ROTHAMSTED RESEARCH

Yields of the Field Experiments 1985

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85/R/P/4 Seed Health Progeny - Potatoes

Rothamsted Research

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85/R/P/4

POTATOES

SEED HEALTH PROGENY

Object: To compare the health and yields of two varieties grown for seed in 1984, under three sets of treatments, with the same varieties grown to AA standard in Scotland in 1984 - Road Piece E.

Sponsors: R.W. Gibson, G.A. Hide, G.R. Cayley.

Design: 4 randomised blocks of 16 plots.

Whole plot dimensions: 1.5 x 15.2.

Treatments: All combinations of:-

1. VARIETY	Varieties:	
	EDWARD	King Edward
	PIPER	Maris Piper
2. PATHCONT(84)	Pest and pathogen control in 1984 (in addition to basals in 1984):	
	STANDARD	None
	ENHANCED	Seed treatment with tolclofos methyl at 0.24 kg and imazalil at 0.01 kg per tonne of tubers, applied by hydraulic and uncharged electrostatic sprayers respectively. Cypermethrin at 0.04 kg with 7.0 l oil in 500 l applied by hydraulic sprayer on 31 May, 1984. Plants with 'virus' symptoms were removed on 11 June, 20 June and 5 July
	FULL	As for ENHANCED plus:-
		The imazalil was applied by charged electrostatic sprayer. Plants with 'blackleg' symptoms were removed on 11 June, 20 June and 5 July. Cypermethrin at 0.04 kg with oil at 7.0 l, in 200 l for the first and last occasions and 500 l for the remainder, was applied on 15 June, 29 June, 16 July, 27 July and, (to HAULM D(84) LATER plots only) 13 Aug
3. HAULM D(84)	Dates of destroying haulm and of lifting in 1984:	
	EARLY	Haulm mechanically destroyed on 3 Aug. Haulm desiccant applied on 6 Aug and potatoes lifted on 6 Sept
	LATER	Haulm mechanically destroyed on 8 Sept. Haulm desiccant applied on 22 Sept and potatoes lifted on 11 Oct

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plus two extra treatments:

XTR SCOT	Scottish AA seed varieties:
EDWARD	King Edward (duplicated)
PIPER	Maris Piper

NOTE: Basal pest and pathogen control in 1984 (other than to XTR SCOT for which it is not known) was phorate at 1.7 kg with the seed, fentin hydroxide at 0.28 kg with pirimicarb at 0.14 kg on 19 June, 3 July, 17 July and 30 July. The above rate of fentin hydroxide was applied in addition to HAULM D(84) LATER on 13 Aug and with pirimicarb at the above rate, on 28 Aug.

Basal applications: Manures: (0:18:36) at 690 kg. (10:10:15+4.5 Mg) at 1960 kg. Weedkillers: Linuron at 1.3 kg with paraquat at 0.50 kg ion in 200 l. Fungicides: Mancozeb at 1.4 kg in 200 l on four occasions, with the pirimicarb on the second and third occasions. Fentin hydroxide at 0.28 kg in 200 l on two occasions. Insecticides: Phorate at 1.7 kg. Pirimicarb at 0.14 kg on two occasions. Haulm desiccant: BOV at 170 l.

Cultivations, etc.:- PK applied: 10 Oct, 1984. Ploughed: 19 Nov. NPK Mg applied: 4 Apr, 1985. Rotary harrowed: 17 Apr. Potatoes planted by hand, phorate applied: 18 Apr. Weedkillers applied: 16 May. Mancozeb applied: 20 June, 6 Aug. Mancozeb with pirimicarb applied: 4 July, 23 July. Fentin hydroxide applied: 21 Aug, 11 Sept. Haulm desiccant applied: 11 Oct. Lifted: 22 Oct. Previous crops: S. barley 1983, w. beans 1984.

NOTE: Viruses were assessed throughout the season. Tuber samples were taken at harvest to observe storage diseases.

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TOTAL TUBERS TONNES/HECTARE

***** TABLES OF MEANS *****

PATHCONT(84) VARIETY	STANDARD	ENHANCED	FULL	MEAN
EDWARD	69.8	71.9	71.7	71.1
PIPER	74.1	76.5	76.6	75.8
MEAN	72.0	74.2	74.2	73.4

HAULM D(84) VARIETY	EARLY	LATER	MEAN
EDWARD	70.7	71.6	71.1
PIPER	76.5	75.0	75.8
MEAN	73.6	73.3	73.4

HAULM D(84) PATHCONT(84)	EARLY	LATER	MEAN
STANDARD	73.2	70.7	72.0
ENHANCED	73.2	75.2	74.2
FULL	74.3	74.0	74.2
MEAN	73.6	73.3	73.4

PATHCONT(84)	STANDARD		ENHANCED		FULL	
HAULM D(84) VARIETY	EARLY	LATER	EARLY	LATER	EARLY	LATER
EDWARD	69.7	70.0	70.1	73.8	72.4	71.0
PIPER	76.8	71.4	76.4	76.7	76.2	77.0

XTR SCOT	EDWARD	PIPER	MEAN
	73.7	79.0	76.3

GRAND MEAN 74.2

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

TABLE	XTR SCOT	VARIETY	PATHCONT(84)	HAULM D(84)
SED	1.68	0.97	1.19	0.97

TABLE	VARIETY PATHCONT(84)	VARIETY HAULM D(84)	PATHCONT(84) HAULM D(84)	VARIETY PATHCONT(84) HAULM D(84)
SED	1.68	1.37	1.68	2.38

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

STRATUM	DF	SE	CV%
BLOCK.WP	47	3.36	4.5

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PERCENTAGE WARE 4.44CM (1.75 INCH) RIDDLE

***** TABLES OF MEANS *****

PATHCONT(84) VARIETY	STANDARD	ENHANCED	FULL	MEAN
EDWARD	80.6	81.9	83.8	82.1
PIPER	78.6	79.6	83.0	80.4
MEAN	79.6	80.7	83.4	81.3

HAULM D(84) VARIETY	EARLY	LATER	MEAN
EDWARD	80.0	84.2	82.1
PIPER	78.5	82.3	80.4
MEAN	79.3	83.2	81.3

HAULM D(84) PATHCONT(84)	EARLY	LATER	MEAN
STANDARD	78.2	81.1	79.6
ENHANCED	78.4	83.0	80.7
FULL	81.2	85.6	83.4
MEAN	79.3	83.2	81.3

PATHCONT(84)	STANDARD		ENHANCED		FULL	
HAULM D(84) VARIETY	EARLY	LATER	EARLY	LATER	EARLY	LATER
EDWARD	79.2	82.1	78.8	85.0	82.2	85.4
PIPER	77.2	80.1	78.1	81.1	80.3	85.8

XTR SCOT	EDWARD	PIPER	MEAN
	86.5	86.9	86.7

GRAND MEAN 82.6

PLOT AREA HARVESTED 0.00229

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