

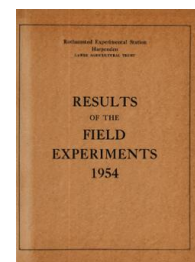
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# Yields of the Field Experiments 1954

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## 54/W/BE/1 Ley and Arable Rotations

### Rothamsted Research

Rothamsted Research (1955) *54/W/BE/1 Ley and Arable Rotations ; Yields Of The Field Experiments 1954*, pp 50 - 54 - DOI: <https://doi.org/10.23637/ERADOC-1-184>

54/Be/1.1

## LEY AND ARABLE ROTATIONS

Woburn Stackyard - 1954 the 17th year.

For details of rotations and treatments etc., see "Results of the Field Experiments 1939-47", Vol. I, Section Bf/1 with the following exceptions:-

In 1949 and subsequently Rye replaced Wheat.

In 1954 the Seeds Hay plots were split into two after the first crop, for testing 0.15 v. 0.30 cwt N per acre applied as nitro-chalk.

Cultivations, etc.:

### Treatment crops

#### Ley rotations

Ley 1st year. Ploughed twice: Sept 16 and Dec 30, 1953.

Basal fertilizers applied: Apr 5, 1954. Seeds mixture hand sown: Apr 7. Nitrochalk applied: July 16. Grazed 7 times: June 17-21, July 7-15, July 24-Aug 1, Aug 11-21, Sept 8-17, Sept 25-Oct 1, Oct 19-27. Seeds mixture per acre: 21 lb S23 Perennial Ryegrass, 12 lb S143 Cocksfoot, 6 lb Late flowering Montgomery Red Clover, 3 lb S100 White Clover.

Ley 2nd year. Nitrochalk applied: May 25 and July 26.

Grazed 9 times: May 17-25, June 8-17, June 21-29, July 15-24, Aug 1-11, Aug 21-30. Sept 17-25, Oct 3-11, Oct 27-Nov 4.

Ley 3rd year. Nitrochalk applied: May 25 and July 21.

Grazed 5 times: May 13-17, May 31-June 8, June 29-July 7, Aug 30-Sept 8, Oct 11-19.

Lucerne 1st year. Ploughed twice: Sept 16 and Dec 30, 1953.

Basal fertilizers applied: Apr 2, 1954. Seeds sown at 28 lb per acre: Apr 7. Dusted with 2% DDT: Apr 8. Cut twice: Aug 11 and Nov 3. Variety: Du Puits.

Lucerne 2nd year. Cut three times: June 24, Aug 11, Nov 3.

Lucerne 3rd year. Cut three times: June 24, Aug 11, Nov 3.

#### Arable rotations

Potatoes 1st course. Ploughed: Sept 16 and again Dec 30, 1953.

Ridged, basal fertilizers applied: Apr 2, 1954. Potatoes planted with dropper: Apr 6. Earthed up: June 25. Sprayed with copper fungicide, 5 lb per acre: July 30, Aug 16 and Aug 27. Sprayed with sulphuric acid: Sept 23. Lifted: Oct 4. Variety: Majestic.

Rye 2nd course. Ploughed: Oct 1, 1953. Seed drilled at 3

bushels per acre: Oct 22. Nitrochalk applied: Apr 29, 1954. Seeds hay mixture undersown on 4 plots: May 7. Harvested: Aug 23.

Seeds Hay 3rd course. Seeds undersown in Rye: Apr 9, 1953.

Basal nitrochalk applied: Apr 6, 1954. 1st cut: June 24. Nitrochalk applied: June 30. 2nd cut: Nov 3. Seeds mixture per acre: 27 lb S24 Perennial Ryegrass, 12 lb Montgomery Red Clover, 3 lb Canadian Alsike Clover.

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Sugar beet 3rd course. Ploughed: Aug 21 and again Nov 5, 1953.  
Basal nitrate of soda applied: Mar 29, 1954. Seed drilled  
at 18 lb per acre: Mar 30. Dusted with DDT: May 12.  
Singled: May 28. Sprayed with systemic insecticide  $\frac{1}{2}$  pint  
per acre, high volume: June 21. Lifted: Nov 2. Variety:  
Klein E.

Test Crops.

Potatoes 1st test crop. Ploughed: Nov 4, 1953. Ridged, dung  
applied: Apr 7, 1954. Basal fertilizers applied, potatoes  
hand planted: Apr 8. Earthed up: June 25. Sprayed with  
copper fungicide, 5 lb per acre: July 30, Aug 16 and Aug 27.  
Sprayed with 20% sulphuric acid: Sept 23. Lifted: Oct 4.  
Variety: Majestic.

Barley 2nd test crop. Ploughed: Oct 2 and again Dec 30, 1953.  
Ground chalk applied: Mar 8, 1954. Nitrochalk applied:  
Mar 11. Seed drilled at 3 bushels per acre: Mar 17.  
Harvested: Aug 28. Variety: Plumage Archer.

