

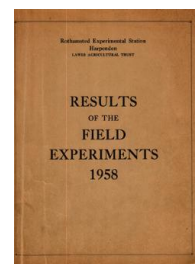
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Yields of the Field Experiments 1958

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58/R/BC/1 Reference Plots

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58/Bc/1.1

REFERENCE PLOTS

The effects of N P K and Dung on a sequence of five arable crops -
Great Field IV 1956-1958.

The site selected for the experiment was ploughed out of old grassland
in March 1956 and was shown by soil analysis to be low in available
P and K. All crops in 1956 were spring sown. Similar effects are
also illustrated on the original grass sward, which is cut for hay.

Design: Rotation:- Winter wheat; kale; barley; clover; potatoes.
6 rows (1 for each crop) of a 12 x 12 Latin Square.

Area of each plot: 0.0013 acres.

Treatments. All combinations of:-
Nitrogen: N₁ and no nitrogen.
Phosphate: P₁ and no phosphate.
Potash: K and no potash
and the following additional treatments
N₂PK; dung; dung + N₁PK; dung + N₂PK.

Rates and forms of manuring.

All N as 'Nitro-Chalk': Potatoes and wheat, 0.6 or 1.2;
barley, 0.45 or 0.90; kale, 1.0 or 2.0; clover, 0.15 or 0.30;
grass, 1.0 or 2.0 cwt N per acre.

All P as granular superphosphate: 0.5 cwt P₂O₅ per acre.

All K as sulphate of potash: 1.0 cwt K₂O per acre.

Dung: 15 tons per acre to all crops in 1956 and 1957; omitted on
clover in 1958.

Cultivations, etc.:

1956.

Spring wheat. Dung N P and K applied, drilled: Apr 7, 1956.

Harvested: Sept 7. Variety: Koga II.

Kale. Dung N P and K applied, sown: Apr 10, 1956. Harvested:
Nov 15. Variety: Thousand Head.

Barley. Dung N P and K applied, drilled: Apr 7, 1956. Harvested:
Aug 28. Variety: Proctor.

Clover. Dung N P and K applied, sown: Apr 10, 1956. Cut twice:
Aug 14 and Oct 25. Variety: Giant Hybrid.

Potatoes. Dung N P and K applied, planted: Apr 10, 1956.
Harvested: Sept 3. Variety: King Edward.

Note: The whole area received hydrated lime at 32 cwt per acre on
Apr 7, 1956.

1957

Winter wheat. Dung applied, hand dug: Sept 3, 1956. PK applied,
drilled: Sept 18. First N dressing applied: Mar 4, 1957.
Second N dressing applied: Mar 27. Harvested: Aug 7.
Variety: Cappelle.

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Kale. Dung applied and hand dug: Nov 26, 1956. N P and K applied, sown: Mar 13, 1957. Harvested: Nov 26. Variety: Thousand Head.
 Barley. Dung applied and hand dug: Nov 27, 1956. Drilled, N P and K applied: Mar 4, 1957. Harvested: July 24. Variety: Proctor.
 Clover. Undersown in barley: Apr 7, 1956. Dung applied: Nov 26. P and K applied: Feb 15, 1957. N applied: Mar 11. Cut twice: June 18 and Aug 13. Variety: Giant Hybrid.
 Potatoes. Dung applied and hand dug: Nov 27, 1956. N P and K applied: Mar 13, 1957. Planted: Mar 14. Harvested: Sept 4. Variety: King Edward.
 Permanent grass. Dung P and K applied: Feb 15, 1957. First N dressing applied: Mar 11. Second N dressing applied: May 29. Cut twice: May 29 and Sept 18.

1958

Winter wheat. Dung applied and hand dug: Sept 5, 1957. FK applied, drilled: Sept 23. First N dressing applied: Apr 30, 1958. Harvested: Aug 6. Variety: Capelle.
 Kale. Dung applied and hand dug: Jan 17, 1958. N P and K applied, sown: Apr 9. Harvested: Oct 30. Variety: Thousand Head.
 Barley. Dung applied and hand dug: Feb 3, 1958. N P and K applied, drilled: Mar 25. Harvested: Aug 16. Variety: Proctor.
 Clover. Undersown in barley: Mar 4, 1957. N P and K applied: Feb 17, 1958. Cut twice: June 26 and Aug 29. Variety: Giant Hybrid.
 Potatoes. Dung applied and hand dug: Jan 17, 1958. N P and K applied, planted: Apr 8. Harvested: Sept 12. Variety: King Edward.
 Permanent grass. Dung applied: Feb 4, 1958. First N dressing applied, P K applied: Feb 17. Second N dressing applied: June 4. Cut twice: June 4 and Sept 16.

