

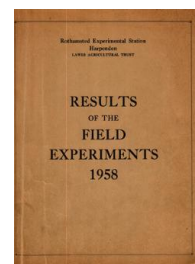
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Yields of the Field Experiments 1958

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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		

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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		

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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		