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Yields of the Field Experiments 1973

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73/R/P/3 - Seed Sources - Potatoes

Rothamsted Research

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73/R/P/3

POTATOES

SEED SOURCES

Object: To compare stocks of seed freed from tuber borne diseases, by the use of stem cuttings, with local once-grown and bought-in and certified stocks - Little Hoos.

Sponsors: G.A. Hide, F. Bell.

Design: 2 experiments each 2 randomised blocks of 24 plots.

Whole plot dimensions: 5.69 x 9.52. Area harvested: 0.00135.

Treatments:

LIFTER

One experiment with plots lifted by complete harvester

Complete

One experiment with plots lifted by elevator digger

Elevator

Treatments identical on both experiments

Sources of King Edward seed tubers

SEEDSRCE

Healthy (ex Scotland) two plots per block

Healthy

Healthier (ex Rothamsted once-grown) two

plots per block

Healthy+

Ten different certified stocks

CERT/1-CERT/10

Ten once-grown stocks

OG/1-OG/10

Basal applications: Manures: (13:13:20) at 1500 kg. Weedkillers: Linuron at 1.2 kg with paraquat at 0.4 kg ion in 450 l. Fungicide: Mancozeb at 1.3 kg in 370 l. Insecticide: Demeton-s-methyl at 0.25 kg applied with fungicide.

Cultivations, etc.: Deep-tine cultivated: 7 Aug, 1972, twice 22 Aug, once 11 Sept. NPK applied: 23 Mar, 1973. Rotary cultivated, seed planted: 17 Apr. Weedkiller applied: 15 May. Grubbed: 8 June. Rotoridged: 12 June. Insecticide with fungicide applied: 2 July. Fungicide applied: 24 July, 9 Aug. Sprayed with undiluted BOV at 220 l: 18 Sept. Lifted: 11 Oct. Previous crops: Barley 1971, grass 1972.

NOTE: Emergence counts were made on 29 May. Counts were made of plant and stem numbers after burning off and before lifting. Tubers were graded into 6 sizes and assessments made of *Gospora*, *Rhizoctonia*, *Helminthosporium* and *Phoma* infection.

Standard errors per plot. Total tubers, tonnes/hectare.

LIFTER Complete: 3.20 or 6.9% (25 d.f.)

LIFTER Elevator: 1.94 or 4.5% (25 d.f.)

LIFTER Complete and Elevator: 2.56 or 5.7% (71 d.f.)

73/R/P/3

TABLES OF MEANS

TOTAL TUBERS: TONNES/HECTARE

SEEDSRCE	LIFTER		Mean
	Complete	Elevator	
Healthy	49.7	47.3	48.5
Healthy+	52.4	46.4	49.4
Cert/1	45.3	43.4	44.3
Cert/2	44.0	37.5	40.7
Cert/3	45.9	42.3	44.1
Cert/4	45.8	43.2	44.5
Cert/5	45.4	43.3	44.4
Cert/6	49.8	44.6	47.2
Cert/7	45.1	44.0	44.6
Cert/8	42.5	41.8	42.2
Cert/9	47.8	42.4	45.1
Cert/10	42.9	44.1	43.5
OG/1	44.5	41.7	43.1
OG/2	50.4	44.9	47.6
OG/3	43.7	41.9	42.8
OG/4	45.0	40.8	42.9
OG/5	42.9	40.6	41.7
OG/6	49.2	43.5	46.3
OG/7	40.3	42.1	41.2
OG/8	46.4	44.6	45.5
OG/9	46.7	45.6	46.1
OG/10	49.4	46.1	47.7
Mean	46.6	43.6	45.1

STANDARD ERRORS OF DIFFERENCES

	SEEDSRCE LIFTER		
	SEEDSRCE	LIFTER	
		Complete	Elevator
Healthy v Healthy+	1.28	2.27	1.37
Healthy or Healthy+ v any of remainder	1.57	2.77	1.68
Between any of remainder	1.81	3.20	1.94

73/R/P/3

PERCENTAGE WARE: 4.44 CM (1.75 INCH) RIDDLE

	LIFTER		
	Complete	Elevator	Mean
SEEDS/CE			
Healthy	79.4	80.5	79.9
Healthy+	76.5	73.9	75.2
Cert/1	77.1	75.9	76.5
Cert/2	77.4	75.5	76.4
Cert/3	64.2	69.0	66.6
Cert/4	78.7	80.2	79.4
Cert/5	80.3	81.1	80.7
Cert/6	80.2	82.3	81.2
Cert/7	75.9	77.9	76.9
Cert/8	77.7	76.9	77.3
Cert/9	76.3	81.7	79.0
Cert/10	80.4	79.6	80.0
OG/1	74.8	75.6	75.2
OG/2	75.5	76.5	76.0
OG/3	76.4	73.0	74.7
OG/4	70.5	73.2	71.8
OG/5	71.2	71.2	71.2
OG/6	79.4	80.0	79.7
OG/7	71.5	77.6	74.6
OG/8	79.3	77.1	78.2
OG/9	79.4	78.6	79.0
OG/10	74.5	78.1	76.3
Mean	76.3	77.1	76.7

T3/W/P/3 and T3/R/P/22

POTATOES

VARIETIES

Object: To study the yield and susceptibility to diseases of newer varieties of potatoes - Rothamsted (R) Little Knott I and Woburn (W) Horsepool.

