	(±0.56)
2	50.8	48.6	47.8	44.8	47.4	48.5	+1.1	48.0
3	51.4	48.9	48.8	46.4	48.5	49.2	+0.7	48.9
4	52.0	43.5	47.4	50.5	48.8	47.9	-0.9	48.3
				Date of sowing	(±0.80)*		(±0.94)	(±0.64)
				Oct 2nd	50.3	52.5	+2.2	51.4
				Oct 21st	47.5	46.4	-1.1	47.0
				Nov 23rd	49.1	46.9	-2.2	48.0
				Dec 18th	46.0	48.4	+2.4	47.2
				Mean	48.2	48.5	+0.3 (±0.47)	48.4

*For use in vertical and diagonal comparisons only.

Mean dry matter % as harvested: 78.6

https://doi.org/10.23637/ERADOC-1-180

60/Ca/2.1

WINTER WHEAT

Sowing dates, seed rates and levels of nitrogen (after cereal crop) - Great Knott III 1960.

Design: 3 randomized blocks of 8 plots each, plots being split into 2 for the application of nitrogen.

Area of each sub plot: 0.0148 acres. Area harvested: 0.0096 acres.

Treatments. All combinations of:-

Whole plots. Sowing dates: Oct 2; Oct 21; Nov 23; Dec 18, 1959.
Seed rates: 2; 4 bushels per acre.

Sub plots. Nitrogen (in addition to basal): 0.46; 0.92 cwt N per acre applied as 'Nitro-Chalk' in two equal parts on Feb 18 and Apr 28.

Basal dressing: 3 cwt compound fertilizer (10% P_2O_5, 20% K_2O) per acre broadcast in seed bed, 3 cwt compound fertilizer (5% N, 12½% P_2O_5, 12½% K_2O) per acre combine drilled with seed.

Cultivations, etc.: Sprayed with 2-4D at 1¾ pints in 40 gallons per acre: Aug 28, 1959. Ploughed: Sept 9. Compound fertilizer applied: First sowing - Sept 28; second sowing - Oct 20; third sowing - Nov 17; fourth sowing - Dec 17. Sprayed with TCB/MCPA at 4 pints in 40 gallons per acre: Apr 22, 1960. Combine harvested: Aug 30. Variety: Cappelle. Previous crops: 1957 - Spring wheat; 1958 - Barley; 1959 - Winter wheat.

Note. Counts of plant shoot and ear number, and estimates of plant height and % area lodged were made. The incidence of Eyespot (*Cercosporella herpotrichoides*) and Take-all (*Ophiobolus graminis*) was estimated.

Standard errors per plot, Grain (at 85% dry matter):
Whole plot: 1.83 cwt per acre or 5.5% (14 d.f.)
Sub plot: 1.95 cwt per acre or 5.9% (16 d.f.)

https://doi.org/10.23637/ERADOC-1-180

Summary of Results

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

Seed rate: bushels per acre	Date of sowing: Oct 2nd	Oct 21st	Nov 23rd	Dec 18th	N: cwt per acre (including basal) 0.6	1.1	Diff.	Mean
	(±1.06)				(±0.66)*		(±0.80)	(±0.53)
2	31.2	35.0	34.9	30.9	29.3	36.6	7.3	33.0
4	33.1	31.7	34.4	35.2	31.3	35.9	4.6	33.6

Date of sowing	(±0.94)*		(±1.13)	(±0.75)
Oct 2nd	28.5	35.7	7.2	32.1
Oct 21st	30.6	36.1	5.5	33.3
Nov 23rd	31.2	38.1	6.9	34.6
Dec 18th	30.9	35.1	4.2	33.0
Mean	30.3	36.3	6.0 (±0.56)	33.3

*For use in vertical and diagonal comparisons only.

Mean dry matter % as harvested: 80.0

https://doi.org/10.23637/ERADOC-1-180

60/Ca/3.1

WINTER WHEAT

Row spacing, seed rates and nitrogen - Highfield Drive 1960.

Design: 2 replicates of a 3 × 2 × 3 experiment arranged in 6 blocks of 6 plots each, certain interactions being confounded with block differences.

Area of each plot: 0.0148 acres. Area harvested: 0.0100 acres.

Treatments. All combinations of:-
Row spacing: 7"; 14"; 7" with every 4th row blank (7B).
Seed rate bushels per acre: 2; 4 when all coulters sowing.
Levels of nitrogen (excluding basal): 0.5; 1.0; 1.5 cwt N per acre as 'Nitro-Chalk' 21.

Basal dressing: $2\frac{1}{2}$ cwt compound fertiliser (6% N, 15% P_2O_5, 15% K_2O) per acre combine drilled.

Cultivations, etc.: Ploughed: Sept 4, 1959. Ground chalk applied at 4.6 tons per acre: Sept 30. Seed combine drilled: Oct 10. 'Nitro-Chalk' applied: Feb 29, 1960. Sprayed with CMPP at 6 pints in 40 gallons per acre: Apr 21. Combine harvested: Aug 31. Variety: Cappelle. Previous crop: Beans.

Standard error per plot.
Grain (at 85% dry matter): 2.032 cwt per acre or 5.5% (13 d.f.)

Note: Counts of plant shoot and ear number and estimates of % area lodged were made.

https://doi.org/10.23637/ERADOC-1-180

60/Ca/3.2

Summary of Results

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

Seed rate: bushels per acre	Row spacing: inches 7	14	7B
		(±0.83)	
2	40.3	36.5	37.8
4	35.1	37.0	36.1
Diff (±1.17)	-5.2	+0.5	-1.7

N cwt per acre including basal	Row spacing: inches 7	14	7B	Seed rate: bushels per acre 2	4	Mean	Diff.
		(±1.06)		(±0.83)		(±0.59)	(±1.17)
.65	41.9	38.4	38.8	40.5	38.9	39.7	-1.6
1.15	37.6	36.0	35.2	37.5	35.0	36.3	-2.5
1.65	33.8	35.8	36.8	36.6	34.3	35.4	-2.3
Mean (±0.59)	37.7	36.7	36.9	38.2	36.1	37.1	-2.1 (±0.68)

Mean dry matter % as harvested: 80.9

B = Every 4th row blank.

https://doi.org/10.23637/ERADOC-1-180

WINTER WHEAT

The comparison of clover and grass leys as a preparation for wheat - West Barnfield II 1960.

Design: 4 randomised blocks of 16 plots each.

Area of each plot: 0.0146 acres.

Treatments. All combinations of:-

Nitrogen to Leys 1959:-

To clover: None (C_0)
To ryegrass: None (R_0), R1 and R2
Where R_1 = 0.6 cwt N per acre in spring, 0.15 cwt N after 1st hay cut.
R_2 = 1.2 cwt N per acre in spring, 0.30 cwt N after 1st hay cut.

Nitrogen to Wheat 1960:-

None; 0.25, 0.50, 0.75 cwt N per acre as top dressing, half in March and half in April.
The nitrogenwas applied as 'Nitro-Chalk'.

Basal dressings per acre:
To barley nurse crop 1958: 3 cwt compound fertiliser (10% P_2O_5, 20% K_2O) combine-drilled; 2 cwt sulphate of ammonia in seedbed.
To leys combine-drilled 1958: 1 cwt superphosphate.
To wheat 1960: 2 cwt compound fertiliser (16% P_2O_5, 16% K_2O) combine-drilled.

Cultivations, etc.: Ploughed: Aug 19, 1959. Seed combine-drilled at 180 lb per acre: Oct 16. Nitrogen applied: Mar 7 and Apr 27, 1960. Sprayed with TCB/MCPA at 4 pints in 40 gallons per acre: Apr 29. Combine-harvested: Aug 30. Variety: Cappelle.

Standard error per plot.
Grain (at 85% dry matter) cwt per acre: 1.89 cwt per acre or 4.8% (45 d.f.)

Note: For details of the previous year's results see 'Results of the Field Experiments' 59/Cg/4.

https://doi.org/10.23637/ERADOC-1-180

Summary of Results

Treatment in 1959

N in 1960: cwt per acre	C_0	R_0	R_1	R_2	Mean
Grain (at 85% dry matter): cwt per acre					
		(±0.94)			(±0.46)
None	34.3	29.7	31.4	32.7	32.0
0.25	38.4	38.1	37.9	36.7	37.8
0.50	42.9	44.2	40.9	42.1	42.5
0.75	45.3	47.9	44.5	43.5	45.3
Mean (±0.46)	40.2	40.0	38.7	38.7	39.3
Straw (at 85% dry matter): cwt per acre					
None	27.9	20.7	25.9	23.0	24.4
0.25	26.5	26.5	23.3	26.1	25.6
0.50	33.7	30.6	26.0	29.7	30.0
0.75	35.2	31.1	31.3	27.7	31.3
Mean	30.8	27.2	26.6	26.6	27.8

Treatment in 1959

To clover C_0 = None
To ryegrass R_0 = None
R_1 = 0.6 cwt N per acre in spring, 0.15 cwt N after 1st hay cut.
R_2 = 1.2 cwt N per acre in spring, 0.30 cwt N after 1st hay cut.

Mean dry matter % as harvested: Grain 80.6
Straw 87.8

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60/Ca/5

WINTER WHEAT

Comparison of the standard with the precision drill - Great Knott I 1960.

Design: 4 randomised blocks of 6 plots each.

Area of each plot: 0.0212 acres. Area harvested: 0.0141 acres.

Treatments. All combinations of:-
Drills: Standard; precision.
Seed rates: 1; 2; 3 bushels per acre.

