

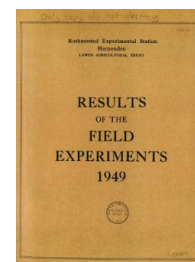
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# Yields of the Field Experiments 1949

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## 49/BE/1 Ley and Arable - Woburn

49/BE/1 *Ley and Arable - Woburn*, Rothamsted Research (1950) Yields Of The Field Experiments 1949, pp 49 - 54

49/Be/1.1

## LEY AND ARABLE ROTATIONS

Woburn - Stackyard Series D, 1949

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, and that in 1949 rye was substituted for wheat as being less subject to ravage by birds.

### Cultivations, etc.:

Block I. Ley. Third year. Grazed by sheep: May 4-14, May 31-June 8, June 29-July 6, Aug 14-18, Oct 4-12, and Oct 29-Nov 1.

Lucerne. Third year. Hoed: Mar 31, Apr 25-30, and May 3-5. First cut: July 1. Second cut: Aug 17. Third cut: Oct 28.

Hay. Grass and clover mixture undersown in wheat: Apr 16 1948. Harrowed: Apr 23. Rolled: Apr 26. First dressing of nitrochalk applied: Mar 31 1949. Weeds pulled: June 2. First cut: June 27. Second dressing of nitrochalk applied: July 12. Second cut: Oct 28. Seeds mixture: L.F. Montgomery Red Clover (12 lb per acre). Perennial Ryegrass (24 lb per acre) and American Alsike Clover (3 lb per acre). Previous crop: Wheat.

Sugar beet. Ploughed: Sept 23 and Jan 28-31. Springtime harrowed twice: Mar 29-30. Harrowed, rolled, seed drilled, nitrate of soda applied, harrowed: Apr 5. Rolled: Apr 9. Dusted with DDT dust: Apr 30, and May 12. Hoed: May 12. Singled: May 25-27. Hoed: May 31 and July 7. Hoed and weeded: Aug 18. Lifted: Sept 24. Variety: Klein E. Previous crop: Wheat.

Block II. Potatoes. Ploughed: Nov 16-20 and Feb 10-12. Springtime harrowed: Mar 29. Ploughed: Mar 31-Apr 5. Harrowed and ridged: Apr 11-13. Dung applied: Apr 13. Artificial fertilizers applied, potatoes planted and covered in: Apr 14. Ridges harrowed down, ridged up: May 11. Grubbed: May 31. Hoed: June 17. Sprayed with sulphuric acid to kill off haulm: Sept 7. Lifted: Sept 21-22. Variety: Majestic. Previous crop: ley, lucerne, hay, sugar beet.

Block III. Ley. Second year. Grazed by sheep: Apr 25-May 15, May 23-31, June 13-21, Aug 8-14 and Oct 15-19.

Lucerne. Second year. Hoed: Apr 19-May 16. First cut: July 1. Second cut: Aug 17. Third cut: Oct 28.

Rye. Ploughed: four plots, Oct 8-9 remainder Nov 8. Harrowed twice, seed drilled: Nov 8.

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Harrowed in: Nov 9. Harrowed: Apr 1. Nitrochalk top dressing applied: Apr 26. Harvested: July 26. Variety: King II. Previous crop: ley, lucerne, potatoes.

Block IV. Barley. Ploughed: Nov 11-13 and Feb 8. Lime applied: (7.8 cwt per acre 59% CaO), springtime harrowed: Feb 17. Nitrochalk applied: Mar 17. Harrowed, seed drilled and harrowed in: Mar 18. Rolled: Mar 24. Harvested: Aug 8. Variety: Plumage Archer. Previous crop: Potatoes.

Block V. Ley. First year. Ploughed: Feb 1-2. Springtime harrowed twice: Mar 29-30. Artificials applied, rolled: Mar 31. Harrowed twice, rolled, seed sown: Apr 1. Harrowed and rolled: Apr 2. Weeded: June 13-16. Grazed by sheep: June 21-29, July 19-26, Sept 26-Oct 14. Seeds mixture: S. 23 Perennial Ryegrass (21 lb per acre), S. 143 Cocksfoot (12 lb per acre), L.F.R. Montgomery Red Clover (6 lb per acre), S. 100 White Clover (3 lb per acre). Previous crop: Barley. Lucerne. First year. Ploughed: Sept 16-23 and Feb 1-2. Springtime harrowed twice: Mar 29-30. Artificials applied: Mar 31. Harrowed, rolled, seed sown: Apr 1. Rolled: Apr 2. Dusted with DDT: Apr 22. Hoed: May 25 and 31. Weeded and hoed: June 13-16. Hoed: June 27-July 9. First cut: June 26-27. Second cut: Sept 15. Third cut: Oct 28. Variety: Provence. Previous crop: Barley

Potatoes. Ploughed: Sept 16-23 and Feb 1-2. Springtime harrowed twice: Mar 29-30. Harrowed and rolled: Apr 2. Bouted: Apr 11. Artificials applied, potatoes planted and covered in: Apr 12-13. Harrowed down ridges and roridged: May 11. Grubbed: May 31. Hoed: June 17. Sprayed with sulphuric acid to kill off haulm: Sept 7. Lifted: Sept 20-21. Variety: Majestic. Previous crop: Barley.

