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Yields of the Field Experiments 1975

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75/ R&w/P/2 - Seed Stocks & Seed Treatment - Potatoes

Rothamsted Research

Rothamsted Research (1976) 75/ R&w/P/2 - *Seed Stocks & Seed Treatment - Potatoes* ; Yields Of The Field Experiments 1975, pp 355 - 360 - DOI: <https://doi.org/10.23637/ERADOC-1-141>

75/R/P/2 and 75/W/P/2

POTATOES

SEED STOCKS AND SEED TREATMENT

Object: To study the effects of treating tubers with systemic fungicides or a fumigant on tuber-borne diseases and yield of potatoes -
Rothamsted (R) Long Hoos I/II and Woburn (W) Far Field I.

Sponsors: G.A. Hide, M.J. Adams, F. Bell.

Design: 4 randomised blocks of 6 plots split into 4 (plus one extra block for sampling).

Whole plot dimensions: 5.69 x 9.53.

Treatments: All combinations of:-

Whole plots: 1. Varieties:

King Edward, Long Hoos I/II (R) only	VARIETY
Maris Piper, Far Field I (W) only	EDWARD
Pentland Crown	PIPER
Pentland Ivory	CROWN
	IVORY

2. Seed health:

ex FS, once-grown at Rothamsted in 1974	HEALTH
ex VTSC, once-grown at Rothamsted in 1974	FS
	VTSC

Sub plots: 3. Fungicide to seed tubers:

None	FUNGICIDE
Benomyl	NONE
See-butylamine	BENOMYL
Thiabendazole	SEEBUTYL
	THIABEND

Basal applications:-

Long Hoos I/II (R): Manures: (13:13:20) at 1510 kg. Weedkiller:
Linuron at 1.1 kg plus paraquat at 0.42 kg ion in 450 l.
Insecticide: Demeton-s-methyl at 0.25 kg in 450 l. Fungicide
with insecticide: Mancozeb at 1.3 kg plus demeton-s-methyl at 0.25
kg in 450 l.

75/R/P/2 and 75/W/P/2

Far Field I (W): Manures: (13:13:20) at 1880 kg. 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 at 1.3 kg in 390 l.

Cultivations, etc.:-

Long Hoes I/II (R): Ploughed: 7 Jan, 1975. Spring-tine cultivated: 26 Apr. NPK applied: 1 May. Spring-tine cultivated, spike rotary cultivated, potatoes planted: 5 May. Grubbed: 14 May. Rotary ridged: 22 May. Weedkiller applied: 30 May. Insecticide applied: 27 June. Fungicide with insecticide applied: 28 July. Haulm mechanically destroyed: 26 Sept. Sprayed with undiluted BOV at 170 l: 29 Sept. Lifted: 14 Oct. Previous crops: Barley 1973, beans 1974.

Far Field I (W): Ploughed: 9-10 Jan, 1975. NPK applied: 18 Apr. Deep-tine cultivated: 21 Apr. Spring-tine cultivated: 3 May. Rotary harrowed, potatoes planted: 8 May. Weedkiller applied: 30 May. Insecticide applied: 26 June. Fungicide applied: 16 July. Haulm mechanically destroyed: 29 Sept. Sprayed with undiluted BOV at 160 l: 2 Oct. Lifted: 9 Oct. Previous crops: Fallow 1973, beans 1974.

- NOTES: (1) Counts of plant and stem numbers were made before burning off.
(2) Crop samples were taken in July and October for tuber weight, size and estimates of fungal infections.
(3) At harvest tubers were graded into 6 sizes and assessments made of *Oospora*, *Rhizoctonia*, *Helminthosporium* and *Phoma* infection.

75/R/P/2 LONG HOCS 1/11 (R)

TOTAL TUBERS TONNES/HECTARE

*** TABLE OF MEANS ***

HEALTH VARIETY	FS	VTSC	MEAN
EDWARD	19.9	17.6	18.7
CROWN	22.6	20.7	21.6
IVORY	17.1	20.8	19.0
MEAN	19.8	19.7	19.8

FUNGCIDE VARIETY	NONE	BENOMYL	SECBUTYL	THIABEND	MEAN
EDWARD	18.3	18.9	20.1	17.7	18.7
CROWN	21.4	21.8	22.3	21.0	21.6
IVORY	18.4	20.2	18.3	18.9	19.0
MEAN	19.4	20.3	20.3	19.2	19.8

FUNGCIDE HEALTH	NONE	BENOMYL	SECBUTYL	THIABEND	MEAN
FS	19.9	20.2	20.0	19.3	19.8
VTSC	18.9	20.4	20.5	19.1	19.7
MEAN	19.4	20.3	20.3	19.2	19.8

VARIETY	FUNGCIDE HEALTH	NONE	BENOMYL	SECBUTYL	THIABEND
EDWARD	FS	20.1	20.4	20.6	18.6
	VTSC	16.6	17.3	19.6	16.8
CROWN	FS	22.6	23.0	22.2	22.3
	VTSC	20.2	20.6	22.4	19.6
IVORY	FS	16.9	17.1	17.3	17.0
	VTSC	19.9	23.3	19.4	20.8

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

TABLE	VARIETY	HEALTH	FUNGCIDE	VARIETY HEALTH
SED	2.58	2.10	0.57	3.65

TABLE	VARIETY FUNGCIDE	HEALTH FUNGCIDE	VARIETY HEALTH FUNGCIDE
SED	2.72	2.22	3.84
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
VARIETY	0.99		
HEALTH		0.81	
VARIETY.HEALTH			1.41