Basal dressing: 3 cwt compound fertiliser (6% N, 15% P_2O_5, 15% K_2O) per acre broadcast in seed bed and 5 cwt per acre sulphate of ammonia applied in spring.

Cultivations, etc.: Ploughed: Oct 13, 1959. Seed drilled, basal fertiliser applied: Oct 24. Sulphate of ammonia applied: Apr 8, 1960. Sprayed with CMPP at 6 pints in 40 gallons per acre: Apr 22. Combine harvested: Aug 30. Variety: Cappelle. Previous crop: Beans.

Note. Plant counts were made shortly after germination.

Standard error per plot.
Grain (at 85% dry matter): 1.40 cwt per acre or 2.7% (15 d.f.)

Summary of Results

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

Drill	Seed rate bushels per acre 1	2	3	Mean
		(±0.70)		(±0.40)
Standard	51.0	53.2	53.7	52.6
Precision	51.6	53.6	52.5	52.6
Mean (±0.49)	51.3	53.4	53.1	52.6

Mean dry matter % as harvested: 80.0

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60/Ca/6.1

SPRING WHEAT

Forms of N and methods of application - Little Knott I 1960.

Design: 4 × 2 × 4 in 6 blocks of 16, with certain high order interactions partially confounded with block differences, plus 2 control plots per block.

Area of each plot: 0.0097 acres.

Treatments: No nitrogen and all combinations of:-

Forms of N: Ammonium sulphate 21% N (S)
Calcium nitrate 15.5% N (C)
Ammonium nitrate 23% N (A)
or Urea 45.6% N (U)

Levels of N: 0.4; 0.8 cwt N per acre.

Methods of application: Broadcast (B), combine drilled (D), side band placed (P), top dressed (T).

Basal dressing: 2 cwt granular compound fertiliser (14% P_2O_5, 28% K_2O) per acre cross drilled.

Cultivations, etc.: Ploughed: Nov 11, 1959. Ground chalk applied at 23 cwt per acre: Feb 24 - Mar 2, 1960. Seed drilled at 3 bushels per acre and seedbed fertilisers applied: Mar 22. Nitrogen top dressings applied: May 2. Sprayed with TCB/MCPA at 4 pints in 40 gallons per acre: May 10. Combine harvested: Sept 13. Variety: Jufy II Previous crop: Oats.

Standard error per plot.
Grain (at 85% dry matter): 2.01 cwt per acre or 5.8% (67 d.f.)

https://doi.org/10.23637/ERADOC-1-180

Summary of Results

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

	Form of N				
	S	C	A	U	Mean
Mean (±0.41)	34.6	36.0	35.4	35.4	35.4 (±0.21)
N: cwt per acre					
0.4 (±0.58)	33.8	35.3	34.4	34.9	34.6
0.8	35.3	36.8	36.4	35.9	36.1
Diff. (±0.82)	+1.5	+1.5	+2.0	+1.0	+1.5 (±0.41)
Method of application					
B	34.0	34.2	34.1	35.2	34.4
D (±0.82)	34.5	36.4	36.2	35.9	35.7 (±0.41)
P	36.3	37.5	35.4	34.9	36.0
T	33.4	36.0	36.0	35.8	35.3

	Method of application			
	B	D	P	T
N: cwt per acre				
0.4 (±0.58)	33.1	35.3	35.4	34.6
0.8	35.6	36.2	36.7	36.0
Diff. (±0.82)	+2.5	+0.9	+1.3	+1.4

Control: 29.9 (±0.58)

General Mean 34.8

Mean dry matter % as harvested (all plots): 84.4

Form of N
S = Ammonium sulphate 21% N
C = Calcium nitrate 15.5% N
A = Ammonium nitrate 23% N
U = Urea 45.6% N

Method of application
B = Broadcast
D = Combine drilled
P = Side band placed
T = Top dressed

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60/Ca/7.1

SPRING WHEAT

Combine drilling of nitrogen - Rothamsted (R) Little Knott I and Woburn (W) Lansome Field 1960.

Design (each field): 4 randomised blocks of 7 plots each.

Area of each plot: 0.0212 acres. Area harvested: 0.0141 acres.

Treatments:

No nitrogen. 0.41 cwt N per acre (N_1); 0.82* cwt N per acre (N_2) either broadcast as sulphate of ammonia or combine drilled as part of a compound fertiliser.

0.41 cwt N per acre as above plus 0.35 cwt N per acre as 'Nitro-Chalk' top dressing.

Compound fertilisers used:

N_1: 8% N, 8% P_2O_5, 8% K_2O.

N_2: 16% N, 9% P_2O_5, 9% K_2O.

*Note: 0.88 on Lansome Field, Woburn.

Basal dressing per acre: combine drilled

(a) on the plots receiving drilled nitrogen, as compounds N_1, N_2:-
Little Knott I (R): 0.46 cwt P_2O_5; 0.46 cwt K_2O.
Lansome Field (W): 0.49 cwt P_2O_5; 0.49 cwt K_2O.

(b) on the no nitrogen and broadcast nitrogen plots: as compound 16% P_2O_5, 16% K_2O:-
Little Knott I (R): 0.46 cwt P_2O_5; 0.46 cwt K_2O.
Lansome Field (W): 0.60 cwt P_2O_5; 0.60 cwt K_2O.

Note: The rates of application aimed at were N_1, 0.45; N_2, 0.8; N top-dressed, 0.35 cwt per acre; basal P_2O_5 and K_2O, 0.45 cwt per acre. The discrepancies were due to machine application.

Cultivations, etc.:

Little Knott I (R): Ploughed: Nov 10, 1959. Ground chalk applied at 23 cwt per acre: Feb 24 - Mar 2, 1960. Seed combine drilled at 2¾ bushels per acre, sulphate of ammonia applied: Mar 21. 'Nitro-Chalk' top dressings applied: Apr 22. Sprayed with TCB/MCPA at 4 pints in 40 gallons per acre: May 10. Combine harvested: Sept 13. Variety: Jufy I. Previous crop: Oats.

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Lansome Field (W): Sprayed twice with sodium trichloroacetate at 15 lb in 40 gallons per acre: Nov 17 and Dec 29, 1959. Ground chalk applied at 46 cwt per acre: Feb 16, 1960. Seed combine drilled at 2¾ bushels per acre, sulphate of ammonia applied: Mar 22. Sprayed with 2,4-D butoxyethyl ester at ½ pint in 40 gallons per acre: May 7. Combine harvested: Sept 10. Variety: Jufy I. Previous crop: Potatoes.

Note: Plant counts at germination were made.

Standard errors per plot, Grain (at 85% dry matter):
Little Knott (R): 2.06 cwt per acre or 6.5% (18 d.f.)
Lansome Field (W): 1.58 cwt per acre or 8.4% (18 d.f.)

Summary of Results

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

N: cwt per acre

	Broadcast			Drilled			
None	0.41	0.82*	0.41 & 0.35+	0.41	0.82	0.41 & 0.35+	Mean
Little Knott I (R)							
26.9	31.5	33.3	32.5 (±1.03)	31.4	33.1	34.8	31.9

Mean dry matter % as harvested: 83.2

Lansome Field (W)							
14.2	17.9	19.9	20.8 (±0.79)	19.5	20.7	18.5	18.8

Mean dry matter % as harvested: 80.3

*0.88 at Woburn

+Top dressing.

BARLEY

Direct and residual effects of N fertilisers - Harwoods Piece 1960.

Design: 2 × 8 × 2 factorial in 4 randomised blocks of 16 plots each, with certain high order interactions partially confounded with block differences.

Area of each plot: 0.0087 acres. Area harvested: 0.0078 acres.

Treatments. All combinations of:-
N (applied 1960): None; 0.5 cwt per acre applied as 'Nitro-Chalk'.
Residuals of N fertilisers applied in 1958 and 1959 to grass. See 'Results of the Field Experiments' 58/Cg/1 and 59/Cg/1.

Basal manuring per acre: 2 cwt compound fertiliser (14% P_2O_5, 28% K_2O) combine drilled.

Cultivations, etc.: Ploughed: Dec 2, 1959. N applied, seed combine drilled at 2 bushels per acre: Mar 28, 1960. Sprayed with CMPP at 6 pints in 40 gallons per acre: May 24. Combine harvested: Aug 18. Variety: Proctor. Previous crop: Italian ryegrass.

Standard error per plot.
Grain (at 85% dry matter): 2.59 cwt per acre or 8.0% (29 d.f.)

https://doi.org/10.23637/ERADOC-1-180

Summary of Results

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

	Fertiliser: Ureaformaldehyde applied				'Nitro-Chalk' applied				
	None	1958	1959	1958 & 1959	As single dressing spring 1959	1958	1959	1958 & 1959	Mean
Mean (±0.91)	29.6	32.0	32.4	33.0	32.0	32.1	33.2	33.9	32.3
N: cwt per acre in 1960					(±1.29)				
None	22.6	28.3	27.5	29.4	26.5	28.8	28.6	30.5	27.8
0.5	36.7	35.8	37.2	36.7	37.4	35.4	37.8	37.3	36.8
Diff. (±1.83)	+14.1	+7.5	+9.7	+7.3	+10.9	+6.6	+9.2	+6.8	+9.0 (±0.65)
N: cwt per acre in 1959					(±1.29)				
1.0		32.4	32.1	31.8	30.9	32.1	31.8	32.8	32.0 (±0.49)
2.0		31.7	32.6	34.3	33.0	32.1	34.6	35.0	33.3
Diff. (±1.83)		-0.7	+0.5	+2.5	+2.1	0.0	+2.8	+2.2	+1.3 (±0.69)

Mean dry matter % as harvested: 80.2

60/Cb/1.2

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

	Fertiliser								
		Ureaformaldehyde applied			'Nitro-Chalk' applied				
	None	1958	1959	1958 & 1959	As single dressing spring 1959	1958	1959	1958 & 1959	Mean
Mean	21.2	23.2	24.7	21.6	21.9	22.8	22.5	23.8	22.7
N: cwt per acre in 1960									
None	16.1	21.1	20.9	19.5	19.3	19.4	18.7	21.8	19.6
0.5	26.4	25.4	28.5	23.7	24.5	26.1	26.3	25.8	25.8
Diff.	+10.3	+4.3	+7.6	+4.2	+5.2	+6.7	+7.6	+4.0	+6.2
N: cwt per acre in 1959									
1.0		22.6	22.4	21.3	20.9	22.1	21.9	24.2	22.2
2.0		23.9	26.9	22.0	22.9	23.4	23.1	23.4	23.7
Diff.		+1.3	+4.5	+0.7	+2.0	+1.3	+1.2	-0.8	+1.5

Mean dry matter % as harvested: 81.9

60/Cb/1.3

BARLEY

Effects of green manures, N and straw - Stackyard 1960.

