ROTHAMSTED RESEARCH

Yields of the Field Experiments 1961

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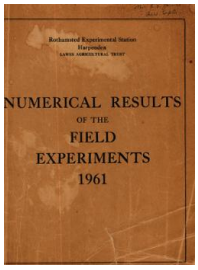

Crop Sequence Experiments - Crops in 1961

Rothamsted Research

Rothamsted Research (1962) *Crop Sequence Experiments - Crops in 1961 ;* Yields Of The Field Experiments 1961, pp 88 - 106 **- DOI: https://doi.org/10.23637/ERADOC-1-182**

61/C/1.1

CEREALS AND BEANS ROTATIONS

The effect of crop sequences on the incidence of cereal foot and root rot diseases - Great Field I 1961 - the 5th 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 (acres): 0.0305. Area harvested: Winter wheat, series starting 1958 - 0.0095; series starting 1959, Spring wheat, Barley - 0.0200; Beans - 0.0191.

Treatments:

Crop sequences for each series:

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

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 1958 falling due for this treatment this year, and receiving N at 0.5, 1.0 cwt per acre in 2 doses on Mar 22 and May 8, 1961 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 and 54 cwt per acre in Oct 1960.

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 barley, all in seedbed.

Cultivations, etc.: Ground chalk applied: Oct 4 - 14, 1960. Ploughed: Oct 14. Winter wheat combine drilled at 3 bushels per acre: Jan 23, 1961. 'Nitro-Chalk' applied to spring wheat and barley: Mar 7. Beans placement drilled at 200 lb per acre, barley combine drilled at 2 bushels per acre, and spring wheat at 3 bushels per acre: Mar 8. Winter wheat sprayed with MCPA/TBA at 4 pints in 40 gallons per acre: May 10. Spring wheat and barley sprayed with MCPA/TBA at 4 pints in 40 gallons per acre: May 11. Beans sprayed with demeton-methyl at 12 fluid oz in 60 gallons per acre: June 14. Combine harvested: Barley - Aug 23; winter and spring wheat - Aug 31; beans - Sept 4. Varieties: Beans - Gartons Tick; winter wheat - Cappelle; spring wheat - Koga II; barley - Proctor.

Note. Estimates of plant height, % area lodged, incidence of Eyespot (*Cercosporella herpotrichoides*) and Take-all (*Ophiobolus graminis*) and counts of plants and shoots were made.

https://doi.org/10.23637/ERADOC-1-182

Errata to "Results of the Field Experiments" 1960.
Page 60/Cd/1.1 the 6th line should read ".... series starting 1958, and 1959, all cereals - 0.0200".

Standard errors per plot, Grain (at 85% dry matter):
Series starting:
1958 Winter wheat
Whole plot: 2.03 cwt per acre or 7.1% (10 d.f.)
Sub plot: 2.53 cwt per acre or 8.8% (12 d.f.)
1959 Spring wheat 1.58 cwt per acre or 4.7% (6 d.f.)

Summary of Results

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

Series starting in 1958

Winter wheat

Crop in 1958 1959 1960	WW WW SW	SW WW SW	0 WW SW	WW 0 SW	B WW B	WW 0 Be	Mean
N cwt per acre			(±1.45)(1)	(±1.56)(2)			
0.5	28.2	26.4	20.0	22.9	19.6	39.7	26.2
1.0	30.3	28.7	27.4	27.5	24.4	47.1	30.9
Mean (±1.18)	29.3	27.6	23.7	25.2	22.0	43.4	28.5
Diff. (±2.07)	+2.1	+2.3	+7.4	+4.6	+4.8	+7.4	+4.7 (±0.84)
Mean dry matter % as harvested:			85.1				

(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 1959

Crop in 1959 1960	Spring wheat WW WW	 SW WW	 0 WW	 WW 0	Mean	Barley B W	Spring beans W 0
	32.7	33.4 (±0.90)	32.3	36.7	33.8	35.3	23.9
Mean dry matter % as harvested:		85.9				84.7	78.1

https://doi.org/10.23637/ERADOC-1-182

61/C/2.1

ONE YEAR LEYS FOR WHEAT

The comparison of various clover and grass leys as a preparation for wheat - Stackyard 1961.

Design: 4 randomised blocks of 18 plots each.

