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84/W/CS/284 Varieties and Pcn Tolerance - Potatoes

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84/W/CS/284

VARIETIES & PCN TOLERANCE

Object: To study the effects of a range of populations of potato cyst nematode (PCN) on varieties differing in susceptibility - Woburn Horsepool.

Sponsors: A.G. Whitehead, K. Evans.

The third year, potatoes.

For previous years see 82-83/W/CS/284.

Design: 2 randomised blocks of 32 plots.

Whole plot dimensions: 2.84 x 6.10.

Treatments: All combinations of:-

1. VARIETY(82) Potato varieties in 1982 (to establish different populations of PCN):

CARA	Cara
CROWN	Pentland Crown
CA CR	Cara plants alternating with Pentland Crown plants within the ridges
CA CA CR	Two Cara plants alternating with one Pentland Crown plant within the ridges

2. VARIETY(84) Potato varieties in 1984 (all fallow in 1983):

CROWN	Pentland Crown
DELL	Pentland Dell
DESIREE	Desiree
PIPER	Maris Piper

3. NEMACIDE(84) Nematicides applied to seedbed in 1984:

NONE	None
OXAMYL	Oxamyl at 5.6 kg

Basal applications: Manures: (10:10:15+4.5 Mg) at 2400 kg.
Weedkillers: Linuron at 1.2 l with paraquat at 0.2 kg ion in 250 l.
Fungicides: Fentin acetate with maneb (as 'Brestan 60' at 0.5 kg) in 250 l with the insecticide. Fentin hydroxide at 0.28 kg in 250 l on five occasions, with the insecticide on the second occasion.
Insecticide: Pirimicarb at 0.14 kg. Haulm desiccant: Diquat at 0.8 kg ion in 250 l.

Cultivations, etc.:-

Ploughed: 17 Nov, 1983. NPK with Mg applied: 2 Apr, 1984. Heavy spring-tine cultivated: 5 Apr. Nematicides applied, rotary cultivated, potatoes planted: 9-10 Apr. Weedkillers applied: 4 May. 'Brestan 60' with insecticide applied: 19 June. Fentin hydroxide applied: 3 July, 1 Aug, 28 Aug, 12 Sept. Fentin hydroxide with insecticide applied: 18 July. Haulm desiccant applied: 27 Sept. Haulm mechanically destroyed: 28 Sept. Lifted: 4-5 Oct.

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NOTE: Soil samples were taken before planting and after harvest to assess numbers of cysts, eggs and larvae of *Globodera rostochiensis*.

TOTAL TUBERS TONNES/HECTARE

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

VARIETY(84)	CROWN	DELL	DESIREE	PIPER	MEAN
VARIETY(82)					
CARA	43.3	25.6	28.3	35.7	33.2
CROWN	33.7	19.4	20.1	31.9	26.3
CA CR	36.9	17.7	21.4	33.2	27.3
CA CA CR	37.1	18.9	25.9	35.0	29.3
MEAN	37.7	20.4	23.9	34.0	29.0
NEMACIDE(84)	NONE	OXAMYL	MEAN		
VARIETY(82)					
CARA	26.0	40.5	33.2		
CROWN	16.3	36.3	26.3		
CA CR	17.4	37.2	27.3		
CA CA CR	22.0	36.5	29.3		
MEAN	20.4	37.6	29.0		
NEMACIDE(84)	NONE	OXAMYL	MEAN		
VARIETY(84)					
CROWN	24.6	50.9	37.7		
DELL	10.3	30.5	20.4		
DESIREE	15.2	32.6	23.9		
PIPER	31.6	36.3	34.0		
MEAN	20.4	37.6	29.0		
VARIETY(82)	NEMACIDE(84)	NONE	OXAMYL		
CARA	VARIETY(84)				
	CROWN	31.5	55.0		
	DELL	17.6	33.5		
	DESIREE	21.4	35.2		
	PIPER	33.3	38.1		
CROWN	CROWN	17.7	49.6		
	DELL	5.6	33.2		
	DESIREE	11.1	29.1		
	PIPER	30.7	33.1		
CA CR	CROWN	20.7	53.1		
	DELL	9.8	25.6		
	DESIREE	11.5	31.4		
	PIPER	27.8	38.6		
CA CA CR	CROWN	28.4	45.8		
	DELL	8.2	29.7		
	DESIREE	16.9	34.9		
	PIPER	34.7	35.4		

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TOTAL TUBERS TONNES/HECTARE

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

TABLE	VARIETY(82)	VARIETY(84)	NEMACIDE(84)	VARIETY(82) VARIETY(84)
SED	1.54	1.54	1.09	3.07

TABLE	VARIETY(82) NEMACIDE(84)	VARIETY(84) NEMACIDE(84)	VARIETY(82) VARIETY(84) NEMACIDE(84)
SED	2.17	2.17	4.35

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

STRATUM	DF	SE	CV%
BLOCK.WP	31	4.35	15.0

PERCENTAGE WARE 3.81 CM (1.5 INCH) RIDDLE

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

VARIETY(84) VARIETY(82)	CROWN	DELL	DESIREE	PIPER	MEAN
CARA	94.2	82.5	86.8	84.1	86.9
CROWN	95.5	75.7	86.1	92.4	87.4
CA CR	94.4	85.6	83.3	89.7	88.2
CA CA CR	95.1	73.2	88.8	87.9	86.2
MEAN	94.8	79.2	86.3	88.5	87.2
NEMACIDE(84) VARIETY(82)	NONE	OXAMYL	MEAN		
CARA	83.8	90.0	86.9		
CROWN	81.8	93.0	87.4		
CA CR	85.1	91.4	88.2		
CA CA CR	82.6	89.9	86.2		
MEAN	83.3	91.1	87.2		
NEMACIDE(84) VARIETY(84)	NONE	OXAMYL	MEAN		
CROWN	93.4	96.2	94.8		
DELL	67.1	91.4	79.2		
DESIREE	81.3	91.3	86.3		
PIPER	91.6	85.5	88.5		
MEAN	83.3	91.1	87.2		

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PERCENTAGE WARE 3.81 CM (1.5 INCH) RIDDLE

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

VARIETY(82)	NEMACIDE(84) VARIETY(84)	NONE	OXAMYL
CARA	CROWN	92.3	96.1
	DELL	73.0	92.0
	DESIREE	83.0	90.6
	PIPER	87.1	81.1
CROWN	CROWN	94.5	96.5
	DELL	58.1	93.3
	DESIREE	81.5	90.7
	PIPER	93.3	91.5
CA CR	CROWN	92.1	96.7
	DELL	81.6	89.6
	DESIREE	72.5	94.2
	PIPER	94.1	85.3
CA CA CR	CROWN	94.8	95.4
	DELL	55.6	90.8
	DESIREE	87.9	89.6
	PIPER	91.9	83.9

PLOT AREA HARVESTED 0.00087