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Yields of the Field Experiments 1974

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74/W/CS/16 Irrigation and Eelworms - Potatoes

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74/W/CS/16

IRRIGATION AND EELWORMS

Object: To study the cumulative effects of dazomet 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: K. Evans, D.M. Parrott.

The ninth 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/W/CS/16.

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

Whole plot dimensions: 6.48 x 7.11. Area harvested: 0.00092.

Treatments: All combinations of:-

Whole plots: 1. Irrigation:

IRRIGIN

None

None

Full

Full

Strips of half plots: 2. Cropping sequences with potatoes resistant (R) and susceptible (S) to potato cyst nematode:

CROPSEQN

1966	1967	1968	1969	1970	1971	1972	1973	1974
R	R	R	R	R	R	R	R	R
R	S	R	S	R	S	R	S	R
S	S	S	S	S	S	S	S	S
S	R	S	R	S	R	S	R	S

R/R/R/R
S/R/S/R
S/S/S/S
R/S/R/S

Quarter plots: 3. Dazomet (kg) applied cumulatively to previous fumigant treatments:

DAZOMET

None
224

0
224

Irrigation treatments 1974 (mm water):

21 June	12.7
11 July	12.7
Total	25.4

NOTE: Treatments were applied to Series IV only. The similar experiment on Series I ended at harvest 1973.

74/W/CS/16

Basal applications: Manures: (13:13:20) at 1510 kg. Weedkillers: Linuron at 1.2 kg plus paraquat at 0.28 kg ion in 280 l. Fungicide and insecticide: Mancozeb at 1.3 kg plus demeton-s-methyl at 0.25 kg in 450 l. Fungicide: Mancozeb at 1.3 kg in 450 l.

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

Cultivations, etc.: - Dazomet applied, rotary cultivated: 9 Nov, 1973. Ploughed: 2 Jan, 1974. NPK applied: 8 Apr. Rotary cultivated, potatoes planted: 16 Apr. Ridges rolled: 18 Apr. Weedkiller applied: 16 May. Rotary ridged: 11 June. Fungicide with insecticide applied: 19 July. Fungicide applied: 7 Aug. Haulm mechanically destroyed: 11 Sept. Sprayed with undiluted BOV at 170 l: 18 Sept. Lifted: 29 Oct.

NOTE: Soil samples were taken on 8 Nov, 1973 and 24 Apr, 1974 for cyst and egg counts of *Heterodera rostochiensis* and *H. pallida*.

- NOTES: (1) Because of the large difference in yield the plots receiving and not receiving dazomet were analysed separately. The standard errors for the former have not been shown.
- (2) On two plots IRRIGTN - None, CROPSEQN - R/S/R/S, DAZOMET - 224 and IRRIGTN - None, CROPSEQN - S/S/S/S, DAZOMET - 0, the tubers rotted due to waterlogging. Estimated values were used in the analysis.

Standard errors per plot. Total tubers, tonnes/hectare.

DAZOMET 224

CROPSEQN 5.38 or 19.4% (6 d.f.)

IRRIGTN x CROPSEQN 7.05 or 25.4% (7 d.f.)

74/W/CS/16

TABLES OF MEANS

DAZOMET 0

CROPSEQN

	R/R/R/R	S/R/S/R	S/S/S/S	R/S/R/S	Mean
TOTAL TUBERS: TONNES/HECTARE					
IRRIGTN					
None	11.7	18.5	6.1	2.8	9.8
Full	7.9	13.0	1.6	2.3	6.2
Mean	9.8	15.7	3.9	2.5	8.0

PERCENTAGE WARE: 3.81 CM (1.5 INCH) RIDDLE

IRRIGTN					
None	72.1	91.3	28.6	51.0	60.8
Full	68.9	91.1	57.6	63.7	70.3
Mean	70.5	91.2	43.1	57.4	65.6

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DAZOMET 224

CROPSEQN

	R/R/R/R	S/R/S/R	S/S/S/S	R/S/R/S	Mean
TOTAL TUBERS: TONNES/HECTARE					
IRRIGTN					
None	27.1	27.9	28.5	28.0	27.9
Full	31.8	22.3	25.2	31.1	27.6
Mean	29.4	25.1	26.9	29.5	27.7

STANDARD ERRORS OF DIFFERENCES

CROPSEQN	IRRIGTN CROPSEQN
4.39	5.98*

* Within the same level of IRRIGTN only

PERCENTAGE WARE: 3.81 CM (1.5 INCH) RIDDLE

IRRIGTN					
None	90.3	94.5	88.6	86.4	90.0
Full	92.4	93.8	86.8	92.9	91.5
Mean	91.3	94.1	87.7	89.7	90.7