Area of each plot (acres): 0.0159. Area harvested: 1st cut - 0.0045; 2nd and 3rd cuts - 0.0114.

Treatments:

Nitrogen to leys 1961:- 3 plots per block of each of the following 6 treatments:

To clover: None (Co)

To ryegrass: None (Ro); 1 cwt (R1); 2 cwt (R2) N per acre.

To clover-ryegrass: None (CRo); 1cwt (CR1) N per acre.

The nitrogen was applied as 'Nitro-Chalk', 0.625 and 1.25 cwt N in spring, and 0.375 and 0.75 cwt N after 1st silage cut.

Note: The experiment is designed to include three rates of N applied to wheat in 1961/62.

Basal dressings per acre:

To barley nurse crop 1960: 3 cwt compound fertiliser (16% N, 9% P_2O_5, 9% K_2O) combine drilled.

To leys, combine drilled in seedbed 1960: 1½ cwt superphosphate.

Cultivations, etc.: Barley combine drilled, leys combine drilled, ryegrass at 30 lb, clover at 12 lb and clover-ryegrass at 10 lb clover and 20 lb ryegrass, per acre: Apr 19, 1960. 'Nitro-Chalk' dressings applied: Mar 13 and May 17, 1961. Cut three times for silage: May 15, July 6 and Sept 18. Varieties: Italian ryegrass S22 and Dorset Marl broad red clover.

Standard error per plot, Grass dry matter cwt per acre:

1st cut:	3.34 cwt per acre or 6.7%	(62 d.f.)*
2nd cut:	2.25 cwt per acre or 9.7%	(63 d.f.)
3rd cut:	1.42 cwt per acre or 11.3%	(63 d.f.)
Total of 3 cuts:	3.88 cwt per acre or 4.5%	(63 d.f.)

*1 missing value.

https://doi.org/10.23637/ERADOC-1-182

61/C/2.2

Summary of Results

Grass dry matter: cwt per acre

Nitrogen to leys 1961

C_o	R_o	R_1	R_2	CR_o	CR_1	Mean
			1st cut			
28.5	39.6	62.5	59.6+	51.3	59.1	50.1
		(±0.97)				
			2nd cut			
28.2	9.9	25.2	32.9	15.8	26.7	23.1
		(±0.65)				
			3rd cut			
23.7	4.9	6.7	10.5	19.1	10.9	12.6
		(±0.41)				
			Total of 3 cuts			
80.4	54.3	94.3	102.9	86.2	96.8	85.8
		(±1.12)				

+ Includes 1 estimated value.

Mean dry matter % as harvested:

1st cut:	21.8
2nd cut:	30.7
3rd cut:	31.6
Total of 3 cuts:	28.0

https://doi.org/10.23637/ERADOC-1-182

61/C/3.1

SPRING WHEAT

Residues of grass species, testing N and K - Harwood's Piece 1961 - the 4th year.

Design: 4 blocks of 12 plots each, plots being split into 3 for the application of N.

Area of each sub plot: 0.0029 acres. Area harvested: 0.0019 acres.

Treatments:

Whole plots: All combinations of:-

Grass 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)

Nitrogen (applied 1958-1960): None; 0.3; 0.6 cwt N per acre as 'Nitro-Chalk', applied for each cut.

Potassium: None; 1; 2; 3 cwt K_2O per acre as potassium bicarbonate.

Sub plots:

Nitrogen: None; 0.5; 1.0 cwt N per acre as 'Nitro-Chalk'.

Basal dressing: $2\frac{1}{2}$ cwt per acre triple superphosphate combine drilled (see below).

Cultivations, etc.: Ploughed: Aug 30, 1960. Rotary cultivated: Oct 13. Cappelle winter wheat combine drilled at 3 bushels per acre with triple superphosphate at $1\frac{1}{2}$ cwt per acre: Oct 17. Winter wheat failed, ploughed in: Feb 9, 1961. Potassium bicarbonate applied, seed drilled at 3 bushels per acre with triple superphosphate at $1\frac{1}{2}$ cwt per acre, 'Nitro-Chalk' applied: Mar 16. Sprayed with CMPP at 4 pints in 50 gallons per acre: May 19. Harvested: Aug 22. Variety: Jufy I.

Note: For details of the previous years' results see 'Results of the Field Experiments' 58/Cg/3, 59/Cg/3 and 60/Ci/2.

