

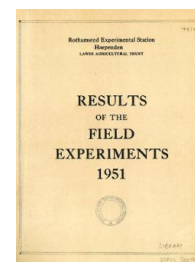
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## Yields of the Field Experiments 1951

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### 51/CE/1 Potatoes - Application of Dung - Rothamsted

#### Rothamsted Research

Rothamsted Research (1952) *51/CE/1 Potatoes - Application of Dung - Rothamsted* ; Yields Of The Field Experiments 1951, pp 76 - 80 - DOI: <https://doi.org/10.23637/ERADOC-1-171>

51/Ce/1.1

## POTATOES

Application of dung - Little Hoos 1951

System of replication: 4 randomized blocks of 12 plots each, plots being split into 2 for the application of N, P, and K; the three 2-factor interactions being confounded with whole plot differences, and certain high order interactions being confounded with block differences.

Area of each sub plot: 0.0175 acre. Area harvested: 0.0140 acre.

Treatments: All combinations of:-

Whole plots      Dung: None; 5; 10; 15 tons per acre.  
Method of application: W-Ploughed in, in winter;  
S-Ploughed in, in spring; R-Placed in the ridges  
in spring.

Sub plots      Sulphate of ammonia: None; 0.6 cwt N per acre.  
Superphosphate: None; 0.6 cwt  $P_2O_5$  per acre.  
Muriate of potash: None; 1.0 cwt  $K_2O$  per acre.

Basal manuring: None

Cultivations, etc.: Dung applied to 'W' plots; Sept 21. Ploughed all plots: Sept 22. Dung applied to 'S' plots, ploughed all plots: Mar 30. Ridged: May 8. Dung applied to 'R' plots, fertilizers applied in the ridges, potatoes planted: May 11. Earthed up: July 11. Sprayed with copper fungicide 5 lb per acre: Aug. 15 and again Sept 11. Sprayed with 15% sulphuric acid to kill off haulm: Oct 2. Lifted: Oct 10. Variety: Majestic. Previous crop: Wheat.

Standard errors per plot: total clean tubers.

Whole plot: 0.670 tons per acre or 12.0% (32 d.f.)

Sub plot: 0.911 tons per acre or 16.3% (30 d.f.)

Summary of Results

Total Clean Tubers: tons per acre

Dung: tons per acre

	0	5	10	15	Mean
Mean ( $\pm 0.193$ )	3.78	5.51	6.20	6.81	5.58
<u>Method of application</u>			( $\pm 0.335$ )		( $\pm 0.193$ )
Ploughed in, in winter		5.19	6.07	6.76	6.01
Ploughed in, in spring		5.03	6.19	6.41	5.88
Placed in ridges in spring		6.30	6.35	7.27	6.64
<u>Sulphate of ammonia</u>			( $\pm 0.268$ ) <sup>*</sup>		
None	3.55	4.65	5.54	6.12	4.96
0.6 cwt per acre N	4.01	6.37	6.86	7.51	6.19
Response to N ( $\pm 0.372$ )	0.46	1.72	1.32	1.39	1.23 <sup>(1)</sup>
<u>Superphosphate</u>			( $\pm 0.268$ ) <sup>*</sup>		
None	3.19	5.12	5.81	6.46	5.14
0.6 cwt per acre P <sub>2</sub> O <sub>5</sub>	4.37	5.90	6.60	7.17	6.01
Response to P ( $\pm 0.372$ )	1.18	0.78	0.79	0.71	0.87 <sup>(1)</sup>
<u>Muriate of Potash</u>			( $\pm 0.268$ ) <sup>*</sup>		
None	2.72	4.93	5.82	6.61	5.02
1.0 cwt per acre K <sub>2</sub> O	4.84	6.08	6.59	7.02	6.13
Response to K ( $\pm 0.372$ )	2.12	1.15	0.77	0.41	1.11 <sup>(1)</sup>

Standard error (1) 0.186

<sup>\*</sup>Standard error for use in comparisons other than vertical.

