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Numerical Results of the Field Experiments 1970

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70/R/P/1 Potatoes Seed Stocks, Diseases and Fungicide

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POTATOES

(70/R/P/1)

Seed stocks, diseases and fungicide, Great Knott II 1970.

Design: 4 randomised blocks of 12 plots (plus one extra block for sampling). Plots split into 4.

Area of each sub plot: 0.0036. Area harvested: 0.0036.

Treatments: All combinations of:-

Whole plots: 1. Seed stocks, diseases and fungicide:

F, FB, FC, FCB, H, HC, HCB, HDE, HCOE, HCOL, HCRL, HCORL,

where F = Once grown seed from Rothamsted farm*

H = Healthy seed

B = Seed treated with fungicide (Benomyl 5% dust at 10 lb per ton of seed)

C = Chitted seed

O = Seed inoculated with *Oospora*

R = Seed inoculated with *Rhizoctonia*

E = Early inoculation (seed dipped in *Oospora* suspension on 8 Jan, 1970 and stored cold)

L = Late inoculation. (Applied to furrow at planting using vermiculite carrier).

Quarter plots: 2. Varieties: Pentland Crown (PC), King Edward (KE), Majestic (M), Record (R).

* For Pentland Crown and Record 'A' stocks were used.

Basal applications: 1120 lb (13:13:20). Weedkiller: Paraquat at 0.375 lb ion plus linuron at 1 lb in 39 gals. Fungicide: Mancozeb at 1.2 lb in 40 gals on 2 occasions. Insecticide: Demeton-s-methyl at 3.5 oz applied with first mancozeb spray.

Cultivations, etc.: Ploughed: 28 Oct, 1969. Basal NPK applied: 23 Apr, 1970. Rotary cultivated: 4 May. Potatoes hand planted: 5 May. Weedkiller applied: 23 May. Fungicide and insecticide applied: 29 July. Fungicide applied: 14 Aug. Sprayed with undiluted BOV at 15 gals: 15 Sept. Lifted: 24 Sept. Previous crops: Barley 1968, fallow 1969.

NOTE: Emergence counts were made in June. On 6 July, 3 Aug and 3 Sept, plants were lifted from the sample plots for disease assessments on the progeny tubers. At harvest a sub-sample was taken for disease assessments in the eyes.

70/R/P/1

Standard errors per plot. Total tubers, tons:

Whole plot: 1.329 or 9.0% (33 d.f.)

Sub plot: 1.008 or 6.8% (107 d.f.)

70/R/P/1

SUMMARY OF RESULTS

TOTAL TUBERS: TONS

	KE	M	PC	R	Mean
	(1) and (2)				(±0.665)
F	15.24	14.02	14.20	11.22	13.67
FB	14.33	15.02	11.91	10.90	13.04
FC	15.91	15.79	15.48	12.69	14.97
FCB	16.71	16.71	16.42	14.44	16.07
H	13.07	14.63	13.58	12.22	13.38
HC	15.40	15.95	14.57	13.11	14.76
HCB	16.10	16.29	15.91	14.23	15.63
HDE	13.24	15.27	12.97	12.93	13.60
HCOE	16.45	17.42	16.65	14.70	16.30
HCOL	16.61	16.14	16.21	13.84	15.70
HCRL	14.45	15.87	15.96	14.19	15.11
HCROL	15.82	16.52	16.29	14.31	15.74
Mean (±0.145)	15.28	15.80	15.01	13.23	14.83

(1) (±0.795) For use in vertical and diagonal comparisons only

(2) (±0.504) For use in horizontal and interaction comparisons only

70/R/P/1

% WARE: 1.75 INCH

	KE	M	PC	R	Mean
F	88.4	93.3	95.0	87.3	91.0
FB	84.8	92.5	93.7	85.7	89.1
FC	88.3	93.4	96.9	86.3	91.2
FCB	88.0	94.2	96.9	87.3	91.6
H	87.4	93.6	95.8	88.9	91.4
HC	90.9	94.1	96.8	90.4	93.1
HCB	89.9	92.8	96.1	89.5	92.1
HOE	89.5	93.6	94.5	88.2	91.5
HCOE	90.4	93.2	96.8	89.9	92.6
HCOL	92.1	94.8	96.4	90.0	93.3
HCRL	89.6	93.7	96.3	89.8	92.3
HCROL	90.6	94.3	95.8	89.1	92.4
Mean	89.2	93.6	95.9	88.5	91.8

POTATOES

(70/W/P/1)

Seed stocks, diseases and fungicide, Woburn White Horse 1970.