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

Whole plot: 1.66 cwt per acre or 6.1% (15 d.f.)

Sub plot: 2.52 cwt per acre or 9.2% (78 d.f.)

https://doi.org/10.23637/ERADOC-1-182

51/C/3.2

Summary of Results

Species of grass, 1958 - 60

	C	M	R	T	Mean
Grain (at 85% dry matter): cwt per acre					
N: cwt per acre 1958 - 60		(±0.83)			(±0.41)
None	23.9	28.4	28.8	22.0	25.8
0.3	23.8	26.7	29.4	24.4	26.1
0.6	30.1	31.0	31.0	28.4	30.1
K_2O: cwt per acre 1961		(±0.96)			(±0.48)
None	27.2	27.3	28.9	24.9	27.1
1	26.2	27.1	29.4	25.3	27.0
2	24.9	30.5	30.1	24.7	27.5
3	25.3	29.9	30.6	24.8	27.7
N: cwt per acre 1961		(±0.73)(1)	(±0.76)(2)		(±0.36)
None	18.4	20.8	21.7	18.4	19.8
0.5	27.0	29.4	31.7	26.4	28.6
1.0	32.3	35.9	35.8	30.1	33.5
Mean (±0.48)	25.9	28.7	29.7	25.0	27.3

(1) For use in vertical and interaction comparisons
(2) For use in horizontal and diagonal comparisons

https://doi.org/10.23637/ERADOC-1-182

61/C/3.3

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

N: cwt per acre, 1958 - 60

	None	0.3	0.6
K_2O: cwt per acre 1961		(±0.83)	
None	26.0	25.9	29.4
1	25.6	25.8	29.7
2	25.4	26.6	30.7
3	26.2	26.0	30.8
N: cwt per acre 1961		(±0.63)(1)	(±0.66)(2)
None	18.7	18.4	22.4
0.5	26.3	27.2	32.4
1.0	32.3	32.7	35.6

K_2O: cwt per acre, 1961

	None	1	2	3
N: cwt per acre 1961		(±0.73)(1)	(±0.76)(2)	
None	18.8	19.3	20.7	20.6
0.5	28.9	28.9	28.7	28.0
1.0	33.7	32.8	33.3	34.4

(1) For use in vertical and interaction comparisons
(2) For use in horizontal and diagonal comparisons

Mean dry matter % as harvested: 78.6

https://doi.org/10.23637/ERADOC-1-182

Species of grass, 1958 - 60

	C	M	R	T	Mean
Straw (at 85% dry matter): cwt per acre					
N: cwt per acre 1958 - 60					
None	28.3	35.2	34.2	26.1	30.9
0.3	27.4	33.5	36.3	31.1	32.1
0.6	36.8	39.4	40.9	37.4	38.6
K_2O: cwt per acre 1961					
None	32.7	32.9	34.2	31.9	32.9
1	30.4	34.8	35.8	32.7	33.4
2	29.3	37.4	39.9	31.0	34.4
3	30.8	38.9	38.6	30.5	34.7
N: cwt per acre 1961					
None	19.6	23.0	24.5	20.5	21.9
0.5	32.5	36.5	40.1	33.7	35.7
1.0	40.3	48.6	46.8	40.4	44.0
Mean	30.8	36.0	37.1	31.5	33.9

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61/C/3.5

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

N: cwt per acre, 1958 - 60

	None	0.3	0.6
K_2O: cwt per acre 1961			
None	31.5	30.5	36.8
1	30.8	31.0	38.6
2	30.1	33.5	39.6
3	31.3	33.3	39.5
N: cwt per acre 1961			
None	20.0	19.8	25.8
0.5	31.5	33.5	42.2
1.0	41.3	42.9	47.8

K_2O: cwt per acre, 1961

	None	1	2	3
N: cwt per acre 1961				
None	20.5	21.1	22.8	23.1
0.5	34.9	36.7	36.1	35.2
1.0	43.4	42.5	44.3	45.9

Mean dry matter % as harvested: 64.5

https://doi.org/10.23637/ERADOC-1-182

BARLEY

Effects of green manures, N and straw - Stackyard (the second year) 1961.

Design: 6 randomised blocks of 9 plots each.

