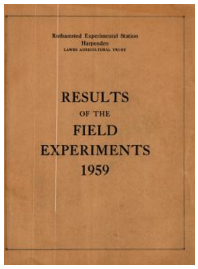
ROTHAMSTED RESEARCH

Yields of the Field Experiments 1959

Full Table of Content



59/W/BG/1 Irrigation

Rothamsted Research

Rothamsted Research (1960) *59/W/BG/1 Irrigation ;* Yields Of The Field Experiments 1959, pp 61 - 66 **- DOI: https://doi.org/10.23637/ERADOC-1-179**

Cultivations, etc.:

Sugar beet. Ploughed: Oct 30 and Dec 6, 1958. Ground chalk applied: Dec 4. Salt applied: Mar 12, 1959. Basal fertilizer and 'Nitra-Shell' applied: Apr 1. Seed drilled at 10 lb per acre: Apr 3. Singled: May 19 - 22. Sprayed with dieldrin at 2 pints in 40 gallons per acre: May 26. Sprayed with demeton methyl (50% active ingredients) at 12 fluid oz in 40 gallons per acre: June 4 and June 22. Lifted: Oct 19 - 22. Variety: Klein E.

Spring wheat. Ploughed: Nov 18, 1958. Fertilizers applied: Mar 13, 1959. Seed drilled at 3 bushels per acre: Mar 17. Combine harvested: Aug 21. Variety: Peko.

Spring beans. Ploughed: Sept 15 and Dec 3, 1958. Dung applied: Dec 2. Seed combine drilled at 200 lb per acre: Feb 26, 1959. Combine harvested: Aug 7 and 22. Variety: Garton's Spring Tick.

Grass. Basal fertilizers applied: Nov 24, 1958. 'Nitra-Shell' and 0.6 cwt muriate of potash per acre applied: Mar 24, 1959. Cut six times (all plots): May 6 and 27, June 22, July 14, Aug 11, Sept 9. 'Nitra-Shell' applied after each cut, except the last. 2nd dressing of 0.6 cwt muriate of potash per acre applied after the third cut. Variety: Cocksfoot S37.

Standard errors per plot.

Sugar beet.	Total sugar,	whole plot:	5.88 cwt per acre or 8.0% (6 d.f.)
		sub plot:	4.23 cwt per acre or 5.7% (8 d.f.)
	Tops,	whole plot:	1.467 cwt per acre or 16.5% (6 d.f.)
		sub plot:	0.870 cwt per acre or 9.8% (8 d.f.)
Spring wheat.	Grain (at 85% D.M.),	whole plot:	2.55 cwt per acre or 11.3% (6 d.f.)
		sub plot:	2.74 cwt per acre or 12.1% (8 d.f.)
Cut grass.	Dry matter, Total of cuts 1 - 3	whole plot:	2.10 cwt per acre or 8.0% (6 d.f.)
		sub plot:	1.37 cwt per acre or 5.2% (8 d.f.)
	Total of cuts 4 - 6	whole plot:	2.23 cwt per acre or 10.1% (6 d.f.)
		sub plot:	1.95 cwt per acre or 8.8% (8 d.f.)
	Total of cuts 1 - 6	whole plot:	3.36 cwt per acre or 7.0% (6 d.f.)
		sub plot:	3.18 cwt per acre or 6.6% (8 d.f.)

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59/Bg/1.3

Summary of Results

Sugar beet

Roots washed: tons per acre

Spray	Irrigation 0	Irrigation C
None	14.64	21.91
Demeton methyl	14.81	22.40

N: cwt per acre	Irrigation 0	Irrigation C	Spray None	Spray Demeton methyl	Mean
0.6	14.90	21.70	18.06	18.54	18.30
1.2	14.55	22.61	18.50	18.67	18.58
Mean	14.73	22.16	18.28	18.61	18.44
Difference	-0.35	+0.91	+0.44	+0.13	+0.28

Sugar percentage

Spray	Irrigation 0	Irrigation C
None	20.1	19.7
Demeton methyl	20.5	19.9

N: cwt per acre	Irrigation 0	Irrigation C	Spray None	Spray Demeton methyl	Mean
0.6	20.8	20.3	20.3	20.8	20.5
1.2	19.8	19.4	19.6	19.6	19.6
Mean	20.3	19.8	19.9	20.2	20.1
Difference	-1.0	-0.9	-0.7	-1.2	-0.9

Total sugar: cwt per acre

Spray	Irrigation 0	Irrigation C
	(±3.40)	
None	58.5	86.4
Demeton methyl	60.8	89.0

N: cwt per acre	Irrigation 0	Irrigation C	Spray None	Spray Demeton methyl	Mean
	(±2.69)*			(±2.69)*	
0.6	61.8	87.8	72.8	76.8	74.8
1.2	57.5	87.6	72.1	73.0	72.6
Mean (±2.40)	59.7	87.7	72.5	74.9	73.7
Difference (±2.44)	-4.3	-0.2	-0.7	-3.8	-2.2 (±1.73)

*for use in horizontal and diagonal comparisons only.