Sponsors: J.R. Moffatt, G.A. Hide.

Design: Little Knott I (R): 4 blocks of 6 plots.
Horsepool (W): 4 blocks of 5 plots.

Whole plot dimensions:- Little Knott I (R): 2.84 x 12.2. Area harvested: 0.00173.
Horsepool (W): 2.84 x 15.2. Area harvested: 0.00217.

Treatments: Varieties and seed stocks:-

Desiree, FS, Little Knott I (R) only
King Edward, VTSC, Little Knott I (R) only
Maris Piper, FS, Horsepool (W) only
Pentland Crown, VTSC
Pentland Ivory, FS
Stormont Enterprise ex N.I.A.B.
Ulster Lancer ex N.I.A.B.

VARIETY

Desiree
Edward
Piper
Crown
Ivory
Enterprise
Lancer

NOTE: All varieties at Rothamsted received phorate at 0.56 kg, as granules, at planting.

Basal applications: Manures: Ground chalk at 7.5 tonnes, Little Knott I (R). (13:13:20) at 1500 kg, Little Knott I (R) and 1830 kg, Horsepool (W).
Weedkillers: Paraquat at 0.56 kg ion in 280 l, Horsepool (W).
Linuron at 1.2 kg plus paraquat at 0.7 kg ion in 450 l, Little Knott I (R). Linuron at 1.2 kg plus paraquat at 0.42 kg ion in 280 l, Horsepool (W).
Fungicide with insecticide: Mancozeb at 1.3 kg plus demeton-s-methyl at 0.25 kg in 370 l, Little Knott I (R), in 390 l Horsepool (W). Fungicide: Mancozeb at 1.3 kg in 390 l on the first occasion, 370 l on the second occasion Horsepool (W), in 370 l on two occasions, Little Knott I (R).

Cultivations, etc.:- Little Knott I (R): Ground chalk applied: 23 Sept, 1972.
Ploughed: 27 Sept. NPK applied, rotary cultivated: 29 Mar, 1973.
Rotary cultivated, potatoes planted: 28 Apr. Weedkiller applied: 15 May.
Grubbed: 12 June. Fungicide with insecticide applied: 2 July. Fungicide applied: 24 July, 9 Aug. Sprayed with undiluted BOV at 220 l: 20 Sept.
Lifted: 5 Oct. Previous crops: Winter wheat 1971 and 1972.

T3/W/P/3 and T3/R/P/22

Horsepool (W): Paraquat applied: 2 Oct, 1972. Ploughed: 3 Jan, 1973.
NPK applied: 26 Mar. Rotary cultivated and potatoes planted (only 2
rows of plots 15, 19, 20): 10 Apr. Remaining two rows on plots 15,
19, 20 planted: 18 Apr. Linuron with paraquat applied: 12 May.
Grubbed: 6 June. Rotary ridged: 16 June. Fungicide with insecticide
applied: 5 July. Fungicide applied: 25 July, 13 Aug. Haulm
mechanically destroyed: 19 Sept. Lifted: 1 Oct. Previous crops:
Barley 1971, beans 1972.

NOTE: Tubers were graded into six sizes. Incidence of *Rhizoctonia solani*
and common scab were assessed after harvest.

Standard errors per plot. Total tubers, tonnes/hectare:

Little Knott I (R): 4.66 or 10.7% (15 d.f.)

Horsepool (W): 1.88 or 5.0% (12 d.f.)

73/W/P/3 and 73/R/P/22

TABLES OF MEANS

LITTLE KNOTT I (R)

VARIETY

Desiree	Edward	Crown	Ivory	Entprise	Lancer	Mean
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TOTAL TUBERS: TONNES/HECTARE

39.8	48.6	50.7	39.0	41.6	42.2	43.6
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STANDARD ERROR OF DIFFERENCES

VARIETY

3.29

PERCENTAGE WARE: 4.44 CM (1.75 INCH) RIDDLE

82.0	82.3	95.4	82.6	89.0	80.2	85.2
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HORSEPOOL (W)

VARIETY

Piper	Crown	Ivory	Entprise	Lancer	Mean
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TOTAL TUBERS: TONNES/HECTARE

41.9	43.5	32.6	33.4	36.6	37.6
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STANDARD ERROR OF DIFFERENCES

VARIETY

1.33

PERCENTAGE WARE: 4.44 CM (1.75 INCH) RIDDLE

81.1	82.9	86.1	61.8	69.1	76.2
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