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Yields of the Field Experiments 1952

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52/CE/1 Potatoes - Application of Dung - Rothamsted

Rothamsted Research

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52/Ce/1.1

POTATOES

Application of dung - West Barnfield II 1952.

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: Ploughed in, in winter (W);
Ploughed in, in spring (S); Placed in the ridges
in spring (R).

Sub plots N: None; 0.6 cwt per acre applied as sulphate of
ammonia.
 $P_{25}O_5$: None; 0.6 cwt per acre applied as super-
phosphate.
 K_2O : None; 1.0 cwt per acre applied as muriate of
potash.

Basal dressing: None.

Cultivations, etc.: Dung applied to 'W' plots, ploughed all plots:
Sept 26. Dung applied to 'S' plots, ploughed all plots: Mar 12.
Ridged all plots: May 5. Dung applied to 'R' plots, fertilizers
applied in the ridges, potatoes planted: May 6. Earthed up:
July 17. Sprayed with copper fungicide 5 lb per acre: Aug 12
and again Sept 5. Sprayed with sulphuric acid, 20% B.O.V.:
Sept 24. Lifted: Oct 9. Variety: Majestic. Previous crop:
Wheat.

Standard errors per plot: Total tubers.

Whole plot: 0.755 tons per acre or 7.4% (32 d.f.)
Sub plot: 1.060 tons per acre or 10.4% (29 d.f.)*

* 1 missing value.

52/Ce/1.2

Summary of Results

Total tubers: tons per acre

	Dung: tons per acre				Mean
	None	5	10	15	
Mean (± 0.218)	7.76	9.64	11.09	12.45	10.24
<u>Method of application</u>	(± 0.378)				(± 0.218)
Ploughed in, in winter		9.12	10.63	11.28	10.34
Ploughed in, in spring		9.17	11.16	12.90	11.08
Placed in ridges in spring		10.64	11.50	13.15	11.76
<u>N: cwt per acre</u>	$(\pm 0.307)^*$				
None	7.02	8.72	10.58	11.75	9.52
0.6	8.51	10.57	11.60	13.15	10.96
Response to N (± 0.433)	1.49	1.85	1.02	1.40	1.44 ⁽¹⁾
<u>P₂₀₋₅: cwt per acre</u>	$(\pm 0.307)^*$				
None	7.65	9.05	10.50	12.18	9.85
0.6	7.88	10.24	11.68	12.71	10.63
Response to P (± 0.433)	0.23	1.19	1.18	0.53	0.78 ⁽¹⁾
<u>K₂₀: cwt per acre</u>	$(\pm 0.307)^*$				
None	5.69	8.49	10.47	11.92	9.14
1.0	9.84	10.80	11.72	12.97	11.33
Response to K (± 0.433)	4.15	2.31	1.25	1.05	2.19 ⁽¹⁾

(1) ± 0.216

*Standard error for use in comparisons other than vertical.

52/Ce/1.3

Total tubers: tons per acre

	Method of application of dung		
	Ploughed in, in winter	Ploughed in, in spring	Placed in ridges in spring
<u>N: cwt per acre</u>	$(\pm 0.307)^*$		
None	9.70	10.32	11.03
0.6	10.99	11.83	12.50
Response to N (± 0.433)	1.29	1.51	1.47
<u>P₂O₅: cwt per acre</u>	$(\pm 0.307)^*$		
None	9.86	10.55	11.32
0.6	10.83	11.60	12.21
Response to P (± 0.433)	0.97	1.05	0.89
<u>K₂O: cwt per acre</u>	$(\pm 0.307)^*$		
None	9.23	10.13	11.51
1.0	11.46	12.02	12.01
Response to K (± 0.433)	2.23	1.89	0.50

*Standard error for use in comparisons other than vertical.

Response to:	Responses to treatments (± 0.307)**					
	N		P		K	
	Abs.	Pres.	Abs.	Pres.	Abs.	Pres.
N	-	-	1.24	1.64	1.12	1.76
P	0.58	0.98	-	-	0.17	1.39
K	1.87	2.51	1.58	2.80	-	-

**Standard error of horizontal difference between two responses 0.436.

52/Ce/1.4

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

	Dung: tons per acre				Mean
	None	5	10	15	
Mean	75.8	82.5	84.8	86.0	82.3
<u>Method of application</u>					
Ploughed in, in winter		82.0	84.7	85.5	84.0
Ploughed in, in spring		82.2	87.2	88.5	85.9
Placed in ridges in spring		83.3	82.6	84.1	83.3
<u>N: cwt per acre</u>					
None	75.1	82.6	85.4	86.5	82.4
0.6	76.6	82.4	84.2	85.5	82.2
Response to N	+1.5	-0.2	-1.2	-1.0	-0.2
<u>P₂O₅: cwt per acre</u>					
None	81.8	84.9	86.1	87.5	85.1
0.6	69.9	80.0	83.5	84.5	79.5
Response to P	-11.9	-4.9	-2.6	-3.0	-5.6
<u>K₂O: cwt per acre</u>					
None	65.7	77.7	82.0	85.0	77.6
1.0	86.0	87.3	87.6	87.0	87.0
Response to K	+20.3	+9.6	+5.6	+2.0	+9.4

52/Ce/1.5

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

	Method of application of dung		
	Ploughed in, in winter	Ploughed in, in spring	Placed in ridges in spring
<u>N: cwt per acre</u>			
None	83.8	86.0	84.7
0.6	84.3	85.9	81.9
Response to N	+0.5	-0.1	-2.8
<u>P₂₋₅: cwt per acre</u>			
None	87.2	86.5	84.9
0.6	80.9	85.4	81.8
Response to P	-6.3	-1.1	-3.1
<u>K₂₋₅: cwt per acre</u>			
None	79.6	83.6	81.6
1.0	88.5	88.3	85.1
Response to K	+8.9	+4.7	+3.5

Responses to treatments

Response to:	N		P		K	
	Abs.	Pres.	Abs.	Pres.	Abs.	Pres.
N	-	-	-0.1	-0.5	+0.7	-1.3
P	-5.4	-5.8	-	-	-7.9	-3.3
K	+10.4	+8.4	+7.1	+11.7	-	-