Standard errors per plot, Test crops:

Potatoes, Total tubers, whole plot:	0.797 tons per acre or 7.3%	(4 d.f.)
sub plot:	0.881 tons per acre or 8.1%	(4 d.f.)
Barley, Grain, whole plot:	2.50 cwt per acre or 7.8%	(4 d.f.)
sub plot:	2.12 cwt per acre or 6.7%	(4 d.f.)

Summary of Results

Treatment crops

Ley, Sheep days of grazing per acre

1st year	2nd year	3rd year
1817	2616	1018

54/Be/1.3

Treatment crops

Lucerne, yield of hay (at 85% D.M.): cwt per acre

	1st crop	2nd crop	3rd crop	Total
<u>1st year</u>				
No dung	18.7	11.4		30.1
Dung in 1952	26.1	14.1		40.2
Increase	7.4	2.7		10.1
Previous Rotation				
Lucerne	20.9	12.3		33.2
Arable with Hay	23.9	13.2		37.1
Mean	22.4	12.8		35.2
<u>2nd year</u>				
No dung	38.0	24.0	9.0	71.0
Dung in 1951	44.3	25.8	11.8	81.9
Increase	6.3	1.8	2.8	10.9
Previous Rotation				
Lucerne	38.8	24.3	9.6	72.7
Arable with Sugar beet	43.5	25.5	11.2	80.2
Mean	41.2	24.9	10.4	76.5
<u>3rd year</u>				
No dung	32.5	18.9	6.4	57.8
Dung in 1950	39.2	24.9	11.0	75.1
Increase	6.7	6.0	4.6	17.3
Previous Rotation				
Lucerne	35.4	23.7	9.4	68.5
Arable with Hay	36.3	20.1	8.0	64.4
Mean	35.8	21.9	8.7	66.4
	Potatoes		Rye	
	Total tubers: tons per acre	Percentage ware	Grain: cwt per acre	Straw:
No dung	8.52	85.3	32.0	33.5
Dung <sup>#</sup>	11.71	88.3	35.3	37.9
Increase	3.19	3.0	3.3	4.4
Previous Rotation				
Ley	11.84	91.3	33.7	34.8
Lucerne	10.00	87.9	36.7	38.1
Arable with Hay	9.48	83.5	34.5	35.6
Arable with Sugar beet	9.13	84.4	29.8	34.3
Mean	10.12	86.8	33.7	35.7

<sup>#</sup>Dung applied: Potatoes:- 1952 Rye:- 1951.

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Treatment crops				
	Hay			
	Yield (at 85% D.M.): cwt per acre			
	1st crop	2nd crop	Total	2nd crop Response to N
No dung	39.4	2.7	42.1	0.5
Dung in 1950	40.5	4.9	45.4	2.0
Increase	1.1	2.2	3.3	1.5
Previous Rotation				
Lucerne	39.8	4.4	44.2	1.0
Arable with Hay	40.1	3.2	43.3	1.5
Mean	40.0	3.8	43.8	1.2
	Sugar Beet			
	Roots (washed): tons per acre	Sugar percent- age	Total sugar: cwt per acre	Tops: tons per acre
No dung	9.06	17.0	30.9	8.06
Dung in 1950	10.18	17.0	34.7	8.44
Increase	1.12	0.0	3.8	0.38
Previous Rotation				
Ley	10.46	17.0	35.6	9.06
Arable with Sugar beet	8.78	17.1	30.0	7.44
Mean	9.62	17.0	32.8	8.25

54/Be/1.5

Test Crops

		Previous Rotation			Mean	
		Ley	Lucerne	Arable with hay		Arable with sugar beet
Potatoes, Total tubers: tons per acre						
No dung	(±0.715)*	11.90	8.90	8.34	5.78	8.73
Dung in 1954		14.14	14.86	13.02	10.44	13.12
Mean	(±0.564)	13.02	11.88	10.68	8.11	10.92
Increase	(±0.881)	2.24	5.96	4.68	4.66	4.39 (±0.440)
Potatoes, Percentage ware						
No dung		94.5	95.2	91.2	88.0	92.2
Dung in 1954		95.4	95.7	95.8	94.4	95.3
Mean		95.0	95.5	93.5	91.2	93.8
Increase		0.9	0.5	4.6	6.4	3.1
Barley, Grain: cwt per acre						
No dung	(±2.06)*	33.9	32.0	30.1	25.5	30.4
Dung in 1953		35.6	32.2	33.6	31.8	33.3
Mean	(±1.77)	34.7	32.1	31.9	28.6	31.8
Increase	(±2.12)	1.7	0.2	3.5	6.3	2.9 (±1.06)
Barley, Straw: cwt per acre						
No dung		42.1	35.2	30.5	27.4	33.8
Dung in 1953		48.9	44.4	41.9	39.7	43.7
Mean		45.5	39.8	36.2	33.5	38.8
Increase		6.8	9.2	11.4	12.3	9.9

\* for use in comparisons other than vertical.