Design: 6 randomised blocks of 9 plots each.

Area of each plot: 0.0212 acres. Area harvested: 0.0152 acres.

Treatments. All combinations of:-
Nitrogen: None; 0.3; 0.6 cwt N per acre as 'Nitro-Chalk'.
Green manures and straw: None; ryegrass undersown; ryegrass undersown plus straw left on the plot after harvest.

Note: The straw treatment was not applied for the first crop.

Basal dressing: 3 cwt compound fertiliser (16% P_2O_5, 16% K_2O) per acre combine drilled.

Cultivations, etc.: Ploughed: Nov 12 - 17, 1959. Rotary cultivated twice to kill couch (Agropyron repens): Mar 22, 1960 and Apr 13. Seed combine drilled at 2½ bushels per acre with basal fertiliser, N applied: Apr 14. Ryegrass drilled at 40 lb per acre: Apr 19. Sprayed with CMPP at 6 pints in 40 gallons per acre: May 25. Combine harvested: Aug 22. Variety: Proctor; Ryegrass - S22 Italian. Previous crop: wheat.

Standard error per plot.
Grain (at 85% dry matter): 1.336 cwt per acre or 4.1% (43 d.f.)

Summary of Results

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

Undersown		N: cwt per acre None	0.3	0.6	Mean
None	(±0.55)	32.1	34.2	33.4	33.2 (±0.31)
Ryegrass	(±0.39)	30.0	33.2	33.1	32.1 (±0.22)
Mean	(±0.31)	30.7	33.5	33.2	32.4
Diff.	(±0.67)	-2.1	-1.0	-0.3	-1.1 (±0.39)

Mean dry matter % as harvested: 81.3

BARLEY

Forms of N and methods of application - Butt Close Woburn 1960.

Design: 4 × 2 × 4 in 6 blocks of 16, with certain high order interactions partially confounded with block differences, plus 2 control plots per block.

Area of each plot: 0.0146 acres.

Treatments: No nitrogen and all combinations of:-

Forms of N:	Ammonium sulphate 21% N	(S)
	Calcium nitrate 15.5% N	(C)
	Ammonium nitrate 23% N	(A)
	or Urea 45.6% N	(U)

Levels of N: 0.3; 0.6 cwt N per acre.

Methods of application: Broadcast (B), combine drilled (D), side band placed (P), top dressed (T).

Basal dressing: 2 cwt granular compound fertiliser (14% P_2O_5, 28% K_2O) per acre cross drilled.

Cultivations, etc.: Ploughed Jan 27 - Feb 8, 1960. Seed drilled at 2 bushels per acre and seedbed fertilisers applied: Mar 24. Nitrogen top dressings applied: Apr 29. Sprayed with TCB/MCPA at 4 pints in 40 gallons per acre: May 9. Combine harvested: Aug 23. Variety: Proctor. Previous crop: Sugar beet.

Standard error per plot.
Grain (at 85% dry matter): 1.95 cwt per acre or 7.7% (67 d.f.)

https://doi.org/10.23637/ERADOC-1-180

Summary of Results

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

	Form of N				
	S	C	A	U	Mean
Mean (±0.40)	26.2	26.1	26.2	26.0	26.1 (±0.20)
N: cwt per acre					
0.3 (±0.56)	23.3	24.4	24.0	24.4	24.0
0.6 (±0.56)	29.1	27.8	28.5	27.7	28.3
Diff. (±0.80)	+5.8	+3.4	+4.5	+3.3	+4.3 (±0.40)
Method of application					
B	25.4	24.3	25.6	25.4	25.2
D (±0.80)	26.3	26.0	25.3	25.5	25.7 (±0.40)
P	24.5	25.8	24.6	24.9	24.9
T	28.4	28.3	29.6	28.4	28.7

	Method of application			
	B	D	P	T
N: cwt per acre				
0.3 (±0.56)	22.8	23.8	23.1	26.3
0.6 (±0.56)	27.5	27.7	26.8	31.0
Diff. (±0.80)	+4.7	+3.9	+3.7	+4.7

Control: 18.0 (±0.56)

General mean: 25.2

Mean dry matter % as harvested (all plots): 81.4

Form of N
S = Ammonium sulphate 21% N
C = Calcium nitrate 15.5% N
A = Ammonium nitrate 23% N
U = Urea 45.6% N

Method of application
B = Broadcast
D = Combine drilled
P = Side band placed
T = Top dressed

https://doi.org/10.23637/ERADOC-1-180

60/Cc/1

SPRING OATS

Frit fly study (sowing dates) - Geescroft 1960.

Design: 2 randomised blocks of 3 plots each.

Area of each plot: 0.3342 acres. Area harvested: 0.0298 acres.

Treatments: Sowing dates: Mar 17; Apr 7; Apr 21, 1960.

Basal dressing: 3 cwt compound fertiliser (16% N, 9% P_2O_5, 9% K_2O) per acre combine drilled with seed.

Cultivations, etc.: Ploughed: Sept 14, 1959. Seed combine drilled at 3 bushels per acre: Mar 17, Apr 7 and Apr 21, 1960. Sprayed with TCB/MCPA at 4 pints in 40 gallons per acre: first sowing - May 10; second and third sowing - May 24. Combine harvested: first sowing - Aug 15; second sowing - Aug 17; third sowing - Sept 5. Variety: Blenda. Previous crop: Spring wheat.

Note. Counts of frit fly and egg numbers, estimates of grain and tiller damage, and of growth rates were made at intervals.

Summary of Results

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

Sowing date			
Mar 17	Apr 7	Apr 21	Mean
27.5	16.2	4.5	16.0

Mean dry matter % as harvested: 74.7

https://doi.org/10.23637/ERADOC-1-180

OATS

Trap cropping of eelworm - Woburn, Butt Furlong 1960.

Design: 6 randomised blocks of 6 plots each.

Area of each plot: 0.0106 acres. Area harvested: 0.0071 acres.

Treatments. All combinations of:-
Trap crop 1958 and 1959. Spring oats; Spring rye; Fallow. (all plots ploughed in May or June)
Green manure: None; mustard sown in June and ploughed in in autumn.
The whole experiment was sown to spring oats in 1960.

Note: Mustard failed in 1959 and was ploughed in and resown on July 24.

Basal dressings per acre:
1958: 5 cwt compound fertiliser (12% N; 9% P_2O_5; 9% K_2O) combine drilled with oats and rye and broadcast on the plots to be sown only with mustard. 2 cwt 'Nitro-Chalk' (15.5% N) to all plots at time of sowing mustard.
1959: Compound fertiliser as in 1958. $1\frac{1}{2}$ cwt 'Nitra-Shell' to all plots at time of sowing mustard.
1960: 4 cwt compound fertiliser (16% N; 9% P_2O_5; 9% K_2O) combine drilled..

Cultivations, etc.:
1958: Ploughed: Aug 29 - 30, 1957. Sprayed twice with TCA at 20 lb in 40 gallons per acre: Sept 30 and Dec 9. Dung applied at 12 tons per acre: Jan 21 - 24. Ploughed: Mar 5 - 7, 1958. Oats and rye combine drilled with basal fertiliser: Mar 25. Basal compound fertiliser applied to mustard only plots: Apr 3. All plots ploughed: May 30. 'Nitro-Chalk' applied: June 3. Mustard sown: June 5. All plots ploughed: July 19. All mustard plots ploughed: Oct 28.

1959: Basal compound fertiliser applied to mustard only plots, oats and rye combine drilled with basal compound fertiliser: Mar 17, 1959. Extra 'Nitro-Chalk' applied to all plots to improve the crop: Apr 25. Oats and rye plots ploughed: June 2. 'Nitra-Shell' applied and mustard sown: June 3. Owing to failure of mustard following oats and rye, all mustard cut and removed, and all plots ploughed: July 17. Mustard resown: July 24. All mustard plots ploughed: Sept 2.

1960: Ploughed: Jan 9, 1960. Oats combine drilled at 4 bushels per acre with basal compound fertiliser: Mar 8. Sprayed with TCB/MCPA at 4 pints in 40 gallons per acre: May 7. Combine harvested: Aug 19. Varieties: Oats; 1958 and 1959 - Sun II, 1960 - Condour; Rye: King II. Previous crop: Oats (1957).

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Note: Periodic estimates of eelworm population were made.

Standard error per plot.
Grain (at 85% dry matter): 3.19 cwt per acre or 11.4% (25 d.f.)

