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80/R/P/4 Potatoes Effects of Spacing and Lodging

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80/R/P/4

POTATOES

EFFECTS OF SPACING AND LODGING

Object: To study the effects of spacing and artificial lodging on radiation interception, crop growth-rates and yield - Sawyers II.

Sponsor: D.W. Wood.

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

Whole plot dimensions: 4.27 x 15.2.

Treatments: All combinations of:-

Whole plots

1. SEEDSIZE Size range of seed tubers:

SMALL	20 to 40 g
LARGE	70 to 90 g

Sub plots

2. SPACING Spacing within ridges 71 cm apart:

25 CM
50 CM

3. LODGING Artificial lodging:

NONE	None
EARLY	Early 9 July
LATE	Later 19 Aug

Basal applications: Manures: Chalk at 7.5 t. (0:20:20) at 1260 kg. Epsom salts at 145 kg mixed with kieserite at 145 kg. FYM at 25 t. (13:13:20) at 1510 kg. Weedkiller: Linuron at 1.2 kg in 250 l. Fungicides: Mancozeb at 1.3 kg in 250 l applied six times, with insecticide on the third and fourth occasions. Insecticide: Pirimicarb at 0.14 kg.

Seed: Pentland Crown.

Cultivations, etc.:- Heavy spring-tine cultivated: 17 Sept, 1979. Chalk applied: 9 Oct. Subsoiled with tines 160 cm apart and 40 cm deep: 1 Nov. PK applied: 13 Nov. FYM applied: 21 Dec. Epsom salts and kieserite applied: 31 Dec. Ploughed: 8 Jan, 1980. Heavy spring-tine cultivated: 14 Apr. NPK applied, spike rotary cultivated, ridged: 15 Apr. Hand planted, ridges split back: 16 Apr. Grubbed: 24 Apr. Rotary ridged: 28 Apr. Weedkiller applied: 18 May. Fungicide applied: 18 June, 30 June, 11 July, 24 July, 5 Aug, 18 Aug. Insecticide applied: 11 July, 24 July. Harvested by hand: 10 Oct. Previous crops: W. oats 1978, w. wheat 1979.

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NOTE: Seed sprout characteristics were assessed at planting. Emergence counts were made daily in late May. Full growth analyses were done at intervals of 21 days between early July and late September. Radiation interception was measured at intervals of 10 days between early June and late September.

TOTAL TUBERS TONNES/HECTARE

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

SPACING	25 CM	50 CM	MEAN			
SEEDSIZE						
SMALL	79.6	75.8	77.7			
LARGE	80.6	76.5	78.6			
MEAN	80.1	76.1	78.1			
LODGING	NONE	EARLY	LATE	MEAN		
SEEDSIZE						
SMALL	78.1	76.3	78.7	77.7		
LARGE	80.2	77.9	77.6	78.6		
MEAN	79.2	77.1	78.1	78.1		
LODGING	NONE	EARLY	LATE	MEAN		
SPACING						
25 CM	82.6	78.2	79.5	80.1		
50 CM	75.7	76.0	76.7	76.1		
MEAN	79.2	77.1	78.1	78.1		
SPACING	25 CM	50 CM	MEAN			
LODGING	NONE	EARLY	LATE	NONE	EARLY	LATE
SEEDSIZE						
SMALL	80.9	77.1	80.9	75.3	75.5	76.5
LARGE	84.3	79.4	78.2	76.2	76.4	77.0

80/R/P/4

TOTAL TUBERS TONNES/HECTARE

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

TABLE	SPACING	LODGING	SEEDSIZE* SPACING
SED	1.61	1.97	2.28

TABLE	SEEDSIZE* LODGING	SPACING LODGING	SEEDSIZE* SPACING LODGING
SED	2.79	2.79	3.95

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:

* WITHIN THE SAME LEVEL OF SEEDSIZE ONLY

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	10	3.95	5.1

PERCENTAGE WARE 4.44CM (1.75 INCH) RIDDLE

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

SPACING	25 CM	50 CM	MEAN			
SEEDSIZE						
SMALL	87.5	92.2	89.9			
LARGE	87.1	91.5	89.3			
MEAN	87.3	91.9	89.6			
LODGING	NONE	EARLY	LATE	MEAN		
SEEDSIZE						
SMALL	90.2	88.4	91.0	89.9		
LARGE	90.8	89.6	87.6	89.3		
MEAN	90.5	89.0	89.3	89.6		
LODGING	NONE	EARLY	LATE	MEAN		
SPACING						
25 CM	89.7	87.7	84.6	87.3		
50 CM	91.3	90.3	94.0	91.9		
MEAN	90.5	89.0	89.3	89.6		
SPACING	25 CM			50 CM		
LODGING	NONE	EARLY	LATE	NONE	EARLY	LATE
SEEDSIZE						
SMALL	90.1	85.3	87.1	90.4	91.5	94.9
LARGE	89.3	90.1	82.1	92.3	89.1	93.1

SUB PLOT AREA HARVESTED 0.00116