51/0e/1.3

Total Clean Tubers: tons per acre

	Method of application of dung		
	Ploughed in, in winter	Ploughed in, in spring	Placed in ridges in spring
<u>Sulphate of ammonia</u>		(±0.268) <sup>**</sup>	
None	5.13	5.45	5.73
0.6 cwt per acre N	6.89	6.31	7.55
Response to N (±0.372)	1.76	0.86	1.82
<u>Superphosphate</u>		(±0.268) <sup>**</sup>	
None	5.54	5.40	6.45
0.6 cwt per acre P <sub>2</sub> O <sub>5</sub>	6.48	6.36	6.83
Response to P (±0.372)	0.94	0.96	0.38
<u>Muriate of potash</u>		(±0.268) <sup>**</sup>	
None	5.30	5.53	6.53
1.0 cwt per acre K <sub>2</sub> O	6.71	6.23	6.75
Response to K (±0.372)	1.41	0.70	0.22

<sup>\*\*</sup>Standard error for use in comparisons other than vertical

Responses to treatments (±0.268)<sup>\*\*\*</sup>

Response to:	Sulphate of ammonia		Superphosphate		Muriate of potash	
	Abs.	Pres.	Abs.	Pres.	Abs.	Pres.
Sulphate of ammonia	-	-	0.71	1.75	0.53	1.93
Superphosphate	0.34	1.38	-	-	0.86	0.86
Muriate of potash	0.41	1.81	1.11	1.11	-	-

<sup>\*\*\*</sup>Standard error of horizontal difference between two responses  
0.387

51/Cc/1.4

Percentage Ware  
( $1\frac{1}{2}$ " riddle)

Dung: tons per acre

	0	5	10	15	Mean
Mean	80.3	86.6	88.2	89.6	86.2
<u>Method of application</u>					
Ploughed in, in winter		87.0	87.6	89.6	88.1
Ploughed in, in spring		85.3	88.8	90.5	88.2
Placed in ridges in spring		87.4	88.1	88.8	88.1
<u>Sulphate of ammonia</u>					
None	81.8	85.6	87.1	89.6	86.0
0.6 cwt per acre N	78.9	87.6	89.3	89.6	86.4
Response to N	-2.9	2.0	2.2	0.0	0.4
<u>Superphosphate</u>					
None	79.6	86.6	88.3	90.3	86.2
0.6 cwt per acre $P_2O_5$	81.1	86.6	88.1	88.9	86.2
Response to P	1.5	0.0	-0.2	-1.4	0.0
<u>Muriate of potash</u>					
None	73.2	84.7	87.4	90.3	83.9
1.0 cwt per acre $K_2O$	87.5	88.5	89.0	88.9	88.5
Response to K	14.3	3.8	1.6	-1.4	4.6

51/Cc/1.5

	Percentage Ware (1½" riddle)		
	Method of application of dung		
	Floughed in, in winter	Floughed in, in spring	Placed in ridges in spring
<u>Sulphate of ammonia</u>			
None	86.5	87.6	88.2
0.6 cwt per acre N	89.7	88.8	88.0
Response to N	3.2	1.2	-0.2
<u>Superphosphate</u>			
None	87.9	88.6	88.7
0.6 cwt per acre P <sub>2</sub> O <sub>5</sub>	88.3	87.8	87.6
Response to P	0.4	-0.8	-1.1
<u>Muriate of potash</u>			
None	86.0	87.5	88.9
1.0 cwt per acre K <sub>2</sub> O	90.1	88.9	87.3
Response to K	4.1	1.4	-1.6

Responses to treatments:

Response to:	Sulphate of ammonia		Superphosphate		Muriate of potash	
	Abs.	Pres.	Abs.	Pres.	Abs.	Pres.
Sulphate of ammonia	-	-	1.2	-0.4	-0.6	1.4
Superphosphate	0.8	-0.8	-	-	-0.2	0.2
Muriate of potash	3.5	5.5	4.3	4.7	-	-