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## Yields of the Field Experiments 1952

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

#### Rothamsted Research

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52/Be/1.1

## LEY AND ARABLE ROTATIONS

Woburn Stackyard - 1952 the 15th year.

For details of rotations and treatments etc., see "Results of Field Experiments 1939-47".

### Cultivations, etc.:

Block I. Ley - first year. Ploughed: Sept 7, 1951 and again Jan 9, 1952. Basal fertilizers applied, seeds sown: Apr 17. Topped: June 6 and Aug 19. Grazed by sheep: 2 circuits - Aug 26-Sept 3 and Sept 19-24. 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: Sept 7, 1951 and again Jan 9, 1952. Basal fertilizers applied, seed drilled at 28 lb per acre: Apr 17. Dusted with D.D.T: Apr 29 and again May 17. Cut twice: July 23 and Oct 2. Variety: Du Ruits.

Potatoes. Ploughed: Sept 7, 1951 and again Jan 9, 1952. Ridged, basal fertilizers applied: Apr 17. Potatoes planted: Apr 19. Earthed up ridges: June 16. Sprayed with copper fungicide, 5 lb per acre: Aug 8 and again Sept 2. Sprayed with sulphuric acid, 15% B.O.V: Sept 22. Lifted: Oct 6. Variety: Majestic.

Block II. Ley - second year. Nitrochalk applied: June 26. Grazed by sheep: 6 circuits - May 9-17, May 31-June 9, June 17-25, July 8-16, Aug 18-26 and Sept 11-19.

Lucerne - second year. Cut three times: June 17, July 23 and Oct 2.

Rye. Ploughed: Oct 10, 1951. Seed drilled at 3 bushels per acre: Oct 26. Nitrochalk applied: Apr 25, 1952. Harvested: July 25. Variety: King II.

Block III. Barley. Ploughed: Jan 7. Ground chalk applied: Feb 29. Basal fertilizers applied: Mar 13. Seed drilled at 3 bushels per acre: Mar 14. Sprayed with M.C.P.A: May 22. Harvested: Aug 14. Variety: Plumage Archer.

Block IV. Ley - third year. Grazed by sheep: 6 circuits - May 1-9, 22-31, June 9-17, June 25-July 3, Aug 7-14 and Sept 3-11.

Lucerne - third year. Cut three times: June 17, July 23 and Oct 2.

Hay. Seeds undersown in Rye: Apr 19, 1951. 2 cwt nitrochalk per acre applied: Apr 17, 1952. First cut: June 6. 1 cwt nitrochalk applied: June 10. Second cut: Oct 2. Seeds mixture per acre: 27 lb S24 Perennial Ryegrass, 12 lb Montgomery Red Clover, 3 lb Canadian Alsike Clover.

Sugar beet. Ploughed: Sept 7, 1951 and Jan 9, 1952. Basal fertilizers applied, seed drilled at 18 lb per acre: Apr 18. Singled: May 30. Lifted: Oct 8. Variety: Klein E.

52/Be/1.2

Block V. Potatoes. Ploughed: Oct 12, 1951 and Feb 1, 1952.  
 Ridged, dung and basal fertilizers applied: Apr 23. Potatoes  
 planted: Apr 25. Earthed up ridges: June 17. Sprayed with  
 copper fungicide, 5 lb per acre: Aug 8 resprayed Aug 11 and  
 Sept 2. Sprayed with sulphuric acid 15% B.O.V.: Sept 22.  
 Lifted: Oct 6. Variety: Majestic.

Standard errors per plot:

Block III. Barley.

Grain, whole plot: 1.071 cwt per acre or 4.9% (4 d.f.)  
 sub plot: 0.740 cwt per acre or 3.4% (4 d.f.)

Block V. Potatoes.

Total tubers, whole plot: 0.990 tons per acre or 9.8% (4 d.f.)  
 sub plot: 1.355 tons per acre or 13.5% (4 d.f.)