Standard errors per plot:

Block II. Potatoes

|                  |                                        |
|------------------|----------------------------------------|
| Total tubers:    | whole plot 0.200 tons per acre or 2.0% |
|                  | sub plot 0.514 tons per acre or 4.8%   |
| Percentage ware: | whole plot 1.85                        |
|                  | sub plot 1.39                          |

Block IV. Barley

|        |                                      |
|--------|--------------------------------------|
| Grain: | whole plot 1.61 cwt per acre or 7.2% |
|        | sub plot 1.82 cwt per acre or 8.0%   |
| Straw: | whole plot 1.69 cwt per acre or 5.3% |
|        | sub plot 1.95 cwt per acre or 6.1%   |

All standard errors estimated from 4 d.f.

49/Bo/1.3

Block ILey. 3rd Year.

|      | Sheep days<br>of grazing<br>per acre | No. of sheep<br>carried per acre<br>for the year |
|------|--------------------------------------|--------------------------------------------------|
| Mean | 1840                                 | 5.0                                              |

Lucerne. 3rd Year.

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

|                        | 1st Crop | 2nd Crop | 3rd Crop | Total |
|------------------------|----------|----------|----------|-------|
| No Dung                | 2.70     | 1.38     | 0.26     | 4.34  |
| Dung in 1945           | 2.38     | 0.90     | 0.60     | 3.88  |
| Mean                   | 2.54     | 1.14     | 0.43     | 4.11  |
| Increase               | -0.32    | -0.48    | 0.34     | -0.46 |
| Previous Rotation:     |          |          |          |       |
| Lucerne                | 2.30     | 1.12     | 0.35     | 3.77  |
| Arable with sugar beet | 2.79     | 1.15     | 0.51     | 4.45  |

Hay. (85% dry matter): tons per acre

|                    | 1st Crop | 2nd Crop | Total |
|--------------------|----------|----------|-------|
| No Dung            | 3.04     | 0.04     | 3.08  |
| Dung in 1945       | 2.99     | 0.03     | 3.02  |
| Mean               | 3.02     | 0.03     | 3.05  |
| Increase           | -0.05    | -0.01    | -0.06 |
| Previous Rotation: |          |          |       |
| Ley                | 3.14     | 0.04     | 3.18  |
| Arable with hay    | 2.89     | 0.02     | 2.91  |

Sugar Beet

|                           | Clean Beet<br>tons per acre | Tops<br>tons per acre | Total Sugar<br>cwt per acre | Sugar % |
|---------------------------|-----------------------------|-----------------------|-----------------------------|---------|
| No Dung                   | 8.20                        | 5.54                  | 28.4                        | 17.28   |
| Dung in 1945              | 7.77                        | 5.40                  | 26.4                        | 17.01   |
| Mean                      | 7.98                        | 5.47                  | 27.4                        | 17.15   |
| Increase                  | -0.43                       | -0.14                 | -2.0                        | -0.27   |
| Previous Rotation:        |                             |                       |                             |         |
| Lucerne                   | 8.41                        | 5.95                  | 29.3                        | 17.38   |
| Arable with<br>sugar beet | 7.55                        | 4.98                  | 25.5                        | 16.91   |

49/De/1..4

## Previous Crop Rotation

|                                        | Ley   | Lucerne | Arable<br>with<br>hay | Arable<br>with<br>sugar<br>beet | Mean                 |
|----------------------------------------|-------|---------|-----------------------|---------------------------------|----------------------|
| Block II                               |       |         |                       |                                 |                      |
| Potatoes. Total tubers: tons per acre  |       |         |                       |                                 |                      |
| No Dung <sup>(1)</sup> ( $\pm 0.296$ ) | 11.36 | 9.44    | 9.00                  | 10.08                           | 9.98                 |
| Dung in 1949                           | 11.36 | 11.74   | 11.59                 | 10.74                           | 11.36                |
| Mean ( $\pm 0.147$ )                   | 11.37 | 10.59   | 10.30                 | 10.41                           | 10.67                |
| Increase ( $\pm 0.514$ )               | -0.02 | 2.30    | 2.59                  | 0.66                            | 1.36 ( $\pm 0.257$ ) |
| Potatoes. Percentage Ware              |       |         |                       |                                 |                      |
| No Dung <sup>(1)</sup> ( $\pm 1.48$ )  | 93.5  | 89.2    | 90.5                  | 90.6                            | 91.0                 |
| Dung in 1949                           | 88.5  | 86.7    | 87.4                  | 86.0                            | 87.2                 |
| Mean ( $\pm 1.31$ )                    | 91.0  | 87.9    | 89.0                  | 88.3                            | 89.0                 |
| Increase ( $\pm 1.39$ )                | -5.0  | -2.5    | -3.1                  | -4.6                            | -3.8 ( $\pm 0.69$ )  |

