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# Yields of the Field Experiments 1987

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## 87/W/CS/328 Deep-worked Soil and Pcn - Potatoes

### Rothamsted Research

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87/W/CS/328

DEEP-WORKED SOIL AND PCN

Object: To study the effects of deep working of soil, on a site infested with potato cyst-nematode (PCN), on varieties resistant or susceptible to PCN, with and without a nematicide - Stackyard A II.

Sponsor: A.G. Whitehead.

The first year, potatoes.

Design: 3 randomised blocks of 8 plots.

Whole plot dimensions: 3.0 x 8.0.

Treatments: All combinations of:-

- |             |   |
|-------------|---|
| 1. SOIL TRT | Soil treatment:   |
| NONE        | None  |
| SUBSOIL     | Subsoiled, with 25 cm wide wings on tines 38 cm deep and 66 cm apart, on 23 Apr, 1987 |
| 2. NEMACIDE | Nematicides:  |
| NONE        | None  |
| OXAMYL      | Oxamyl at 5.5 kg worked into seedbed on 27 Apr  |
| 3. VARIETY  | Varieties:  |
| CARA        | Cara  |
| DESIREE     | Desiree   |

NOTE: The experiment was sited on Series III of W/CS/35 (see 86/W/CS/35). Series II was planted to uniform Desiree potatoes for fresh tests of the above treatments in 1988.

Basal applications: Series II and III: Manures: (10:10:15+4.5Mg) at 2290 kg. Weedkillers: Sodium trichloroacetate at 38 kg in 240 l. EPTC at 4.5 kg in 240 l. Linuron at 1.6 kg in 200 l. Fungicides: Mancozeb at 1.4 kg on four occasions in 200 l, applied with the pirimicarb on the second. Fentin hydroxide at 0.28 kg on two occasions in 200 l. Desiccant: Diquat at 0.80 kg ion in 200 l.

Cultivations, etc.:- Series II and III: Sodium trichloroacetate applied, spring-tine cultivated twice: 13 Nov, 1986. Spring-tine cultivated: 18 Feb, 1987. NPK Mg applied: 21 Apr. EPTC applied, rotary cultivated, potatoes planted: 29 Apr. Rotary ridged: 15 May. Linuron applied: 22 May. Mancozeb applied: 22 June, 26 July and 5 Aug. Mancozeb and pirimicarb applied: 8 July. Fentin hydroxide applied: 18 Aug and 4 Sept. Desiccant applied: 18 Sept. Haulm mechanically destroyed: 1 Oct. Lifted: 14 Oct.

NOTE: Soil samples were taken before nematicides were applied and after harvest for cyst and egg counts of *Globodera pallida*.

87/W/CS/328

TOTAL TUBERS TONNES/HECTARE

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

NEMACIDE	NONE	OXAMYL	Mean
SOIL TRT			
NONE	15.7	27.7	21.7
SUBSOIL	16.8	38.8	27.8
Mean	16.2	33.2	24.7

VARIETY	CARA	DESIREE	Mean
SOIL TRT			
NONE	28.1	15.3	21.7
SUBSOIL	35.7	19.8	27.8
Mean	31.9	17.6	24.7

VARIETY	CARA	DESIREE	Mean
NEMACIDE			
NONE	27.5	5.0	16.2
OXAMYL	36.3	30.2	33.2
Mean	31.9	17.6	24.7

SOIL TRT	VARIETY	CARA	DESIREE
NONE	NEMACIDE		
	NONE	25.8	5.6
	OXAMYL	30.4	25.0
SUBSOIL	NONE	29.2	4.3
	OXAMYL	42.2	35.4

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

Table	SOIL TRT	NEMACIDE	VARIETY	SOIL TRT NEMACIDE
s.e.d.	1.63	1.63	1.63	2.30

Table	SOIL TRT VARIETY	NEMACIDE VARIETY	SOIL TRT NEMACIDE VARIETY
s.e.d.	2.30	2.30	3.25

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	14	3.98	16.1

87/W/CS/328

PERCENTAGE WARE 4CM (1.57 INCH) RIDDLE

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

NEMACIDE	NONE	OXAMYL	Mean
SOIL TRT			
NONE	67.4	76.4	71.9
SUBSOIL	72.8	85.3	79.0
Mean	70.1	80.8	75.5

VARIETY	CARA	DESIREE	Mean
SOIL TRT			
NONE	83.3	60.5	71.9
SUBSOIL	88.9	69.2	79.0
Mean	86.1	64.8	75.5

VARIETY	CARA	DESIREE	Mean
NEMACIDE			
NONE	89.1	51.1	70.1
OXAMYL	83.1	78.6	80.8
Mean	86.1	64.8	75.5

	VARIETY	CARA	DESIREE
SOIL TRT	NEMACIDE		
NONE	NONE	88.0	46.8
	OXAMYL	78.7	74.1
SUBSOIL	NONE	90.3	55.4
	OXAMYL	87.5	83.0

PLOT AREA HARVESTED 0.00120