Summary of Results

1956

| Treatment | cwt per acre | | | | | | tons per acre | | |
|--------------------|--------------|-------|--------|-------|---------|---------|---------------|--------------|-------|
| | Wheat | | Barley | | Clover | | Potatoes | Kale | |
| | Grain | Straw | Grain | Straw | 1st cut | 2nd cut | Total tubers | Total weight | |
| None | 9.8 | 14.0 | 13.5 | 13.5 | 13.9 | 10.0 | 23.9 | 2.64 | 11.28 |
| N ₁ | 13.3 | 18.1 | 26.1 | 25.5 | 17.7 | 10.5 | 28.2 | 2.54 | 16.76 |
| P | 11.3 | 16.6 | 15.5 | 13.4 | 17.0 | 9.7 | 26.7 | 3.90 | 15.80 |
| N ₁ P | 10.7 | 17.8 | 16.0 | 15.6 | 17.7 | 11.3 | 29.0 | 2.52 | 13.98 |
| K | 19.9 | 23.2 | 16.2 | 15.2 | 22.2 | 15.2 | 37.4 | 6.85 | 11.90 |
| N ₁ K | 22.1 | 26.7 | 15.9 | 16.4 | 25.3 | 16.6 | 41.9 | 8.47 | 16.76 |
| FK | 20.9 | 26.5 | 20.7 | 19.2 | 27.8 | 18.4 | 46.2 | 7.08 | 13.11 |
| N ₁ FK | 26.4 | 35.2 | 22.9 | 21.8 | 29.6 | 18.9 | 48.5 | 7.94 | 21.53 |
| N ₂ FK | 24.1 | 33.8 | 26.4 | 30.4 | 30.3 | 17.8 | 48.1 | 7.68 | 23.00 |
| D | 34.9 | 47.5 | 39.9 | 34.8 | 38.6 | 21.9 | 60.5 | 9.50 | 17.97 |
| N ₁ FKD | 30.6 | 54.1 | 36.5 | 45.4 | 34.7 | 24.6 | 59.3 | 13.44 | 24.57 |
| N ₂ FKD | 34.2 | 45.6 | 35.9 | 38.1 | 35.6 | 22.8 | 58.4 | 13.77 | 27.34 |
| Mean | | | | | | | | | |
| D.M. % | 67.8 | 65.5 | 71.7 | 57.7 | 18.4 | 15.0 | 16.7 | | |

58/Bc/1.3

1957

| Treat- ment | cwt per acre | | | | | | |
|--------------------|------------------------|-------|------------------------|-------|------------|----------------------------|-------|
| | Wheat | | Barley | | Clover | | |
| | Grain (at 85% D.M.) | Straw | Grain (at 85% D.M.) | Straw | 1st cut | 2nd cut (dry matter) | Total |
| None | 27.8 | 50.2 | 24.1 | 18.0 | 31.8 | 32.8 | 64.6 |
| N ₁ | 32.5 | 41.1 | 28.1 | 21.1 | 39.4 | 31.0 | 70.4 |
| P | 33.8 | 53.5 | 29.2 | 22.6 | 31.9 | 24.5 | 56.4 |
| N ₁ P | 20.5 | 38.7 | 22.4 | 22.4 | 32.5 | 23.5 | 56.0 |
| K | 37.6 | 75.2 | 28.0 | 23.1 | 46.3 | 37.5 | 83.8 |
| N ₁ K | 40.9 | 78.6 | 30.4 | 24.4 | 39.9 | 33.3 | 73.2 |
| PK | 36.7 | 76.2 | 30.7 | 24.1 | 50.0 | 37.3 | 87.3 |
| N ₁ PK | 42.4 | 81.9 | 39.4 | 37.5 | 45.1 | 33.5 | 78.6 |
| N ₂ PK | 40.1 | 76.1 | 44.1 | 41.1 | 47.0 | 36.4 | 83.4 |
| D | 42.4 | 86.2 | 42.9 | 38.5 | 37.2 | 33.5 | 70.7 |
| N ₁ PKD | 39.4 | 80.0 | 45.9 | 42.0 | 41.0 | 37.9 | 78.9 |
| N ₂ PKD | 43.1 | 76.8 | 47.8 | 47.9 | 39.6 | 33.2 | 72.8 |

| Treat- ment | tons per acre | | cwt per acre | | |
|--------------------|-----------------|-----------------|--------------|----------------------------|-------|
| | Potatoes | Kale | Grass | | |
| | Total tubers | Total weight | 1st cut | 2nd cut (dry matter) | Total |
| None | 1.42 | 13.88 | 28.0 | 23.4 | 51.4 |
| N ₁ | 2.49 | 14.36 | 30.1 | 26.3 | 56.4 |
| P | 1.47 | 13.30 | 18.5 | 22.2 | 40.7 |
| N ₁ P | 1.92 | 20.62 | 36.9 | 29.0 | 65.9 |
| K | 4.46 | 8.32 | 31.9 | 22.8 | 54.7 |
| N ₁ K | 6.42 | 12.36 | 49.4 | 31.2 | 80.6 |
| PK | 8.88 | 12.96 | 37.4 | 22.8 | 60.2 |
| N ₁ PK | 8.10 | 21.76 | 46.1 | 29.3 | 75.4 |
| N ₂ PK | 8.86 | 22.62 | 50.0 | 37.5 | 87.5 |
| D | 12.76 | 16.88 | 34.4 | 26.1 | 60.5 |
| N ₁ PKD | 16.26 | 20.80 | 44.7 | 33.2 | 77.9 |
| N ₂ PKD | 17.95 | 28.36 | 55.4 | 39.3 | 94.7 |

