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# Yields of the Field Experiments 1951

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## 51/BE/1 Ley and Arable Rotations - Woburn

### Rothamsted Research

Rothamsted Research (1952) *51/BE/1 Ley and Arable Rotations - Woburn* ; Yields Of The Field Experiments 1951, pp 42 - 48 - DOI: <https://doi.org/10.23637/ERADOC-1-171>

## LEY AND ARABLE ROTATIONS

Woburn Stackyard - 1951 the 14th year.

For details of rotations etc., see Appendix Z 1950.

### Cultivations, etc.:

Block I. Barley. Ploughed: Oct 4. Ground chalk applied: Apr 5.  
Seed drilled at 3 bushels per acre, basal fertilizers applied:  
Apr 16. Harvested: Aug 31. Variety: Plumage Archer.

Block II. Ley - first year. Ploughed: Aug 29 and again Oct 19.  
Basal fertilizers applied, seeds sown: Apr 19. Nitrochalk  
applied: Apr 20. Topped: June 18 and July 9. Grazed by  
sheep: July 16-20, Aug 13-21, Aug 30 - Sept 7, and Sept 27 -  
Oct 6. 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.

Lucerne - first year. Ploughed: Aug 31 and again Oct 19.  
Basal fertilizers applied, seed drilled at 28 lb per acre:  
Apr 19. Dusted with DDT: May 25 and June 1. First cut:  
Aug 10. Second cut: Oct 8. Variety: Du. Puits.

Potatoes. Ploughed: Aug 30 and Oct 19. Ridged, basal  
fertilizers applied: May 3. Potatoes planted: May 7. Earthed  
up ridges: July 11. Sprayed with Copper fungicide, 5 lb per  
acre: Aug 18 and again Sept 8. Sprayed with 15% Sulphuric acid:  
Sept 26. Lifted: Oct 4. Variety: Irish Majestic.

Block III. Potatoes. Ploughed: Oct 19. Ridged, dung applied:  
May 10. Potatoes planted: May 11. Earthed up ridges: July 11.  
Sprayed with Copper fungicide, 5 lb per acre: Aug 18 and again  
Sept 8. Sprayed with 15% Sulphuric acid: Aug 26. Lifted:  
Oct 5. Variety: Irish Majestic.

Block IV. Ley - second year. Nitrochalk applied: June 23.  
Grazed by sheep: May 26-30, June 3-8, 16-22, July 2-8, 20-28,  
Aug 26-28, Sept 10-19.

Lucerne - second year. First cut: July 5. Second cut:  
Aug 10. Third cut: Oct 10.

Rye. Ploughed: Oct 4. Seed drilled at 3 bushels  
per acre: Oct 19. Basal nitrochalk applied: Apr 19.  
Harvested: Aug 15. Variety: King II.

Block V. Ley - third year. Grazed by sheep: May 22-26, May 30 -  
June 3, June 12-25, July 8-14, July 28 - Aug 5, Aug 21-26,  
Sept 19-27, Oct 9-19.

Lucerne - third year. First cut: July 5. Second cut:  
Aug 10. Third cut: Oct 8.

Hay. Seeds mixture undersown in Rye: Mar 28 1950.  
2 cwt Nitrochalk per acre applied: Apr 19. First cut: June 8.  
1 cwt Nitrochalk per acre applied: June 20. Second cut:  
Sept 26. Seeds mixture per acre: 27 lb S24 Perennial Rye-  
grass, 12 lb Montgomery Red Clover, 3 lb Canadian Alsike  
Clover.

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Sugar beet. Ploughed: Aug 30, Oct 4 and Mar 30.  
 Basal fertilizers applied: Apr 19. Seed drilled at 18 lb  
 per acre: Apr 24. Singled: June 4. Lifted: Oct 10.  
 Variety: Klein E.

Standard errors per plot:

Block I. Barley

Grain, whole plot: 2.06 cwt per acre or 11.9% (4 d.f.)  
 sub plot: 2.73 cwt per acre or 15.8% (4 d.f.)

Block III. Potatoes

Total tubers, whole plot: 0.756 tons per acre or 5.5% (4 d.f.)  
 sub-plot: 0.694 tons per acre or 5.1% (4 d.f.)

