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85/W/CS/35 Nematicides Dosage - S. Barley

Rothamsted Research

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85/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 All.

Sponsor: A.G. Whitehead.

The 18th year, s. barley.

For previous years see 72/W/CS/35(t) and 73-84/W/CS/35.

Design: 2 series each of 4 randomised blocks of 18 plots with S NEM YR on blocks.

Whole plot dimensions: 4.27 x 6.10.

Treatments:-

The experiment has two series with the following cropping:-
 1968-72 73 74 75 76 77 78 79 80 81 82 83 84 85

Series II	P	P*	SB	B	P*	P	P	P*	W	B	B	P*	W	B
Series III	P	P	P*	SB	B	P*	P	P	P*	W	B	B	P*	B

Series I was damaged by soil erosion and has been excluded from the experiment since 1980.

P = Potatoes, SB = Sugar beet, B = S. barley, W = W. wheat

*Treatments applied to potatoes, subsequent crops test residual effects.

Treatments:

Series II, s. barley 1985, tests the residual effects of treatments applied for potatoes in 1979 and 1983. All combinations of:-

Blocks

1. S NEM YR Years of applying spring nematicides:
 - 1979 1979 only
 - 1979+83 1979 repeated cumulatively in 1983

Whole plots

2. A NEM(79) Residual effects of nematicide applied autumn 1978:
 - NONE None
 - TELONE 'Telone' at 224 kg
3. S NEM Nematicides applied in spring 1979 and 1983:
 - ALDICARB
 - OXAMYL

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4. SNEMRATE Rates of spring nematicides (kg):

2.5
5.0
7.5
10.0

plus two untreated plots per block

RATE

0.0

Series III, s. barley 1985, replacing winter wheat which failed, tests the residual effects of sets of treatments applied for potatoes in 1980 and 1984, ignoring those applied in earlier years. All combinations (duplicated) of:-

Blocks

1. S NEM YR Years of applying spring nematicides:

1980 1980 only
1980+84 1980 repeated cumulatively in 1984

Whole plots

2. S NEM Nematicides applied in spring 1980 and 1984:

ALDICARB
OXAMYL

3. SNEMRATE Rates of spring nematicides (kg):

2.5
5.0
7.5
10.0

plus two untreated plots per block

RATE

0.0

Standard applications:

S. barley (Series II): Manures: (20:10:10) at 620 kg. Weedkillers: Mecoprop at 1.2 kg with bromoxynil at 0.26 kg and ioxynil at 0.26 kg in 250 l.

W. wheat/s. barley (Series III): Manures: (5:14:30) at 340 kg, (20:10:10) at 620 kg. Weedkillers: Mecoprop at 1.2 kg with bromoxynil at 0.3 kg and ioxynil at 0.3 kg in 250 l.

Seed: W. wheat: Avalon, sown at 190 kg.

S. barley: Triumph, dressed with flutriafol, thiabendazole and ethirimol, sown at 160 kg.

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Cultivations, etc.:-

- S. barley (Series II): Ploughed: 2 Oct, 1984. Spring-tine cultivated with crumbler attached: 18 Mar, 1985. NPK applied, rotary harrowed, seed sown: 21 Mar. Weedkillers applied: 16 May. Combine harvested: 27 Aug.
- W. wheat/s. barley (Series III): (5:14:30) applied: 22 Oct, 1984. Power harrowed, wheat seed sown: 30 Oct. Spring-tine cultivated with crumbler attached: 18 Mar, 1985. (20:10:10) applied, rotary harrowed, barley seed sown: 21 Mar. Weedkillers: 16 May. Combine harvested: 27 Aug.

S. BARLEY SERIES II

GRAIN TONNES/HECTARE

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

A NEM(79)	NONE	TELONE	MEAN		
S NEM YR					
1979	6.35	6.23	6.29		
1979+83	6.55	6.56	6.55		
MEAN	6.45	6.39	6.42		
S NEM	ALDICARB	OXAMYL	MEAN		
S NEM YR					
1979	6.30	6.29	6.29		
1979+83	6.54	6.56	6.55		
MEAN	6.42	6.42	6.42		
S NEM	ALDICARB	OXAMYL	MEAN		
A NEM(79)					
NONE	6.30	6.60	6.45		
TELONE	6.54	6.25	6.39		
MEAN	6.42	6.42	6.42		
SNEMRATE	2.5	5.0	7.5	10.0	MEAN
S NEM YR					
1979	6.24	6.33	6.36	6.24	6.29
1979+83	6.66	6.80	6.48	6.27	6.55
MEAN	6.45	6.56	6.42	6.26	6.42
SNEMRATE	2.5	5.0	7.5	10.0	MEAN
A NEM(79)					
NONE	6.44	6.64	6.55	6.18	6.45
TELONE	6.46	6.49	6.29	6.34	6.39
MEAN	6.45	6.56	6.42	6.26	6.42

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S. BARLEY SERIES II

GRAIN TONNES/HECTARE

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

SNEMRATE	2.5	5.0	7.5	10.0	MEAN
S NEM					
ALDICARB	6.46	6.54	6.40	6.29	6.42
OXAMYL	6.44	6.59	6.44	6.22	6.42
MEAN	6.45	6.56	6.42	6.26	6.42

