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78/W/CS/35 Nematicides Dosage - Potatoes

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78/W/CS/35

NEMATICIDES DOSAGE

Object: To study the effects of rates and methods of applying nematicides on *Globodera rostochiensis* and yield of potatoes, residual effects are also studied - Woburn Stackyard AII.

Sponsor: A.G. Whitehead.

The seventh year, potatoes.

For previous years see 72/W/CS/35(t) and 73-77/W/CS/35.

Design: 3 series of 4 replicates of 18 plots.

Whole plot dimensions: 4.27 x 6.10.

Treatments:-

The experiment has three series with the following cropping:-

	1968-71	1972	1973	1974	1975	1976	1977	1978
Series I	P	P*	SB	B	P*	P	P	P*
Series II	P	P	P*	SB	B	P*	P	P
Series III	P	P	P	P*	SB	B	P*	P

P = Potatoes, SB = Sugar beet, B = Barley

*Treatments applied to potatoes, following two crops test residual effects.

Treatments:

On Series I new sets of treatments were applied which ignore those applied in earlier years. All combinations of:-

1. A NEM Autumn nematicide:

NONE None
TELONE 'Telone' at 224 kg

2. S NEM Spring nematicides:

ALDICARB
OXAMYL

3. SNEMRATE Rates of spring nematicides (kg):

2.5
5.0
7.5
10.0

NONE plus two untreated plots per replicate

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Series II & III test all combinations of:-

Treatments: All combinations of:-

1. Varieties and residual effects of varieties:

VARIETY	Series II	
	1973	1976-78
(PC)PC3	Pentland Crown	Pentland Crown
(MP)PC3	Maris Piper	Pentland Crown

VARIETY	Series III	
	1974	1977-78
(PC)PC2	Pentland Crown	Pentland Crown
(MP)PC2	Maris Piper	Pentland Crown

2. Residues of nematicides (kg) (applied to Series II 1976, Series III 1977):

NEM RES(76)	Series II
NEM RES(77)	Series III
NONE	None
	Dazomet (half before, half after autumn ploughing)
DAZ2	220
DAZ3	330
DAZ4	440
DAZ6	660
DAZ2+TE2	Dazomet, 220, 'Telone', 220, all after autumn ploughing
TE4	'Telone' 450 all after autumn ploughing
OX	Oxamyl 5.6 in spring
TE2+OX	'Telone' 220, after autumn ploughing, oxamyl 5.6 in spring

NOTES: (1) Because of the wet autumn all nematicides were applied in the spring for Series III 1977.

(2) On Series I many of the plots were affected by flooding soon after planting. Yields were not taken.

Standard applications: Manures: Magnesian limestone at 5.6 t to Series III only.

All Series: (13:13:20) at 1850 kg. Weedkillers: Linuron at 1.3 kg plus paraquat at 0.42 kg ion in 280 l to Series II and III. All series:

Fungicide: Mancozeb at 1.3 kg on three occasions in 280 l on the first, in 420 l on the second, in 420 l with insecticide on the third. Fentin acetate with maneb ('Fennite A' at 1.7 kg in 280 l). Insecticide: Pirimicarb at 0.14 kg on one occasion with fungicide, in 420 l. Haulm desiccant: Undiluted BOV at 170 l.

Seed: Pentland Crown.

Cultivations, etc.:-

All Series: Deep-tine cultivated three times: 7 Mar, 1978, 15 Mar, 10 Apr. Insecticide applied: 10 Aug. Fentin acetate with maneb applied: 23 Aug. Haulm mechanically destroyed: 15 Sept. Haulm desiccant applied: 23 Sept.

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Series I: Spring-tine cultivated, 'Telone' injected, spring-tine cultivated with crumbler attached two strokes: 19 Oct, 1977. NPK applied: 10 Apr, 1978. Spring-tine cultivated with crumbler attached: 20 Apr. Aldicarb and oxamyl applied, spring-tine cultivated: 24 Apr. Rotary cultivated, potatoes planted: 25 Apr. Grubbed three times: 17 May, 1 June, 9 July. Earthed up three times: 19 May, 9 June, 9 July. Mancozeb applied: 6 July, 20 July, 10 Aug. Lifted: 27 Sept.

