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Yields of the Field Experiments 1975

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75/ R/P/6 - Nutrients & Bruising - Potatoes

Rothamsted Research

Rothamsted Research (1976) 75/ R/P/6 - *Nutrients & Bruising - Potatoes* ; Yields Of The Field Experiments 1975, pp 369 - 374 - DOI: <https://doi.org/10.23637/ERADOC-1-141>

75/R/P/6

POTATOES

NUTRIENTS AND BRUISING

Object: To study the effects of forms of nutrients on susceptibility to bruising and on yield of two varieties of potato - Long Hoos VI.

Sponsor: D.M. McIlroy.

Design: 2 randomised blocks of 36 plots.

Whole plot dimensions: 3.55 x 6.25.

Treatments: All combinations of:-

1. Varieties:

King Edward
Record

VARIETY

EDWARD
RECORD

2. Form of nitrogen (at 200 kg N):

Calcium nitrate
Urea (+ nitrification inhibitor - 'N-Serve')

N FORM

NITRATE
UREA

3. Form of cation:

All as potassium (250 kg K₂O)
All as sodium (140 kg Na₂O)
Part as potassium (125 kg K₂O), part as sodium
(70 kg Na₂O)

CAT FORM

K
NA
K NA

4. Form of anion:

All as chloride
All as sulphate
Half as sulphate, half as chloride

AN FORM

CL
SO₄
CL SO₄

NOTE: Fertiliser treatments were applied on 21 Apr, 1975.

Basal applications: Manures: 250 kg P₂O₅ as triple superphosphate.

Weedkillers: Linuron at 1.1 kg and paraquat at 0.42 kg ion in 340 l.

Seed: King Edward, once grown Rothamsted seed.
Record, AA Certificate.

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Cultivations, etc.:- Ploughed: 19 Sept, 1974. P applied: 26 Mar, 1975.
 Spring-tine cultivated: 16 Apr. Power harrowed: 28 Apr. Rotary
 cultivated, ridged, potatoes planted by hand and covered in: 5 May.
 Weedkillers applied: 23 May. Lifted: 20 Oct. Previous crops:
 Beans 1973, barley 1974.

NOTES: (1) Counts of plant emergence were made on 12 June and of stem
 numbers on 1 July. Soil pH was determined on 9 July.
 (2) The average depth of bruises and dry matter of the stem
 end of the cortex were determined at harvest.

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

N FORM VARIETY	NITRATE	UREA	MEAN	
EDWARD	19.5	21.1	20.3	
RECORD	18.6	20.5	19.6	
MEAN	19.1	20.8	19.9	

CAT FORM VARIETY	K	NA	K NA	MEAN
EDWARD	21.6	19.5	19.6	20.3
RECORD	18.2	20.2	20.2	19.6
MEAN	19.9	19.9	19.9	19.9

CAT FORM N FORM	K	NA	K NA	MEAN
NITRATE	19.3	19.8	18.1	19.1
UREA	20.6	19.9	21.8	20.8
MEAN	19.9	19.9	19.9	19.9

AN FORM VARIETY	CL	S04	CL S04	MEAN
EDWARD	20.5	19.4	20.9	20.3
RECORD	21.2	18.2	19.3	19.6
MEAN	20.9	18.8	20.1	19.9

AN FORM N FORM	CL	S04	CL S04	MEAN
NITRATE	20.3	17.6	19.3	19.1
UREA	21.5	20.0	20.9	20.8
MEAN	20.9	18.8	20.1	19.9

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TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

AN FORM	CL	S04	CL S04	MEAN
CAT FORM				
K	20.5	19.9	19.5	19.9
NA	20.1	18.5	21.1	19.9
K NA	22.1	18.0	19.7	19.9
MEAN	20.9	18.8	20.1	19.9

N FORM	NITRATE			UREA		
CAT FORM	K	NA	K NA	K	NA	K NA
VARIETY						
EDWARD	21.0	19.7	17.7	22.3	19.3	21.6
RECORD	17.6	19.9	18.4	18.9	20.5	22.0

N FORM	NITRATE			UREA		
AN FORM	CL	S04	CL S04	CL	S04	CL S04
VARIETY						
EDWARD	19.8	18.4	20.2	21.3	20.3	21.6
RECORD	20.7	16.8	18.5	21.7	19.7	20.1

VARIETY	AN FORM	CL	S04	CL S04
	CAT FORM			
EDWARD	K	21.9	23.1	19.9
	NA	19.6	18.2	20.8
	K NA	20.1	16.9	22.0
RECORD	K	19.0	16.6	19.1
	NA	20.5	18.8	21.4
	K NA	24.1	19.2	17.4

N FORM	AN FORM	CL	S04	CL S04
NITRATE	CAT FORM			
NITRATE	K	17.6	20.4	19.8
	NA	21.3	16.6	21.6
	K NA	21.9	15.8	16.6
UREA	K	23.3	19.3	19.2
	NA	18.8	20.4	20.6
	K NA	22.3	20.3	22.8

