

Thank you for using eradoc, a platform to publish electronic copies of the Rothamsted Documents. Your requested document has been scanned from original documents. If you find this document is not readable, or you suspect there are some problems, please let us know and we will correct that.



ROTHAMSTED
RESEARCH

Yields of the Field Experiments 1964

[Full Table of Content](#)



64/R/IR/C/15 Irrigation - Potatoes and Grass

Rothamsted Research

Rothamsted Research (1965) *64/R/IR/C/15 Irrigation - Potatoes and Grass* ; Yields Of The Field Experiments 1964, pp 175 - 180 - DOI: <https://doi.org/10.23637/ERADOC-1-160>

64/C/15.1

IRRIGATION EXPERIMENT

(IRA and IRB)

The effect of irrigation on potatoes and grass - preliminary year,
Great Field I and II 1964.

Design:

Potatoes: A single replicate of 4 x 2 x 2 x 2 x 2 in two blocks, a component of the 5 factor interaction being confounded with blocks. Each block is divided into 4 whole plots for the irrigation treatments, and at right angles into 4 strips for varieties and spacing. There is a further split for chitting and N.

Grass ley. 2 randomised blocks of 4 plots each, plots being divided into 4 sub plots each.

Area of each sub plot:-

Potatoes: 0.0204. Area harvested: 0.0080.

Grass: 0.1598. Area harvested: 0.0046.

Treatments. Potatoes: All combinations of:-

Whole plots 1. Irrigation: None (O), early (A), late (B), full (C).

To strips of 1/4 plots 2. Varieties: Majestic (M), King Edward (E).
3. Spacing: Seed 12 inches (1), 18 inches (2) apart in the rows.

1/8 plots 4. Chitting: None (O), seed chitted (Ch).
5. Nitrogen: 0.75 (N1), 1.5 (N2) cwt N as 'Nitro-Chalk' broadcast on the flat before rotary cultivation.

Grass ley: All combinations of:-

Whole plots 1. Irrigation: None (O), irrigated (C).
2. Species: S215 Meadow Fescue at 30 lb (F), Timothy at 23 lb (T).

Sub plots 3. Nitrogen: None, 0.3, 0.6, 0.9 cwt N as 'Nitro-Chalk' in seedbed and after each cut except the last (NO, N1, N2, N3).

Basal dressing:

To potatoes: 2 cwt P2O5 and 4 cwt K2O as 0:14:28 rotary cultivated in.

To grass ley: 2 cwt P2O5 and 2 cwt K2O as 0:20:20 in seedbed.

Cultivations, etc.:-

Potatoes: Sprayed with dalapon at 5.9 lb acid equivalent in 4 gals: Oct 9, 1963 and again at 2.95 lb: Oct 22. Ploughed: Nov 6 - 28.

64/C/15.2

Basal dressing applied: Apr 6, 1964. 'Nitro-Chalk' applied, rotary cultivated, potatoes planted: Apr 30. Earthed up: June 22. Sprayed three times with mancozeb at 1.2 lb in 35 gals: June 30, July 17, July 31. Sprayed with diquat (Reglone at 3 pints in 40 gals): Sept 18. Lifted: Sept 24. Previous crops: Winter wheat 1962, barley 1963.

Grass ley: Ploughed: Nov 1, 1963. Basal dressing applied: Apr 7, 1964. Seedbed 'Nitro-Chalk' applied, seed drilled: Apr 30. Sprayed with 2,4-D butoxyethyl ester at 0.44 lb acid equivalent in 40 gals: June 10. Cut: July 22. 'Nitro-Chalk' applied: July 27. Cut: Sept 7. Previous crops: Winter wheat 1962, barley 1963.

Standard errors per plot.

Potatoes, total tubers

1/4 plot: 0.389 or 2.7% (8 d.f.)

1/8 plot: 1.142 or 8.0% (20 d.f.)

Grass ley, dry matter

Sub plot: 1st cut: 2.78 or 17.0% (12 d.f.)

2nd cut: 1.86 or 18.3% (12 d.f.)

Total of 2 cuts: 3.01 or 11.3% (12 d.f.)