75/R/P/2 LONG HOOS 1/11 (R)

TOTAL TUBERS TONNES/HECTARE

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

STRATUM	DF	SE	CV%
BLOCK.WP	15	5.16	26.1
BLOCK.WP.SP	54	1.99	10.1

PERCENTAGE WARE 3.81 CM (1.5 INCH) RIDDLE

*** TABLE OF MEANS ***

HEALTH VARIETY	FS	VTSC	MEAN
EDWARD	35.9	22.1	29.0
CROWN	74.9	69.9	72.4
IVORY	80.9	77.2	79.0
MEAN	63.9	56.4	60.1

FUNGCIDE VARIETY	NONE	BENOMYL	SECBUTYL	THIABEND	MEAN
EDWARD	30.1	27.2	29.0	29.7	29.0
CROWN	71.0	71.8	77.9	68.8	72.4
IVORY	78.0	79.0	79.0	80.2	79.0
MEAN	59.7	59.3	62.0	59.6	60.1

FUNGCIDE HEALTH	NONE	BENOMYL	SECBUTYL	THIABEND	MEAN
FS	64.5	64.2	63.6	63.3	63.9
VTSC	54.9	54.5	60.3	55.8	56.4
MEAN	59.7	59.3	62.0	59.6	60.1

VARIETY	FUNGCIDE HEALTH	NONE	BENOMYL	SECBUTYL	THIABEND
EDWARD	FS	37.1	36.0	33.3	37.3
	VTSC	23.1	18.4	24.7	22.1
CROWN	FS	75.4	75.3	77.6	71.3
	VTSC	66.7	68.3	78.1	66.3
IVORY	FS	81.2	81.2	80.0	81.3
	VTSC	74.8	76.8	78.1	79.1

PLOT AREA HARVESTED 0.00135

75/W/P/2 FAR FIELD 1 (W)

TOTAL TUBERS TONNES/HECTARE

*** TABLE OF MEANS ***

HEALTH VARIETY	FS	VTSC	MEAN
PIPER	19.4	18.3	18.9
CROWN	32.9	33.5	33.2
IVORY	22.4	23.2	22.8
MEAN	24.9	25.0	25.0

FUNGICIDE VARIETY	NONE	BENOMYL	SEC BUTYL	THIABEND	MEAN
PIPER	17.5	19.1	18.4	20.6	18.9
CROWN	34.2	31.5	32.7	34.3	33.2
IVORY	20.1	22.2	25.5	23.4	22.8
MEAN	23.9	24.2	25.5	26.1	25.0

FUNGICIDE HEALTH	NONE	BENOMYL	SEC BUTYL	THIABEND	MEAN
FS	22.7	25.7	25.7	25.5	24.9
VTSC	25.1	22.8	25.3	26.7	25.0
MEAN	23.9	24.2	25.5	26.1	25.0

VARIETY	FUNGICIDE HEALTH	NONE	BENOMYL	SEC BUTYL	THIABEND
PIPER	FS	17.1	19.9	19.5	21.3
	VTSC	17.8	18.3	17.3	20.0
CROWN	FS	31.5	32.8	33.0	34.2
	VTSC	36.9	30.3	32.4	34.3
IVORY	FS	19.6	24.5	24.6	20.9
	VTSC	20.7	19.8	26.3	25.8

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

TABLE	VARIETY	HEALTH	FUNGICIDE	VARIETY HEALTH
SED	1.25	1.02	0.99	1.76

TABLE	VARIETY FUNGICIDE	HEALTH FUNGICIDE	VARIETY HEALTH FUNGICIDE
SED	1.94	1.58	2.74
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
VARIETY	1.71		
HEALTH		1.40	
VARIETY HEALTH			2.42

75/H/P/2 FAR FIELD 1 (W)

TOTAL TUBERS TONNES/HECTARE

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

STRATUM	DF	SE	CV%
BLOCK.WP	15	2.49	10.0
BLOCK.WP.SP	54	3.43	13.7

PERCENTAGE WARE 3.81 CM (1.5 INCH) RIDDLE

*** TABLES OF MEANS ***

HEALTH VARIETY	FS	VTSC	MEAN
PIPER	28.1	22.8	25.5
CROWN	78.2	74.0	76.1
IVORY	74.9	70.1	72.5
MEAN	60.4	55.6	58.0

FUNGICIDE VARIETY	NONE	BENOMYL	SEC BUTYL	THIABEND	MEAN
PIPER	24.1	26.8	23.6	27.3	25.5
CROWN	74.5	74.9	78.5	76.6	76.1
IVORY	69.2	70.2	75.5	75.1	72.5
MEAN	55.9	57.3	59.2	59.7	58.0

FUNGICIDE HEALTH	NONE	BENOMYL	SEC BUTYL	THIABEND	MEAN
FS	59.0	60.4	61.3	60.9	60.4
VTSC	52.9	54.2	57.1	58.4	55.6
MEAN	55.9	57.3	59.2	59.7	58.0

VARIETY	FUNGICIDE HEALTH	NONE	BENOMYL	SEC BUTYL	THIABEND
PIPER	FS	24.3	29.6	28.2	30.3
	VTSC	24.0	24.0	18.9	24.3
CROWN	FS	79.1	77.1	77.6	78.8
	VTSC	69.9	72.7	79.3	74.4
IVORY	FS	73.5	74.4	78.1	73.6
	VTSC	64.9	65.9	73.0	76.5

PLOT AREA HARVESTED 0.00135