VARIETY	N FORM	AN FORM	CL	S04	CL S04
	NITRATE	CAT FORM			
EDWARD	NITRATE	K	19.7	22.9	20.4
		NA	19.1	18.4	21.7
		K NA	20.6	14.0	18.5
	UREA	K	24.1	23.4	19.4
		NA	20.2	17.9	19.8
		K NA	19.5	19.7	25.5
RECORD	NITRATE	K	15.6	17.9	19.2
		NA	23.4	14.9	21.5
		K NA	23.1	17.5	14.6
	UREA	K	22.5	15.3	19.0
		NA	17.5	22.8	21.3
		K NA	25.1	20.9	20.1

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TOTAL TUBERS TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	VARIETY	N FORM	CAT FORM	AN FORM
SED	0.36	0.86	1.05	1.05

TABLE	VARIETY N FORM	VARIETY CAT FORM	N FORM CAT FORM	VARIETY AN FORM
SED	1.21	1.48	1.48	1.48

TABLE	N FORM AN FORM	CAT FORM AN FORM	VARIETY N FORM CAT FORM	VARIETY N FORM AN FORM
SED	1.48	1.81	2.10	2.10

TABLE	VARIETY CAT FORM AN FORM	N FORM CAT FORM AN FORM	VARIETY N FORM CAT FORM AN FORM
SED	2.57	2.57	3.63

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	35	3.63	18.2

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PERCENTAGE WARE 3.18 CM (1.25 INCH) RIDDLE

*** TABLES OF MEANS ***

N FORM	NITRATE	UREA	MEAN			
VARIETY						
EDWARD	86.2	85.5	85.8			
RECORD	88.9	87.9	88.4			
MEAN	87.5	86.7	87.1			
CAT FORM	K	NA	K NA	MEAN		
VARIETY						
EDWARD	85.9	85.7	85.9	85.8		
RECORD	89.2	87.6	88.4	88.4		
MEAN	87.6	86.7	87.1	87.1		
CAT FORM	K	NA	K NA	MEAN		
N FORM						
NITRATE	87.7	87.4	87.6	87.5		
UREA	87.5	86.0	86.6	86.7		
MEAN	87.6	86.7	87.1	87.1		
AN FORM	CL	S04	CL S04	MEAN		
VARIETY						
EDWARD	86.2	84.0	87.3	85.8		
RECORD	89.2	87.7	88.4	88.4		
MEAN	87.7	85.8	87.8	87.1		
AN FORM	CL	S04	CL S04	MEAN		
N FORM						
NITRATE	88.0	86.7	87.9	87.5		
UREA	87.3	85.0	87.8	86.7		
MEAN	87.7	85.8	87.8	87.1		
AN FORM	CL	S04	CL S04	MEAN		
CAT FORM						
K	88.7	86.2	87.9	87.6		
NA	86.7	85.4	87.9	86.7		
K NA	87.7	85.9	87.7	87.1		
MEAN	87.7	85.8	87.8	87.1		
N FORM	NITRATE		UREA			
CAT FORM	K	NA	K NA	K	NA	K NA
VARIETY						
EDWARD	85.7	87.0	86.0	86.1	84.5	85.7
RECORD	89.6	87.3	89.2	88.8	87.5	87.5

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PERCENTAGE WARE 3.18CM (1.25 INCH) RIDDLE

*** TABLES OF MEANS ***

N FORM	NITRATE			UREA		
AN FORM	CL	S04	CL S04	CL	S04	CL S04
VARIETY						
EDWARD	86.1	85.2	87.3	86.3	82.8	87.3
RECORD	90.0	88.2	88.4	88.4	87.1	88.3

VARIETY	AN FORM	CL	S04	CL S04
CAT FORM				
EDWARD	K	87.3	84.2	86.3
	NA	86.0	83.3	87.9
RECORD	K NA	85.3	84.6	87.7
	K	90.0	88.2	89.5
	NA	87.4	87.5	87.9
	K NA	90.1	87.3	87.7

N FORM	AN FORM	CL	S04	CL S04
CAT FORM				
NITRATE	K	88.1	86.7	88.1
	NA	88.3	85.6	88.2
UREA	K NA	87.7	87.8	87.3
	K	89.2	85.6	87.6
	NA	85.1	85.3	87.6
	K NA	87.7	84.0	88.2

VARIETY	AN FORM	CL	S04	CL S04
N FORM	CAT FORM			
EDWARD	NITRATE	K	85.4	85.9
		NA	87.9	84.5
	UREA	K NA	85.1	85.2
RECORD	UREA	K	89.2	82.4
		NA	84.1	82.1
	NITRATE	K NA	85.5	83.9
		K	90.9	87.5
	UREA	NA	88.7	86.6
		K NA	90.2	90.4
	K	89.1	88.8	
	NA	86.1	88.4	
	K NA	90.0	84.1	

PLOT AREA HARVESTED 0.00076