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Yields of the Field Experiments 1956

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56/W/BD/1 Green Manuring

Rothamsted Research

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56/Ba/1.1

GREEN MANURING EXPERIMENT

Woburn Stackyard - 1956, the 3rd year of the revised scheme.

For history, treatments etc, see "Details of the Classical and Long Term Experiments" 1956.

Note: In 1955 the green manure crops undersown in the barley failed; these were resown after the barley was cut.

The straw treatment due to be applied after harvest was given only to the "fallow" (i.e. not undersown) plots, the application of straw to the green manure plots being postponed until later.

Area of each plot: 0.0395 acres. Area harvested: Potatoes, 0.0237; barley, 0.0395 acres.

Cultivations, etc.:

Green manures after barley: Trefoil at 30 lb per acre, ryegrass at 40 lb per acre, resown: Sept 6, 1955. Varieties: Trefoil-English; Ryegrass-Western Wolths.

Early Potatoes: Straw applied to "fallow" plots only: Sept 27, 1955.

"Fallow" plots ploughed: Sept 28. Straw applied to trefoil and

ryegrass plots: Dec 8. "Fallow" plots ploughed: Jan 5, 1956.

All plots ploughed: Mar 6. Basal fertilizers applied: Mar 19.

'Nitro-Chalk' applied: Mar 21. Potatoes mechanically planted:

Mar 24. Earthed up: June 1. Lifted: July 25. Variety:

Ulster Chieftain.

Green manures after early potatoes: Trefoil at 30 lb per acre, ryegrass at 40 lb per acre, sown: July 29, 1955. Varieties: Trefoil-English; Ryegrass-Western Wolths.

Barley: "Fallow" and "early" green manure plots ploughed:

Nov 17, 1955 and Jan 7, 1956. All plots ploughed including

"late" green manure plots: Mar 7. Ground chalk at 20 cwt per

acre applied: Mar 9. 'Nitro-Chalk' applied: Mar 16. Seed

drilled at $2\frac{1}{2}$ bushels per acre: Mar 17. Trefoil and ryegrass

undersown: Apr 23. Harvested: Aug 15. Variety: Herta.

Standard errors per plot:

Potatoes, Total tubers: 0.967 tons per acre or 12.3% (18 d.f.)

Barley, Grain: 2.64 cwt per acre or 8.8% (20 d.f.)

56/Ba/1.2

Estimates of produce (roots and tops) of green manure crops:
cwt per acre

| | Green manure | Ploughed in | Dry matter | Nitrogen |
|---------------------------|--------------|-------------|------------|----------|
| <u>For Early Potatoes</u> | Trefoil | | 5.9 | 0.187 |
| | Ryegrass | | 6.9 | 0.153 |
| <u>For Barley</u> | Trefoil | Early | 17.4 | 0.572 |
| | Ryegrass | Early | 11.8 | 0.347 |
| | Trefoil | Late | 4.9 | 0.183 |
| | Ryegrass | Late | 7.2 | 0.218 |

Erratum to "Results of the Field Experiments" 1955 page 55/Ba/1.2.

Excluding plots fallow under old scheme:

S.E. of straw x N table should read (± 0.130) not (± 0.120).

56/Ba/1.3

Summary of Results

Early Potatoes, total tubers: tons per acre

| | Straw: tons per acre | | N: cwt per acre (including basal) | | Dung to cabbages 1952: tons per acre | | Mean |
|--|----------------------|----|-----------------------------------|------|--------------------------------------|----|------|
| | None | 1½ | 0.23 | 0.46 | None | 10 | |
| | | | | | | | |

Excluding plots fallow under old scheme

| Undersown green manures for potatoes | (±0.342) | | (±0.342) | | (±0.342) | | (±0.242) |
|--------------------------------------|----------|------|----------|------|----------|------|----------|
| | None | 7.69 | 7.94 | 7.88 | 7.74 | 6.94 | 8.69 |
| | (±0.484) | | (±0.484) | | (±0.484) | | (±0.342) |
| Trefoil | 8.71 | 7.65 | 8.24 | 8.11 | 7.24 | 9.12 | 8.18 |
| Ryegrass | 8.25 | 7.61 | 7.83 | 8.03 | 7.16 | 8.70 | 7.93 |
| Straw: tons per acre | | | (±0.342) | | (±0.342) | | (±0.242) |
| None | | | 8.33 | 7.84 | 7.02 | 9.15 | 8.08 |
| 1½ | | | 7.60 | 7.97 | 7.12 | 8.45 | 7.78 |
| N: cwt per acre (including basal) | | | | | | | |
| 0.23 | | | | | 7.08 | 8.84 | 7.96 |
| 0.46 | | | | | 7.05 | 8.76 | 7.91 |
| Mean (±0.242) | | | | | 7.07 | 8.80 | 7.93 |

