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Yields of the Field Experiments 1948

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48/BD/1 Ley and Arable - Woburn

Rothamsted Research

Rothamsted Research (1949) *48/BD/1 Ley and Arable - Woburn* ; Yields Of The Field Experiments 1948, pp 41 - 50

48/Bc/1.4

Lower Half - Barley

Green Manure Crop	Lupins	Rape	Clover	Ryegrass	Fallow	Mean
Grain: cwt. per acre (± 1.39)						(± 0.62)
No Dung to Cabbages	21.7	20.7	23.3	16.9	22.9	21.1
Dung	25.6	21.9	26.6	22.1	22.6	23.8
No Straw to Cabbages	22.6	21.6	25.0	19.8	21.7	22.1
Straw	24.7	21.0	24.9	19.2	24.1	22.8
Sulph. amm. to Cabbages						
2 cwt./acre	23.0	22.1	24.9	17.3	21.5	21.6
4 cwt./acre	24.3	20.6	25.0	21.6	24.3	23.2
Sulph. amm. to Barley						
Absent	19.9	18.2	20.9	15.0	18.9	18.6
Present	27.4	24.5	29.0	23.9	26.8	26.3
Mean (± 0.98)	23.7	21.3	24.9	19.5	22.9	22.4
Straw: cwt. per acre (± 1.63)						(± 0.73)
No Dung to Cabbages	26.8	24.5	26.5	19.0	26.8	24.7
Dung	31.5	28.8	32.7	26.2	31.2	30.1
No Straw to Cabbages	28.2	26.4	28.0	23.0	28.1	26.7
Straw	30.1	26.9	31.2	22.2	30.0	28.1
Sulph. amm. to Cabbages						
2 cwt./acre	27.7	24.4	29.1	21.3	27.7	26.0
4 cwt./acre	30.6	28.9	30.1	23.8	30.3	28.7
Sulph. amm. to Barley						
Absent	25.6	22.8	25.0	19.3	24.4	23.4
Present	32.7	30.4	34.2	25.6	33.6	31.3
Mean (± 1.15)	29.2	26.6	29.6	22.6	29.0	27.4

48/Bc/1.5

Lower Half - Barley

	Mean	Dung		Differential Responses				Sulph. amm. to barley	
		Abs.	Pres.	Abs.	Pres.	Abs.	Pres.	Abs.	Pres.
Grain: cwt. per acre (± 1.26 Means ± 0.88)									
Dung to Cabbages	2.7	-	-	1.4	3.9	4.3	1.0	3.3	2.0
Straw to Cabbages	0.6	-0.6	1.8	-	-	-0.6	1.8	1.3	-0.1
Sulph. amm. to Cabbages	1.4	3.0	-0.2	0.1	2.6	-	-	1.8	0.9
Sulph. amm. to Barley	7.8	8.4	7.1	8.5	7.0	8.2	7.3	-	-
Straw: cwt. per acre (± 1.47 Means ± 1.03)									
Dung to Cabbages	5.4	-	-	5.3	5.4	7.1	3.6	5.5	5.2
Straw to Cabbages	1.3	1.2	1.3	-	-	1.0	1.5	2.6	0.0
Sulph. amm. to Cabbages	2.7	4.4	0.9	2.4	2.9	-	-	2.6	2.7
Sulph. amm. to Barley	7.9	8.0	7.7	9.2	6.5	7.8	7.9	-	-

48/Bd/1.1

LEY AND ARABLE ROTATIONS

Woburn - Stackyard Series D, 1948

Details as given in 1938 Report, pp. 135-137, except that owing to the unsatisfactory crops obtained on kale plots in the years 1938-44 sugar beet has been substituted for kale from 1945 onwards.

Cultivations, etc.:

Block I. Ley. Second year. Grazed by sheep: May 3-21, June 13-17, July 9-13, Aug 17-25, Sept 7-11, Nov 4-10.

Lucerne. Second year. Harrowed three times: Nov 1. Hoed: Nov 3. First cut: July 9. Second cut: Sept 6. Third cut: Nov 12.

Wheat. Ploughed: Oct 7-8. Harrowed: Oct 9. Seed (Squarheads Master) drilled, harrowed: Oct 14, 15. Failure due to birds. Harrowed, seed redrilled: Oct 21. Plant failure due to damage by birds. Harrowed, sulphate of ammonia applied, seed (Atle) drilled, harrowed: Mar 10. Rolled: Mar 13. Harrowed: Apr 23. Rolled: Apr 26. Harvested: Sept 4. Variety: Atle. Previous crop: Potatoes.

Block II. Ley. Third year. Grazed by sheep: May 14-20, June 17-21, July 13-17, Aug 25-Sept 2, Sept 11-15, Nov 10-14.

Lucerne. Third year. Hoed: June 14-18. First cut: July 9. Second cut: Sept 6. Third cut (small crop only): Nov 12.

