Yields of the Field Experiments 1974

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

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/R/R/R
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

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

                        None   0
                        224   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.

171

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.)

172

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
IRRIGTN	TOTAL TUBERS: TONNES/HECTARE				
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

173

74/W/CS/16

DAZOMET 224

CROPSEQN

	R/R/R/R	S/R/S/R	S/S/S/S	R/S/R/S	Mean
IRRIGTN	TOTAL TUBERS: TONNES/HECTARE				
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

C-OPSEQN	IRRIGTN
	CROPSEQN
4.39	5.98*

* Within the same level of IRRIGTN only

PERCENTAGE WARE: 3.81 CM (1.5 INCH) RIDDLE

IRRIGTN	R/R/R/R	S/R/S/R	S/S/S/S	R/S/R/S	Mean
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

174