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Yields of the Field Experiments 1991

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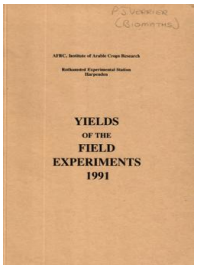

91/W/P/1 Autumn and Spring Nematicides - Potatoes

Rothamsted Research

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91/W/P/1

POTATOES

AUTUMN AND SPRING NEMATICIDES

Object: To study the effects of combinations of fumigant and non-fumigant nematicides on the control of Globodera pallida and on the yield of potatoes - Woburn, Far Field II.

Sponsors: A.G. Whitehead, A.J.F. Nichols.

Design: 2 whole plots each containing 2 replicates of 2 sub plots each containing 7 sub sub plots.

Whole plot dimensions: 15.0 x 54.0.

Treatments: All combinations of:-

Whole plots

1. **OXAMYL[90]** Oxamyl (kg) applied in April 1990:

   0.0
   5.6

Sub plots

2. **DICHLO[90]** 1, 3-dichloropropene (kg) applied 2 Nov, 1990:

0	None (duplicated)
300	300 (duplicated)

Sub sub plots

3. **OXAMYL[91]** Oxamyl (kg) applied 3 April, 1991:

   0.0 (duplicated for **VARIETY** DESIREE only)
   5.6

4. **VARIETY** Varieties:

   DESIREE
   RECORD
   ROMANO

Basal applications: Manures: (12:20:20) at 1.3 t. Weedkillers : Linuron at 1.5 kg with paraquat at 0.40 kg ion in 210 l. Fungicides: Maneb at 1.2 kg and zinc oxide at 28 g applied with a wetting agent, 'Bond' at 200 ml, in 200 l. Maneb at 0.96 kg and zinc oxide at 22 g with insecticide and wetting agent, 'Bond' at 200 ml, in 300 l. Maneb at 0.96 kg and zinc oxide at 22 g and wetting agent, 'Bond' at 200 ml, in 300 l. Mancozeb at 0.82 kg with insecticide and wetting agent, 'Bond' at 200 ml, in 300 l. Fentin hydroxide at 0.27 kg in 300 l. Insecticide: Pirimicarb at 0.14 kg applied on two occasions. Desiccant: Glufosinate-ammonium at 0.45 kg in 300 l.

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Cultivations, etc.:- Deep tine cultivated, fumigant treatment applied, rolled: 2 Nov, 1990. Rolled: 8 Nov. Heavy spring-tine cultivated: 12 Mar, 1991. Manures applied, spring-tine cultivated, nematicide treatments applied, rotary cultivated, tubers planted: 3 Apr. Rotary ridged, weedkiller applied: 26 Apr. Maneb, zinc oxide and wetting agent applied: 4 July. Maneb, zinc oxide, insecticide and wetting agent applied: 20 July. Maneb, zinc oxide and wetting agent applied: 31 July. Mancozeb, insecticide and wetting agent applied: 12 Aug. Fentin hydroxide applied: 27 Aug. Desiccant applied: 12 Sept. Potatoes lifted: 23 Sept. Previous crops: Navy beans 1989, potatoes 1990.

NOTE: Soil samples were taken before planting, after fumigation and after harvest for nematode counts and assessment of egg viability.

TOTAL TUBERS TONNES/HECTARE

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

DICHLO[90]	0	300	Mean
OXAMYL[90]			
0.0	22.1	41.3	31.7
5.6	31.1	43.8	37.5
Mean	26.6	42.6	34.6

OXAMYL[91]	0.0	5.6	Mean
OXAMYL[90]			
0.0	28.4	36.1	31.7
5.6	32.4	44.2	37.5
Mean	30.4	40.1	34.6

OXAMYL[91]	0.0	5.6	Mean
DICHLO[90]			
0	20.5	34.7	26.6
300	40.3	45.6	42.6
Mean	30.4	40.1	34.6