RAINFALL AND IRRIGATION: INCHES

WEEK ENDING	RAINFALL	POTATOES			GRASS
		A	B	C	C
MAY 5	0.43				
12	0.06				
19	0.29				
26	0.46				
JUNE 2	1.08				
9	0.85				
16	0.90				
23	1.46				
30	0.00				
JULY 7	0.24				
14	0.65				
21	0.29				
28	0.06	1.00		1.00	
AUG 4	0.03				0.50
11	0.07				1.50
18	0.32		1.00	1.00	
25	0.05				1.00
SEPT 1	0.03				
8	0.10				
15	0.44				
22	0.18				
29	0.00				
OCT 6	0.31				
TOTAL	8.30	1.00	1.00	2.00	3.00

64/C/15.3

SUMMARY OF RESULTS

POTATOES

TOTAL TUBERS

	O	A	B	C	Mean
Mean	13.02	14.85	12.81	16.18	14.21
		(±0.137)*			(±0.069)
M	13.68	15.93	13.66	17.35	15.15
E	12.36	13.77	11.95	15.01	13.27
		(±0.137)*			(±0.069)
S1	12.91	14.68	12.85	15.95	14.10
S2	13.13	15.02	12.76	16.41	14.33
		(±0.404)*			(±0.202)
O	12.96	14.43	12.85	15.81	14.01
Ch	13.08	15.27	12.77	16.55	14.41
		(±0.404)*			(±0.202)
N1	12.40	14.55	11.77	15.38	13.52
N2	13.64	15.14	13.85	16.98	14.90
		(±0.194)*			
M S1	13.77	15.96	13.94	17.34	15.25
E S1	12.06	13.39	11.75	14.56	12.94
M S2	13.59	15.89	13.38	17.37	15.06
E S2	12.67	14.15	12.15	15.46	13.61
		(±0.571)*			
M O	13.66	14.47	13.65	17.03	14.70
E O	12.26	14.39	12.05	14.60	13.32
M Ch	13.69	17.39	13.67	17.68	15.61
E Ch	12.47	13.15	11.86	15.42	13.22
		(±0.571)*			
M N1	13.36	16.32	12.99	16.48	14.79
E N1	11.44	12.79	10.54	14.28	12.26
M N2	14.00	15.53	14.33	18.23	15.52
E N2	13.28	14.75	13.36	15.74	14.28

* For use in vertical and interaction comparisons

64/C/15.4

	% WARE				
	O	A	B	C	Mean
Mean	92.4	95.0	92.4	95.9	93.9
M	94.9	96.7	95.3	97.3	96.1
E	89.9	93.3	89.4	94.5	91.8
S1	90.7	94.5	91.3	95.4	93.0
S2	94.1	95.6	93.5	96.3	94.9
O	92.2	94.8	92.2	95.7	93.7
Ch	92.6	95.3	92.6	96.1	94.1
N1	91.0	94.3	91.3	95.4	93.0
N2	93.8	95.8	93.5	96.4	94.9
M S1	94.1	96.6	94.4	97.1	95.5
E S1	87.2	92.4	88.3	93.8	90.4
M S2	95.7	96.9	96.3	97.5	96.6
E S2	92.5	94.3	90.6	95.2	93.1
M O	94.6	96.7	95.1	97.5	96.0
E O	89.8	92.9	89.2	93.9	91.5
M Ch	95.2	96.8	95.5	97.1	96.2
E Ch	89.9	93.8	89.7	95.1	92.1
M N1	93.9	96.4	94.9	97.1	95.6
E N1	88.0	92.3	87.7	93.6	90.4
M N2	95.9	97.1	95.7	97.5	96.6
E N2	91.7	94.4	91.2	95.3	93.2

64/C/15.5

GRASS, DRY MATTER

	NO	N1	N2	N3	Mean
1ST CUT					
Mean	8.6	14.7	18.7	23.6	16.4
			(±0.98)		
O	8.6	16.6	20.3	24.8	17.6
C	8.5	12.7	17.0	22.5	15.2
			(±1.39)*		
F	10.1	18.0	22.6	28.2	19.7
T	7.0	11.3	14.8	19.1	13.0
			(±1.39)*		
	O	C			
F	20.7	18.7			
T	14.4	11.6			

Mean D.M. %: 18.9

2ND CUT

Mean	6.8	10.5	11.1	12.5	10.2
			(±0.66)		
O	4.5	5.8	7.7	6.7	6.1
C	9.1	15.2	14.6	18.3	14.3
			(±0.93)*		
F	8.7	13.0	16.0	17.3	13.7
T	5.0	7.9	6.3	7.6	6.7
			(±0.93)*		
	O	C			
F	10.1	17.4			
T	2.2	11.2			

Mean D.M.%: 29.7

* For use in vertical and interaction comparisons

64/C/15.6

TOTAL OF 2 CUTS

	NO	N1	N2	N3	Mean
Mean	15.4	25.1 (±1.07)	29.8	36.1	26.6
O	13.2	22.4 (±1.51)*	28.0	31.4	23.7
C	17.6	27.9	31.6	40.8	29.5
F	18.8	31.0 (±1.51)*	38.6	45.5	33.5
T	11.9	19.2	21.0	26.7	19.7
	O	C			
F	30.8	36.1			
T	16.6	22.8			

Mean D.M. %: 24.3

* For use in vertical and interaction comparisons