Design: 4 randomised blocks of 4 plots split into twelve (plus one extra block for sampling).

Area of each sub-plot: 0.0036. Area harvested: 0.0036.

Treatments: All combinations of:-

Whole plots: 1. Varieties: Arran Pilot (AP), Majestic (M), Pentland Crown (PC), Record (R).

Twelfth plots: 2. Seed stocks, chitting, diseases, times of inoculation and fungicide.
F, FB, FC, FCB, H, HC, HCB, HOE, HCOE, HCOL, HCRL, HCORL,

where F = Once grown seed from Rothamsted farm*.

H = Healthy seed.

B = Seed treated with fungicide (Benomyl 5% dust at 10 lb per ton of seed).

C = Chitted seed.

O = Seed inoculated with *Oospora*.

R = Seed inoculated with *Rhizoctonia*.

E = Early inoculation.

L = Late inoculation.

* For Pentland Crown and Arran Pilot 'A' stocks were used.

Basal application: 10 cwt (13:13:20). Weedkiller: Linuron at 1.0 lb plus paraquat at 0.37 lb ion in 33 gals. Fungicide: Mancozeb at 1.2 lb in 37 gals on two occasions. Insecticide: Demeton-s-methyl at 3.5 fl oz on one occasion with fungicide.

Cultivations, etc.:

Deep-tine cultivated: 4 Sept, 1969. Ploughed: 18 - 23 Sept. NPK applied: 2 Apr, 1970. Power harrowed: 17 Apr. Rotary cultivated: 28 Apr. Potatoes planted: 29 Apr. Weedkiller applied: 15 May. Fungicide with insecticide applied: 31 July. Fungicide applied: 18 Aug. Sprayed with undiluted BOV at 15 gals: 18 Sept. Haulm destroyed mechanically: 23 Sept. Lifted: 30 Sept. Previous crop: Winter wheat 1968, fallow 1969.

NOTE: Samples were taken throughout the season from the sample block for tuber weight and number of different sizes. After harvest estimates were made of tuber infection with *Oospora*, *Rhizoctonia*, *Helminthosporium* and *Phoma*.

70/W/P/1

Standard errors per plot. Total tubers, tons:

Whole plot: 0.629 or 3.4% (9 d.f.)

Sub plot: 1.984 or 10.6% (132 d.f.)

70/W/P/1

SUMMARY OF RESULTS

	AP	M	PC	R	Mean
TOTAL TUBERS: TONS					
(1) and (2)					
(±0.496)					
F	14.53	16.20	18.30	14.24	15.82
FB	14.19	18.85	20.11	13.65	16.70
FC	15.26	20.05	23.67	15.50	18.62
FCB	16.01	19.79	22.06	16.52	18.59
H	16.39	19.21	16.83	17.52	17.49
HC	16.98	22.22	23.20	19.89	20.57
HCB	17.96	22.28	24.86	19.48	21.14
HOE	15.01	18.76	19.80	17.81	17.85
HCOE	14.86	20.51	21.42	18.54	18.83
HCOL	17.11	22.59	22.99	18.85	20.39
HCRL	16.50	19.89	19.95	18.44	18.69
HCORL	15.77	22.43	23.30	19.24	20.19
Mean (±0.314)	15.88	20.23	21.38	17.47	18.74

(1) (±0.992) For use in vertical and interaction comparisons only

(2) (±1.001) For use in horizontal and diagonal comparisons only

% WARE: 1.75 INCH

F	88.9	92.2	96.3	83.7	90.3
FB	85.3	89.7	96.8	76.9	87.2
FC	86.5	93.1	97.9	86.1	90.9
FCB	83.4	89.7	96.9	79.3	87.3
H	90.6	91.7	96.5	86.1	91.2
HC	84.9	93.3	97.8	87.6	90.9
HCB	85.3	90.6	98.1	87.9	90.5
HOE	87.4	91.8	97.4	86.2	90.7
HCOE	80.9	91.4	97.7	86.9	89.2
HCOL	86.2	93.0	98.1	89.5	91.7
HCRL	90.5	94.1	97.8	92.4	93.7
HCORL	90.9	94.7	98.2	92.4	94.0
Mean	86.7	92.1	97.5	86.2	90.6