VARIETY	DESIREE	RECORD	ROMANO	Mean
OXAMYL[90]				
0.0	30.9	32.2	32.3	31.7
5.6	35.9	36.8	40.6	37.5
Mean	33.4	34.5	36.4	34.6

VARIETY	DESIREE	RECORD	ROMANO	Mean
DICHLO[90]				
0	25.9	27.5	26.6	26.6
300	40.8	41.5	46.2	42.6
Mean	33.4	34.5	36.4	34.6

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TOTAL TUBERS TONNES/HECTARE

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

VARIETY	DESIREE	RECORD	ROMANO	Mean
OXAMYL[91]				
0.0	30.7	31.1	29.2	30.4
5.6	38.8	38.0	43.6	40.1
Mean	33.4	34.5	36.4	34.6

	OXAMYL[91]	0.0	5.6
OXAMYL[90]	**DICHLO[90]**		
0.0	0	16.7	29.2
	300	40.1	42.9
5.6	0	24.4	40.1
	300	40.5	48.3

	VARIETY	DESIREE	RECORD	ROMANO
OXAMYL[90]	**DICHLO[90]**			
0.0	0	22.0	23.9	20.3
	300	39.8	40.6	44.3
5.6	0	29.9	31.2	33.0
	300	41.9	42.5	48.1

	VARIETY	DESIREE	RECORD	ROMANO
OXAMYL[90]	**OXAMYL[91]**			
0.0	0.0	27.9	30.1	27.6
	5.6	36.8	34.4	37.0
5.6	0.0	33.4	32.1	30.9
	5.6	40.7	41.6	50.2

	VARIETY	DESIREE	RECORD	ROMANO
DICHLO[90]	**OXAMYL[91]**			
0	0.0	21.3	21.5	18.0
	5.6	35.1	33.6	35.3
300	0.0	40.0	40.6	40.5
	5.6	42.5	42.4	51.9

		VARIETY	DESIREE	RECORD	ROMANO
OXAMYL[90]	**DICHLO[90]**	**OXAMYL[91]**			
0.0	0	0.0	17.1	18.4	14.3
		5.6	31.9	29.4	26.3
	300	0.0	38.7	41.8	40.9
		5.6	41.8	39.3	47.7
5.6	0	0.0	25.6	24.7	21.6
		5.6	38.3	37.7	44.3
	300	0.0	41.2	39.4	40.1
		5.6	43.2	45.5	56.2

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TOTAL TUBERS TONNES/HECTARE

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

	DICHLO[90]	OXAMYL[91]	VARIETY	OXAMYL[90]* DICHLO[90]	
			1.41		min.rep
	2.35	1.08	1.29	3.33	max-min

	OXAMYL[90]* OXAMYL[91]	OXAMYL[90]* VARIETY	DICHLO[90] OXAMYL[91]	DICHLO[90] VARIETY	
		2.00	2.65	2.89	min.rep
	1.53	1.82	2.59	2.78	max-min
			2.53	2.65	max.rep
Except when comparing means with the same level(s) of					
DICHLO[90]				2.00	min.rep
			1.53	1.82	max-min

	OXAMYL[91] VARIETY	OXAMYL[90]* DICHLO[90] OXAMYL[91]	OXAMYL[90]* DICHLO[90] VARIETY	DICHLO[90] OXAMYL[91] VARIETY	
	2.00	3.75	4.09	3.52	min.rep
	1.73	3.66	3.93	3.22	max-min
		3.57	3.75	2.89	max.rep
Except when comparing means with the same level(s) of					
DICHLO[90]				2.82	min.rep
				2.45	max-min
OXAMYL[90].DICHLO[90]		2.31	2.82		min.rep
		2.16	2.58		max-min
		2.00	2.31		max.rep

