

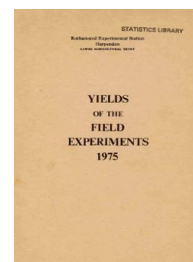
Thank you for using eradoc, a platform to publish electronic copies of the Rothamsted Documents. Your requested document has been scanned from original documents. If you find this document is not readable, or you suspect there are some problems, please let us know and we will correct that.



ROTHAMSTED
RESEARCH

Yields of the Field Experiments 1975

[Full Table of Content](#)



75/ R&w/CS/166 - Liquid Fertilisers - Potatoes

Rothamsted Research

Rothamsted Research (1976) 75/ R&w/CS/166 - *Liquid Fertilisers - Potatoes* ; Yields Of The Field Experiments 1975, pp 267 - 273 - DOI: <https://doi.org/10.23637/ERADOC-1-141>

75/R/CS/166 and 75/W/CS/166

LIQUID FERTILISERS

Object: To study the effects of a range of rates and methods of applying liquid fertilisers on the quality and yield of potatoes - Rothamsted (R), Long Hoos I/II and Woburn (W), Far Field I.

Sponsors: F.V. Widdowson, A. Penny.

The first year, potatoes.

Design: 2 randomised blocks of 32 plots.

Whole plot dimensions: 4.27 x 12.2

Treatments: All combinations of:

1. Form and method of applying fertiliser:	APPLICN
Granules (13:13:20), broadcast over the plough furrow	GRAN B
Liquid (7:7:10), sprayed on plough furrow	LIQUID S
Liquid, placed in bands on each side of the seed	LIQUID P
Liquid, divided, half on plough furrow, half placed	LIQUID D
2. Rate of nitrogen in NPK fertiliser (kg N):	N LN NPK
126	126
188	188
251	251
314	314
3. Spacing of tubers within the rows (rows all 71 cm apart) (cm):	SPACING
30	30 CM
45	45 CM

Basal applications:-

Long Hoos I/II (R): Weedkiller: Linuron at 1.0 kg plus paraquat at 0.42 kg ion in 450 l. Insecticide: Demeton-s-methyl at 0.25 kg in 450 l.
Fungicide: Mancozeb at 1.3 kg in 450 l.

75/R/CS/156 and 75/W/CS/166

Irrigation (mm water):

21 July	76
26 July	51
19 Aug	51
29 Aug	38

Total 216

Far Field I (W): Weedkiller: Linuron at 1.2 kg plus paraquat at 0.28 kg ion in 280 l. Insecticide: Demeton-s-methyl at 0.25 kg in 280 l. Fungicide: Mancozeb 1.3 kg in 390 l.

Seed: Long Hoos I/II (R): King Edward.

Far Field I (W): Pentland Crown.

Cultivations, etc.:-

Long Hoos I/II (R): Ploughed: 7 Jan, 1975. Treatments applied: 2 May. Rotary cultivated: 7 May. Treatments applied, potatoes planted: 9 May. Grubbed: 14 May. Rotary ridged: 22 May. Weedkiller applied: 30 May. Grubbed: 26 June. Insecticide applied: 27 June. Rotary ridged: 7 July. Fungicide applied: 28 July. Haulm mechanically destroyed: 26 Sept. Sprayed with undiluted BOV at 170 l: 1 Oct. Lifted: 10 Oct. Previous crops: Barley 1973, beans 1974.

Far Field I (W): Ploughed: 9-10 Jan, 1975. Deep-tine cultivated: 21 Apr. Spring-tine cultivated: 3 May. Treatments applied, potatoes planted: 5-6 May. Weedkiller applied: 30 May. Grubbed: 23 June. Rotary ridged: 24 June. Insecticide applied: 26 June. Fungicide applied: 16 July. Haulm mechanically destroyed: 29 Sept. Sprayed with undiluted BOV at 160 l: 2 Oct. Lifted: 8-9 Oct. Previous crops: Fallow 1973, beans 1974.