Plots fallow under old scheme

| Straw: tons per acre | (±0.684) | | (±0.684) | | (±0.484) |
|-----------------------------------|----------|------|----------|------|----------|
| | None | 7.14 | 7.88 | 6.60 | 8.42 |
| 1½ | 7.18 | 8.12 | 6.70 | 8.60 | 7.66 |
| N: cwt per acre (including basal) | | | | | |
| 0.23 | | | 6.14 | 8.19 | 7.16 |
| 0.46 | | | 7.16 | 8.84 | 8.00 |
| Mean (±0.484) | | | 6.65 | 8.52 | 7.58 |

| Old scheme | Undersown green manures for potatoes | | | | Mean |
|------------|--------------------------------------|----------|----------|----------|------|
| | None Fallow | None | Trefoil | Ryegrass | |
| | 7.58 | 7.81 | 8.18 | 7.93 | 7.86 |
| | (±0.342) | (±0.242) | (±0.342) | | |

Barley, grain: cwt per acre

| | Green manures | | In barley for potatoes None Undersown | N: cwt per acre (including basal) 0.23 0.46 | Dung to cabbages 1953: tons per acre None 10 | Mean |
|---|---------------------------------------|---------------------------------------|--|---|--|-----------------------------------|
| | Ploughed in Early Late | Green manures after None Fallow | | | | |
| <u>Excluding plots fallow under old scheme</u> | | | | | | |
| Green manures after potatoes for barley Trefoil Ryegrass | (±0.93) 29.1 30.3 32.1 33.0 | (±0.93) 31.5 30.3 33.3 33.0 | (±0.93) 27.9 31.8 31.8 31.8 | (±0.93) 28.3 31.1 31.4 33.7 | (±0.93) 28.4 31.0 31.8 33.4 | (± 0.66) 29.7 32.6 |
| Green manures ploughed in Early Late | 32.2 32.6 | 29.0 30.7 | 31.8 33.0 | 30.4 29.8 | 30.6 31.7 | 30.6 31.7 |
| Green manures in barley for potatoes None Undersown | 31.5 28.2 | 33.3 31.5 | 32.2 28.0 | 31.4 32.9 | 29.9 32.4 | 29.9 32.4 |
| N: cwt per acre (including basal) 0.23 0.46 | 30.1 | 32.2 | 31.1 | 32.2 | 31.1 | 31.1 |
| Mean (±0.66) | <u>Plots fallow under old scheme</u> | | | | | |
| Green manures after potatoes for barley Trefoil Ryegrass Excluding fallow | 25.6 29.7 (± 0.93) | 32.6 30.0 (± 0.66) | N: cwt per acre (including basal) 0.23 0.46 Mean (±1.32) | (±1.87) 24.8 28.2 26.5 | (± 1.32) 22.5 26.8 24.6 | 56/Bd/1.4 23.6 27.4 25.6 |
| Old scheme | 25.6 29.7 (± 0.93) | 32.6 30.0 (± 0.66) | Mean (±1.32) | 26.5 | 24.6 | 25.6 |

Barley, straw: cwt per acre

| | Green manures | | In barley for potatoes | N: cwt per acre (including basal) | | Dung to cabbages 1953: tons per acre | | Mean |
|--|---------------|------|------------------------|-----------------------------------|------|--------------------------------------|------|------|
| | Ploughed in | None | | 0.23 | 0.46 | None | 10 | |
| | Early | Late | Undersown | | | | | |
| <u>Excluding plots fallow under old scheme</u> | | | | | | | | |
| Green manures after potatoes for barley | | | | | | | | |
| Trefoil | 23.1 | 25.1 | 22.2 | 22.6 | 25.5 | 22.0 | 26.1 | 24.1 |
| Ryegrass | 25.3 | 26.7 | 25.0 | 25.5 | 26.5 | 25.4 | 26.7 | 26.0 |
| Green manures ploughed in | | | | | | | | |
| Early | | | 22.2 | 23.0 | 25.4 | 23.5 | 24.9 | 24.2 |
| Late | | | 25.1 | 25.2 | 26.7 | 23.9 | 27.9 | 25.9 |
| Green manures in barley for potatoes | | | | | | | | |
| None | | | | 25.6 | 27.4 | 25.5 | 27.4 | 26.5 |
| Undersown | | | | 22.6 | 24.7 | 21.9 | 25.4 | 23.6 |
| N: cwt per acre (including basal) | | | | | | | | |
| 0.23 | | | | 22.3 | 25.9 | 22.3 | 25.9 | 24.1 |
| 0.46 | | | | 25.1 | 27.0 | 25.1 | 27.0 | 26.0 |
| Mean | | | | 23.7 | 26.4 | 23.7 | 26.4 | 25.1 |
| <u>Plots fallow under old scheme</u> | | | | | | | | |
| Green manures after potatoes for barley | | | | | | | | |
| None | | | | | | | | |
| Fallow | | | | | | | | |
| Trefoil | | | | 0.23 | 18.6 | 20.4 | 18.6 | 19.5 |
| Ryegrass | | | | 0.46 | 22.9 | 22.8 | 22.9 | 22.9 |
| Excluding fallow | | | | | | | | |
| Mean | | | | | | | | |
| Old scheme | 21.2 | 24.1 | 26.0 | 21.6 | 20.8 | 21.6 | 20.8 | 21.2 |

56/Ba/1.5