Mean dry matter % as harvested.

| | | | |
|--------|---------------|-------|---------------|
| Wheat | Grain, 85.0 | Grass | 1st cut, 28.4 |
| | Straw, 72.8 | | 2nd cut, 31.0 |
| | | | Total, 29.7 |
| Barley | Grain, 71.4 | | |
| | Straw, 54.6 | | |
| Clover | 1st cut, 28.0 | | |
| | 2nd cut, 21.4 | | |
| | Total, 24.7 | | |

58/Bc/1.4

1958

| Treat- ment | Wheat | | cwt per acre Barley | | Clover | | Total |
|--------------------|------------------------|-------|------------------------|-------|------------|----------------------------|-------|
| | Grain (at 85% D.M.) | Straw | Grain (at 85% D.M.) | Straw | 1st cut | 2nd cut (dry matter) | |
| None | 45.3 | 59.4 | 24.5 | 23.6 | 24.8 | 10.7 | 35.5 |
| N ₁ | 43.1 | 56.6 | 19.8 | 36.5 | 31.1 | 9.5 | 40.6 |
| P | 44.7 | 67.2 | 26.1 | 33.6 | 33.0 | 14.9 | 47.9 |
| N ₁ P | 30.8 | 62.4 | 24.6 | 40.4 | 33.2 | 12.0 | 45.2 |
| K | 50.9 | 68.0 | 24.4 | 54.2 | 51.9 | 38.3 | 90.2 |
| N ₁ K | 56.0 | 73.5 | 32.2 | 40.4 | 46.3 | 32.6 | 78.9 |
| PK | 48.8 | 79.4 | 31.6 | 45.9 | 54.9 | 35.9 | 90.8 |
| N ₁ PK | 51.1 | 78.6 | 43.2 | 41.9 | 58.6 | 32.2 | 90.8 |
| N ₂ PK | 46.9 | 80.5 | 47.1 | 36.2 | 57.8 | 30.5 | 88.3 |
| D | 52.2 | 84.8 | 37.5 | 59.2 | 53.6 | 31.3 | 84.9 |
| N ₁ PKD | 46.4 | 97.9 | 40.9 | 33.1 | 54.4 | 41.4 | 95.8 |
| N ₂ PKD | 45.5 | 80.2 | 23.6 | 66.4 | 63.6 | 34.0 | 97.6 |

| Treat- ment | tons per acre | | cwt per acre | | |
|--------------------|-----------------------------|-------------------------|--------------|----------------------------|-------|
| | Potatoes Total tubers | Kale Total weight | 1st cut | 2nd cut (dry matter) | Total |
| None | 4.72 | 12.59 | 21.3 | 37.4 | 58.7 |
| N ₁ | 8.00 | 16.93 | 27.2 | 34.7 | 61.9 |
| P | 4.37 | 16.93 | 17.5 | 36.6 | 54.1 |
| N ₁ P | 5.26 | 22.83 | 31.9 | 38.6 | 70.5 |
| K | 8.72 | 14.06 | 22.0 | 32.6 | 54.6 |
| N ₁ K | 8.77 | 21.36 | 44.1 | 45.3 | 89.4 |
| PK | 12.63 | 12.32 | 27.9 | 40.3 | 68.2 |
| N ₁ PK | 11.52 | 23.00 | 40.0 | 36.0 | 76.0 |
| N ₂ PK | 14.06 | 30.90 | 50.0 | 43.7 | 93.7 |
| D | 13.00 | 18.49 | 35.5 | 39.9 | 75.4 |
| N ₁ PKD | 16.95 | 32.73 | 39.7 | 53.3 | 93.0 |
| N ₂ PKD | 18.56 | 40.28 | 53.3 | 57.2 | 110.5 |

Mean dry matter % as harvested.

| | | | |
|--------|---------------|-------|---------------|
| Wheat | Grain, 62.4 | Grass | 1st cut, 24.0 |
| | Straw, 39.7 | | 2nd cut, 22.4 |
| | | | Total, 23.2 |
| Barley | Grain, 80.8 | | |
| | Straw, 54.1 | | |
| Clover | 1st cut, 21.0 | | |
| | 2nd cut, 16.1 | | |
| | Total, 18.6 | | |