Summary of Results

Ley. First year

Block I

Sheep days of  
 grazing per acre

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Mean 339

Lucerne. First year

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

	1st Crop	2nd Crop	Total
No Dung	4.4	15.1	19.5
Dung in 1950	10.0	25.9	35.9
Mean	7.2	20.5	27.7
Increase	5.6	10.8	16.4
Previous rotation			
Lucerne	7.7	21.7	29.4
Arable with Hay	6.7	19.3	26.0

52/Be/1.3

Block I

Potatoes

	Total tubers tons per acre	Percentage Ware
No Dung	4.26	81.6
Dung in 1950	6.48	88.1
Mean	5.37	84.9
Increase	2.22	6.5
Previous Rotation		
Ley	6.54	86.2
Lucerne	5.78	87.0
Arable with Hay	4.74	85.8
Arable with Sugar Beet	4.43	80.5

Block II

Ley. Second year

Sheep days of  
grazing per acre

Mean 1962

Lucerne. Second year

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

	1st crop	2nd crop	3rd crop	Total
No Dung	36.1	16.6	16.1	68.8
Dung in 1949	29.8	15.8	16.7	62.3
Mean	33.0	16.2	16.4	65.6
Increase	-6.3	-0.8	+0.6	-6.5
Previous Rotation				
Lucerne	36.3	14.0	13.9	64.2
Arable with Sugar Beet	29.6	18.4	18.9	66.9

52/Be/1.4

Block II

Rye

	Grain: cwt per acre	Straw: cwt per acre
No Dung	29.0	31.5
Dung in 1949	30.8	34.7
Mean	29.9	36.2
Increase	1.8	-3.0
Previous Rotation		
Ley	31.6	36.5
Lucerne	32.6	34.0
Arable with Hay	28.8	31.6
Arable with Sugar Beet	26.6	30.3

Block III

Barley

	Previous Rotation				Mean
	Ley	Lucerne	Arable with hay	Arable with sugar beet	
	Grain: cwt per acre				
No Dung ( $\pm 0.84$ ) <sup>(1)</sup>	23.6	22.2	14.1	16.8	19.2
Dung in 1951	25.8	26.4	21.8	23.0	24.2
Mean ( $\pm 0.76$ )	24.7	24.3	17.9	19.9	21.7
Increase ( $\pm 0.74$ )	2.2	4.2	7.7	6.2	5.0 ( $\pm 0.37$ )
	Straw: cwt per acre				
No dung	25.2	22.1	13.7	18.6	19.9
Dung in 1951	29.7	30.5	22.3	26.3	27.2
Mean	27.5	26.3	18.0	22.4	23.5
Increase	4.5	8.4	8.6	7.7	7.3

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

52/Be/1.5

Block IV

Ley. Third year

	Sheep days of grazing per acre
Mean	2089

Lucerne. Third year

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

	1st crop	2nd crop	3rd crop	Total
No Dung	28.2	17.2	17.5	62.9
Dung in 1948	35.4	22.5	21.5	79.4
Mean	31.8	19.8	19.5	71.2
Increase	7.2	5.3	4.0	16.5
Previous rotation				
Lucerne	34.1	23.2	20.0	77.3
Arable with Hay	29.5	16.5	19.0	65.0

Hay

Yield (85% Dry Matter) cwt per acre

	1st crop	2nd crop	Total
No Dung	51.6	4.6	56.2
Dung in 1948	58.2	8.4	66.6
Mean	54.9	6.5	61.4
Increase	6.6	3.8	10.4
Previous Rotation			
Lucerne	52.7	10.0	62.7
Arable with Hay	57.1	3.0	60.1

52/Be/1.6

Block IV

Sugar Beet

	Roots (washed) tons per acre	Tops tons per acre	Total sugar cwt per acre	Sugar Percent- age
No Dung	12.62	7.16	48.0	19.04
Dung in 1948	14.99	7.76	56.0	18.68
Mean	13.80	7.46	52.0	18.86
Increase	+2.37	+0.60	+8.0	-0.36
Previous Rotation				
Ley	13.89	7.62	52.1	18.76
Arable with Sugar Beet	13.72	7.31	51.8	18.96

Block V

Potatoes

Previous Rotation

	Ley	Lucerne	Arable with hay	Arable with sugar beet	Mean
Total tubers: tons per acre					
No Dung ( $\pm 0.974$ ) <sup>(1)</sup>	10.46	7.42	7.19	6.54	7.90
Dung in 1952	15.05	11.45	11.20	11.28	12.24
Mean ( $\pm 0.700$ )	12.75	9.44	9.19	8.91	10.07
Increase ( $\pm 1.36$ )	4.59	4.03	4.01	4.74	4.34 ( $\pm 0.678$ )
Percentage Ware					
No Dung	94.1	89.2	92.4	89.4	91.3
Dung in 1952	94.0	94.2	92.5	94.2	93.7
Mean	94.0	91.7	92.4	91.8	92.5
Increase	-0.1	+5.0	+0.1	+4.8	+2.4

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