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Yields of the Field Experiments 1948

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48/BA/2 Three-course Rotation - Rothamsted

Rothamsted Research

Rothamsted Research (1949) *48/BA/2 Three-course Rotation - Rothamsted* ; Yields Of The Field Experiments 1948, pp 16 - 19

48/Ba/2.1

THREE COURSE ROTATION EXPERIMENT

Long Hoos VI, 1948

Effect of ploughing in straw

Treatments as given in 1933 Report, pp. 118-9, except that no comparisons of winter green manuring crops are now made, and that commencing in 1942 a yearly dressing of $2\frac{1}{2}$ cwt. per acre magnesium sulphate is applied to one of the replicate plots of each treatment, in each crop block.

Cultivations, etc.

Barley, Series I.

Applied Adco and straw with accompanying artificials, ploughed: Nov 10-21. Springtine harrowed: Mar 1. Artificials applied: Mar 3. Harrowed, seed drilled and harrowed in: Mar 4. Ring rolled: Mar 9. Weeded: June 8. Harvested: Aug 18. Variety: Plumage Archer. Previous crop: Potatoes.

Potatoes, Series II.

Applied Adco and straw with accompanying artificials, ploughed: Nov 10-21. Cultivated: Mar 16. Harrowed and rolled: Mar 22. Ridged: Mar 24. Artificials applied, potatoes planted and covered in: Mar 25. Ridges rolled down: Mar 27. Harrowed: Apr 30. Weeded: June 11. Grubbed: June 9, 16. Earthed up: June 17. Sprayed with "Perinox": Aug 9. Sprayed to kill haulm: Sept 13. Lifted: Sept 29. Variety: Majestic. Previous crop: Sugar Beet.

Sugar Beet, Series III.

Applied Adco and straw with accompanying artificials, ploughed: Nov 10-21. Cultivated: Mar 16. Harrowed and rolled: Mar 22. Artificials applied: Apr 13. Harrowed: Apr 14. Seed drilled: Apr 15. Harrowed in: Apr 16. Rolled: Apr 22. Dusted with Flea beetle dust: May 14. Plots 54, 60, 66 and 72 were damaged by herbicide spray from 2 Course Rotation Experiment, May 14, and bare patches (including the whole of plots 66 and 72) were redrilled May 20. Hoed: May 20. Late sown plants dusted with Flea beetle dust: June 9. Weeded: June 10-11. Singled: June 12. Hoed: June 21, July 20. Lifted: Nov 12, 15. Variety: Klein E. Previous crop: Barley.

48/Ba/2.2

Note: Considerable damage to sugar beet tops was caused by sheep on plots 49, 50, 51, 55, 56, 57, 61, 62, 67, 68.

Standard errors per plot:

| | |
|-----------------------------|----------------------------------|
| Sugar beet, roots (washed), | ±0.573 tons per acre or 5.9% |
| tops, | ±1.348 tons per acre or 18.8% |
| total sugar, | ±2.69 cwt. per acre or 7.7% |
| sugar percent: | ±0.437 |
| plant number, | ±1.66 thousands per acre or 7.6% |
| Barley, grain, | ±3.47 cwt. per acre or 10.4% |
| straw, | ±4.75 cwt. per acre or 12.6% |
| Potatoes total tubers, | ±0.661 tons per acre or 6.4% |
| percentage ware | ±0.581 |

All standard errors are based on 8 d.f.

