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72/W/CS/35 Nematicides Dosage - Potatoes

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72/W/CS/35

NEMATOCIDES DOSAGE

Object: To study the effects of rates and methods of applying nematocides on *Heterodera rostochiensis* and yield of potatoes grown continuously for four years - Woburn Stackyard A II.

Sponsor: A.G. Whitehead.

The fifth year of continuous potatoes - first year of treatments.

Design: 3 series of 4 replicates of 2 x 9.

Whole plot dimensions: 4.27 x 6.10. Area harvested: 0.00087.

Treatments:

The experiment has 3 series all of which have grown untreated potatoes, susceptible to *Heterodera rostochiensis*, for the past four years. Only Series I received treatments in 1972. The other two series continued in untreated susceptible potatoes. Treatments to Series I: All combinations of:-

1. Varieties: Maris Piper (1972), alternating in successive rotations with Pentland Crown (A), Pentland Crown, continuous in successive rotations (C).

2. Nematicides:

None

(O)

Dazomet (half applied before and half after autumn ploughing) at 220 kg (D2), 330 kg (D3), 440 kg (D4), 660 kg (D6).

Dazomet at 220 kg, 'Telone' at 220 kg, applied after ploughing in autumn

(D2T1)

'Telone' at 450 kg applied after ploughing

(T2)

'Du Pont 1410' at 5.6 kg a.i. in spring

(P)

'Telone' at 220 kg after ploughing in autumn with

'Du Pont 1410' at 5.6 kg in spring

(PT1)

Basal applications:- 1510 kg (13:13:20). Weedkiller: Linuron at 1.1 kg with paraquat at 0.42 kg ion in 370 l. Fungicide: Mancozeb at 1.3 kg in 430 l. Fungicide with insecticide: Mancozeb at 1.3 kg with demeton-s-methyl at 0.25 kg in 430 l.

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Cultivations, etc.:-

Series I: Deep-tine cultivated: 5 Oct, 1971. First half dazomet applied, all plots rotary cultivated: 13 Dec. Ploughed: 14 Dec. Second half dazomet applied, all plots rotary cultivated, 'Telone' applied, all plots spring-tine cultivated: 15 Dec. NPK applied: 24 Mar, 1972. 'DuPont' 1410 applied: 17 Apr. Rotary cultivated, potatoes planted, inter-row rotary cultivated and earthed up: 18 Apr. Weedkiller applied: 11 May. Fungicide applied: 5 July. Fungicide with insecticide applied: 27 July. Haulm mechanically destroyed: 6 Sept. Lifted: 25 Sept.

Series II and III: Deep-tine cultivated: 5 Oct, 1971. Ploughed: 14 Dec. NPK applied: 24 Mar, 1972. Rotary cultivated, potatoes planted: 7 - 18 Apr. Weedkiller applied: 6 May. Rotary ridged: 3 June. Fungicide applied: 5 July. Fungicide with insecticide applied: 27 July. Haulm mechanically destroyed: 24 Aug. Lifted Series III: 30 Aug - 4 Sept. Series II: 4 Sept - 11 Sept.

NOTE: Soil samples were taken in autumn 1971 and after harvest for cyst and egg counts of *Heterodera rostochiensis*.

Standard error per plot.

Total tubers, tonnes/hectare: 2.96 or 9.2% (51 d.f.)

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TABLES OF MEANS

NEMATOCIDE

	0	D2	D3	D4	D6	D2T1	T2	P	PT1	Mean
VARIETY	TOTAL TUBERS: TONNES/HECTARE									
A	27.1	32.8	36.9	38.1	38.5	35.9	31.1	30.9	32.4	33.8
C	20.9	27.6	33.6	36.9	37.6	33.2	26.3	30.3	30.1	30.7
Mean	24.0	30.2	35.2	37.5	38.1	34.5	28.7	30.6	31.3	32.2

STANDARD ERRORS OF DIFFERENCES

VARIETY	NEMATOCIDE	VARIETY NEMATOCIDE
0.70	1.48	2.10

PERCENTAGE WARE: 3.81 CM (1.5 INCH) RIDDLE

A	81.2	81.9	83.8	85.4	86.8	88.1	86.9	65.2	77.3	81.8
C	86.6	92.1	92.5	93.8	93.6	92.8	92.3	90.3	92.2	91.8
Mean	83.9	87.0	88.2	89.6	90.2	90.4	89.6	77.8	84.7	86.8