Summary of Results

Trap crops 1958 and 1959

Green manure	Oats	Rye	Fallow	Mean
		Grain (at 85% dry matter): cwt per acre		
		(±1.30)		
None	27.7	31.7	23.8	27.7
Mustard	28.1	30.9	25.9	28.3
Mean (±0.91)	27.9	31.3	24.9	28.0
Diff. (±1.84)	+0.4	-0.8	+2.1	+0.6 (±1.06)

Mean dry matter % as harvested: 80.4

		Straw (at 85% dry matter): cwt per acre		
None	22.6	24.7	19.1	22.1
Mustard	23.9	26.0	24.0	24.6
Mean	23.2	25.3	21.6	23.3
Diff.	+1.3	+1.3	+4.9	+2.5

Mean dry matter % as harvested: 46.1

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% P_2O_5, 16% K_2O) 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.

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Note. Estimates of plant height, % area lodged, incidence of Eyespot (Cercosporella 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 1958 1959	WW WW SW	SW WW SW	0 WW SW	WW 0 SW	B WW B	WW 0 Be	Mean
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

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

Series starting in 1958

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

Series starting in 1959

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

WHEAT, BARLEY AND MULTIPLE CROPS

Residual effects of triazine weedkillers - Rothamsted (R) Great Field I and Great Knott I and Woburn (W) Broad Mead I and Great Hill 1960.

Design: Strip cropping on sites of 1959 experiments:-
Great Field I (R), Great Knott I (R) and Broad Mead I (W): Winter wheat, kale, sugar beet, barley and oats.
Great Hill (W): Spring wheat, kale, sugar beet, barley and oats.

Area of each plot (acres):
Great Field I (R) and Great Knott I (R) - winter wheat; Broad Mead I (W) - winter wheat: 0.0318. Area harvested: 0.0152. All other crops on above fields: 0.0079. Area harvested: 0.0035 - 0.0053.
Great Hill (W) - Barley: 0.0393. Area harvested: 0.0170. Other crops on Great Hill: 0.0098. Area harvested: Oats - 0.0043, Sugar beet - 0.0051.

Treatments: Applied in 1959. See 'Results of the Field Experiments' 1959 pages 59/Ce/2 and 59/Cf/5.

Basal dressings per acre:
Oats, barley and spring wheat (all fields): 3 cwt compound fertiliser (16% N, 9% P_2O_5, 9% K_2O) combine drilled.
Kale and sugar beet (all fields): 10 cwt compound fertiliser (10% N, 10% P_2O_5, 18% K_2O).
Winter wheat:- Great Field I (R): 1½ cwt compound fertiliser (6% N, 15% P_2O_5, 15% K_2O) combine drilled and 4 cwt sulphate of ammonia top dressed. Great Knott I (R): 2½ cwt compound fertiliser (6% N, 15% P_2O_5, 15% K_2O) combine drilled and 5 cwt sulphate of ammonia top dressed. Broad Mead I (W): 2½ cwt compound fertiliser (6% N, 15% P_2O_5, 15% K_2O) combine drilled and 3 cwt 'Nitro-Chalk' 21 top dressed.

Cultivations, etc.:
Rothamsted. Great Field I (F) and Great Knott I (K). Ploughed: (K) - Oct 9, 1959, (F) - Oct 21. Winter wheat combine drilled at 2¾ bushels per acre: (K) - Oct 23, (F) - Oct 26. Barley combine drilled at 2 bushels per acre: Mar 7, 1960. Basal fertiliser applied for kale and sugar beet: Mar 24. Sugar beet drilled at 19 lb per acre: (K) - Apr 6, (F) - Apr 7. Kale drilled at 3 lb per acre: (K) - Apr 8, (F) - Apr 9. Top dressing of sulphate of ammonia applied to winter wheat: (K) - Apr 8, (F) - Apr 12. Winter wheat sprayed with CMPP at 6 pints in 40 gallons per acre: (F) - Apr 21, (K) - Apr 22. Barley and oats sprayed with TCB/MCPA at 4 pints in 40 gallons per acre: (F) - May 6, (K) - May 10. Sugar beet singled: (F) - May 23, (K) - May 25. Sugar beet sprayed with demeton methyl at 12 fluid oz in 60 gallons per acre: May 30. Barley and oats combine harvested: Aug 16. Winter wheat combine harvested: (F) - Aug 23, (K) - Aug 28. Sugar beet lifted: Oct 25. Kale harvested: (F) - Oct 25, (K) - Nov 24.

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Woburn. Broad Mead I (B) and Great Hill (G): Ploughed: (B) - Nov 2, 1959. Winter wheat combine drilled at 3 bushels per acre: Nov 11. Ploughed: (G) - Jan 5, 1960. Seed combine drilled: Barley at 2¼ bushels, oats at 4 bushels per acre: (B) - Mar 19, (G) - Mar 26; spring wheat at 2¾ bushels per acre: (G) - Mar 26. 'Nitro-Chalk' applied to winter wheat: Apr 5. Basal fertiliser applied to kale and sugar beet: (B) - Apr 11, (G) - Apr 14. Kale and sugar beet seed drilled: Apr 14. Kale and sugar beet sprayed with miscible DDT (against flea beetle) at 3 pints in 40 gallons per acre: May 6. Sugar beet singled: May 30. Sugar beet sprayed with demeton methyl at 12 fluid oz in 40 gallons per acre: June 1. Spring wheat, barley and oats combine harvested: (G) - Aug 22. Winter wheat, barley and oats combine harvested: (B) - Sept 8. Sugar beet lifted: Oct 5. Kale harvested: Nov 2.

Varieties (all fields): Winter wheat: Cappelle; spring wheat: Jufy I; barley: Proctor; oats: Condor; sugar beet: Klein E; kale: Thousand head.

Previous crops: Great Field I (R) and Great Hill (W): Potatoes. Great Knott I (R) and Broad Mead I (W): Spring beans.

Note: Owing to damage by birds, no yields were taken for kale and spring wheat on Great Hill (W), nor for barley and oats on Broad Mead I (W).

Summary of Results

Great Field I (R)

	Spray in 1959					
	None	S1	S2	S3	A2	Mean
	Wheat, grain (at 85% dry matter): cwt per acre					
Mean	53.1	51.4	52.5	49.7	52.8	51.9
	Barley, grain (at 85% dry matter): cwt per acre					
Mean	46.1	44.2	47.5	42.3	44.5	45.1
	Oats, grain (at 85% dry matter): cwt per acre					
Mean	35.3	39.8	39.2	37.1	38.0	38.3
	Kale, fresh weight: tons per acre					
Mean	20.96	26.18	27.82	24.67	25.42	25.56

Mean dry matter % as harvested: Wheat 81.2
Barley 81.3
Oats 82.6

https://doi.org/10.23637/ERADOC-1-180

	Spray in 1959 None	S1	S2	S3	A2	Mean
Great Field I (R)						
Sugar beet. Roots (washed): tons per acre						
Mean	19.79	22.22	20.00	19.64	16.80	19.68
Sugar beet. Sugar percentage						
Mean	17.0	16.4	16.2	16.3	16.9	16.5
Sugar beet. Total sugar: cwt per acre						
Mean	67.2	72.6	64.9	63.9	57.0	65.0
Great Knott I (R)						
Wheat, grain (at 85% dry matter): cwt per acre						
Mean	50.2	53.7	50.8	52.0	52.3	51.5
Barley, grain (at 85% dry matter): cwt per acre						
Mean	36.1	37.6	38.2	37.6	40.0	37.6
Oats, grain (at 85% dry matter): cwt per acre						
Mean	32.3	32.0	30.1	30.6	33.5	31.8
Kale, fresh weight: tons per acre						
Mean	25.19	23.32	21.72	18.78	22.60	22.80
Sugar beet. Roots (washed): tons per acre						
Mean	17.88	17.02	15.48	16.58	15.64	16.74
Sugar beet. Sugar percentage						
Mean	16.9	16.7	16.7	16.6	16.6	16.7
Sugar beet. Total sugar: cwt per acre						
Mean	60.3	56.8	51.8	55.2	51.8	56.0

Mean dry matter % as harvested: Wheat 80.0
Barley 81.8
Oats 84.5

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Broad Mead I (W)

	Spray in 1959				
	None	S1	S2	S3	A2	Mean
Wheat, grain (at 85% dry matter): cwt per acre						
Mean	36.6	38.2	36.7	37.6	40.5	37.9
Kale, fresh weight: tons per acre						
Mean	20.92	24.36	22.79	20.92	21.80	22.16
Sugar beet. Roots (washed): tons per acre						
Mean	15.83	17.80	13.75	16.27	16.32	15.99
Sugar beet. Sugar percentage						
Mean	14.9	15.6	14.2	15.1	15.2	15.0
Sugar beet. Total sugar: cwt per acre						
Mean	47.1	55.5	39.0	49.0	49.6	48.0
Sugar beet. Tops: tons per acre						
Mean	23.47	24.75	24.46	22.10	23.57	23.67

Mean dry matter % as harvested: Wheat 76.3

https://doi.org/10.23637/ERADOC-1-180

60/Cd/2.5

Great Hill (W)

	Spray and treatment in 1959							
	None	S1	S2	S3	S4	A2	M	Mean
Barley, grain (at 85% dry matter): cwt per acre								
Mean	22.4	23.4	24.2	21.4	20.3	18.0	20.2	21.4
Oats, grain (at 85% dry matter): cwt per acre								
Mean	10.9	10.4	11.2	8.9	7.2	8.4	6.9	9.1
Sugar beet. Roots (washed): tons per acre								
Mean	15.26	17.72	13.35	15.88	9.47	16.76	17.48	15.13
Sugar beet. Sugar percentage								
Mean	15.9	16.8	16.0	16.2	16.2	16.2	16.9	16.3
Sugar beet. Total sugar: cwt per acre								
Mean	48.6	59.4	42.6	51.4	30.7	54.2	59.2	49.4
Sugar beet. Tops: tons per acre								
Mean	14.00	13.65	13.48	17.39	8.87	13.39	14.35	13.59

Mean dry matter % as harvested: Barley 81.5
Oats 73.0

Sprays

S = Simazine
A = Atrazine

Levels

1 = 1 lb in 40 gallons per acre
2 = 2 lb in 80 gallons per acre
3 = 3 lb in 120 gallons per acre
4 = 4 lb in 160 gallons per acre

50% active material

M = Normal mechanical weed control.

