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84/R/P/3 Seed Health - Potatoes

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84/R/P/3

POTATOES

SEED HEALTH

Object: To study the effects of three amounts of pests and disease control on two potato varieties grown for seed - Summerdells I.

Sponsors: R.W. Gibson, R. Harrington, G.A. Hide, G.R. Cayley, D.H. Lapwood.

Design: 2 randomised blocks of 2 plots split into 6.

Whole plot dimensions: 18.0 x 7.62.

Treatments: All combinations of:-

Whole plots

1. VARIETY Varieties:

K EDWARD	King Edward
M PIPER	Maris Piper

Sub plots

2. PATHCONT Pest and pathogen control (in addition to basals):

STANDARD	None
ENHANCED	Seed treatment with tolclofos methyl at 0.24 kg and imazalil at 0.010 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. Permethrin at 0.10 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 LATER plots only) 13 Aug.

3. HAULM D Dates of destroying haulm and of lifting:

EARLY	Haulm mechanically destroyed, 3 Aug, 1984. Haulm desiccant applied 6 Aug and potatoes lifted 6 Sept.
LATER	Haulm mechanically destroyed 8 Sept. Haulm desiccant applied 22 Sept and potatoes lifted 11 Oct.

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Basal applications: Manures: (0:18:36) at 690 kg. (10:10:15+4.5 Mg) at 1960 kg. Weedkillers: Paraquat at 0.80 kg ion in 250 l on two occasions, with the linuron on the second. Linuron at 1.3 kg. Fungicide: Fentin hydroxide at 0.28 kg in 200 l on six occasions (on the fifth and sixth to HAULM D LATER only) applied with the pirimicarb on all but the fifth occasion. Insecticides: Pirimicarb at 0.14 kg on five occasions (on the fifth to HAULM D LATER only). Phorate at 1.7 kg. Haulm desiccant: BOV at 170 l.

Cultivations, etc:- Discd: 2 Sept, 1983. PK applied: 5 Sept. Paraquat applied: 23 Sept. Ploughed: 22 Dec. NPK Mg applied: 3 Apr, 1984. Rotary harrowed, potatoes planted, phorate applied: 10 Apr. Linuron with paraquat applied: 3 May. Fentin hydroxide with pirimicarb applied to all plots: 19 June, 3 July, 17 July, 30 July. Fentin hydroxide applied to HAULM D LATER plots: 13 Aug. Fentin hydroxide with pirimicarb applied to HAULM D LATER plots: 28 Aug. Previous crops: S. barley 1982 and 1983.

NOTE: Aphids were counted throughout the season. Virus and blackleg counts were made in mid-June and mid-July.

TOTAL TUBERS TONNES/HECTARE

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

PATHCONT VARIETY	STANDARD	ENHANCED	FULL	MEAN
K EDWARD	33.8	33.7	25.3	30.9
M PIPER	32.3	31.4	23.8	29.2
MEAN	33.0	32.5	24.6	30.0
HAULM D VARIETY	EARLY	LATER	MEAN	
K EDWARD	24.0	37.8	30.9	
M PIPER	22.2	36.2	29.2	
MEAN	23.1	37.0	30.0	
HAULM D PATHCONT	EARLY	LATER	MEAN	
STANDARD	25.5	40.6	33.0	
ENHANCED	25.1	39.9	32.5	
FULL	18.7	30.4	24.6	
MEAN	23.1	37.0	30.0	

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TOTAL TUBERS TONNES/HECTARE

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

PATHCONT HAULM D VARIETY	STANDARD EARLY	LATER	ENHANCED EARLY	LATER	FULL EARLY	LATER
K EDWARD	26.3	41.3	26.5	40.8	19.3	31.2
M PIPER	24.7	39.9	23.8	39.1	18.0	29.6

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

TABLE	PATHCONT	HAULM D	VARIETY* PATHCONT
SED	1.51	1.23	2.14

TABLE	VARIETY* HAULM D	PATHCONT HAULM D	VARIETY* PATHCONT HAULM D
SED	1.75	2.14	3.02

* WITHIN THE SAME LEVEL OF VARIETY ONLY

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	10	3.02	10.1

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PERCENTAGE WARE 4.44CM (1.75 INCH) RIDDLE

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

PATHCONT VARIETY	STANDARD	ENHANCED	FULL	MEAN
K EDWARD	65.8	59.6	57.0	60.8
M PIPER	51.8	48.5	35.9	45.4
MEAN	58.8	54.1	46.4	53.1

HAULM D VARIETY	EARLY	LATER	MEAN
K EDWARD	52.1	69.5	60.8
M PIPER	34.4	56.5	45.4
MEAN	43.2	63.0	53.1

HAULM D PATHCONT	EARLY	LATER	MEAN
STANDARD	49.0	68.6	58.8
ENHANCED	41.3	66.8	54.1
FULL	39.4	53.5	46.4
MEAN	43.2	63.0	53.1

PATHCONT HAULM D VARIETY	STANDARD EARLY	LATER	ENHANCED EARLY	LATER	FULL EARLY	LATER
K EDWARD	57.5	74.1	51.4	67.8	47.4	66.5
M PIPER	40.5	63.1	31.3	65.8	31.4	40.5

SUB PLOT AREA HARVESTED 0.00457