May. Grass and clover mixture under sown in wheat: Apr 17, 1947. Total failure due to drought. All wheat plots ploughed: Sept 30. Springtime harrowed:

Mar 1. Sulphate of ammonia applied, harrowed: Mar 10. Harrowed twice: Mar 18. Rolled: Mar 22. Seed sown:

Mar 23. Harrowed and rolled: Mar 25. Rolled: Mar 27. First cut: June 9. Second cut (small): Sept 6. Seeds

mixture: Giant Italian Ryegrass: (22 lb per acre) and Trifolium (27 lb per acre). Previous crop: Wheat.

Sugar beet. Ploughed: Sept 30, Mar 18. Harrowed: Mar 19. Rolled: Mar 27. Seed drilled: Apr 2. Nitrate

of soda applied: Apr 5. Rolled: Apr 6. Hoed: Apr 19, June 1-3. Singled: June 1-3. Hoed: June 8-July 2.

Lifted: Oct 5, 6. Variety: Klein E. Previous crop: Wheat.

Block III. Ley. First year. Ploughed: Sept 27-29. Springtime harrowed, harrowed: Mar 10. Rolled, harrowed, rolled: Mar 20. Artificials applied: Mar 23. Seed sown and harrowed in: Mar 25. Topped, toppings left on ground: July 9. Grazed by sheep: June 9-13, July 1-9,

48/Ba/1.2

July 17-22, Aug 9-17, Sept 2-7, Sept 15-16 (Plot 44 only),
Nov 29-Dec 4. Seeds mixture: S.23 Perennial Ryegrass
(21 lb per acre), S.143 Cocksfoot (12 lb per acre), late
flowering Montgomery Red Clover (6 lb per acre), S.100
White Clover (3 lb per acre). Previous crop: Barley.

Lucerne. First year. Ploughed: Sept 27-29.
Springtime harrowed, harrowed: Mar 10. Rolled, harrowed,
rolled: Mar 20. Artificials applied: Mar 23. Rolled,
seed sown: Mar 24. Failed, probably due to Flea beetle
attack. Harrowed and rolled: Mar 25. Cultivated:
May 15. Seed drilled: May 18. Dusted with Flea beetle
dust: June 11. Cleaned: June 13, 23. Hoed: June 22-
Sept 22. First cut: Sept 6. Second cut: Nov 12.

Variety: Provence. Previous crop: Barley.
Potatoes. Ploughed: Sept 27-29. Springtime
harrowed: Mar 10. Rolled, harrowed, rolled: Mar 20.
Rolled: Mar 27. Ridged: Apr 6-7. Artificials applied,
potatoes planted and covered in: Apr 9. Ridges harrowed:
May 8. Grubbed: May 28. Earthed up: June 21. Sprayed
with "Perinox": Aug 11. Sprayed to kill haulm: Sept 20.
Lifted: Sept 30. Variety: Majestic. Previous crop:
Barley.

Block IV. Potatoes. Ploughed: Oct 30-Nov 4. Springtime
harrowed: Mar 1, 18. Harrowed: Mar 20. Rolled: Mar 27.
Ridged: Apr 6-7. Dung applied: Apr 8. Potatoes planted,
artificials applied, covered in: Apr 9. Ridges harrowed
down: May 8. Grubbed: May 28. Earthed up: June 21.
Sprayed with "Perinox": Aug 11. Lifted: Oct 1, 2.
Variety: Majestic. Previous crop: Ley, lucerne, hay,
sugar beet.

Block V. Barley. Ploughed: Oct 9-10. Springtime harrowed:
Feb 27. Lime applied (14 cwt per acre, 82% Cao),
harrowed, sulphate of ammonia applied: Mar 4. Harrowed,
seed drilled: Mar 10. Rolled: Mar 13. Harvested:
Aug 16. Variety: Plumage Archer. Previous crop:
Potatoes.

Standard errors per plot:

Block V.

Barley, grain: whole plot, 1.61 cwt. per acre or 5.3%
sub-plot, 1.49 cwt. per acre or 4.9%
straw: whole plot, 2.68 cwt. per acre or 6.5%
sub-plot, 1.50 cwt. per acre or 3.6%

Block IV

Potatoes, total produce: whole plot, 0.626 tons per acre or
sub-plot, 0.903 tons per acre or
percentage ware: whole plot, 0.380
sub-plot, 0.435

All standard errors are estimated from 4 d.f.

48/Ba/1.3

Note: For the ley plots of blocks I, II, III, only the mean number of sheep days of grazing per acre and the mean number of sheep carried per acre for the year are given for each block in the summary tables. Each plot was grazed separately, but the number of grazing days is not sufficiently accurately determined for each plot to justify treatment comparisons.

48/Bd/1.4

Block I

<u>Ley.</u>	2nd Year.	Sheep days of grazing per acre	No. of sheep carried per acre for the year
Mean	1986		5.4

Lucerne. 2nd Year.

