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## Yields of the Field Experiments 1988

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

#### Rothamsted Research

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88/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 second year, potatoes.

For previous year see 87/W/CS/328.

**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, applied twice with tines on the second pass between those of the first pass, on 14 Apr, 1988
  
2. **NEMACIDE**        Nematicides:  
  
    NONE                None  
    OXAMYL            Oxamyl at 5.6 kg worked into seedbed on 14 Apr
  
3. **VARIETY**           Varieties:  
  
    CARA                Cara  
    DESIREE            Desiree

**Basal applications:** Manures: (10:10:15+4.5 Mg) at 2400 kg. Weedkiller: Metribuzin at 0.70 kg in 220 l. Fungicides: Mancozeb at 1.4 kg on five occasions in 220 l, applied with the pirimicarb on the first, second and fifth occasions. Fentin hydroxide at 0.28 kg in 220 l. Insecticide: Pirimicarb at 0.14 kg. Desiccant: Diquat at 0.80 kg ion in 400 l.

**Cultivations, etc.:-** Ploughed: 22 Feb, 1988. Heavy spring-tine cultivated: 5 Apr. NPK Mg applied: 7 Apr. Rotary cultivated, potatoes planted: 14 Apr. Rotary ridged, weedkiller applied: 13 May. Mancozeb applied: 15 July, 1 Aug. Mancozeb with pirimicarb applied: 14 June, 5 July, 15 Aug. Fentin hydroxide applied: 30 Aug. Desiccant applied: 6 Sept. Haulm mechanically destroyed: 16 Sept. Potatoes lifted: 12 Oct.

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

88/W/CS/328

TOTAL TUBERS TONNES/HECTARE

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

NEMACIDE	NONE	OXAMYL	Mean
SOIL TRT			
NONE	24.8	36.3	30.6
SUBSOIL	21.0	39.6	30.3
Mean	22.9	38.0	30.4

VARIETY	CARA	DESIREE	Mean
SOIL TRT			
NONE	37.6	23.6	30.6
SUBSOIL	36.2	24.3	30.3
Mean	36.9	23.9	30.4

VARIETY	CARA	DESIREE	Mean
NEMACIDE			
NONE	30.4	15.4	22.9
OXAMYL	43.4	32.5	38.0
Mean	36.9	23.9	30.4

SOIL TRT	NEMACIDE		OXAMYL		
	VARIETY	CARA	DESIREE	CARA	DESIREE
NONE		35.1	14.5	40.1	32.6
SUBSOIL		25.7	16.3	46.8	32.3

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

SOIL TRT	NEMACIDE	VARIETY	SOIL TRT NEMACIDE
1.49	1.49	1.49	2.11

SOIL TRT VARIETY	NEMACIDE VARIETY	SOIL TRT NEMACIDE VARIETY
2.11	2.11	2.98

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	14	3.65	12.0

88/W/CS/328

PERCENTAGE WARE 4CM (1.57 INCH) RIDDLE

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

NEMACIDE	NONE	OXAMYL	Mean
SOIL TRT			
NONE	87.1	91.4	89.3
SUBSOIL	85.8	93.3	89.6
Mean	86.5	92.4	89.4

VARIETY	CARA	DESIREE	Mean
SOIL TRT			
NONE	94.2	84.3	89.3
SUBSOIL	94.2	84.9	89.6
Mean	94.2	84.6	89.4

VARIETY	CARA	DESIREE	Mean
NEMACIDE			
NONE	94.7	78.2	86.5
OXAMYL	93.7	91.1	92.4
Mean	94.2	84.6	89.4

	NEMACIDE	NONE		OXAMYL	
SOIL TRT	VARIETY	CARA	DESIREE	CARA	DESIREE
NONE		95.8	78.5	92.7	90.2
SUBSOIL		93.7	77.9	94.7	92.0

PLOT AREA HARVESTED 0.00120