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Sugar beet
Tops: tons per acre

Spray	Irrigation 0	Irrigation C
	(±0.847)	
None	7.79	10.23
Demeton methyl	6.78	10.67

N: cwt per acre	Spray None	Spray Demeton methyl	Mean
		(±0.649)*	
0.6	7.91	7.79	7.85
1.2	10.11	9.66	9.88
Mean (±0.599)	9.01	8.73	8.87
Difference (±0.503)	+2.20	+1.87	+2.03 (±0.355)

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

N: cwt per acre	Irrigation 0	A	B	C	Mean
			(±1.85)*		(±0.79)
0.4	18.2	18.9	23.9	28.7	22.4
0.8	17.0	16.4	27.8	30.0	22.8
Mean (±1.48)	17.6	17.6	25.9	29.4	22.6
Difference (±2.24)	-1.2	-2.5	+3.9	+1.3	+0.4 (±1.12)

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

Dung: tons per acre	Treatment 0	OS	C_1	C_1S	C_2	C_2S	C_3	C_3S	Mean
None	10.3+	8.9+	28.5	25.6	25.3	23.6	23.0	23.1	17.2
12	11.9+	9.2+	24.6	26.3	23.5	26.4	22.4	24.8	17.6
Mean	11.1	9.1	26.6	26.0	24.4	25.0	22.7	24.0	17.4
Difference	+1.6	+0.3	-3.9	+0.7	-1.8	+2.8	-0.6	+1.7	+0.4

Mean dry matter % as harvested: 84.9

*for use in horizontal and diagonal comparisons only.

+means of 3 sub plots. All other values in body of table are based on 1 sub plot only.

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Cut grass

Total of cuts 1 - 3. Dry matter: cwt per acre

K_2O: cwt per acre including basal	Irrigation 0	Irrigation C	K_2O: cwt per acre including basal 1.2	K_2O: cwt per acre including basal 1.8	Mean
	(±1.21)				
1.2	19.8	32.5			
1.8	16.6	35.3			
N: cwt per acre+			1.2	1.8	Mean
	(±0.94)*		←	(±0.94)*	
0.3	15.4	29.3	22.6	22.1	22.4
0.6	20.9	38.5	29.6	29.8	29.8
Mean (±0.86)	18.2	33.9	26.1	26.0	26.1
Difference (±0.79)	+5.5	+9.2	+7.0	+7.7	+7.4 (±0.56)

Total of cuts 4 - 6. Dry matter: cwt per acre

K_2O: cwt per acre including basal	Irrigation 0	Irrigation C	K_2O: cwt per acre including basal 1.2	K_2O: cwt per acre including basal 2.4	Mean
	(±1.29)				
1.2	13.0	27.5			
2.4	13.8	34.6			
N: cwt per acre+			1.2	2.4	Mean
	(±1.07)*		←	(±1.07)*	
0.3	12.4	27.8	18.6	21.6	20.1
0.6	14.5	34.3	22.0	26.8	24.4
Mean (±0.91)	13.4	31.1	20.3	24.2	22.2
Difference (±1.12)	+2.1	+6.5	+3.4	+5.2	+4.3 (±0.79)

*for use in horizontal and diagonal comparisons only.

+for each cut.

Mean dry matter % as cut:
Total of cuts 1 - 3: 23.6
Total of cuts 4 - 6: 24.7

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Cut grass

Total of cuts 1 - 6. Dry matter: cwt per acre

K_2O: cwt per acre including basal	Irrigation 0	Irrigation C	K_2O: cwt per acre including basal 1.2	K_2O: cwt per acre including basal 2.4	Mean
	(±1.94)		←	(±1.65)*	
1.2	32.8	60.1			
2.4	30.4	69.9			
N: cwt per acre+	(±1.65)*				
0.3	27.8	57.1	41.2	43.7	42.5
0.6	35.4	72.9	51.7	56.6	54.2
Mean (±1.37)	31.6	65.0	46.4	50.2	48.3
Difference (±1.83)	+7.6	+15.8	+10.5	+12.9	+11.7 (±1.30)

*for use in horizontal and diagonal comparisons only.

+for each cut.

Mean dry matter % as cut:
Total of cuts 1 - 6: 24.2

WINTER WHEAT

Seed rates, sowing dates and levels of nitrogen (after non-cereal crop) - Great Field I 1959.

Design: 3 randomized blocks of 9 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. Seed rates: 2; 3; 4 bushels per acre.
Sowing dates: Oct 16; Nov 21, 1958; Jan 8*, 1959.

Sub plots. Nitrogen (in addition to basal): 0.47; 0.93 cwt N per acre applied as 'Nitro-Chalk' in two equal parts in February and April.

*Note. Sowing on one block delayed by bad weather until Jan 24, 1959.

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 12, 1958. Compound fertilizer applied: First sowing - Oct 16; second sowing - Nov 21; third sowing - Jan 8, 1959 (plots 2, 4 and 5 - Jan 26). First dressing of N applied: Feb 16. Sprayed with TCB/MCPA at 4 pints in 40 gallons per acre: Apr 21. Second dressing of N applied: Apr 22. Combine harvested: Aug 17. Variety: Cappelle. Previous crop: Potatoes.

Note. Counts of plant shoot and ear number, and estimates of plant height and % area lodged were made. Severe lodging occurred in early July and the mean % areas lodged at harvest were:

Sowing date	%	Seed rate bu. p.a.	%	N c.p.a.	%
Oct 16	94	2	46	0.6	42
Nov 21	66	3	57	1.1	73
Jan 8	14	4	70		

Standard errors per plot, Grain (at 85% dry matter):
Whole plot: 2.48 cwt per acre or 4.9% (16 d.f.)
Sub plot: 3.38 cwt per acre or 6.7% (18 d.f.)

Errata to 'Results of the Field Experiments' 1958 page 58/Ca/1.2

Rates of N cwt per acre should read '0.6' and '1.2' not '0.4' and '0.8'.
S.E. of means of seed rates and sowing dates should read '0.79' not '0.56'.

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