

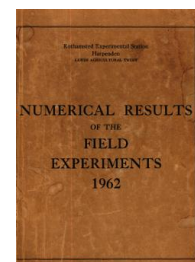
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# Yields of the Field Experiments 1962

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## 62/W/B/6 Irrigation

### Rothamsted Research

Rothamsted Research (1963) *62/W/B/6 Irrigation* ; Yields Of The Field Experiments 1962, pp 80 - 85  
- DOI: <https://doi.org/10.23637/ERADOC-1-164>

62/B/6.1

## IRRIGATION EXPERIMENT

The 12th year - revised 1960

The effects of irrigation and nitrogen - Woburn Butt Close 1962.

For details of previous cropping, treatments etc. see "Details of the Classical and Long Term Experiments" 1956.

Lucerne: The ryegrass is now replaced by lucerne, which receives the following treatments and basal dressings:

Treatments

All combinations of:-

Irrigation (to whole plots): None (0); full irrigation (C).

Nitrogen (to half plots): None; 0.3 cwt N per acre as 'Nitro-Chalk' in seedbed, and in early spring in subsequent years.

Potash (to half plots): 0.3; 0.9 cwt  $K_2O$  per acre as muriate of potash for every cut.

The above fertiliser treatments balance those applied to ryegrass.

Basal dressings per acre: 0.6 cwt  $P_2O_5$  as superphosphate in seedbed and in early spring in subsequent years.

Beans: As a result of bird damage the third year crop in the rotation was spring, and not winter beans.

Trietazine at  $1\frac{1}{2}$  lb in 40 gallons per acre now replaces simazine as pre-emergence weedkiller on early potatoes.

Area of each plot: Lucerne (sub plot): 0.0264 acres. Remainder as 1961.

Area harvested (acres): Early potatoes: 0.0171; barley: 0.0099; spring beans: 0.0175; lucerne: 0.0160.



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Rainfall and Irrigation: inches

Week ending	Rainfall	Early					Lucerne C
		potatoes C	Barley C	A	Spring beans B	C	
May 7	0.18		0.50				
14	0.64			0.50		0.50	
21	0.67						
28	0.78						
June 4	0.03						
11	0.07	0.50	0.50	0.50		0.50	0.50
18	0.02	0.50	0.50	0.50		0.50	0.50
25	0.03	0.50	0.50				0.50
July 2	0.16	0.75	0.75		0.50	0.50	0.75
9	0.01	0.75	0.75		0.75	0.75	0.75
16	0.91				0.50	0.50	0.50
23	0.11						
30	0.92						
Aug 6	0.20						
13	1.94						
20	0.42						
27	0.53						
Sept 3	0.02						
10	0.50						
17	1.47						
24	0.02						
Oct 1	1.24						
Total	10.87	3.00	3.50	1.50	1.75	3.25	3.50

Cultivations, etc.:

Early potatoes: Ploughed: Aug 25, 1961. Subsoiled: Oct 23.  
 Ploughed second time: Oct 25. PK basal compound applied:  
 Mar 12, 1962. Sulphate of ammonia applied, potatoes machine  
 planted: Mar 13. Appropriate plots sprayed with trietazine:  
 Apr 12. Earthed up (except the trietazine plots): June 15.  
 Tops removed mechanically: July 17. Lifted: July 18. All  
 plots ploughed: July 19. Trefoil sown on appropriate plots at  
 30 lb per acre: July 20. Variety: Arran pilot.

Barley: Plots (except trefoil plots) fixed-tine cultivated:  
 Nov 27, 1961. All plots ploughed: Feb 2, 1962. Ground chalk  
 applied at 37 cwt per acre, fertilisers applied, seed drilled  
 at 2 $\frac{1}{4}$  bushels per acre: Mar 2. Sprayed with MCPA/MBA at 4  
 pints in 40 gallons per acre: May 14. Combine harvested:  
 Aug 22. Variety: Proctor.

Spring beans: Ground chalk applied at 46 cwt per acre, plots  
 ploughed: Aug 25, 1961. Subsoiled: Oct 23. Ploughed second  
 time: Oct 25. Winter beans placement drilled at 275 lb per  
 acre: Nov 1. Crop abandoned, plots springtine cultivated  
 twice: Mar 16, 1962. Cross-drilled with spring beans at  
 200 lb per acre: Mar 19. Sprayed with simazine at 1 lb in  
 40 gallons per acre: Apr 12. Combine harvested: Sept 20.  
 Variety: Tick 30b.

Lucerne: Subsoiled: Oct 23, 1961. Ploughed: Oct 25. Fertilisers  
 applied: Apr 5, 1962. Seed drilled at 19 lb per acre:



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Apr 17 - 24. Cut 3 times: July 17, Aug 20, Oct 3. Muriate of potash applied for every cut. Variety: Du Puits.

Standard errors per plot.

Spring beans: (grain at 85% dry matter)

Whole plot: 4.54 cwt per acre or 16.2% (6 d.f.)

Lucerne, dry matter

1st cut	Whole plot: 1.40 cwt per acre or 6.9% (6 d.f.)
	Sub plot: 2.05 cwt per acre or 10.1% (8 d.f.)
2nd cut	Whole plot: 1.82 cwt per acre or 10.0% (6 d.f.)
	Sub plot: 0.90 cwt per acre or 5.0% (8 d.f.)
3rd cut	Whole plot: 1.68 cwt per acre or 13.9% (6 d.f.)
	Sub plot: 1.30 cwt per acre or 10.7% (8 d.f.)
Total of 3 cuts	Whole plot: 4.68 cwt per acre or 9.3% (6 d.f.)
	Sub plot: 3.12 cwt per acre or 6.2% (8 d.f.)