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60/Ce/1.1

SPRING BEANS

Effect of seed rates and spraying on aphids (Aphis fabae) - Rothamsted (R) Long Hoos V and Woburn (W) Warren Field N 1960.

Design (each field): 4 randomised blocks of 7 plots each, blocks and plots being split into 2 strips for the application of spray.

Area of each sub plot: 0.0118 acres. Area harvested: 0.0074 acres.

Treatments. All combinations of:-
Whole plots. Seed rate, lb per acre: 50; 100; 200; 300; 400; 600, all at 22 inch row spacing; and 600 at 11 inch.
Sub plots. Spray: None; demeton-methyl at 12 fluid oz (50% active ingredients) in 40 gallons per acre.

Basal dressing: 412 lb compound fertiliser (10% P_2O_5, 20% K_2O) per acre placement drilled with the seed.

Cultivations, etc.:
Long Hoos V (R): Ploughed: Nov 5, 1959. Seed drilled: Mar 17, 1960. Sprayed with simazine at 2 lb in 40 gallons per acre: Mar 22. Appropriate sub plots sprayed with demeton-methyl: June 13. Combine harvested: Sept 5. Variety: Garton's Tick. Previous crop: Oats.
Warren Field N (W): Ploughed: Oct 22 - 26, 1959. Ground chalk applied at 18 cwt per acre: Mar 12, 1960. Seed drilled: Mar 23. Sprayed with simazine at 2 lb in 40 gallons per acre: Mar 25. Appropriate sub plots sprayed with demeton-methyl: June 15. Combine harvested: Sept 21. Variety: Garton's Tick. Previous crop: Spring wheat.

Standard errors per plot, Grain (at 85% dry matter)
Long Hoos V (R), Whole plot: 2.21 cwt per acre or 14.3% (18 d.f.)
Sub plot: 4.21 cwt per acre or 27.3% (21 d.f.)
Warren Field N (W), Whole plot: 2.28 cwt per acre or 14.0% (18 d.f.)
Sub plot: 3.75 cwt per acre or 23.1% (21 d.f.)

https://doi.org/10.23637/ERADOC-1-180

Summary of Results

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

Seed rate: lb per acre

	at 22"						at 11"	
	50	100	200	300	400	600	600	Mean
Long Hoos V (R)								
Spray	(±1.85)(1)							
None	8.8	7.7	9.2	11.1	12.7	16.0	20.4	12.3
Demeton-methyl	15.1	16.5	20.5	18.6	19.6	19.2	20.7	18.6
Mean (±1.10)	11.9	12.1	14.9	14.8	16.1	17.6	20.6	15.4
Diff (±2.98)(2)	6.3	8.8	11.3	7.5	6.9	3.2	0.3	6.3

Mean dry matter % as harvested: 69.3

Warren Field N (W)								
Spray	(±1.74)(1)							
None	2.2	2.4	2.7	5.9	12.0	17.3	22.2	9.2
Demeton-methyl	12.1	19.8	22.7	24.5	24.6	26.8	32.2	23.2
Mean (±1.14)	7.1	11.1	12.7	15.2	18.3	22.0	27.2	16.2
Diff (±2.65)(2)	9.9	17.4	20.0	18.6	12.6	9.5	10.0	14.0

Mean dry matter % as harvested: 68.9

(1) For use in horizontal comparisons only

(2) For use only in testing the difference of two differences.

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60/Ce/2.1

SPRING BEANS

Control of weeds by triazine sprays - Rothamsted (R) Deacons Field and Woburn (W) Warren Field 1960.

Design: 4 randomised blocks of 6 plots each.

Area of each plot (acres):
Deacons Field (R): 0.0333. Area harvested: 0.0139.
Warren Field (W): 0.0303. Area harvested: 0.0126.

Treatments:
Simazine (2-chloro-4-6-bis-ethylamino-s-triazine - 50% active material):
Without inter row cultivations:
None; (S_0)
1 lb per acre; (S_1)
2 lb per acre; (S_2)
3 lb per acre; (S_3)
With normal inter row cultivations:
None; (MS_0)
2 lb per acre; (MS_2)

Basal dressing per acre: Deacons (R): $2\frac{3}{4}$ cwt compound fertiliser (12% P_2O_5, 24% K_2O) placement drilled. Warren Field (W): $3\frac{1}{2}$ cwt compound fertiliser (14% P_2O_5, 28% K_2O) placement drilled.

Cultivations, etc.:-
Deacons Field (R): Ploughed: Oct 13 - 26, 1959 and Mar 1 - 7, 1960. Seed placement drilled at 200 lb per acre, with basal fertiliser: Mar 19. Sprays applied to appropriate plots: Mar 25. Sprayed with demeton-methyl at 12 fluid oz in 40 gallons per acre: June 13. Combine harvested: Sept 8. Variety: Gartons Spring Tick. Previous crop: Barley.
Warren Field (W): Ploughed: Oct 22 - 26, 1959. Ground chalk applied at 18 - 20 cwt per acre: Mar 8 - 12, 1960. Seed placement drilled at 200 lb per acre, with basal fertiliser: Mar 24. Sprays applied to appropriate plots: Mar 25. Sprayed with demeton-methyl at 12 fluid oz in 40 gallons per acre: June 15. Combine harvested: Sept 21. Variety: Gartons Spring Tick. Previous crop: Spring wheat.

Note: Weed counts were made in July.

Standard errors per plot, Grain (at 85% dry matter):
Deacons Field (R): 4.09 cwt per acre or 16.5% (15 d.f.)
Warren Field (W): 1.83 cwt per acre or 13.4% (15 d.f.)

https://doi.org/10.23637/ERADOC-1-180

Summary of Results

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

Treatment						
S_0	S_1	S_2	S_3	MS_0	MS_2	Mean
		Deacons Field (R)				
25.0	23.6	26.2	26.6	23.8	23.3	24.7
		(±2.04)				
		Warren Field (W)				
11.3	13.0	12.1	12.6	17.0	16.0	13.6
		(±0.91)				

Mean dry matter % as harvested:
Deacons Field (R): 73.9
Warren Field (W): 73.6

Treatments

Simazine without inter row cultivations
S_0 = None
S_1 = 1 lb per acre
S_2 = 2 lb per acre
S_3 = 3 lb per acre
Simazine with normal inter row cultivations
MS_0 = None
MS_2 = 2 lb per acre

Note. Deacons (R): It is suspected that certain plots in each block were affected by gross soil differences and this matter is under investigation.

https://doi.org/10.23637/ERADOC-1-180

BEANS

Time of sowing, spraying and K - Deacons 1960.

Design: 4 randomised blocks of 8 plots each.

Area of each plot: 0.0404 acres. Area harvested: 0.0126 acres.

Treatments. All combinations of:-
Time of sowing: Autumn; spring.
Spray*: None; demeton-methyl of 12 fluid oz (50% active ingredients) in 40 gallons per acre.
Potash: None; 0.74 cwt K_2O per acre placement drilled.

*Note: To avoid serious mechanical damage to the tall grown winter beans by tractor spraying in a year of slight aphid infestation, these were not sprayed.

Basal dressing: 0.37 cwt P_2O_5 per acre placement drilled either with K in the compound fertiliser (10% P_2O_5, 20% K_2O) or as granular superphosphate.

Cultivations, etc.: Ploughed: Oct 13 - 20, 1959. Winter beans placement drilled at 275 lb per acre: Oct 29. Spring beans placement drilled at 250* lb per acre: Mar 19, 1960. Appropriate spring sown plots sprayed with demeton-methyl: June 13. Combine harvested: Winter beans - Aug 20; spring beans - Sept 8.
Variety: Winter beans - S.Q.; spring beans - Albyn Tick.
Previous crop: Spring wheat and barley.

Standard error per plot.
Grain (at 85% dry matter): 2.31 cwt per acre or 8.2% (23 d.f.)

*Increased from the normal 200 to allow for poor germination.

https://doi.org/10.23637/ERADOC-1-180

Summary of Results

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

Time of sowing / Spray	Autumn None	Spring None	Spring Demeton methyl	Mean
K_2O cwt per acre	(±0.82)	(±1.16)		
None	34.1	19.6	23.9	27.9
0.74	34.6	21.5	23.5	28.5
Mean (±0.82)	34.3 (1)	20.5	23.7	28.2
Difference (±1.64)	+0.5 (2)	+1.9	-0.4	+0.6 (±0.82)

(1) ±0.58

(2) ±1.16

Mean dry matter % as harvested: Autumn sown 75.6
Spring sown 72.2

60/Cf/1.1

POTATOES

Control of blight (Phytophthora infestans) by copper and zinc fungicide sprays and times of spraying - Delharding 1960.

Design: 4 × 4 Latin square.