Area of each plot: 0.0114 acres. Area harvested: 0.0141 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. (0;R;RS)

Basal dressing: 2½ cwt per acre compound fertiliser (20% P_2O_5, 20% K_2O) combine drilled.

Cultivations, etc.: Straw spread: Sept 8, 1960. Ploughed: Dec 17. Seed combine drilled at 2½ bushels per acre, N applied: Mar 11, 1961. Ryegrass drilled at 40 lb per acre: Apr 18. Sprayed with 2,4-D at ¾ pint in 40 gallons per acre: May 13. Combine harvested: Aug 17. Variety: Proctor; Ryegrass - S22 Italian.

Standard error per plot.
Grain (at 85% dry matter): 2.31 cwt per acre or 7.7% (40 d.f.)

Summary of Results

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

Green manure and straw	N: cwt per acre			
	None	0.3	0.6	Mean
		(±0.94)		(±0.54)
0	21.5	33.5	40.8	31.9
R	17.6	29.4	36.8	27.9
RS	19.6	30.8	39.2	29.9
Mean (±0.54)	19.6	31.2	38.9	29.9

Mean dry matter % as harvested: 84.6

Note: For details of the previous year's results see "Results of the Field Experiments" 60/Cb/2.

61/C/5

BARLEY

Effects of Trefoil and Ryegrass green manures and N - Woburn, Lansome Field 1961.

Design: 3 randomised blocks of 16 plots each.

Area of each plot: 0.0193 acres. Area harvested: 0.0138 acres.

Treatments. All combinations of:-
Nitrogen: None(0); 0.3; 0.6; 0.9 cwt N per acre as 'Nitro-Chalk'.
Green manures: None; trefoil (T); Italian ryegrass (R);
Italian ryegrass sown with 0.6 cwt N per acre as 'Nitro-Chalk'(RN).

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

Cultivations, etc.: N applied for ryegrass: July 22, 1960. Trefoil sown at 30 lb and ryegrass at 40 lb per acre: July 23. Ground chalk applied at 48 cwt per acre: Jan 12, 1961. Ploughed: Jan 26. Seed combine drilled at 2¼ bushels per acre: Mar 8. Sprayed with TCB/MCPA at 4 pints in 40 gallons per acre: May 6. Combine harvested: Aug 17. Variety: Proctor; Ryegrass - S22 Italian. Previous crop: Early potatoes.

Standard error per plot.
Grain (at 85% dry matter): 2.86 cwt per acre or 10.2% (30 d.f.)

Summary of Results

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

Green Manure	N: cwt per acre None	0.3	0.6	0.9	Mean
		(±1.65)			(±0.83)
0	18.2	28.1	34.4	31.8	28.1
T	22.5	27.5	32.8	30.7	28.4
R	19.4	26.9	33.3	30.0	27.4
RN	25.6	30.7	29.8	29.4	28.9
Mean (±0.83)	21.4	28.3	32.6	30.5	28.1

Mean dry matter % as harvested: 81.4

Note: The trefoil made very poor growth. Estimates of dry matter and N per acre in the green manures were made just before ploughing.

https://doi.org/10.23637/ERADOC-1-182

61/C/6.1

SUGAR BEET

Effects of trefoil and ryegrass green manures and N - Woburn Stackyard 1961.

Design: 3 randomised blocks of 16 plots each.

Area of each plot: 0.0180 acres. Area harvested: 0.0135 acres.

Treatments. All combinations of:-

Nitrogen: None; 0.5; 1.0; 1.5 cwt N per acre as 'Nitro-Chalk' in seedbed.

Green manures undersown in barley 1960: None; trefoil; ryegrass; ryegrass with 0.6 cwt N per acre in autumn as 'Nitro-Chalk'.

Basal dressing:

To barley:- 2½ cwt per acre compound fertiliser, 16% N; 9% P_2O_5; 9% K_2O combine drilled.

To sugar beet:- 5 cwt salt and 0.45 cwt K_2O as muriate of potash ploughed in; 0.45 cwt P_2O_5, 0.45 cwt K_2O as compound fertiliser, 20% P_2O_5, 20% K_2O in seedbed.

