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Yields of the Field Experiments 1975

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

Rothamsted Research

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75/R/P/3

POTATOES

SEED SOURCES

Object: To study yields and tuber-borne diseases of potato stocks freed from these diseases by the use of stem cuttings and to compare these with local once-grown and bought-in certified stocks. The effects of irrigation are also studied - Long Hoos I/II.

Sponsors: G.A. Hide, D.H. Lapwood, M.J. Adams.

Design: 2 randomised blocks of 2 plots, split into 24 (plus one extra plot for sampling).

Whole plot dimensions: 1.42 x 9.53.

Treatments: All combinations of:-

Whole plots: 1. Irrigation:	IRRIGUN
None	NONE
Watered (total 216 mm)	WATERED
Sub plots: 2. Sources of King Edward seed tubers:	SEEDSRCE
Healthy (ex Scotland VTSC), (2 plots/block)	HEALTHY
Healthier (once-grown at Rothamsted from ex Scotland VTSC), (2 plots/block)	HEALTHY+
Four different commercial stocks (ex VTSC)	COMM/1-COMM/4
Eight different certified stocks (not ex VTSC)	CERT/1-CERT/8
Eight different once-grown stocks ex Lincolnshire (not ex VTSC)	OG/1-OG/8

Basal applications: Manures: (13:13:20) at 1510 kg. **Weedkillers:** Linuron at 1.1 kg plus paraquat at 0.42 kg ion in 450 l. **Fungicide:** Mancozeb at 1.3 kg with demeton-s-methyl on the second occasion. **Insecticide:** Demeton-s-methyl at 0.25 kg in 450 l on two occasions.

Cultivations, etc.:- Ploughed: 7 Jan, 1975. Spring-tine cultivated: 26 Apr. NPK applied: 1 May. Spring-tine cultivated, spiked rotary cultivated, potatoes machine planted: 5 May. Grubbed: 14 May. Rotary ridged: 22 May. Weedkiller applied: 30 May. Grubbed: 26 June. Insecticide applied: 27 June. Rotary ridged: 30 June. Insecticide and fungicide applied: 28 July. Irrigation applied: 76 mm on 18 July, 51 mm on 26 July and 19 Aug, 38 mm on 29 Aug. Haulm mechanically destroyed: 26 Sept. Sprayed with undiluted BOV at 170 l: 29 Sept. Lifted: 13 Oct. Previous crops: Barley 1973, beans 1974.

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- NOTES: (1) Counts of plant and stem numbers were made before burning off.
- (2) Crop samples were taken on 10, 30 July, 18 August for assessment of rotting of mother tubers and infection of plants and of progeny tubers.
- (3) At harvest tubers were graded into 6 sizes and assessments made of *Cospora*, *Rhizoctonia*, *Helminthosporium* and *Phoma* infections.
- (4) One row of sub plots did not receive full irrigation and the yields have been adjusted by using covariates.

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TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

IRRIGTN	NONE	WATERED	MEAN
SEEDSRCE			
HEALTHY	21.4	36.1	28.7
HEALTHY+	19.6	35.8	27.7
COMM/1	17.9	41.6	29.8
COMM/2	18.0	42.9	30.5
COMM/3	21.8	43.3	32.6
COMM/4	18.0	40.7	29.3
CERT/1	24.2	34.0	29.1
CERT/2	15.6	35.8	25.7
CERT/3	16.1	32.1	24.1
CERT/4	15.0	31.6	23.3
CERT/5	19.3	37.2	28.3
CERT/6	17.8	29.1	23.4
CERT/7	20.6	37.2	28.9
CERT/8	18.0	37.0	27.5
OG/1	21.2	37.4	29.3
OG/2	16.5	32.4	24.4
OG/3	16.0	29.4	22.7
OG/4	14.5	36.2	25.4
OG/5	17.6	34.7	26.1
OG/6	14.2	34.9	24.6
OG/7	12.6	31.4	22.0
OG/8	13.2	30.1	21.7
MEAN	17.9	35.5	26.7

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

TABLE	SEEDSRCE	SEEDSRCE* IRRIGTN
SED	3.36(1)	4.80(1)
	2.91(2)	4.16(2)
	2.37(3)	3.39(3)

(1) ANY OF REMAINDER

(2) THE REMAINDER V HEALTHY OR HEALTHY+

(3) HEALTHY V HEALTHY+

* EXCEPT WHEN COMPARING MEANS WITH THE SAME LEVEL OF IRRIGTN

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	49	4.70	17.6

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PERCENTAGE WARE 3.81 CM (1.5 INCH) RIDDLE

*** TABLES OF MEANS ***

IRRIGTN	NONE	WATERED	MEAN
SEEDSRCE			
HEALTHY	26.6	53.4	40.0
HEALTHY+	33.5	52.9	43.2
COMM/1	37.7	56.2	46.9
COMM/2	30.2	59.0	44.6
COMM/3	35.2	56.8	46.0
COMM/4	23.0	51.6	37.3
CERT/1	39.4	59.5	49.5
CERT/2	27.5	47.8	37.6
CERT/3	33.4	46.9	40.2
CERT/4	28.4	40.2	34.3
CERT/5	36.1	50.3	43.2
CERT/6	38.3	52.8	45.5
CERT/7	47.7	60.2	53.9
CERT/8	41.6	62.7	52.1
OG/1	35.7	60.2	48.0
OG/2	27.2	53.6	40.4
OG/3	29.8	46.5	38.2
OG/4	28.1	50.9	39.5
OG/5	41.0	56.2	48.6
OG/6	31.7	56.8	44.2
OG/7	29.9	50.4	40.2
OG/8	31.7	46.7	39.2
MEAN	33.1	53.3	43.2

PLOT AREA HARVESTED 0.00135