Area of each plot: 0.1270 acres. Area harvested: 0.0035 acres.

Treatments: 0, 1, 2, 3 as follows:-

	Stage			
Treatment	I	II	III	IV
0	-	-	-	-
1	-	C	C	-
2	-	Z	C	C
3	Z	C	C	-

where stage I = sprayed at closure of leaf canopy, July 14, 1960.
II = sprayed on issue of blight forecast, July 25, 1960.
III = sprayed on blight outbreak, Aug 13, 1960.
IV = sprayed when the deposit from the previous spray had gone, Aug 27, 1960.
C = sprayed with copper oxychloride (15% copper) at 5 lb in 40 gallons per acre.
Z = sprayed with zineb (zinc ethylene bis dithiocarbamate - 65 % active ingredient) at 2 lb in 40 gallons per acre.

Basal dressing: 12 cwt compound fertiliser (10% N, 10% P_2O_5, 18% K_2O) per acre.

Cultivations, etc.: Ground chalk applied at 63 cwt per acre: Sept 14 - 18, 1959. Ploughed: Nov 3 - 12. Ridged, basal dressing applied: Apr 20, 1960. Potatoes machine planted: Apr 22. Earthed up: June 27. Sprayed with undiluted BOV at 15 gallons per acre: Sept 13. Haulm destroyed mechanically: Oct 18. Lifted*: Oct 30. Variety: Majestic. Previous crop: Wheat.

*Hand dug. Harvested area very much reduced, owing to wet conditions.

Note: Fortnightly estimates of yield by sampling, and estimates of foliage destroyed by blight were made commencing early August; also estimates of blight on the tubers at the times of sampling and at harvest.

Standard error per plot.
Total tubers: 0.770 tons per acre or 4.6% (6 d.f.)

https://doi.org/10.23637/ERADOC-1-180

Summary of Results

		Spray 0	1	2	3	Mean
Total tubers: tons per acre						
Mean	(±0.385)	14.43	16.66	16.76	18.46	16.58
Increase	(±0.544)		+2.23	+2.33	+4.03	
Percentage ware (1½" riddle)						
Mean		92.8	95.2	94.6	96.0	94.6
Increase			+2.4	+1.8	+3.2	

Sprays

0 = None.
1 = Copper oxychloride (15% copper) at 5 lb in 40 gallons per acre after issue of blight forecast.
2 = Zineb (zinc ethylene bis dithiocarbamate - 65% active ingredient) at 2 lb in 40 gallons per acre after issue of blight forecast plus copper oxychloride when the previous deposit had been removed.
3 = Zineb after closure of leaf canopy plus copper oxychloride after issue of blight forecast.

https://doi.org/10.23637/ERADOC-1-180

POTATOES

Forms and levels of K - Rothamsted (R) Sawyers I and Woburn (W) Lansome Field 1960.

Design (each field): 4 blocks of 8 plots each with certain high order interactions partially confounded with block differences.

Area of each plot: 0.0141 acres. Area harvested: (R) - 0.0071, (W) - 0.0141 acres.

Treatments: No potash (2 plots per block) and all combinations of:-

Forms of K: Potassium bi-carbonate, $KHCO_3$ (C);
Potassium sulphate, K_2SO_4 (S);
Potassium chloride, KCl (M);

Levels of K: 1.25; 2.50 cwt K_2O per acre.

All the above in combination with:-

Levels of N: 0.75; 1.50 cwt N per acre as sulphate of ammonia.

Basal dressing (each field): 0.75 cwt P_2O_5 per acre as triple superphosphate.

Cultivations, etc.:

Sawyers I (R): Ploughed: Nov 28, 1959. Ridged, fertilisers applied: Apr 25, 1960. Potatoes hand planted: Apr 26. Earthed up: June 21. Sprayed with zineb at 2 lb in 40 gallons per acre: July 14. Sprayed with copper fungicide at 3 lb in 40 gallons per acre: July 25, and at 5 lb in 40 gallons per acre: Aug 15. Sprayed with undiluted BOV at 15 gallons per acre: Aug 31. Haulm destroyed mechanically: Sept 22. Lifted: Oct 7. Variety: King Edward. Previous crop: Fallow.

Lansome Field (W): Ploughed twice: Sept 8, 1959 and Jan 7, 1960. Ridged: Apr 28. Fertilisers applied, potatoes hand planted: Apr 29. Earthed up: June 14. Sprayed with copper fungicide at 5 lb in 40 gallons per acre: July 23 and Aug 8. Sprayed with undiluted BOV at 15 gallons per acre: Sept 8. Lifted: Sept 28. Variety: Majestic. Previous crop: Spring wheat.

Standard errors per plot. Total tubers tons per acre:

Sawyers I (R): 1.279 tons per acre or 9.5% (15 d.f.)
Lansome Field (W): 1.547 tons per acre or 10.5% (15 d.f.)

https://doi.org/10.23637/ERADOC-1-180

Summary of Results

Total tubers: tons per acre

	Form of K				
	0	C	S	M	Mean
Sawyers I (R)					
Mean (±0.452)	10.96	14.09	14.11	14.60	13.44*
K_2O: cwt per acre					
1.25 (±0.640)	-	13.66	13.74	15.22	14.21 (±0.369)
2.50	-	14.52	14.48	13.99	14.33
Diff. (±0.904)	-	+0.86	+0.74	-1.23	+0.12 (±0.522)
N: cwt per acre					
0.75 (±0.640)	10.21	13.32	13.29	14.71	12.88
1.50	11.70	14.86	14.92	14.50	13.99
Diff. (±0.904)	+1.49	+1.54	+1.63	-0.21	+1.11 (±0.452)
Lansome Field (W)					
Mean (±0.547)	16.00	14.64	14.52	14.04	14.80*
K_2O: cwt per acre					
1.25 (±0.774)	-	15.12	14.84	14.66	14.87 (±0.447)
2.50	-	14.15	14.21	13.42	13.93
Diff. (±1.094)	-	-0.97	-0.63	-1.24	-0.94 (±0.632)
N: cwt per acre					
0.75 (±0.774)	15.88	13.66	13.70	13.29	14.13
1.50	16.12	15.62	15.35	14.80	15.47
Diff. (±1.094)	+0.24	+1.96	+1.65	+1.51	+1.34 (±0.547)

*General mean

Forms of K

0 = No potash
C = Potassium bi-carbonate, $KHCO_3$
S = Potassium sulphate, K_2SO_4
M = Potassium chloride, KCl

https://doi.org/10.23637/ERADOC-1-180

Percentage ware

	Form of K				
	0	C	S	M	Mean
		Sawyers I (R)			
Mean	87.8	93.4	93.6	93.1	93.4
K_2O: cwt per acre					
1.25	-	92.5	92.8	93.8	93.0
2.50	-	94.4	94.4	92.4	93.7
Diff.	-	+1.9	+1.6	-1.4	+0.7
N: cwt per acre					
0.75	84.8	92.8	93.7	93.0	91.1
1.50	90.8	94.0	93.5	93.2	92.9
Diff.	+6.0	+1.2	-0.2	+0.2	+1.8
		Lansome Field (W)			
Mean	96.2	94.8	95.4	95.6	95.3
K_2O: cwt per acre					
1.25	-	95.6	95.3	95.8	95.6
2.50	-	94.0	95.5	95.4	95.0
Diff.	-	-1.6	+0.2	-0.4	-0.6
N: cwt per acre					
0.75	96.0	94.2	94.7	95.1	95.0
1.50	96.4	95.4	96.0	96.1	96.0
Diff.	+0.4	+1.2	+1.3	+1.0	+1.0

Riddle size:
Sawyers I (R): $1\frac{1}{2}$";
Lansome Field (W): $1\frac{5}{8}$".

60/Cf/3.1

POTATOES

Control of blight (Phytophthora infestans) by copper, tin and zinc fungicides - Long Hoos VII 1960.

Design: 4 randomised blocks of 8 plots each.

Area of each plot: 0.0128 acres. Area harvested: 0.0077 acres.

Treatments:-
Unsprayed (0) (2 plots per block) together with all combinations of:-
Spray 50% copper oxychloride at 5 lb in 100 gallons per acre (C);
Triphenyltin acetate (25% active material) at 3 lb in 100 gallons per acre (T); Zineb (65% zinc ethylene bis dithiocarbamate) at 2 lb in 100 gallons per acre (Z).
No. of sprays: 2 (July 21 and Aug 8); 3 (July 21, Aug 8 and Aug 25).

Basal dressing per acre: 15 tons of dung; and 10 cwt compound fertiliser (10% N, 10% P_2O_5, 18% K_2O) applied over ridges before machine planting.

Cultivations, etc.: Ploughed twice: Nov 5 - 7, 1959 and Feb 10, 1960, (dung applied Feb 8). Ridged, basal fertiliser applied: Apr 13. Machine planted: Apr 14. Earthed up: June 16. Sprayed with 15 gallons of undiluted BOV per acre: Sept 13. Haulm destroyed mechanically: Sept 20. Lifted: Oct 18. Variety: Ulster Supreme. Previous crop: ~~Barley~~. Winter Wheat.

Note: An assessment was made of the destruction of foliage during the blight epidemic, and counts were made from harvest samples to calculate the percentage of numbers and weight of infected tubers.