Cultivations, etc.: Trefoil undersown in barley at 30 lb per acre, ryegrass undersown at 40 lb per acre: Apr 27, 1960. Sprayed with MCPA/TBA at 4 pints in 40 gallons per acre: May 6. Barley combine harvested: Aug 25. 'Nitro-Chalk' applied to ryegrass: Sept 2. "Fallow" plots ploughed: Sept 8 - 26, and Jan 18, 1961. Salt and potash applied; all plots ploughed: Feb 16. Seedbed fertilisers applied: Mar 24. Sugar beet drilled at 10 lb per acre: Apr 10. Sprayed against flea beetle with DDT emulsion (25% DDT) at 3 pints in 40 gallons per acre: May 20. Singled: May 24. Sprayed with demeton methyl at 12 fluid oz in 40 gallons per acre: June 10 and again on July 10. Sugar beet lifted: Oct 17. Varieties: Ryegrass-- S22 Italian; Sugar beet - Klein E. Previous crop: Barley

Standard errors per plot.

Roots (washed): 0.900 tons per acre or 7.0% (30 d.f.)
Total sugar: 3.71 cwt per acre or 8.5% (30 d.f.)

Notes: The trefoil made very poor growth. Estimates were made of dry matter and N per acre in green manures just before ploughing.

https://doi.org/10.23637/ERADOC-1-182

Summary of Results

N: cwt per acre

Green manure undersown in barley	None	0.5	1.0	1.5	Mean
Roots (washed): tons per acre					
		(±0.520)			(±0.260)
None	9.30	11.43	11.36	12.97	11.27
Trefoil	10.77	12.95	15.02	14.78	13.38
Ryegrass	9.13	12.58	13.60	14.25	12.39
Ryegrass + N*	12.55	14.52	14.57	14.92	14.14
Mean (±0.260)	10.44	12.87	13.64	14.23	12.79
Sugar percentage					
None	18.0	16.9	16.0	15.9	16.7
Trefoil	17.8	18.0	17.5	16.3	17.4
Ryegrass	18.3	17.1	17.5	16.3	17.3
Ryegrass + N*	17.6	17.9	16.7	16.5	17.2
Mean	18.0	17.5	16.9	16.2	17.1
Total sugar: cwt per acre					
		(±2.14)			(±1.07)
None	33.6	38.5	36.3	41.3	37.4
Trefoil	38.3	46.7	52.6	48.2	46.5
Ryegrass	33.4	43.0	47.4	46.5	42.6
Ryegrass + N*	44.3	51.9	48.7	49.2	48.5
Mean (±1.07)	37.4	45.1	46.3	46.3	43.7
Plant number: thousands per acre					
None	24.2	17.3	16.3	18.1	19.0
Trefoil	21.6	19.2	21.1	23.1	21.3
Ryegrass	25.3	23.4	21.6	20.8	22.8
Ryegrass + N*	23.9	21.5	21.3	21.8	22.1
Mean	23.8	20.3	20.1	20.9	21.2

*0.6 cwt N per acre applied to ryegrass in autumn as 'Nitro-Chalk'

https://doi.org/10.23637/ERADOC-1-182

61/C/7.1

GRASS

K and Mg - Rothamsted (R) Sawyers I 1961 the third year and Woburn (W) Stackyard Series C 1961 the second year.

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, 1960 and 1961). All combinations of:-
Mg: None; 29; 58 lb Mg per acre applied as magnesium sulphate 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 1961: 1.0 cwt P_2O_5 as triple superphosphate, 0.5 cwt N as sulphate of ammonia. In spring 1961: 0.5 cwt N as sulphate of ammonia. After every cut except the last: 1.0 cwt N as sulphate of ammonia.

Stackyard Series C (W): 1.0 cwt P_2O_5 as triple superphosphate, 1.0 cwt N as ammonium nitrate. After every cut except the last: 1.0 cwt N as ammonium nitrate.

Cultivations, etc.:
Sawyers I (R): Ploughed: Dec 2, 1960. Sulphate of ammonia and triple superphosphate applied: Mar 20, 1961. Magnesium sulphate and sulphate of potash applied: Mar 22. Seed drilled at 39 lb per acre: Mar 26. Sprayed with MCPA/TBA at 4 pints in 40 gallons per acre: May 13. Sulphate of ammonia applied: May 15. Grass cut: Aug 9 and Sept 25. Sulphate of ammonia applied: Aug 10. Variety: S22 Italian ryegrass.
Stackyard Series C (W): Sulphate of potash, kieserite, triple superphosphate and ammonium nitrate applied: Mar 6, 1961. Cut 3 times: Apr 27, June 16, July 31. Ammonium nitrate applied after every cut except the last. Variety: S22 Italian ryegrass.

