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## Yields of the Field Experiments 1953

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

#### Rothamsted Research

Rothamsted Research (1954) *53/BE/1 Ley and Arable Rotations - Woburn* ; Yields Of The Field Experiments 1953, pp 52 - 56 - DOI: <https://doi.org/10.23637/ERADOC-1-173>

53/Be/1.1

## LEY AND ARABLE ROTATIONS

Woburn Stackyard - 1953, the 16th year.

For details of rotations and treatments etc., see "Results of Field Experiments" 1939-47 Vol.I, Section Bf/1, with the exception that in 1949 and subsequently Rye replaced Wheat.

Cultivations, etc.:

### Treatment crops

#### Ley rotations

- Ley 1st year. Ploughed: Aug 26, 1952 and Nov 24. Basal fertilizers applied: Apr 1, 1953. Seeds sown: Apr 9. Grazed by sheep: 5 circuits - June 25-July 3, July 19-27, Aug 12-19, Sept 7-15 and Oct 6-14. Seeds mixture, 21 lb S24 Perennial Ryegrass, 12 lb S143 Cocksfoot, 6 lb Aberystwyth S123 Red Clover, 3 lb S100 White Clover per acre.
- Ley 2nd year. Nitrochalk applied: June 4, 1953. Grazed by sheep: 6 circuits - May 11-19, June 9-17, July 3-11, July 27-Aug 4, Aug 19-27 and Sept 15-23.
- Ley 3rd year. Nitrochalk applied: June 26, 1953. Grazed by sheep: 7 circuits - May 19-27, June 1-9, 17-25, July 11-19, Aug 4-12, Aug 27-Sept 7 and Sept 23-Oct 5.
- Lucerne 1st year. Ploughed: Aug 26, 1952 and Nov 24. Basal fertilizers applied: Apr 1, 1953. Seed drilled at 28 lb per acre: Apr 9. Dusted with DDT: May 5 and again May 7. Cut twice: Aug 5 and Oct 28. Variety: Du Puits.
- Lucerne 2nd year. Cut three times: June 24, 1953, Aug 5 and Oct 28.
- Lucerne 3rd year. Cut three times: June 24, 1953, Aug 5 and Oct 28.

#### Arable rotations

- Potatoes 1st course. Ploughed: Aug 26, 1952 and Nov 24. Ridged, basal fertilizers applied, potatoes planted: Apr 1, 1953. Earthed up: June 17. Sprayed with sulphuric acid, 15% B.O.V.: Sept 17. Lifted: Sept 23. Variety: Majestic.
- Rye 2nd course. Cultivated: Oct 8, 1952. Seed drilled at 3 bushels per acre: Oct 11. Nitrochalk applied: Apr 23, 1953. Harvested: Aug 13. Variety: King II.
- Hay 3rd course. Seeds undersown in rye: Apr 17, 1952. 2 cwt nitrochalk per acre applied: Mar 30, 1953. First cut: June 16. 1 cwt nitrochalk per acre applied: June 17. Second cut: Aug 20. Seeds mixture, 27 lb S24 Perennial Ryegrass, 12 lb Montgomery Red Clover, 3 lb Canadian Alsike Clover per acre.
- Sugar beet 3rd course. Ploughed: Aug 20, 1952 and Nov 24. Nitrate of soda applied: Mar 20, 1953. Seed drilled at 18 lb per acre: Mar 24. Singled: May 28. Lifted: Oct 21. Variety: Klein E.

53/Be/1.2

Test Crops

Potatoes 1st test crop. Ploughed: Nov 10, 1952. Cultivated: Mar 25, 1953. Ridged, dung and basal fertilizers applied, potatoes planted: Apr 14. Earthed up: June 20. Sprayed with sulphuric acid 15% B.O.V.: Sept 17. Lifted: Sept 24. Variety: Majestic.

Barley 2nd test crop. Ploughed: Nov 10, 1952. 22 cwt ground chalk per acre applied: Feb 25, 1953. Nitrochalk applied, seed drilled at 3 bushels per acre: Mar 5. Harvested: Aug 13. Variety: Plumage Archer.

Standard errors per plot, Test crops:

Potatoes, Total tubers, whole plot: 1.772 tons per acre or 12.9%  
(4 d.f.)  
sub plot: 0.739 tons per acre or 5.4%  
(4 d.f.)

Barley, Grain, whole plot: 1.067 cwt per acre or 3.9%  
(4 d.f.)  
sub plot: 0.766 cwt per acre or 2.8%  
(4 d.f.)