- NOTES: (1) Emergence counts were made. Emergence was uneven because of the wet seedbeds.
- (2) Leaf and haulm samples were taken in early September for N, P, K and Mg analysis.

75/R/CS/166 LONG HOOS I/II (R)

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

N IN NPK APPLICN	126	188	251	314	MEAN
GRAN B	36.9	34.2	38.9	38.2	37.0
LIQUID S	33.6	35.5	31.3	34.3	33.7
LIQUID P	31.8	32.9	40.4	34.3	34.9
LIQUID D	31.0	38.3	37.0	37.6	36.0
MEAN	33.3	35.2	36.9	36.1	35.4

SPACING APPLICN	30 CM	45 CM	MEAN
GRAN B	38.8	35.2	37.0
LIQUID S	33.8	33.6	33.7
LIQUID P	35.2	34.5	34.9
LIQUID D	37.0	34.9	36.0
MEAN	36.2	34.6	35.4

SPACING N IN NPK	30 CM	45 CM	MEAN
126	34.7	31.9	33.3
188	36.4	34.1	35.2
251	38.4	35.4	36.9
314	35.2	36.9	36.1
MEAN	36.2	34.6	35.4

APPLICN	SPACING N IN NPK	30 CM	45 CM
GRAN B	126	38.5	35.2
	188	40.0	28.4
	251	41.3	36.5
	314	35.5	40.8
LIQUID S	126	34.1	33.2
	188	34.0	37.1
	251	34.0	28.6
	314	33.2	35.4
LIQUID P	126	33.9	29.7
	188	32.0	33.9
	251	42.6	38.2
	314	32.2	36.4
LIQUID D	126	32.4	29.5
	188	39.7	36.8
	251	35.7	38.2
	314	40.0	35.2

75/R/CS/166 LONG HOOS 1/11 (R)

PERCENTAGE WARE 3.81CM (1.5INCH) RIDDLE

*** TABLES OF MEANS ***

N IN NPK	126	188	251	314	MEAN
APPLICN					
GRAN B	69.4	68.8	71.9	68.7	69.7
LIQUID S	66.8	69.8	65.2	70.7	68.1
LIQUID P	70.0	68.3	76.7	78.1	73.3
LIQUID D	70.7	71.3	71.2	68.1	70.3
MEAN	69.2	69.5	71.3	71.4	70.4

SPACING	30 CM	45 CM	MEAN
APPLICN			
GRAN B	69.4	69.9	69.7
LIQUID S	66.9	69.4	68.1
LIQUID P	72.2	74.3	73.3
LIQUID D	67.5	73.2	70.3
MEAN	69.0	71.7	70.4

SPACING	30 CM	45 CM	MEAN
N IN NPK			
126	68.6	69.8	69.2
188	69.5	69.6	69.5
251	69.7	72.9	71.3
314	68.3	74.5	71.4
MEAN	69.0	71.7	70.4

APPLICN	SPACING	30 CM	45 CM
GRAN B	N IN NPK		
	126	68.5	70.2
	188	74.4	63.1
	251	70.9	72.9
LIQUID S	314	63.9	73.6
	126	66.3	67.4
	188	68.4	71.2
	251	65.1	65.3
LIQUID P	314	67.8	73.6
	126	75.5	64.4
	188	65.0	71.7
	251	75.8	77.5
LIQUID D	314	72.6	83.6
	126	64.2	77.2
	188	70.2	72.4
	251	66.7	75.7
	314	68.9	67.4

PLOT AREA HARVESTED 0.00173

75/W/CS/166 FAR FIELD I (W)

*** TABLES OF MEANS ***

TOTAL TUBERS TONNES/HECTARE

N IN NPK APPLICN	126	188	251	314	MEAN
GRAN B	38.7	40.3	43.7	43.5	41.5
LIQUID S	37.5	40.8	41.7	43.6	40.9
LIQUID P	41.7	43.5	43.9	45.1	43.6
LIQUID D	36.7	45.5	42.8	44.6	42.4
MEAN	38.6	42.5	43.0	44.2	42.1