Note: For details of the previous year's results see "Results of the Field Experiments", 60/Ci/3.

Standard errors per plot. Grass dry matter

Sawyers I (R)

1st cut:	1.89 cwt per acre	or 14.8% (48 d.f.)
2nd cut:	0.91 cwt per acre	or 9.5% (48 d.f.)
Total of 2 cuts:	2.55 cwt per acre	or 11.4% (48 d.f.)

Stackyard Series C (W)

1st cut:	3.34 cwt per acre	or 8.1% (24 d.f.)
2nd cut:	2.34 cwt per acre	or 9.4% (24 d.f.)
3rd cut:	0.86 cwt per acre	or 11.5% (24 d.f.)
Total of 3 cuts:	5.43 cwt per acre	or 7.4% (24 d.f.)

Summary of Results

Sawyers I (R)

Grass, Dry matter: cwt per acre

1st cut

Calcium carbonate cwt per acre	K: lb per acre None	95	190	Mg: lb per acre None	29	58	Mean
		(±0.55)*			(±0.55)*		
10	10.4	14.6	14.8	12.9	13.8	13.1	13.2
40	9.4	13.7	14.0	12.3	12.4	12.3	12.3
Diff.	-1.0	-0.9 (±0.77)**	-0.8	-0.6	-1.4 (±0.77)**	-0.8	-0.9

K: lb per acre				
		(±0.67)		(±0.39)
None	9.3	10.1	10.2	9.9
95	13.6	14.8	14.0	14.1
190	14.9	14.4	13.9	14.4
Mean	12.6	13.1 (±0.39)	12.7	12.8

*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 25.4

https://doi.org/10.23637/ERADOC-1-182

61/C/7.3

Sawyers I (R)

Grass, Dry matter: cwt per acre

	K: lb per acre			Mg: lb per acre			Mean
	None	95	190	None	29	58	
2nd cut							
Calcium carbonate cwt per acre		(±0.26)*			(±0.26)*		
10	8.2	10.4	10.5	9.9	9.8	9.4	9.7
40	7.5	10.5	10.8	9.7	9.7	9.5	9.6
Diff.	-0.7	+0.1 (±0.37)**	+0.3	-0.2	-0.1 (±0.37)**	+0.1	-0.1
K: lb per acre					(±0.32)		(±0.19)
None				8.1	7.9	7.5	7.8
95				10.5	10.7	10.3	10.5
190				10.8	10.6	10.5	10.6
Mean				9.8	9.7 (±0.19)	9.4	9.6
Total of 2 cuts							
Calcium carbonate cwt per acre		(±0.74)*			(±0.74)*		
10	18.5	25.0	25.2	22.8	23.5	22.5	22.9
40	16.9	24.2	24.8	22.0	22.1	21.7	22.0
Diff.	-1.6	-0.8 (±1.04)**	-0.4	-0.8	-1.4 (±1.04)**	-0.8	-0.9
K: lb per acre					(±0.90)		(±0.52)
None				17.4	18.0	17.7	17.7
95				24.0	25.5	24.3	24.6
190				25.7	25.0	24.3	25.0
Mean				22.4	22.8 (±0.52)	22.1	22.4

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

Mean dry matter % as cut: 2nd cut 20.9
Total of 2 cuts 23.1

https://doi.org/10.23637/ERADOC-1-182

61/C/7.4

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 (±1.66)			(±0.96)	2nd cut (±1.16)			(±0.68)
None	38.1	39.3	36.0	37.8	20.7	23.1	23.3	22.4
95	44.2	41.0	41.8	42.3	22.7	25.9	25.9	24.8
190	42.7	43.1	45.3	43.7	26.3	27.5	27.8	27.2
Mean	41.7	41.1 (±0.96)	41.0	41.2	23.2	25.5 (±0.68)	25.7	24.7

