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90/W/P/3 Resistant Varieties and Pcn Control - Potatoes

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90/W/P/3

POTATOES

RESISTANT VARIETIES AND PCN CONTROL

Object: To assess yields of, and control of a mixed population of *Globodera rostochiensis* and *G. pallida* by, six varieties of potato differing in their susceptibilities to the potato cyst nematodes (PCN) - Woburn, Lansome/Mill Dam Close III.

Sponsors: A.G. Whitehead, A.J.F. Nichols.

Design: 2 randomised blocks of 2 plots split into 12 sub plots.

Whole plot dimensions: 6.0 x 27.4.

Treatments: All combinations of:-

Whole plots

1. IRRIGATION	Irrigation:
NONE	None
FULL	Full, to reduce a soil moisture deficit of 37 mm to 25 mm

Sub plots

2. VARIETY	Varieties:
DESIREE	
MORAG	
NADINE	
ROCKET	
SANTE	
STROMA	

3. NEMACIDE	Nematicide:
NONE	None
OXAMYL	Oxamyl at 5.6 kg applied to the seedbed

NOTE: Irrigation was applied on 20 occasions; at 25 mm on the second occasion, at 12 mm on the rest.

Basal applications: Manures: (13:13:20) at 1.6 t. Weedkillers: Glyphosate at 1.4 kg in 220 l. Linuron at 1.6 kg in 220 l. Fungicides: Mancozeb at 1.0 kg on the first two occasions and at 1.4 kg on the third applied with a wetting agent, 'Bond' at 200 ml, in 220 l. Fentin hydroxide at 0.27 kg in 220 l, applied on three occasions.

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Cultivations, etc.:- Glyphosate applied: 1 Sept, 1989. Ploughed: 13 Nov. NPK applied: 20 Apr, 1990. Spring-tine cultivated: 23 Apr. Nematicide treatment applied, rotary cultivated and potatoes planted: 24 Apr. Rotary ridged: 26 Apr. Linuron applied: 3 May. Irrigation treatment applied: 15, 18, 22, 31 May, 5, 8, 13, 15, 19, 26, 29 June, 2, 11, 16, 20, 23, 26 July, 3, 6 and 10 Aug. Mancozeb and wetting agent applied: 26 June, 11 and 24 July. Fentin hydroxide applied: 7, 21 Aug and 10 Sept. Haulm mechanically destroyed: 14 Sept. Potatoes lifted: 19 Sept. Previous crops: Potatoes 1988 and 1989.

NOTE: Populations of *G. pallida* eggs in soil were assessed before planting and after harvest.

TOTAL TUBERS TONNES/HECTARE

***** Tables of means *****

IRRIGATN VARIETY	NONE	FULL	Mean
DESIREE	14.7	25.2	19.9
MORAG	13.9	40.7	27.3
NADINE	10.4	33.2	21.8
ROCKET	13.3	35.8	24.5
SANTE	11.0	24.9	17.9
STROMA	15.5	31.3	23.4
Mean	13.1	31.8	22.5

NEMACIDE VARIETY	NONE	OXAMYL	Mean
DESIREE	18.9	21.0	19.9
MORAG	20.3	34.3	27.3
NADINE	14.7	29.0	21.8
ROCKET	23.4	25.7	24.5
SANTE	14.9	21.0	17.9
STROMA	22.6	24.2	23.4
Mean	19.1	25.8	22.5

NEMACIDE IRRIGATN	NONE	OXAMYL	Mean
NONE	11.5	14.7	13.1
FULL	26.7	37.0	31.8
Mean	19.1	25.8	22.5

90/W/P/3

TOTAL TUBERS TONNES/HECTARE

***** Tables of means *****

VARIETY	NEMACIDE IRRIGATN	NONE	OXAMYL
DESIREE	NONE	12.8	16.5
	FULL	24.9	25.4
MORAG	NONE	12.9	14.8
	FULL	27.6	53.7
NADINE	NONE	9.2	11.6
	FULL	20.1	46.3
ROCKET	NONE	11.4	15.2
	FULL	35.3	36.2
SANTE	NONE	10.1	11.9
	FULL	19.7	30.1
STROMA	NONE	12.8	18.2
	FULL	32.4	30.2

*** Standard errors of differences of means ***

VARIETY	NEMACIDE	IRRIGATN* VARIETY
3.74	2.16	5.29
IRRIGATN* NEMACIDE	VARIETY NEMACIDE	IRRIGATN* VARIETY NEMACIDE
3.05	5.29	7.48

* Within the same level of IRRIGATN only

***** Stratum standard errors and coefficients of variation *****

Stratum	d.f.	s.e.	cv%
BLOCK.WP.SP	22	7.48	33.3

90/W/P/3

PERCENTAGE WARE 4.4CM (1.75 INCH) RIDDLE

***** Tables of means *****

IRRIGATN VARIETY	NONE	FULL	Mean
DESIREE	67.2	80.0	73.6
MORAG	70.6	83.1	76.8
NADINE	71.1	75.2	73.2
ROCKET	76.6	86.7	81.6
SANTE	71.8	78.1	75.0
STROMA	74.1	81.4	77.7
Mean	71.9	80.7	76.3

NEMACIDE VARIETY	NONE	OXAMYL	Mean
DESIREE	74.2	72.9	73.6
MORAG	72.3	81.3	76.8
NADINE	68.9	77.4	73.2
ROCKET	79.4	83.9	81.6
SANTE	73.1	76.8	75.0
STROMA	75.6	79.8	77.7
Mean	73.9	78.7	76.3

NEMACIDE IRRIGATN	NONE	OXAMYL	Mean
NONE	69.1	74.7	71.9
FULL	78.7	82.8	80.7
Mean	73.9	78.7	76.3

VARIETY	NEMACIDE IRRIGATN	NONE	OXAMYL
DESIREE	NONE	65.7	68.7
	FULL	82.8	77.2
MORAG	NONE	67.6	73.5
	FULL	77.1	89.1
NADINE	NONE	69.6	72.6
	FULL	68.2	82.3
ROCKET	NONE	71.9	81.2
	FULL	86.8	86.6
SANTE	NONE	72.3	71.4
	FULL	73.9	82.3
STROMA	NONE	67.6	80.5
	FULL	83.6	79.2

PLOT AREA HARVESTED 0.00057