Summary of Results

Barley

Block I

Previous Rotation

	Ley, Lucerne	Arable with hay	Arable with sugar beet	Mean	
Grain: cwt per acre					
No Dung ( $\pm 1.99$ ) <sup>(1)</sup>	15.8	19.9	16.3	14.2	16.6
Dung in 1950	17.0	22.6	16.4	15.8	17.9
Mean ( $\pm 1.45$ )	16.4	21.2	16.4	15.0	17.3
Increase ( $\pm 2.73$ )	1.2	2.7	0.1	1.6	1.3 ( $\pm 1.36$ )
Straw: cwt per acre					
No Dung	16.2	19.6	16.4	15.0	16.8
Dung in 1950	17.8	21.3	18.4	16.4	18.5
Mean	17.0	20.4	17.4	15.7	17.6
Increase	1.6	1.7	2.0	1.4	1.7

Standard error (1) for use in comparisons other than vertical

51/Be/1.3

Block II

Ley. 1st year

	Sheep days of grazing per acre	No. of sheep carried per acre for the year
Mean	556	1.5

Lucerne. 1st year

Yield of Lucerne Hay (85% Dry Matter) cwt per acre

	1st Crop	2nd Crop	Total
No Dung	8.1	11.0	19.1
Dung in 1949	8.1	11.6	19.7
Mean	8.1	11.3	19.4
Increase	0.0	0.6	0.6
Previous Rotation			
Lucerne	9.7	12.1	21.8
Arable with Sugar Beet	6.5	10.5	17.0

51/Be/1.4

Block II

Potatoes

	Total tubers tons per acre	Percentage Ware
No Dung	10.03	84.0
Dung in 1949	11.28	86.6
Mean	10.66	85.3
Increase	1.25	2.6
Previous Rotation		
Ley	11.46	87.6
Lucerne	10.56	82.4
Arable with Hay	10.62	85.8
Arable with Sugar Beet	9.98	85.4

Block III

Potatoes

Previous Rotation

	Previous Rotation				Mean
	Ley	Lucerne	Arable with hay	Arable with sugar beet	
Total tubers: tons per acre					
No Dung ( $\pm 0.637$ ) <sup>(1)</sup>	14.72	12.62	10.80	10.84	12.24
Dung in 1951	15.98	15.68	14.36	14.18	15.05
Mean ( $\pm 0.534$ )	15.35	14.15	12.58	12.51	13.65
Increase ( $\pm 0.694$ )	1.26	3.06	3.56	3.34	2.81 ( $\pm 0.347$ )
Percentage Ware					
No Dung	96.0	91.4	91.6	93.2	93.1
Dung in 1951	90.0	92.8	95.1	94.9	93.2
Mean	93.0	92.1	93.4	94.0	93.1
Increase	-6.0	1.4	3.5	1.7	0.1

Standard error (1) for use in comparisons other than vertical

51/Be/1.5

Block IV

Ley. 2nd year

	Sheep days of grazing per acre	No. of sheep carried per acre for the year
Mean	1857	5.1

Lucerne. 2nd year

Yield of Lucerne Hay (85% Dry Matter) cwt per acre

	1st Crop	2nd Crop	3rd Crop	Total
No Dung	32.7	11.8	10.6	55.1
Dung in 1948	40.0	13.5	13.0	66.5
Mean	36.4	12.6	11.8	60.8
Increase	7.3	1.7	2.4	11.4
Previous Rotation				
Lucerne	49.9	13.1	13.4	76.4
Arable with Hay	22.8	12.2	10.2	45.2

Rye

	Grain: cwt per acre	Straw: cwt per acre
No Dung	28.1	38.7
Dung in 1948	29.5	41.9
Mean	28.8	40.3
Increase	1.4	3.2
Previous Rotation		
Ley	29.3	42.4
Lucerne	30.8	39.8
Arable with Hay	27.7	37.9
Arable with Sugar Beet	27.5	41.0

51/Ba/1.6

Block V

Ley. 3rd year

	Sheep days of grazing per acre	No. of sheep carried per acre for the year
Mean	1947	5.3

Lucerne. 3rd year

Yield of Lucerne Hay (85% Dry Matter) cwt per acre

	1st Crop	2nd Crop	3rd Crop	Total
No Dung	40.7	19.4	9.6	69.7
Dung in 1947	44.2	19.4	10.5	74.1
Mean	42.4	19.4	10.0	71.9
Increase	3.5	0.0	0.9	4.4
Previous Rotation				
Lucerne	40.2	17.7	9.5	67.4
Arable with Sugar Beet	44.7	21.1	10.6	76.4

Hay

Yield (85% Dry Matter) cwt per acre

	1st Crop	2nd Crop	Total
No Dung	53.6	17.8	71.4
Dung in 1947	56.8	17.8	74.6
Mean	55.2	17.8	73.0
Increase	3.2	0.0	3.2
Previous Rotation			
Ley	59.9	24.4	84.3
Arable with Hay	50.5	11.2	61.7

51/Be/1.7

Block V

Sugar Beet

	Clean Beet tons per acre	Tops tons per acre	Total Sugar cwt per acre	Sugar %
No Dung	10.16	10.04	33.6	16.53
Dung in 1947	9.92	9.66	33.0	16.62
Mean	10.04	9.85	33.3	16.57
Increase	-0.24	-0.38	-0.6	0.09
Previous Rotation				
Lucerne	11.30	10.28	37.5	16.62
Arable with Sugar Beet	8.78	9.42	29.0	16.53