	3rd cut				Total of 3 cuts			
	(±0.43)			(±0.25)	(±2.71)			(±1.56)
None	7.5	7.7	6.8	7.3	66.3	70.0	66.1	67.5
95	7.0	6.9	7.4	7.1	73.9	73.8	75.0	74.2
190	7.8	8.3	8.0	8.0	76.7	78.8	81.1	78.9
Mean	7.4	7.6 (±0.25)	7.4	7.4	72.3	74.2 (±1.56)	74.1	73.5

Mean dry matter % as cut:

1st cut	14.8
2nd cut	27.7
3rd cut	35.3
Total of 3 cuts	25.9

https://doi.org/10.23637/ERADOC-1-182

61/C/8.1

INTENSIVE BARLEY GROWING EXPERIMENT

Little Knott I - 1961

Design: 2 replicates of 40 treatments in 4 blocks of 20 plots each.

Area of each plot (acres): 0.0212. Area harvested: 0.0138

Treatments. All combinations of:-

Crop sequences:

	1961	1962	1963	1964	1965	1966	1967	1968
1	O	Be	B	B	B	B	B	B
2	SW	O	Be	B	B	B	B	B
3	O	SW	O	Be	B	B	B	B
4	Be	O	SW	O	Be	B	B	B
5	SW	Be	O	SW	O	Be	B	B
6	SW	SW	Be	O	SW	O	Be	B
7	B	B	B	B	B	B	B	B
8	SW	SW	SW	SW	SW	SW	SW	SW
9	W*	W	W	W	W	W	W	W
10	Be	W	P	B	Be	W	P	B

O = Oats, Be = Spring beans, SW = Spring wheat, W = Winter wheat, B = Barley, P = Potatoes.

Nitrogen: Applied to continuous crops and to the winter wheat and barley in treatment 10 - none; 0.3; 0.6; 0.9 cwt N per acre as 'Nitro-Chalk'.

*In this case, because of bad weather, spring instead of winter wheat was sown.

Basal dressings (per acre): 240 lb compound fertiliser, 14% P_2O_5, 28% K_2O, to all crops except potatoes, which receive 10 cwt compound fertiliser, 10% N, 10% P_2O_5, 18% K_2O. The non-continuous crops oats and spring wheat also receive 0.45 cwt N as 'Nitro-Chalk'.

Cultivations, etc.: Ground chalk applied at 24 cwt per acre: Sept 23, 1960. Ploughed: Oct 4.

Spring beans: Seed placement drilled at 200 lb per acre: Mar 10, 1961. Sprayed with demeton-methyl at 12 fluid oz in 60 gallons per acre: June 12. Combine harvested: Aug 26. Variety: Tick.

Oats: Seed combine drilled at 4 bushels per acre, 'Nitro-Chalk' applied: Mar 10, 1961. Sprayed with MCPA/TBA at 4 pints in 40 gallons per acre: May 12. Combine harvested: Aug 22. Variety: Condor.

Spring wheat: Seed combine drilled at 3 bushels per acre, 'Nitro-Chalk' applied: Mar 10, 1961. Sprayed with MCPA/TBA at 4 pints in 40 gallons per acre: May 12. Combine harvested: Aug 30. Variety: Jufy I.

Barley: Seed combine drilled at 2½ bushels per acre: Mar 9, 1961. 'Nitro-Chalk' applied: Mar 10. Sprayed with MCPA/TBA at 4 pints in 40 gallons per acre: May 12. Combine harvested: Aug 30. Variety: Proctor.

Previous crop: Spring wheat.

Note. Yields were only taken for sequences 2, 7, 8 and 9.

Standard error per plot. Grain (at 85% dry matter):
Spring wheat (8 & 9): 2.27 cwt per acre or 8.2% (11 d.f.)
Spring wheat (2): 2.70 cwt per acre or 9.2% (6 d.f.)

Summary of Results

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

Spring wheat (8 and 9)

N: cwt per acre

None	0.3	0.6	0.9	Mean
16.9	25.3	32.0	36.0	27.5

(±1.13)

Mean dry matter % as harvested: 85.5

Spring wheat (2)

N: cwt per acre

0.45

29.3

(±0.96)

Mean dry matter % as harvested: 85.8

Barley (7)

N: cwt per acre

None	0.3	0.6	0.9	Mean
22.7	34.5	38.8	38.8	33.7

Mean dry matter % as harvested: 83.9

https://doi.org/10.23637/ERADOC-1-182