A NEM(79)	NONE	TELONE			
S NEM	ALDICARB	OXAMYL	ALDICARB	OXAMYL	
S NEM YR					
1979	6.05	6.66	6.55	5.92	
1979+83	6.55	6.54	6.54	6.58	

S NEM YRA	SNEMRATE	2.5	5.0	7.5	10.0
1979	NEM(79)				
	NONE	6.19	6.44	6.65	6.14
	TELONE	6.29	6.23	6.06	6.34
1979+83	NONE	6.69	6.84	6.44	6.22
	TELONE	6.63	6.75	6.51	6.33

S NEM YR	SNEMRATE	2.5	5.0	7.5	10.0
1979	S NEM				
	ALDICARB	6.31	6.41	6.36	6.13
	OXAMYL	6.17	6.26	6.36	6.35
1979+83	ALDICARB	6.61	6.67	6.44	6.45
	OXAMYL	6.71	6.92	6.51	6.09

A NEM(79)	SNEMRATE	2.5	5.0	7.5	10.0
NONE	S NEM				
	ALDICARB	6.12	6.58	6.42	6.09
	OXAMYL	6.75	6.70	6.68	6.27
TELONE	ALDICARB	6.80	6.50	6.39	6.49
	OXAMYL	6.13	6.48	6.19	6.18

S NEM YRA	SNEMRATE	2.5	5.0	7.5	10.0	
1979	NEM(79)	S NEM				
	NONE	ALDICARB	5.59	6.32	6.43	5.86
		OXAMYL	6.78	6.55	6.88	6.42
	TELONE	ALDICARB	7.02	6.49	6.28	6.40
		OXAMYL	5.56	5.96	5.85	6.29
1979+83	NONE	ALDICARB	6.65	6.84	6.40	6.31
		OXAMYL	6.73	6.84	6.49	6.12
	TELONE	ALDICARB	6.57	6.50	6.49	6.58
		OXAMYL	6.69	7.00	6.53	6.07

RATE 0.0 6.47

GRAND MEAN 6.43

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S. BARLEY SERIES II

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

TABLE	A NEM(79)	S NEM	SNEMRATE		
SED	0.100	0.100	0.142		
TABLE	S NEM YR* A NEM(79)	S NEM YR* S NEM	A NEM(79) S NEM	S NEM YR* SNEMRATE	
SED	0.142	0.142	0.142	0.201	
TABLE	A NEM(79) SNEMRATE	S NEM SNEMRATE	S NEM YR* A NEM(79) S NEM	S NEM YR* A NEM(79) SNEMRATE	
SED	0.201	0.201	0.201	0.284	
TABLE	S NEM YR* S NEM SNEMRATE	A NEM(79) S NEM SNEMRATE	S NEM YR* A NEM(79) S NEM SNEMRATE		
SED	0.284	0.284	0.402		

* WITHIN THE SAME LEVELS OF S NEM YR ONLY

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

STRATUM	DF	SE	CV%
BLOCK.WP	35	0.402	6.3

GRAIN MEAN DM% 84.2

PLOT AREA HARVESTED 0.00168

S. BARLEY SERIES III

GRAIN TONNES/HECTARE

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

S NEM	ALDICARB	OXAMYL	MEAN		
S NEM YR					
1980	6.18	6.26	6.22		
1980+84	6.10	5.98	6.04		
MEAN	6.14	6.12	6.13		
SNEMRATE	2.5	5.0	7.5	10.0	MEAN
S NEM YR					
1980	6.22	6.29	6.26	6.10	6.22
1980+84	6.00	6.10	6.02	6.04	6.04
MEAN	6.11	6.20	6.14	6.07	6.13

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S. BARLEY SERIES III

GRAIN TONNES/HECTARE

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

	2.5	5.0	7.5	10.0	MEAN
SNEMRATE					
S NEM					
ALDICARB	6.20	6.11	6.16	6.10	6.14
OXAMYL	6.02	6.29	6.12	6.04	6.12
MEAN	6.11	6.20	6.14	6.07	6.13

	2.5	5.0	7.5	10.0
SNEMRATE				
S NEM				
S NEM YR 1980	6.36	6.17	6.12	6.05
OXAMYL	6.09	6.41	6.39	6.14
S NEM YR 1980+84	6.04	6.04	6.19	6.14
OXAMYL	5.96	6.17	5.86	5.94

RATE 0.0 5.99

GRAND MEAN 6.11

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

TABLE	S NEM	SNEMRATE	S NEM YR* S NEM
-----	-----	-----	-----
SED	0.069	0.097	0.097

TABLE	S NEM YR* SNEMRATE	S NEM SNEMRATE	S NEM YR* S NEM SNEMRATE
-----	-----	-----	-----
SED	0.137	0.137	0.194

* WITHIN THE SAME LEVEL OF S NEM YR ONLY

SED FOR COMPARING RATE 0.0 WITH ANY ITEM
IN SNEMRATE.S NEM.S NEM YR IS 0.168

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

STRATUM	DF	SE	CV%
BLOCK.WP	52	0.275	4.5

GRAIN MEAN DM% 83.5

PLOT AREA HARVESTED 0.00126