Summary of Results

Treatment crops

Ley, Sheep days of grazing per acre

1st year	2nd year	3rd year
1513	1647	2134

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

	1st crop	2nd crop	3rd crop	Total
<u>1st year</u>				
No Dung	21.2	16.2		37.4
Dung in 1951	24.5	19.6		44.1
Increase	+3.3	+3.4		+6.7
Previous Rotation				
Lucerne	26.5	16.8		43.3
Arable with Sugar beet	19.2	19.0		38.2
Mean	22.8	17.9		40.7

53/Be/1.3

Treatment crops				
Lucerne, yield of hay (at 85% D.M.): cwt per acre				
	1st crop	2nd crop	3rd crop	Total
<u>2nd year</u>				
No Dung	32.3	26.1	16.1	74.5
Dung in 1950	49.6	38.8	18.0	106.4
Increase	+17.3	+12.7	+1.9	+31.9
Previous Rotation				
Lucerne	42.6	31.8	17.9	92.3
Arable with Hay	39.3	33.1	16.2	88.6
Mean	41.0	32.4	17.0	90.4
<u>3rd year</u>				
No Dung	37.7	28.3	17.8	83.8
Dung in 1949	41.5	28.9	16.1	86.5
Increase	+3.8	+0.6	-1.7	+2.7
Previous Rotation				
Lucerne	34.5	26.3	17.6	78.4
Arable with Sugar beet	44.7	30.9	16.3	91.9
Mean	39.6	28.6	17.0	85.2
	Potatoes		Rye	
	Total tubers: tons per acre	Percentage ware	Grain: cwt per acre	Straw: cwt per acre
No Dung	11.27	92.3	26.6	33.6
Dung <sup>*</sup>	13.93	93.2	25.7	35.7
Increase	+2.66	+0.9	-0.9	+2.1
Previous Rotation				
Ley	14.11	94.0	25.9	33.5
Lucerne	12.64	92.1	27.1	36.3
Arable with Hay	12.36	91.6	25.6	32.8
Arable with Sugar beet	11.28	93.2	25.9	36.0
Mean	12.60	92.8	26.2	34.6

<sup>\*</sup>Dung applied: Potatoes:- 1951. Rye:- 1950.

53/Be/1.4

Treatment crops

Hay

Yield (at 85% D.M.): cwt per acre

	1st crop	2nd crop	Total
No Dung	51.7	18.3	70.0
Dung in 1949	59.6	20.2	79.8
Increase	+7.9	+1.9	+9.8
Previous Rotation			
Ley	58.6	22.2	80.8
Arable with Hay	52.7	16.3	69.0
Mean	55.6	19.2	74.8

Sugar Beet

	Roots (washed): tons per acre	Sugar percentage	Total sugar: cwt per acre	Tops: tons per acre
No Dung	14.68	17.22	50.6	10.34
Dung in 1949	14.94	17.70	52.9	9.48
Increase	+0.26	+0.48	+2.3	-0.86
Previous Rotation				
Lucerne	13.62	17.57	47.8	9.66
Arable with Sugar beet	16.00	17.36	55.6	10.17
Mean	14.81	17.46	51.7	9.92

		Test crops			53/Be/1.5	
		Previous Rotation			Arable with sugar beet	Mean
		Ley	Lucerne	Arable with hay		
Potatoes, Total tubers: tons per acre						
No Dung	(±1.31) <sup>‡</sup>	14.23	12.85	10.66	9.02	11.69
Dung in 1953		16.82	16.85	15.72	14.16	15.88
Mean	(±1.25)	15.52	14.85	13.19	11.58	13.79
Increase	(±0.74)	2.59	4.00	5.06	5.14	4.19 (±0.37)
Potatoes, Percentage ware						
No Dung		96.8	95.2	90.4	89.1	92.9
Dung in 1953		97.4	96.8	96.1	95.8	96.5
Mean		97.1	96.0	93.3	92.5	94.7
Increase		0.6	1.6	5.7	6.7	3.6
Barley, Grain: cwt per acre						
No Dung	(±0.85) <sup>‡</sup>	28.5	26.1	25.2	23.2	25.8
Dung in 1952		31.1	29.5	28.6	27.1	29.1
Mean	(±0.75)	29.8	27.8	26.9	25.2	27.4
Increase	(±0.77)	2.6	3.4	3.4	3.9	3.3 (±0.38)
Barley, Straw: cwt per acre						
No Dung		33.6	30.8	27.9	26.8	29.8
Dung in 1952		40.2	38.1	38.6	34.2	37.7
Mean		36.9	34.4	33.3	30.5	33.8
Increase		6.6	7.3	10.7	7.4	7.9

<sup>‡</sup>for use in comparisons other than vertical.