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# Yields of the Field Experiments 1987

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## 87/W/CS/316 Varieties and Pcn Tolerance - Potatoes

### Rothamsted Research

Rothamsted Research (1988) *87/W/CS/316 Varieties and Pcn Tolerance - Potatoes* ; Yields Of The Field Experiments 1987, pp 128 - 131 - DOI: <https://doi.org/10.23637/ERADOC-1-37>

87/W/CS/316

VARIETIES AND PCN TOLERANCE

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

Sponsor: A.G. Whitehead.

The third year, potatoes.

For previous years see 85-86/W/CS/316.

Design: 3 randomised blocks of 32 plots.

Whole plot dimensions: 2.84 x 6.10.

Treatments: All combinations of:-

1. VARIETY[85] Potato varieties in 1985 (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[87] Potato varieties in 1987 (all fallow in 1986):

CROWN	Pentland Crown
DELL	Pentland Dell
DESIREE	Desiree
PIPER	Maris Piper
  
3. NEMACIDE[87] Nematicide applied to seedbed in 1987:

NONE	None
OXAMYL	Oxamyl at 5 kg

Basal applications: Manures: (10:10:15+4.5 Mg) at 2500 kg. Weedkiller: Linuron at 1.6 kg in 200 l. Fungicides: Mancozeb at 1.4 kg on four occasions in 200 l, with the insecticide on the second. Fentin hydroxide at 0.28 kg in 200 l on two occasions. Insecticide: Pirimicarb at 0.14 kg. Desiccant: Diquat at 0.80 kg ion in 200 l.

Cultivations, etc.:- Deep-tine cultivated: 16 Feb, 1987. NPK Mg applied: 16 Apr. Oxamyl applied, rotary cultivated, potatoes planted: 23 Apr. Rotary ridged: 15 May. Weedkiller applied: 25 May. Mancozeb applied: 24 June, 26 July, 5 Aug. Mancozeb and pirimicarb applied: 8 July. Fentin hydroxide applied: 18 Aug, 4 Sept. Desiccant applied: 18 Sept. Haulm mechanically destroyed: 30 Sept. Lifted: 19 Oct.

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- NOTES: (1) Soil samples were taken before nematicide was applied and after harvest for cyst and egg counts of *Globodera pallida*.  
 (2) The weight of one plot was not recorded, with treatment combination CA CR, DESIREE and NONE. An estimated value was used in the analysis.

TOTAL TUBERS TONNES/HECTARE

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

VARIETY[87]	CROWN	DELL	DESIREE	PIPER	Mean
VARIETY[85]					
CARA	61.8	48.6	53.8	63.9	57.0
CROWN	39.1	27.6	31.9	47.5	36.5
CA CR	54.7	38.2	44.6	54.4	48.0
CA CA CR	57.3	39.2	43.2	54.8	48.6
Mean	53.3	38.4	43.4	55.1	47.5
NEMACIDE[87]	NONE	OXAMYL	Mean		
VARIETY[85]					
CARA	54.4	59.7	57.0		
CROWN	20.8	52.2	36.5		
CA CR	37.5	58.4	48.0		
CA CA CR	39.2	58.1	48.6		
Mean	38.0	57.1	47.5		
NEMACIDE[87]	NONE	OXAMYL	Mean		
VARIETY[87]					
CROWN	44.4	62.1	53.3		
DELL	25.8	51.0	38.4		
DESIREE	33.9	52.9	43.4		
PIPER	47.9	62.4	55.1		
Mean	38.0	57.1	47.5		
VARIETY[85]	NEMACIDE[87]	NONE	OXAMYL		
CARA	VARIETY[87]				
	CROWN	57.5	66.1		
	DELL	44.4	52.7		
	DESIREE	52.6	55.1		
	PIPER	63.0	64.7		
CROWN	CROWN	22.7	55.5		
	DELL	9.9	45.3		
	DESIREE	17.3	46.6		
	PIPER	33.5	61.4		
CA CR	CROWN	47.3	62.2		
	DELL	21.7	54.7		
	DESIREE	32.3	56.9		
	PIPER	48.9	59.8		
CA CA CR	CROWN	50.0	64.7		
	DELL	27.3	51.1		
	DESIREE	33.5	52.9		
	PIPER	46.0	63.7		

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

Table	VARIETY[85]	VARIETY[87]	NEMACIDE[87]	VARIETY[85] VARIETY[87]
s.e.d.	1.58	1.58	1.12	3.15

Table	VARIETY[85] NEMACIDE[87]	VARIETY[87] NEMACIDE[87]	VARIETY[85] VARIETY[87] NEMACIDE[87]
s.e.d.	2.23	2.23	4.46

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	61	5.46	11.5

PERCENTAGE WARE 4.44CM (1.75 INCH) RIDDLE

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

VARIETY[87] VARIETY[85]	CROWN	DELL	DESIREE	PIPER	Mean
CARA	92.8	87.0	91.1	87.1	89.5
CROWN	86.1	72.2	80.0	88.1	81.6
CA CR	92.4	71.7	90.2	89.4	85.9
CA CA CR	93.2	81.2	90.1	87.5	88.0
Mean	91.1	78.0	87.9	88.0	86.3
NEMACIDE[87] VARIETY[85]	NONE	OXAMYL	Mean		
CARA	89.5	89.5	89.5		
CROWN	71.3	92.0	81.6		
CA CR	80.9	90.9	85.9		
CA CA CR	85.1	91.0	88.0		
Mean	81.7	90.8	86.3		
NEMACIDE[87] VARIETY[87]	NONE	OXAMYL	Mean		
CROWN	87.9	94.4	91.1		
DELL	66.3	89.7	78.0		
DESIREE	83.1	92.6	87.9		
PIPER	89.4	86.7	88.0		
Mean	81.7	90.8	86.3		

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PERCENTAGE WARE 4.44CM (1.75 INCH) RIDDLE

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

	NEMACIDE[87]	NONE	OXAMYL
VARIETY[85]	VARIETY[87]		
CARA	CROWN	92.5	93.0
	DELL	84.5	89.6
	DESIREE	91.7	90.4
	PIPER	89.2	85.0
CROWN	CROWN	77.2	95.0
	DELL	54.3	90.2
	DESIREE	66.5	93.6
	PIPER	87.2	89.1
CA CR	CROWN	90.0	94.9
	DELL	54.6	88.8
	DESIREE	87.7	92.8
	PIPER	91.6	87.2
CA CA CR	CROWN	92.0	94.5
	DELL	71.9	90.4
	DESIREE	86.6	93.7
	PIPER	89.7	85.4

PLOT AREA HARVESTED 0.00087