Standard error per plot.
Total tubers: 1.293 tons per acre or 8.7% (22 d.f.)

https://doi.org/10.23637/ERADOC-1-180

Summary of Results

No. of sprays	Spray 0	C	T	Z	Mean
	Total tubers: tons per acre				
			(±0.647)		(±0.373)
2		14.87	16.67	13.89	15.14
3		15.13	16.01	15.57	15.57
Mean (±0.457)	13.53	15.00	16.34	14.73	14.89+
Diff. (±0.915)		+0.26	-0.66	+1.68	+0.43 (±0.528)
	Percentage ware (1½" riddle)				
2		96.0	96.5	97.5	96.7
3		97.7	96.7	97.2	97.2
Mean	96.7	96.9	96.6	97.3	96.8+
Diff.		+1.7	+0.2	-0.3	+0.5

Sprays

0 = Unsprayed
C = 50% copper oxychloride at 5 lb in 100 gallons per acre
T = Triphenyltin acetate (25% active material) at 3 lb in 100 gallons per acre
Z = Zineb (65% zinc ethylene bis dithiocarbamate) at 2 lb in 100 gallons per acre.

\+ General mean.

https://doi.org/10.23637/ERADOC-1-180

60/Cg/1.1

SUGAR BEET

Control of virus spread by insecticide spray - Fosters 1960.

Design: 4 × 4 Latin square.

Area of each plot: 0.0168 acres. Area harvested: 0.0084 acres.

Treatments.
Unsprayed (0);
Sprayed when the crop was 0.3% infested with Myzus persicae (May 23, 1960) (E);
Sprayed on receipt of spray warning on May 30, 1960 (2 plots per row or column*) (N);
The spray used was demeton-methyl at 12 fluid oz in 60 gallons of water per acre.

*Note. One treatment was to include a second spray, depending on the development of a sufficiently large aphid population; however, the population remained very small, and the spray was omitted.

Basal dressing per acre: 5 cwt salt, 6 cwt compound fertiliser (16% N, 9% P_2O_5, 9% K_2O).

Cultivations, etc.: Ploughed: Jan 7, 1960. Salt applied: Feb 24. Basal compound fertiliser applied: Apr 2. Seed drilled at 19 lb per acre: Apr 7. Singled: May 25. Lifted: Nov 8. Variety: Klein E. Previous crop: Kale and mangolds in strips with small plots of potatoes.

Note: Regular counts of aphids and virus yellows were made.

Standard error per plot.
Total sugar: 5.90 cwt per acre or 8.4% (7 d.f.)

https://doi.org/10.23637/ERADOC-1-180

Summary of Results

	Spray			
	None	E	N	Mean
Roots (washed): tons per acre				
Mean	19.50	20.61	21.96	21.01
Increase		1.11	2.46	
Sugar percentage				
Mean	16.8	16.6	16.6	16.7
Increase		-0.2	-0.2	
Total sugar: cwt per acre				
Mean	65.4 (±2.95)	68.6	73.2 (±2.09)	70.1
Increase		3.2 (±4.17)	7.8 (±3.61)	

Sprays

0 = Unsprayed
E = Sprayed when the crop was 0.3% infested with Myzus persicae
N = Sprayed on receipt of spray warning on May 30, 1960 (2 plots per row or column)

https://doi.org/10.23637/ERADOC-1-180

60/Ch/1

KALE

The control of weeds by thiotriazine sprays - Dell Piece 1960.

Design: 2 randomised blocks of 6 plots each.

Area of each plot: 0.0084 acres. Area harvested: 0.0042 acres.

Treatments: Thiotriazine sprays:-
Sprayed on May 25, 1960:
3 oz active ingredient in 40 gallons per acre (3 plots per block) (E1);
6 oz active ingredient in 40 gallons per acre (2 plots per block) (E2).
Sprayed on June 13, 1960:
3 oz active ingredient in 40 gallons per acre (1 plot per block) (L1).

Basal dressing: 9 cwt compound fertiliser (16% N, 9% P_2O_5, 9% K_2O) per acre.

Cultivations, etc.: Ploughed: Nov 30 - Dec 12, 1959. Basal fertiliser applied: Apr 8, 1960. Seed drilled at 3 lb per acre: Apr 11. 2 rows per plot cut and weighed: Dec 6. Variety: Thousand Head. Previous crop: Spring wheat.

Standard error per plot.
Fresh weight: 2.415 tons per acre or 13.6% (8 d.f.)

Summary of Results

Fresh weight: tons per acre

Spray			
E1	E2	L1	Mean
19.04 (±0.986)	18.08 (±1.207)	13.26 (±1.707)	17.76

Note: Unsprayed strips within the experimental area gave a mean yield of 8.51 tons per acre.

https://doi.org/10.23637/ERADOC-1-180

GRASS

Levels of N and K - Harwoods Piece 1960 - the 3rd year.

Design: 4 randomised blocks of 12 plots each.

Area of each plot: 0.0087 acres. Area harvested: 0.0059 acres.

Treatments: None and all combinations of:-
Nitrogen: 0.3; 0.6; 0.9 cwt N per acre as 'Nitro-Chalk'.
Potash: None; 0.3; 0.6 cwt K_2O per acre as muriate of potash.
All treatments in the presence of 0.6 cwt P_2O_5 per acre as superphosphate.
In addition 2 plots per block, receiving 0.9 cwt N and 0.6 cwt K_2O per acre, also received phosphate at either None or 1.2 cwt P_2O_5 per acre as superphosphate.

Note: (1) N and K dressings are applied for each cut. All P dressings are applied once annually.
(2) All treatments were applied to the same plots as in the previous seasons.

Basal dressing: None.

Cultivations, etc.: Ploughed: Dec 2, 1959. 1st dressing of fertilisers applied, seed drilled at 30 lb per acre: Mar 28, 1960. Sprayed with CMPP at 6 pints in 40 gallons per acre: May 24. Cut 3 times: July 21, Sept 13 and Nov 7. Variety: S22 Italian Ryegrass.

Standard errors per plot. Dry matter:

1st cut:	4.00 cwt per acre or 14.9%	(33 d.f.)
2nd cut:	1.51 cwt per acre or 7.2%	(33 d.f.)
3rd cut:	0.95 cwt per acre or 8.5%	(33 d.f.)
Total of 3 cuts:	5.29 cwt per acre or 9.0%	(33 d.f.)

Note: (3) For details for the previous years results see "Results of the Field Experiments" 58/Cg/2 and 59/Cg/2.

Errata to "Results of the Field Experiments" 1958 and 1959.
Pages 58/Cg/2.1 and 59/Cg/2.1.
Under 'Treatments' alter the last paragraph to read
"In addition 2 plots per block receiving 0.9 cwt N and 0.6 cwt K_2O per acre ....."

https://doi.org/10.23637/ERADOC-1-180

Summary of Results

Dry matter: cwt per acre

cwt per acre* N	0.0	0.3	0.3	0.3	0.6	0.6	0.6	0.9	0.9	0.9	0.9	0.9	
P_2O_5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.0	1.2	
K_2O*	0.0	0.0	0.3	0.6	0.0	0.3	0.6	0.0	0.3	0.6	0.6	0.6	Mean
1st cut (±2.00)	14.9	21.3	24.1	27.6	26.8	27.7	31.3	24.9	27.8	33.2	29.7	32.9	26.9
2nd cut (±0.75)	4.9	16.1	15.7	14.4	22.6	23.0	22.3	26.1	26.5	27.1	27.7	25.8	21.0
3rd cut (±0.48)	2.3	9.3	9.8	9.0	11.9	13.3	13.3	12.9	12.9	13.3	12.7	13.3	11.2
Total of 3 cuts (±2.64)	22.1	46.7	49.5	51.0	61.3	64.1	66.9	63.9	67.1	73.7	70.1	72.0	59.0

*For each cut.

Mean dry matter % as cut:

1st cut:	16.7	3rd cut:	13.4
2nd cut:	18.3	Total of 3 cuts:	16.1

GRASS

Species and levels of nitrogen - Harwood's Piece 1960, the 3rd year.

Design: 4 randomised blocks of 12 plots each.

Area of each plot: 0.0087 acres. Area harvested: 0.0057 acres.

Treatments. All combinations of:-

Species sown in spring 1958:

S37 Cocksfoot at 30 lb per acre	(C)
S215 Meadow Fescue at 30 lb per acre	(M)
S24 Perennial Ryegrass at 25 lb per acre	(R)
Timothy "Scotia" at 20 lb per acre	(T)

Levels of nitrogen: None; 0.3; 0.6 cwt N per acre as 'Nitro-Chalk', applied for each cut.

Basal dressing: 5 cwt compound fertiliser (10% P_2O_5, 20% K_2O) per acre.

Cultivations, etc.: Basal fertiliser applied: Mar 3, 1960. Nitrogen dressings applied: Mar 3 and June 1. Cut twice: May 31 and Aug 25.

Standard errors per plot. Dry matter:

1st cut:	2.95 cwt per acre or 9.6%	(33 d.f.)
2nd cut:	1.44 cwt per acre or 8.8%	(33 d.f.)
Total of 2 cuts:	3.93 cwt per acre or 8.4%	(33 d.f.)

