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Yields of the Field Experiments 1975

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75/ W/CS/16 - Irrigation & Eelworms - Potatoes

Rothamsted Research

Rothamsted Research (1976) *75/ W/CS/16 - Irrigation & Eelworms - Potatoes* ; Yields Of The Field Experiments 1975, pp 163 - 166 - DOI: <https://doi.org/10.23637/ERADOC-1-141>

75/W/CS/16

IRRIGATION AND EELWORMS

Object: To study the cumulative effects of dazomet (later, aldicarb) and irrigation on the yield and incidence of *Heterodera* spp. on potatoes grown continuously. The effects of growing susceptible and resistant varieties are also studied, either grown continuously or alternated - Woburn Butt Close.

Sponsors: D.M. Parrott, F.G.W. Jones.

The tenth year, potatoes.

For previous years see 66/C/32(t), 67/C/25, 68/C/19, 69/W/CS/16(t), 70-71/W/CS/16, 72/W/CS/16(t) and 73-74/W/CS/16.

Design: 3 blocks of 4 plots, sequences of varieties on strips of 2 half plots, aldicarb on quarter plots.

Whole plot dimensions: 6.48 x 7.11.

Treatments: All combinations of:-

Whole plots: 1. Irrigation:		IRRIGTN
	None	NONE
	Full	FULL

Strips of half plots: 2. Cropping sequences with potatoes resistant (R) and susceptible (S) to potato cyst nematode:	CROPSEQN
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1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	
R	R	R	R	R	R	R	R	R	R	R/R/R/R
S	R	S	R	S	R	S	R	S	R	S/R/S/R
S	S	S	S	S	S	S	S	S	S	S/S/S/S
R	S	R	S	R	S	R	S	R	S	R/S/R/S

Quarter plots: 3. Aldicarb (kg) applied cumulatively to previous dazomet treatments:	ALDICARB	
	None	0.0
	5.6	5.6

Irrigation treatments 1975 (mm water):

4 Aug	12.7
5 Aug	12.7
7 Aug	12.7
8 Aug	12.7
20 Aug	12.7
27 Aug	12.7
<hr/>	
Total	76.2

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Basal applications: Manures: (13:13:20) at 1500 kg. Weedkiller: Linuron at 1.2 kg plus paraquat at 0.28 kg ion in 280 l. Insecticide: Demeton-s-methyl at 0.25 kg in 280 l. Fungicide: Mancozeb at 1.3 kg in 390 l.

Seed: Resistant, Maris Piper. Susceptible, Pentland Dell.

Cultivations, etc.: - Deep-tine cultivated twice: 7 Jan, 1975, 28 Apr. NPK applied, spring-tine cultivated: 28 Apr. Aldicarb applied, rotary cultivated, potatoes planted: 15 May. Weedkiller applied: 30 May. Grubbed: 23 June. Rotary ridged: 24 June. Insecticide applied: 25 June. Fungicide applied: 16 July. Haulm mechanically destroyed: 30 Sept. Lifted: 16 Oct.

NOTE: Soil samples were taken in May for cyst and egg counts of *Heterodera rostochiensis* and *H. pallida*.

TOTAL TUBERS TONNES /HECTARE

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

STRATUM	DF	SE	CV%
BLOCK.ROW	6	1.65	14.6
BLOCK.ROW.HP	8	3.74	33.0
BLOCK.ROW.HP.QP	12	5.74	50.8

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TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

CROPSEQN	R/R/R/R	S/R/S/R	S/S/S/S	R/S/R/S	MEAN
IRRIGTN					
NONE	7.0	9.7	9.9	11.8	9.6
FULL	15.9	17.2	14.4	4.6	13.0
MEAN	11.4	13.5	12.1	8.2	11.3

ALDICARB			MEAN
IRRIGTN			
NONE	5.9	13.3	9.6
FULL	6.3	19.3	13.0
MEAN	6.3	16.3	11.3

ALDICARB			MEAN
CROPSEQN			
R/R/R/R	8.6	14.3	11.4
S/R/S/R	7.7	19.2	13.5
S/S/S/S	3.6	20.6	12.1
R/S/R/S	5.5	11.0	8.2
MEAN	6.3	16.3	11.3

IRRIGTN	ALDICARB	0.0	5.6
NONE	CROPSEQN		
	R/R/R/R	5.9	8.1
	S/R/S/R	5.9	13.5
	S/S/S/S	2.6	17.1
	R/S/R/S	9.2	14.5
FULL	R/R/R/R	11.3	20.5
	S/R/S/R	9.4	25.0
	S/S/S/S	4.7	24.1
	R/S/R/S	1.7	7.5

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

TABLE	BLOCK	IRRIGTN	CROPSEQN	ALDICARB
SED	1.17	1.53	1.35	1.66

TABLE	IRRIGTN CROPSEQN	IRRIGTN ALDICARB	CROPSEQN ALDICARB	IRRIGTN CROPSEQN ALDICARB
SED	2.54	2.25	2.70	4.18
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
IRRIGTN		2.34		
CROPSEQN	3.05		3.31	4.50
IRRIGTN.CROPSEQN				4.69
CROPSEQN.ALDICARB				4.50

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PERCENTAGE WARE 3.81CM (1.5 INCH) RIDDLE

*** TABLES OF MEANS ***

CROPSEQN	R/R/R/R	S/R/S/R	S/S/S/S	R/S/R/S	MEAN
IRRIGTN					
NONE	66.4	73.3	64.7	75.0	69.8
FULL	72.7	88.7	82.6	61.5	76.4
MEAN	69.6	81.0	73.6	68.2	73.1

ALDICARB			MEAN
IRRIGTN			
NONE	60.2	79.5	69.8
FULL	65.7	87.1	76.4
MEAN	63.0	83.3	73.1

ALDICARB			MEAN
CROPSEQN			
R/R/R/R	55.4	83.7	69.6
S/R/S/R	73.5	83.4	81.0
S/S/S/S	63.0	84.3	73.6
R/S/R/S	54.3	81.6	68.2
MEAN	63.0	83.3	73.1

IRRIGTN	ALDICARB		
		0.0	5.6
NONE	CROPSEQN		
	R/R/R/R	51.6	81.3
	S/R/S/R	71.0	75.6
	S/S/S/S	46.7	82.6
	R/S/R/S	71.5	78.4
FULL	R/R/R/R	59.3	86.2
	S/R/S/R	86.1	91.3
	S/S/S/S	79.3	86.0
	R/S/R/S	38.1	84.8

QUARTER PLOT AREA HARVESTED 0.00092