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79/R/P/6 Effects of Spacing and Lodging - Potatoes

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79/R/P/6

POTATOES

EFFECTS OF SPACING AND LODGING

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

Sponsor: D.W. Wood.

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

Whole plot dimensions: 4.27 x 12.8.

Treatments: All combinations of:-

Whole plots

1. SEEDSIZE Size range of seed tubers:

SMALL	40 to 60 g
LARGE	80 to 100 g

Sub plots

2. SPACING Spacing within ridges 71 cm apart:

25 CM
50 CM

3. LODGING Artificial lodging:

NONE	None
EARLY	Early 21 July
LATE	Later 29 Aug

Basal applications: Manures: (13:13:20) at 1500 kg. Weedkillers: Linuron at 1.1 kg with paraquat at 0.42 kg ion in 220 l. Fungicide: Mancozeb at 1.3 kg in 220 l applied six times, with insecticide on the first two occasions. Insecticide: Pirimicarb at 0.14 kg applied twice. Irrigation: 82 mm.

Seed: Pentland Crown.

Cultivations, etc.: - Subsoiled, tines 45 cm deep and 100 cm apart: 4 Nov, 1978. Ploughed: 7 Nov. Heavy spring-tine cultivated: 27 Apr, 1979. NPK applied: 8 May. Spike rotary cultivated twice, ridged, hand planted and split back: 9 May. Grubbed: 18 May. Weedkillers applied: 1 June. Grubbed: 19 June. Rotoridged: 21 June. Insecticide and fungicide applied twice: 26 June and 5 July. Irrigation at 25 mm applied twice: 14 July and 19 July. Fungicide applied four times: 20 July, 3 Aug, 15 Aug and 4 Sept. Irrigation applied at 32 mm: 27 July. Lifted: 18 Oct. Previous cropping: Barley 1977 and 1978.

NOTE: Seed sprout characteristics were assessed at planting. Emergence counts were made daily in early June. Full growth analyses were done at 21-day intervals between early July and mid October. Radiation interception was measured at 14-day intervals between mid July and early October.

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TOTAL TUBERS TONNES/HECTARE

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

SPACING	25 CM	50 CM	MEAN			
SEEDSIZE						
SMALL	48.0	46.2	47.1			
LARGE	46.9	45.2	46.1			
MEAN	47.5	45.7	46.6			
LODGING	NONE	EARLY	LATE	MEAN		
SEEDSIZE						
SMALL	48.2	46.2	46.9	47.1		
LARGE	47.2	44.7	46.3	46.1		
MEAN	47.7	45.5	46.6	46.6		
LODGING	NONE	EARLY	LATE	MEAN		
SPACING						
25 CM	49.8	45.6	47.0	47.5		
50 CM	45.6	45.3	46.2	45.7		
MEAN	47.7	45.5	46.6	46.6		
SPACING	25 CM			50 CM		
LODGING	NONE	EARLY	LATE	NONE	EARLY	LATE
SEEDSIZE						
SMALL	49.9	45.9	48.1	46.5	46.5	45.7
LARGE	49.7	45.3	45.8	44.7	44.2	46.8

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

TABLE	SPACING	LODGING	SEEDSIZE* SPACING
SED	1.02	1.25	1.45
TABLE	SEEDSIZE* LODGING	SPACING LODGING	SEEDSIZE* SPACING LODGING
SED	1.77	1.77	2.51

* USE ONLY WITHIN THE SAME LEVEL OF SEEDSIZE

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	10	2.51	5.4

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PERCENTAGE WARE 3.81 CM (1.5 INCH) RIDDLE

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

SPACING	25 CM	50 CM	MEAN
SEEDSIZE			
SMALL	85.8	91.7	88.7
LARGE	76.6	89.2	82.9
MEAN	81.2	90.4	85.8

LODGING	NONE	EARLY	LATE	MEAN
SEEDSIZE				
SMALL	90.0	85.3	90.8	88.7
LARGE	83.0	83.0	82.7	82.9
MEAN	86.5	84.2	86.8	85.8

LODGING	NONE	EARLY	LATE	MEAN
SPACING				
25 CM	82.1	77.5	84.0	81.2
50 CM	90.9	90.8	89.6	90.4
MEAN	86.5	84.2	86.8	85.8

SPACING	25 CM			50 CM		
LODGING	NONE	EARLY	LATE	NONE	EARLY	LATE
SEEDSIZE						
SMALL	88.3	77.7	91.4	91.8	93.0	90.2
LARGE	75.9	77.4	76.6	90.0	88.6	88.9

SUB PLOT AREA HARVESTED 0.00130