48/Ba/2.3

Summary of Results

| | Treatments applied 1946/7 | | | | | Treatments applied 1947/8 | | | | |
|---|---------------------------|-------------------|-------|-------|-------------------|---------------------------|-------------------|-------|-------|-------------------|
| | Arts | Adco | St 1 | St 2 | Mean | Arts | Adco | St 1 | St 2 | Mean |
| <u>Series I</u> | | | | | | | | | | |
| Barley Grain cwt./acre | 34.0 | 32.1 (±2.00) | 33.3 | 33.3 | 33.1 (±1.00) | 36.8 | 32.3 (±2.00) | 31.0 | 35.2 | 33.9 (±1.00) |
| Straw cwt./acre | 36.8 | 35.9 (±2.74) | 36.8 | 36.5 | 36.5 (±1.37) | 43.1 | 36.5 (±2.74) | 36.9 | 40.0 | 39.1 (±1.37) |
| <u>Series II</u> | | | | | | | | | | |
| Potatoes tons/acre | 8.47 | 10.12 (±0.382) | 9.78 | 10.41 | 9.70 (±0.191) | 10.40 | 10.40 (±0.382) | 12.35 | 11.12 | 11.07 (±0.191) |
| Percentage Ware | 92.0 | 93.5 (±0.335) | 93.6 | 93.6 | 93.2 (±0.168) | 94.0 | 93.7 (±0.335) | 95.3 | 94.4 | 94.4 (±0.168) |
| <u>Series III</u> | | | | | | | | | | |
| Sugar Beet Roots (washed) tons/acre | 9.30 | 9.12 (±0.331) | 8.95 | 9.63 | 9.25 (±0.166) | 10.79 | 9.04 (±0.331) | 10.21 | 10.69 | 10.18 (±0.166) |
| Tops tons/acre | 6.41 | 6.24 (±0.778) | 7.09 | 7.43 | 6.79 (±0.389) | 9.49 | 6.14 (±0.778) | 7.28 | 7.40 | 7.58 (±0.389) |
| Sugar percentage | 17.32 | 17.89 (±0.252) | 17.13 | 17.59 | 17.48 (±0.126) | 18.18 | 18.18 (±0.252) | 18.12 | 17.88 | 18.09 (±0.126) |
| Total sugar cwt./acre | 32.2 | 32.6 (±1.55) | 30.6 | 33.9 | 32.3 (±0.78) | 39.3 | 32.9 (±1.55) | 37.0 | 38.3 | 36.9 (±0.78) |
| Plant number thous./acre | 22.2 | 22.6 (±0.96) | 20.0 | 22.6 | 21.9 (±0.48) | 21.8 | 22.0 (±0.96) | 22.3 | 22.2 | 22.1 (±0.48) |

48/Ba/2.4

Responses to Magnesium Sulphate

| | Treatments applied 1946/7 | | | | | Treatments applied 1947/8 | | | | |
|-------------------------------------|---------------------------|-------------------|-------|-------|-------|---------------------------|------------------|-------|-------|-------|
| | Arts | Adco | St.1 | St.2 | Mean | Arts | Adco | St.1 | St.2 | Mean |
| <u>Series I</u> | | | | | | | | | | |
| Barley Grain cwt./acre | -4.3 | -0.6 (±4.25) | 2.8 | -5.0 | -1.8 | 0.2 | -8.0 (±4.25) | -5.9 | 1.9 | -3.0 |
| Straw cwt./acre | -4.0 | -4.2 (±5.82) | 6.1 | -3.4 | -1.4 | -0.2 | -5.4 (±5.82) | -4.9 | 0.4 | -2.5 |
| <u>Series II</u> | | | | | | | | | | |
| Potatoes tons/acre | -0.38 | 0.22 (±0.810) | 0.07 | -0.07 | -0.04 | 1.12 | 0.44 (±0.810) | 0.82 | -1.14 | 0.31 |
| Percentage Ware | -0.4 | 0.3 (±0.71) | -0.6 | -0.6 | -0.3 | 0.2 | 0.3 (±0.71) | 0.6 | 0.0 | 0.3 |
| <u>Series III</u> | | | | | | | | | | |
| Sugar Beet Roots (washed) tons/acre | -0.34 | -1.02 (±0.702) | -1.80 | -0.50 | -0.92 | 1.06 | 1.28 (±0.702) | -1.21 | 0.01 | +0.28 |
| Tops tons/acre | -1.77 | -0.92 (±1.652) | 0.56 | 2.06 | -0.02 | 1.38 | 1.21 (±1.652) | -2.44 | 0.52 | 0.17 |
| Total sugar cwt/acre | 0.7 | -2.7 (±3.30) | -5.6 | -2.7 | -2.6 | 7.3 | 4.8 (±3.30) | -5.0 | 1.1 | 2.0 |
| Sugar percentage | 1.02 | 0.56 (±0.535) | 0.36 | -0.46 | 0.37 | 1.54 | 0.07 (±0.535) | -0.30 | 0.48 | 0.45 |
| Plant number thous./acre | 0.6 | -2.2 (±2.03) | -7.1 | -3.8 | -3.1 | 0.6 | 2.6 (±2.03) | -4.6 | -1.2 | -0.6 |