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## Yields of the Field Experiments 1990

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### 90/W/P/2 Chemical Control of *Globodera Pallida* - Potatoes

#### Rothamsted Research

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90/W/P/2

POTATOES

CHEMICAL CONTROL OF GLOBODERA PALLIDA

**Object:** To determine whether yield and control of *G. pallida* are increased by adding to oxamyl chemicals with different effects on the nematodes - Woburn, Lansome/Mill Dam Close III.

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

**Design:** 3 randomised blocks of 2 plots split into 6 sub plots.

**Whole plot dimensions:** 6.0 x 13.3.

**Treatments:** All combinations of:-

1. IRRIGATN           Irrigation:

NONE	None
FULL	Full, to reduce a soil moisture deficit of 37 mm to 25 mm

Sub plots

2. CHEMICAL           Chemicals:

NONE	None
OXAMYL	Oxamyl at 5.6 kg
OX CARBO	Oxamyl at 5.6 kg + carbofuran at 5.6 kg
OX ETHOP	Oxamyl at 5.6 kg + ethoprophos at 5.6 kg
OX FORMA	Oxamyl at 5.6 kg + formalin at 1170 kg in 3000 l
OX SODME	Oxamyl at 5.6 kg + sodium metavanadate at 36 kg

**NOTES:** (1) Irrigation was applied on 21 occasions; at 12 mm on each.  
(2) Formalin was applied on 13 Feb, 1990, the other chemicals on 23 Apr.

**Basal applications:** Manures: (13:13:20) at 1.6 t. Weedkillers: Glyphosate at 1.4 kg in 220 l. Linuron at 1.6 kg in 220 l. Fungicides: Mancozeb at 1.0 kg on the first two occasions and at 1.4 kg on the third, applied with a wetting agent, 'Bond' at 200 ml, in 220 l. Fentin hydroxide at 0.27 kg in 220 l, applied on three occasions.

**Variety:** Desiree.

**Cultivations, etc.:-** Glyphosate applied: 1 Sept, 1989. Ploughed: 13 Nov. NPK applied: 20 Apr, 1990. Rotary cultivated, potatoes planted: 23 Apr. Rotary ridged: 26 Apr. Linuron applied: 3 May. Irrigation treatment applied: 9, 15, 18, 22, 31 May, 5, 8, 13, 15, 19, 26, 29 June, 2, 11, 16, 20, 23, 26 July, 3, 6 and 10 Aug. Mancozeb and wetting agent applied: 26 June, 11 and 24 July. Fentin hydroxide applied: 7, 10 Aug and 10 Sept. Haulm mechanically destroyed: 14 Sept. Potatoes lifted: 19 Sept. Previous crops: Potatoes 1988, s. barley 1989.

90/W/P/2

NOTE: Populations of *G. pallida* eggs in soil were assessed before planting and after harvest.

**TOTAL TUBERS TONNES/HECTARE**

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

IRRIGATN CHEMICAL	NONE	FULL	Mean
NONE	18.6	34.1	26.4
OXAMYL	22.5	44.2	33.3
OX CARBO	22.6	39.3	30.9
OX ETHOP	21.0	43.8	32.4
OX FORMA	23.0	43.5	33.2
OX SODME	20.5	36.0	28.3
Mean	21.4	40.1	30.8

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

CHEMICAL	IRRIGATN* CHEMICAL
3.27	4.63

\* Within the same level of IRRIGATN only

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP.SP	20	5.67	18.4

**PERCENTAGE WARE 4.4CM (1.75 INCH) RIDDLE**

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

IRRIGATN CHEMICAL	NONE	FULL	Mean
NONE	80.7	87.9	84.3
OXAMYL	84.9	90.6	87.8
OX CARBO	86.4	88.3	87.4
OX ETHOP	82.7	89.2	85.9
OX FORMA	79.8	89.2	84.5
OX SODME	85.9	89.0	87.5
Mean	83.4	89.1	86.2

PLOT AREA HARVESTED 0.00057