Corrigenda to "Results of the Field Experiments 1960 and 1961".

Page 60/B/7.1:- Early potatoes - Delete last sentence of "Note" and substitute "0.5 inches were applied in 1960".

Page 61/B/6.1:- Cut grass - Add: "The low and high rates of potash are applied to half plots and are accompanied by 'Nitro-Chalk' at 0.3 and 0.6 cwt N per acre per cut respectively. This comparison is made on 2 whole plots per block, on the other 2 'Nitro-Chalk' at 0.3 and 0.6 cwt N per acre is applied for each cut without potash.

Summary of Results

Early potatoes, Total tubers: tons per acre

Weed control	Irrigation		Weed control		
	0	C	Normal cultivation	Trietazine spray	Mean
Normal cultivation	2.81	5.75			
Trietazine spray	1.80	4.77			
N: cwt per acre including basal					
0.6	2.37	5.03	4.07	3.33	3.70
1.2	2.24	5.48	4.48	3.24	3.86
Mean	2.31	5.26	4.28	3.29	3.78



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

Weed control**	Irrigation							
	0	C						
Normal cultivation	25.0	38.2						
Simazine spray	21.8	38.7						
Green manure								
None	20.3	31.8	27.2	24.8				
Trefoil	25.0	41.8	33.8	33.0				
N: cwt per acre including basal					Green manure		Mean	
					None	Trefoil		
0.2	24.5	36.3	30.7	30.0	22.7	34.2	30.4	
0.4	22.4	40.7	32.5	30.6	29.3	32.6	31.5	
Mean	23.4	38.5	31.6	30.3	26.0	33.4	30.9	

Mean dry matter % as harvested: 83.0

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

0	Irrigation			C	Mean
	A	B			
21.0	27.5	30.0		33.5	28.0
		(±2.61)			

Mean dry matter % as harvested: 74.5

Lucerne, dry matter: cwt per acre

	1st cut					
	Irrigation					
	0	C				
K <sub>2</sub> O: cwt per acre*	(±0.84) <sup>(1)</sup> (±0.82) <sup>(2)</sup>					
0.3	14.3	25.0				
0.9	14.4	27.0				
N: cwt per acre	(±0.84) <sup>(1)</sup> (±0.82) <sup>(2)</sup>		(±0.82)		(±0.84)	
None	13.6	25.0	18.7	20.0	19.3	
0.3	15.1	27.0	20.6	21.5	21.1	
Mean	14.4	26.0	19.6	20.7	20.2	
	(±0.57)		(±0.84)			

Mean dry matter % as harvested: 25.0

(1) For use in vertical and interaction comparisons

(2) For use in horizontal and diagonal comparisons

\* For each cut \*\* To early potatoes 1961



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Lucerne, dry matter: cwt per acre

	Irrigation				Mean
	S	C			
	<u>2nd cut</u>				
K <sub>2</sub> O: cwt per acre*	(±0.37) <sup>(1)</sup>	(±0.79) <sup>(2)</sup>			
0.3	18.9	16.3			
0.9	19.0	18.2			
			K <sub>2</sub> O: cwt per acre*		
			0.3	0.9	
N: cwt per acre	(±0.37) <sup>(1)</sup>	(±0.79) <sup>(2)</sup>	(±0.79)		(±0.37)
None	18.2	17.6	17.3	18.5	17.9
0.3	19.8	16.9	17.9	18.8	18.4
Mean	19.0	17.3	17.6	18.6	18.1
	(±1.05)		(±0.37)		
	<u>3rd cut</u>				
K <sub>2</sub> O: cwt per acre*	(±0.53) <sup>(1)</sup>	(±0.78) <sup>(2)</sup>			
0.3	13.2	10.0			
0.9	14.0	11.4			
			K <sub>2</sub> O: cwt per acre*		
			0.3	0.9	
N: cwt per acre	(±0.53) <sup>(1)</sup>	(±0.78) <sup>(2)</sup>	(±0.78)		(±0.53)
None	14.2	11.2	11.7	13.6	12.7
0.3	13.0	10.1	11.4	11.7	11.6
Mean	13.6	10.7	11.6	12.7	12.1
	(±0.97)		(±0.53)		

Mean dry matter % as harvested:

2nd cut: 17.7

3rd cut: 21.0

(1) For use in vertical and interaction comparisons

(2) For use in horizontal and diagonal comparisons

\* For each cut



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Lucerne, dry matter: cwt per acre

	Irrigation				Mean
	0	C			
<u>Total of 3 cuts</u>					
K <sub>2</sub> O: cwt per acre*	(±1.27) <sup>(1)</sup> (±2.11) <sup>(2)</sup>				
0.3	46.4	51.3			
0.9	47.5	56.7			
			K <sub>2</sub> O: cwt per acre*		
			0.3	0.9	
N: cwt per acre	(±1.27) <sup>(1)</sup> (±2.11) <sup>(2)</sup>		(±2.11)		(±1.27)
None	46.0	53.9	47.7	52.1	49.9
0.3	47.9	54.1	50.0	52.0	51.0
Mean	46.9	54.0	48.9	52.1	50.5
	(±2.70)		(±1.27)		

Mean dry matter % as harvested: 21.3

\* For each cut

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