SPACING APPLICN	30 CM	45 CM	MEAN
GRAN B	43.4	39.7	41.5
LIQUID S	40.1	41.7	40.9
LIQUID P	44.6	42.6	43.6
LIQUID D	43.8	41.0	42.4
MEAN	43.0	41.2	42.1

SPACING N IN NPK	30 CM	45 CM	MEAN
126	40.0	37.3	38.6
188	43.0	42.1	42.5
251	43.4	42.7	43.0
314	45.5	42.9	44.2
MEAN	43.0	41.2	42.1

APPLICN	SPACING N IN NPK	30 CM	45 CM
GRAN B	126	41.2	36.1
	188	42.1	38.4
	251	44.6	42.8
	314	45.5	41.5
LIQUID S	126	36.2	38.7
	188	39.6	42.1
	251	40.5	42.9
	314	44.1	43.0
LIQUID P	126	44.1	39.3
	188	44.6	42.4
	251	43.3	44.6
	314	46.4	43.9
LIQUID D	126	38.5	34.9
	188	45.6	45.3
	251	45.0	40.6
	314	46.1	43.0

75/W/CS/166 FAR FIELD I (W)

PERCENTAGE WARE 3.81CM (1.5INCH) RIDDLE

*** TABLES OF MEANS ***

N IN NPK	126	188	251	314	MEAN
APPLICN					
GRAN B	88.2	89.6	90.0	89.4	89.3
LIQUID S	86.2	88.0	88.4	90.3	88.2
LIQUID P	87.7	89.6	89.5	92.4	89.8
LIQUID D	86.8	89.9	90.2	90.0	89.2
MEAN	87.2	89.3	89.5	90.5	89.1

SPACING	30 CM	45 CM	MEAN
APPLICN			
GRAN B	89.0	89.7	89.3
LIQUID S	87.3	89.2	88.2
LIQUID P	88.5	91.1	89.8
LIQUID D	88.4	90.0	89.2
MEAN	88.3	90.0	89.1

SPACING	30 CM	45 CM	MEAN
N IN NPK			
126	86.5	88.0	87.2
188	88.5	90.0	89.3
251	88.5	90.5	89.5
314	89.6	91.4	90.5
MEAN	88.3	90.0	89.1

APPLICN	SPACING	30 CM	45 CM
GRAN B	N IN NPK		
	126	88.2	88.2
	188	89.1	90.1
	251	89.8	90.3
LIQUID S	314	88.6	90.1
	126	86.5	86.0
	188	88.1	87.8
	251	86.0	90.8
LIQUID P	314	88.4	92.1
	126	85.0	90.5
	188	88.8	90.4
	251	87.7	91.4
LIQUID D	314	92.5	92.3
	126	86.1	87.4
	188	88.0	91.7
	251	90.7	89.7
	314	88.9	91.1

PLOT AREA HARVESTED 0.00173

75/R/CS/166 LONG HOOS 1/11 (R)

TOTAL TUBERS TONNES/HECTARE

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

TABLE	APPLICN	N IN NPK	SPACING	APPLICN N IN NPK
SED	1.51	1.51	1.07	3.02

TABLE	APPLICN SPACING	N IN NPK SPACING	APPLICN N IN NPK SPACING
SED	2.13	2.13	4.26

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

STRATUM	DF	SE	CV%
BLOCK.WP	31	4.26	12.1

75/W/CS/166 FAR FIELD I (W)

TOTAL TUBERS TONNES/HECTARE

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

TABLE	APPLICN	N IN NPK	SPACING	APPLICN N IN NPK
SED	0.75	0.75	0.53	1.50

TABLE	APPLICN SPACING	N IN NPK SPACING	APPLICN N IN NPK SPACING
SED	1.06	1.06	2.12

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

STRATUM	DF	SE	CV%
BLOCK.WP	31	2.12	5.0