Series II: Spring-tine cultivated: 19 Oct, 1977. NPK applied: 5 Apr, 1978. Rotary cultivated, potatoes planted: 19 Apr. Weedkiller applied: 15 May. Grubbed and earthed up twice: 9 June, 9 July. Mancozeb applied: 5 July, 20 July, 10 Aug. Lifted: 27 Sept.

Series III: Magnesian limestone applied: 8 Nov, 1977. NPK applied: 5 Apr, 1978. Rotary cultivated, potatoes planted: 18 Apr. Weedkiller applied: 15 May. Grubbed and earthed up: 9 June. Mancozeb applied: 5 July, 20 July, 10 Aug. Lifted: 3 Oct.

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

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POTATOES SERIES II

TOTAL TUBERS TONNES/HECTARE

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

VARIETY NEM RES(76)	(PC)PC3	(MP)PC3	MEAN
NONE	18.9	16.8	17.9
DAZ2	10.3	17.8	14.1
DAZ3	14.5	20.8	17.7
DAZ4	14.6	24.8	19.7
DAZ6	17.7	26.4	22.1
DAZ2+TE2	14.9	20.3	17.6
TE4	11.4	13.8	12.6
OX	12.8	19.8	16.3
TE2+OX	24.4	29.7	27.0
MEAN	15.5	21.1	18.3

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

TABLE	VARIETY NEM RES(76)	VARIETY NEM RES(76)
SED	1.33	2.97
		4.19

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

STRATUM	DF	SE	CV%
BLOCK.WP	47	5.65	30.9

PERCENTAGE WARE 3.81 CM (1.5 INCH) RIDDLE

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

VARIETY NEM RES(76)	(PC)PC3	(MP)PC3	MEAN
NONE	91.3	90.7	91.0
DAZ2	79.5	86.3	82.9
DAZ3	86.5	92.6	89.5
DAZ4	85.7	92.6	89.2
DAZ6	88.7	90.7	89.7
DAZ2+TE2	88.5	91.8	90.2
TE4	85.3	89.6	87.5
OX	84.5	89.2	86.9
TE2+OX	92.5	92.6	92.5
MEAN	86.9	90.7	88.8

PLOT AREA HARVESTED 0.00087

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POTATOES SERIES III

TOTAL TUBERS TONNES/HECTARE

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

VARIETY NEM RES(77)	(PC)PC2	(MP)PC2	MEAN
NONE	16.0	14.7	15.3
DAZ2	19.0	32.6	25.8
DAZ3	20.6	35.3	28.0
DAZ4	22.8	33.5	28.1
DAZ6	30.1	28.7	29.4
DAZ2+TE2	20.0	35.8	27.9
TE4	13.8	26.5	20.2
OX	34.6	33.9	34.3
TE2+OX	36.7	32.2	34.5
MEAN	23.7	30.4	27.0

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

TABLE	VARIETY NEM RES(77)	VARIETY NEM RES(77)
SED	1.17	2.63
		3.71

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

STRATUM	DF	SE	CV%
BLOCK.WP	47	4.98	18.4

PERCENTAGE WARE 3.81CM (1.5 INCH) RIDDLE

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

VARIETY NEM RES(77)	(PC)PC2	(MP)PC2	MEAN
NONE	85.8	89.6	87.7
DAZ2	89.5	92.5	91.0
DAZ3	90.3	92.8	91.5
DAZ4	92.9	93.2	93.1
DAZ6	92.7	91.8	92.3
DAZ2+TE2	91.4	92.3	91.8
TE4	88.0	90.9	89.4
OX	91.1	93.0	92.1
TE2+OX	92.0	91.8	91.9
MEAN	90.4	92.0	91.2

PLOT AREA HARVESTED 0.00087