Note: For details of the previous years' results see 'Results of the Field Experiments' 58/Cg/3 and 59/Cg/3.

https://doi.org/10.23637/ERADOC-1-180

Summary of Results

Dry matter: cwt per acre

N: cwt per acre*	Species C	M	R	T	Mean
1st cut					
		(±1.48)			(±0.74)
None	8.4	11.8	14.5	15.4	12.5
0.3	32.4	31.9	31.8	39.9	34.0
0.6	48.8	41.7	41.8	50.3	45.6
Mean (±0.85)	29.9	28.4	29.3	35.2	30.7
2nd cut					
		(±0.71)			(±0.35)
None	4.6	3.9	1.8	4.1	3.6
0.3	21.2	15.0	6.4	17.9	15.1
0.6	36.7	26.7	21.3	35.4	30.0
Mean (±0.41)	20.8	15.2	9.8	19.1	16.2
Total of 2 cuts					
		(±1.96)			(±0.98)
None	13.0	15.7	16.3	19.6	16.1
0.3	53.6	46.9	38.2	57.8	49.1
0.6	85.5	68.4	63.0	85.7	75.6
Mean (±1.13)	50.7	43.7	39.2	54.3	47.0

Mean dry matter % as cut:

1st cut:	27.3
2nd cut:	24.6
Total of 2 cuts:	26.0

Species

C	S37 Cocksfoot
M	S215 Meadow Fescue
R	S24 Perennial Ryegrass
T	Timothy "Scotia"

*Applied for each cut.

https://doi.org/10.23637/ERADOC-1-180

GRASS

K and Mg - Rothamsted (R) Sawyers I and Woburn (W) Stackyard Series C 1960.

Design: Sawyers I (R): 8 randomised blocks of 9 plots each.
Stackyard Series C (W): 4 randomised blocks of 9 plots each.

	Area of each plot (acres):	Area harvested (acres):
Sawyers I (R):	0.0209	0.0050
Stackyard Series C (W):	0.0011	0.0005

Treatments (applied 1959 and 1960): All combinations of:-
Mg: None; 29; 58 lb Mg per acre applied as sulphate of magnesia on Sawyers I (R) and as kieserite (16.3% Mg) on Stackyard Series C (W).
K: None; 95; 190 lb K per acre (approximately 1; 2 cwt K_2O per acre) applied as sulphate of potash.
In addition in 1959 magnesium-free calcium carbonate was applied to blocks on Sawyers I (R) at 10; 40 cwt per acre (four blocks at each rate).

Basal dressings per acre:
Sawyers I (R): In seedbed 1959: 1.0 cwt P_2O_5 as triple superphosphate, 0.5 cwt N as sulphate of ammonia. In spring 1960: 0.5 cwt N as sulphate of ammonia. After every cut except the last: 0.6 cwt N as sulphate of ammonia.
Stackyard Series C (W): In seedbed 1960: 1.0 cwt P_2O_5 as triple superphosphate, 0.5 cwt N as ammonium nitrate. Before 1st cut: 0.5 cwt N as ammonium nitrate. After every cut except the last: 1.0 cwt N as ammonium nitrate.

Cultivations, etc.:
Sawyers I (R) 1959: Part of ground chalk applied: Mar 25, 1959. Ploughed: Apr 1. Remainder of ground chalk applied: Apr 10. Sulphate of ammonia and triple superphosphate applied: Apr 29. Sulphate of magnesia and sulphate of potash applied: May 1. Seed drilled at 24 lb per acre: May 2. Sprayed with MCPA at 6 pints in 40 gallons per acre: June 17. Grass cut: July 16 and Sept 29. (There was insufficient grass in each case to weigh or cart off and therefore no sulphate of ammonia was applied.)
Sawyers I (R) 1960: Basal sulphate of ammonia applied: Mar 3, 1960. Sulphate of magnesia and sulphate of potash applied: Mar 4. Cut 3 times: May 13 - 20, July 4, Sept 26. Sulphate of ammonia applied: May 26 and July 14. Variety: S22 Italian ryegrass. Previous crop: Barley.

https://doi.org/10.23637/ERADOC-1-180

Stackyard Series C (W): Ploughed: Oct 28, 1959. Rotavated twice, sulphate of potash, kieserite, triple superphosphate and ammonium nitrate applied, seed broadcast at 50 lb per acre: Mar 24, 1960. Ammonium nitrate applied at 0.5 cwt per acre: May 19. Cut 4 times: June 28, July 24, Sept 5, Oct 4. Ammonium nitrate applied after every cut except the last. Variety: S22 Italian ryegrass. Previous crop: Barley.

Standard errors per plot. Grass dry matter

Sawyers I (R)

1st cut	1.38 cwt per acre or 4.6%	(48 d.f.)
2nd cut	1.23 cwt per acre or 9.0%	(48 d.f.)
3rd cut	1.21 cwt per acre or 5.0%	(48 d.f.)
Total of 3 cuts	2.84 cwt per acre or 4.2%	(48 d.f.)

Stackyard Series C (W)

1st cut	0.90 cwt per acre or 4.3%	(24 d.f.)
2nd cut	0.86 cwt per acre or 3.7%	(24 d.f.)
3rd cut	1.10 cwt per acre or 4.6%	(24 d.f.)
4th cut	1.05 cwt per acre or 9.4%	(24 d.f.)
Total of 4 cuts	1.99 cwt per acre or 2.5%	(24 d.f.)

https://doi.org/10.23637/ERADOC-1-180

60/Ci/3.3

Summary of Results

Sawyers I (R)

Grass, Dry matter: cwt per acre

	K: lb per acre			Mg: lb per acre			
	None	95	190	None	29	58	Mean
1st cut							
Calcium carbonate cwt per acre		(±0.40)*			(±0.40)*		
10	29.2	29.6	29.9	29.5	29.3	29.8	29.6
40	29.4	29.5	30.1	30.0	29.5	29.5	29.7
Diff.	+0.2	−0.1 (±0.56)**	+0.2	+0.5	+0.2 (±0.56)**	−0.3	+0.1
K: lb per acre		(±0.49)					(±0.28)
None				29.3	29.4	29.1	29.3
95				29.6	29.4	29.7	29.6
190				30.4	29.4	30.2	30.0
Mean				29.8	29.4 (±0.28)	29.7	29.6
2nd cut							
Calcium carbonate cwt per acre		(±0.35)*			(±0.35)*		
10	13.0	13.7	13.9	13.7	13.5	13.3	13.5
40	13.4	13.5	14.7	13.3	14.1	14.1	13.8
Diff.	+0.4	−0.2 (±0.50)**	+0.8	−0.4	+0.6 (±0.50)**	+0.8	+0.3
K: lb per acre		(±0.43)					(±0.25)
None				13.3	13.2	13.2	13.2
95				13.4	13.8	13.6	13.6
190				13.9	14.5	14.4	14.3
Mean				13.5	13.8 (±0.25)	13.7	13.7

*For use in horizontal and interaction comparisons only.
**For use only in testing the difference of 2 differences.

Mean dry matter % as cut: 1st cut 17.1
2nd cut 31.6

Sawyers I (R)

Grass, Dry matter: cwt per acre

	K: lb per acre			Mg: lb per acre			
	None	95	190	None	29	58	Mean
3rd cut							
Calcium carbonate cwt per acre		(±0.35)*			(±0.35)*		
10	22.7	24.4	25.0	23.7	24.2	24.1	24.0
40	22.1	24.7	25.4	23.8	24.4	24.0	24.0
Diff.	-0.6	+0.3 (±0.49)**	+0.4	+0.1	+0.2 (±0.49)**	-0.1	0.0
K: lb per acre					(±0.43)		(±0.25)
None				22.1	22.4	22.6	22.4
95				23.9	25.0	24.7	24.5
190				25.2	25.5	24.9	25.2
Mean				23.7	24.3 (±0.25)	24.1	24.0
Total of 3 cuts							
Calcium carbonate cwt per acre		(±0.82)*			(±0.82)*		
10	64.9	67.6	68.8	67.0	67.1	67.3	67.1
40	64.8	67.7	70.1	67.1	67.9	67.6	67.5
Diff.	-0.1	+0.1 (±1.16)**	+1.3	+0.1	+0.8 (±1.16)**	+0.3	+0.4
K: lb per acre					(±1.00)		(±0.58)
None				64.7	65.0	64.9	64.9
95				66.9	68.1	67.9	67.6
190				69.5	69.4	69.5	69.5
Mean				67.0	67.5 (±0.58)	67.5	67.3

*For use in horizontal and interaction comparisons only.
**For use only in testing the difference of 2 iifferences.

Mean dry matter % as cut: 3rd cut 27.8
Total of 3 cuts 25.5

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Stackyard Series C (W)

Grass, Dry matter: cwt per acre

K: lb per acre	Mg: lb per acre None	29	58	Mean	Mg: lb per acre None	29	58	Mean
	1st cut				2nd cut			
		(±0.45)		(±0.25)		(±0.43)		(±0.25)
None	17.5	18.1	18.6	18.1	22.2	22.4	22.1	22.2
95	20.8	22.1	21.6	21.5	23.0	22.8	23.2	23.0
190	21.6	23.2	23.0	22.6	24.0	24.1	24.0	24.0
Mean	20.0	21.1	21.1	20.7	23.0	23.1	23.1	23.0
		(±0.25)				(±0.25)		
	3rd cut				4th cut			
		(±0.55)		(±0.31)		(±0.53)		(±0.30)
None	22.1	22.9	23.4	22.8	9.4	10.0	10.1	9.8
95	23.8	23.6	23.7	23.7	10.3	12.1	11.0	11.1
190	26.2	26.1	25.1	25.8	12.2	12.4	12.7	12.4
Mean	24.0	24.2	24.0	24.0	10.6	11.5	11.3	11.1
		(±0.31)				(±0.30)		

	Total of 4 cuts			
		(±0.99)		(±0.58)
None	71.1	73.4	74.2	72.9
95	77.8	80.6	79.4	79.3
190	83.9	85.8	84.8	84.8
Mean (±0.58)	77.6	79.9	79.4	78.9

Mean dry matter % as cut:

1st cut	18.1
2nd cut	14.1
3rd cut	13.8
4th cut	12.3
Total of 4 cuts	14.6

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