Yield of Lucerne Hay (85% dry matter): tons per acre

	1st crop	2nd crop	3rd crop	Total
No dung	2.10	1.74	0.47	4.32
Dung in 1945	2.01	1.77	0.52	4.30
Mean	2.06	1.76	0.49	4.30
Increase	-0.09	0.03	0.05	-0.02
<u>Previous Rotation</u>				
Lucerne	1.94	1.64	0.48	4.04
Arable with sugar beet	2.18	1.88	0.51	4.56

Wheat

	Grain: cwt. per acre	Straw: cwt. per acre
No dung	14.7	30.2
Dung in 1945	14.1	31.4
Mean	14.4	30.8
Increase	-0.6	1.2
<u>Previous Rotation</u>		
Ley	18.6	37.2
Lucerne	14.2	29.8
Arable with hay	12.7	27.0
Arable with sugar beet	12.1	29.0

48/Ba/1.5

Block II

Ley. 3rd Year.

	Sheep days of grazing per acre	No. of sheep carried per acre for the year
Mean	1551	4.3

Lucerne 3rd year.

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

	1st Crop	2nd Crop	3rd Crop	Total
No Dung	1.38	1.41	0.04	2.84
Dung in 1944	1.84	1.68	0.08	3.61
Mean	1.62	1.54	0.06	3.22
Increase	0.46	0.27	0.04	0.77
Previous Rotation				
Lucerne	1.40	1.30	0.06	2.75
Arable with hay	1.83	1.80	0.08	3.70

Hay

	1st Crop	2nd Crop	Total
No Dung	1.04	0.20	1.24
Dung in 1944	1.34	0.24	1.58
Mean	1.19	0.22	1.41
Increase	0.30	0.04	0.34
Previous Rotation			
Lucerne	1.38	0.16	1.54
Arable with hay	1.00	0.28	1.28

Sugar Beet

	Clean Beet tons per acre	Tops tons per acre	Total Sugar cwt per acre	Sugar %
No Dung	10.40	10.54	35.8	17.21
Dung in 1944	9.64	9.00	34.7	18.02
Mean	10.02	9.78	35.2	17.62
Increase	-0.76	-1.54	-1.1	0.81
Previous Rotation				
Ley	10.41	9.54	36.6	17.62
Arable with sugar beet	9.63	10.01	33.8	17.62

48/Ba/1.6

Block III

Ley. 1st Year.

	Sheep days of grazing per acre	No. of sheep carried per acre for the year
Mean	1986	5.4

Potatoes

	Total tubers tons per acre	Percentage Ware
No Dung	14.90	96.7
Dung in 1946	17.13	97.4
Mean	16.01	97.0
Increase	2.23	0.7
Previous Rotation		
Ley	17.08	97.35
Lucerne	15.35	96.45
Arable with hay	15.22	97.30
Arable with Sugar beet	16.42	97.00

Lucerne 1st Year.

Yield of Lucerne Hay (85% dry matter): Tons per acre

No Dung	0.32
Dung in 1946	0.66
Mean	0.49
Increase	0.34
Previous Rotation	
Lucerne	0.46
Arable with hay	0.53

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Block IV

Potatoes

Previous Crop Rotation

	Ley	Lucerne	Arable with hay	Arable with sugar beet	Mean
Total tubers: tons per acre					
No Dung	15.86	16.37	14.19	13.63	15.01
Dung in 1948 (± 0.632) ⁽¹⁾	19.02	21.35	19.00	17.44	19.20
Mean (± 0.443)	17.44	18.86	16.59	15.54	17.11
Increase (± 0.903)	3.16	4.98	4.81	3.81	4.19 (± 0.452)
Percentage Warc					
No Dung	97.8	97.4	96.6	96.5	97.1
Dung in 1948 (± 0.35) ⁽¹⁾	97.8	97.7	97.1	97.2	97.5
Mean (± 0.27)	97.8	97.6	96.8	96.9	97.3
Increase (± 0.44)	0.0	0.3	0.5	0.7	0.4 (± 0.22)

Block V

Barley

	Ley	Lucerne	Arable with hay	Arable with sugar beet	Mean
Grain: cwt per acre					
No Dung	30.6	31.6	29.2	28.1	29.9
Dung in 1947 (± 1.36) ⁽¹⁾	32.5	28.3	33.1	31.3	31.3
Mean (± 1.14)	31.5	30.0	31.1	29.7	30.6
Increase (± 1.49)	1.9	-3.3	3.9	3.2	1.4 (± 0.75)

Standard error (1) for comparisons other than vertical ones.

Block V

48/Da/1.8

Barley

	Ley	Lucerne	Arable with hay	Arable with sugar beet	Mean
Straw: cwt. per acre					
No Dung (± 2.03) (1)	42.3	41.3	36.2	34.6	38.6
Dung in 1947	46.3	42.3	44.1	41.2	43.5
Mean (± 1.89)	44.3	41.8	40.2	37.9	41.0
Increase (± 1.50)	4.0	1.0	7.9	6.6	4.9 (± 0.75)

Standard error (1) for comparisons other than vertical ones