

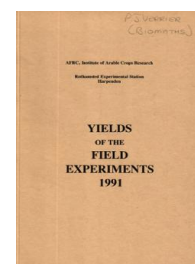
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# Yields of the Field Experiments 1991

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

### Rothamsted Research

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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
	5.6	35.9	36.8	40.6
Mean	33.4	34.5	36.4	34.6
VARIETY	DESIREE	RECORD	ROMANO	Mean
DICHLO[90]				
	0	25.9	27.5	26.6
	300	40.8	41.5	46.2
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
<b>OXAMYL[91]</b>				
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

	<b>OXAMYL[91]</b>	0.0	5.6	
<b>OXAMYL[90]</b>	<b>DICHLO[90]</b>			
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	
<b>OXAMYL[90]</b>				
<b>DICHLO[90]</b>				
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	
<b>OXAMYL[90]</b>				
<b>OXAMYL[91]</b>				
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	
<b>DICHLO[90]</b>				
<b>OXAMYL[91]</b>				
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		
<b>OXAMYL[90]</b>					
<b>DICHLO[90]</b>					
<b>OXAMYL[91]</b>					
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 \*\*\*

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

	<b>OXAMYL[91]</b>	<b>OXAMYL[90]* DICHLO[90]</b>	<b>OXAMYL[90]* DICHLO[90]</b>	<b>DICHLO[90] OXAMYL[91]</b>	
	<b>VARIETY</b>	<b>OXAMYL[91]</b>	<b>VARIETY</b>	<b>VARIETY</b>	
	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

<b>OXAMYL[90].DICHLO[90]</b>	2.31	2.82	min.rep
	2.16	2.58	max-min
	2.00	2.31	max.rep

	<b>OXAMYL[90]* OXAMYL[91]</b>	<b>OXAMYL[90]* DICHLO[90]</b>	
	<b>VARIETY</b>	<b>OXAMYL[91]</b>	<b>VARIETY</b>
	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
	5.6	77.9	81.0	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
	300	82.9	80.8	87.6
Mean	74.4	76.2	80.3	76.6
VARIETY	DESIREE	RECORD	ROMANO	Mean
OXAMYL[91]				
	0.0	72.8	74.1	75.1
	5.6	77.7	78.4	85.6
Mean	74.4	76.2	80.3	76.6
OXAMYL[90]	OXAMYL[91]	0.0	5.6	
	DICHLO[90]			
		0	56.3	72.7
		300	83.3	83.2
		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]	VARIETY 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