	OXAMYL[90]* OXAMYL[91] VARIETY	OXAMYL[90]* DICHLO[90] OXAMYL[91] VARIETY	
	2.82	4.97	min.rep
	2.45	4.55	max-min
		4.09	max.rep
Except when comparing means with the same level(s) of			
OXAMYL[90].DICHLO[90]		3.99	min.rep
		3.46	max-min
		2.82	max.rep

* Within the same level of **OXAMYL[90]** or **DICHLO[90]**

max.rep **OXAMYL[91]** 0.0 and **VARIETY** DESIREE
min.rep all treatments except **OXAMYL[91]** 0.0 and **VARIETY** DESIREE
max-min **OXAMYL[91]** 0.0 and **VARIETY** DESIREE v all other combinations

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

Stratum	d.f.	s.e.	cv%
WP.SP	4	3.33	9.6
WP.SP.SSP	28	3.99	11.6

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PERCENTAGE WARE 3.8CM (1.5 INCH) RIDDLE

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

DICHLO[90]	0	300	Mean
OXAMYL[90]			
0.0	63.3	83.2	73.3
5.6	75.9	84.1	80.0
Mean	69.6	83.7	76.6

OXAMYL[91]	0.0	5.6	Mean
OXAMYL[90]			
0.0	69.8	77.9	73.3
5.6	77.6	83.2	80.0
Mean	73.7	80.5	76.6

OXAMYL[91]	0.0	5.6	Mean
DICHLO[90]			
0	63.9	77.2	69.6
300	83.5	83.9	83.7
Mean	73.7	80.5	76.6

VARIETY	DESIREE	RECORD	ROMANO	Mean
OXAMYL[90]				
0.0	71.0	71.5	78.5	73.3
5.6	77.9	81.0	82.2	80.0
Mean	74.4	76.2	80.3	76.6

VARIETY	DESIREE	RECORD	ROMANO	Mean
DICHLO[90]				
0	65.9	71.6	73.1	69.6
300	82.9	80.8	87.6	83.7
Mean	74.4	76.2	80.3	76.6

VARIETY	DESIREE	RECORD	ROMANO	Mean
OXAMYL[91]				
0.0	72.8	74.1	75.1	73.7
5.6	77.7	78.4	85.6	80.5
Mean	74.4	76.2	80.3	76.6

	OXAMYL[91]	0.0	5.6
OXAMYL[90]	DICHLO[90]		
0.0	0	56.3	72.7
	300	83.3	83.2
5.6	0	71.5	81.7
	300	83.7	84.6

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PERCENTAGE WARE 3.8CM (1.5 INCH) RIDDLE

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

OXAMYL[90]	VARIETY DICHLO[90]	DESIREE	RECORD	ROMANO
0.0	0	58.6	64.9	68.8
	300	83.4	78.1	88.1
5.6	0	73.3	78.3	77.4
	300	82.5	83.6	87.0

OXAMYL[90]	VARIETY OXAMYL[91]	DESIREE	RECORD	ROMANO
0.0	0.0	68.8	69.2	72.4
	5.6	75.4	73.9	84.5
5.6	0.0	76.8	79.0	77.7
	5.6	80.0	82.9	86.6

DICHLO[90]	VARIETY OXAMYL[91]	DESIREE	RECORD	ROMANO
0	0.0	61.4	67.7	65.1
	5.6	74.9	75.6	81.1
300	0.0	84.2	80.5	85.1
	5.6	80.5	81.2	90.0

OXAMYL[90]	DICHLO[90]	VARIETY OXAMYL[91]	DESIREE	RECORD	ROMANO
0.0	0	0.0	53.3	60.8	57.6
		5.6	69.0	69.1	80.0
	300	0.0	84.2	77.5	87.2
		5.6	81.8	78.6	89.1
5.6	0	0.0	69.5	74.6	72.6
		5.6	80.8	82.1	82.2
	300	0.0	84.2	83.5	82.9
		5.6	79.2	83.7	91.0

SUB PLOT AREA HARVESTED 0.00090

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