## Block IV

|                                       |      |      |      |      |                    |
|---------------------------------------|------|------|------|------|--------------------|
| Barley. Grain: cwt per acre           |      |      |      |      |                    |
| No Dung <sup>(1)</sup> ( $\pm 1.47$ ) | 21.7 | 21.8 | 20.7 | 22.4 | 21.6               |
| Dung in 1948                          | 23.4 | 23.4 | 22.1 | 27.3 | 24.1               |
| Mean ( $\pm 1.16$ )                   | 22.6 | 22.6 | 21.4 | 24.9 | 22.8               |
| Increase ( $\pm 1.62$ )               | 1.7  | 1.6  | 1.4  | 4.9  | 2.5 ( $\pm 0.91$ ) |
| Barley. Straw: cwt per acre           |      |      |      |      |                    |
| No Dung <sup>(1)</sup> ( $\pm 1.54$ ) | 29.3 | 26.3 | 26.9 | 26.5 | 27.7               |
| Dung in 1948                          | 37.4 | 37.7 | 31.2 | 37.0 | 35.8               |
| Mean ( $\pm 1.19$ )                   | 33.3 | 33.0 | 29.1 | 31.7 | 31.8               |
| Increase ( $\pm 1.95$ )               | 8.1  | 9.4  | 4.3  | 10.5 | 8.1 ( $\pm 0.97$ ) |

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

49/30/1.5

## Block III

| <u>Ley.</u> | 2nd Year. | Sheep days<br>of grazing<br>per acre | No. of sheep<br>carried per acre<br>for the year |
|-------------|-----------|--------------------------------------|--------------------------------------------------|
| Mean        |           | 1791                                 | 4.9                                              |

Lucerne. 2nd Year.

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

|                    | 1st crop | 2nd crop | 3rd crop | Total |
|--------------------|----------|----------|----------|-------|
| No dung            | 1.52     | 0.60     | 0.10     | 2.22  |
| Dung in 1946       | 1.70     | 0.78     | 0.12     | 2.60  |
| Mean               | 1.61     | 0.68     | 0.12     | 2.41  |
| Increase           | 0.18     | 0.18     | 0.02     | 0.38  |
| Previous Rotation: |          |          |          |       |
| Lucerne            | 1.62     | 0.66     | 0.11     | 2.39  |
| Arable with hay    | 1.60     | 0.70     | 0.12     | 2.42  |

Rye

|                        | Grain: cwt. per acre | Straw: cwt per acre |
|------------------------|----------------------|---------------------|
| No dung                | 26.2                 | 44.0                |
| Dung in 1946           | 27.9                 | 47.2                |
| Mean                   | 27.0                 | 45.6                |
| Increase               | 1.7                  | 3.2                 |
| Previous Rotation:     |                      |                     |
| Ley                    | 26.9                 | 46.4                |
| Lucerne                | 27.0                 | 45.9                |
| Arable with hay        | 26.9                 | 44.0                |
| Arable with sugar beet | 26.6                 | 46.0                |

49/30/1.6

## Block V

| <u>Ley.</u> | 1st Year. | Sheep days<br>of grazing<br>per acre | No. of sheep<br>carried per acre<br>for the year |
|-------------|-----------|--------------------------------------|--------------------------------------------------|
| Mean        | 1211      |                                      | 3.3                                              |

Potatoes.

|                        | Total tubers<br>tons per acre | Percentage<br>Ware |
|------------------------|-------------------------------|--------------------|
| No Dung                | 9.47                          | 87.2               |
| Dung in 1947           | 10.88                         | 87.7               |
| Mean                   | 10.18                         | 87.4               |
| Increase               | 1.41                          | 0.5                |
| Previous Rotation:     |                               |                    |
| Ley                    | 11.20                         | 89.8               |
| Lucerne                | 10.34                         | 84.9               |
| Arable with hay        | 9.64                          | 86.2               |
| Arable with sugar beet | 9.52                          | 85.8               |

Lucerne. 1st Year.

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

|                        | 1st crop | 2nd crop | 3rd crop | Total |
|------------------------|----------|----------|----------|-------|
| No Dung                | 0.55     | 0.71     | 0.18     | 1.44  |
| Dung in 1947           | 0.54     | 0.77     | 0.19     | 1.50  |
| Mean                   | 0.54     | 0.74     | 0.18     | 1.46  |
| Increase               | -0.01    | 0.06     | 0.01     | 0.06  |
| Previous Rotation:     |          |          |          |       |
| Lucerne                | 0.59     | 0.81     | 0.20     | 1.60  |
| Arable with sugar beet | 0.50     | 0.67     | 0.16     | 1.33  |