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Numerical Results of the Field Experiments 1970

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

Rothamsted Research

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IRRIGATION AND EELWORMS

(70/W/CS/16)

Butt Close Woburn, the fifth year - potatoes 1970.

Effects on yield and cyst nematode of soil fumigant, irrigation and sequences of resistant and susceptible varieties of potatoes.

For details of treatments etc. and previous years' results see 'Results' 66/C/32, 67/C/25, 68/C/19 and 69/W/CS/16. Irrigation and fumigant treatments are cumulative.

Area of each sub-plot: 0.0114. Area harvested: 0.0046.

Irrigation to C plots 1970 (inches water):

	Series I		Series IV
10 June	1.0	9 - 10 June	1.0
12 June	1.0	11 - 12 June	1.0
17 - 18 June	1.0	16 - 17 June	1.0
23 June	0.5	22 June	0.5
24 June	0.5	24 June	0.5
15 - 16 July	1.0	13 - 14 July	1.0
5 - 6 Aug	1.0	7 - 10 Aug	1.0
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Total	6.0		6.0

Basal applications: 9 cwt (13:13:20). Weedkiller: Linuron at 1.0 lb plus paraquat at 0.37 lb ion in 33 gals. Fungicide: Mancozeb at 1.2 lb in 37 gals on two occasions. Insecticide: Demeton-s-methyl at 3.5 fl oz in 37 gals on one occasion with mancozeb.

Cultivations, etc.: Rotary cultivated: 4 Oct, 1969. Fumigated, rotary cultivated: 29 Oct. Ploughed: 11 Feb, 1970. Fertiliser applied: 2 Apr. Rotary cultivated, potatoes planted, (Series I): 29 Apr, (Series IV): 4 May. Weedkiller applied, (Series I): 13 May, (Series IV): 14 May. Rotary ridged: 5 June. Fungicide with insecticide applied: 31 July. Fungicide applied: 18 Aug. Sprayed with undiluted BOV at 20 gal: 7 Sept. Lifted: 14 Sept.

70/W/CS/16

NOTE: Soil samples were taken from each plot before planting, and after lifting for cyst-nematode counts. Root invasion tests by cyst-nematode were made in pots of soil from samples taken at planting.

Standard errors per plot. Total tubers, tons:

Series I

Strip: 1.438 or 17.9% (6 d.f.)
1/2 plots: 1.342 or 16.7% (8 d.f.)
1/4 plots: 1.269 or 15.8% (16 d.f.)
Pooled (used for calculation of standard errors in summary):
1.324 or 16.5% (30 d.f.)

Series IV

Strip: 3.126 or 32.7% (6 d.f.)
1/2 plots: 1.391 or 14.6% (8 d.f.)
1/4 plots: 1.564 or 16.4% (16 d.f.)
Pooled (used for calculation of standard errors in summary):
1.943 or 20.3% (30 d.f.)

70/W/CS/16

SUMMARY OF RESULTS

SERIES I

Year	MP	MP	PD	PD	Mean
1966	MP	MP	PD	PD	
1967	MP	PD	PD	MP	
1968	MP	MP	PD	PD	
1969	MP	PD	PD	MP	
1970	MP	MP	PD	PD	
TOTAL TUBERS: TONS					
	(±0.541)				(±0.270)
O	10.48	7.95	2.01	7.32	6.94
C	15.00	9.79	1.74	10.04	9.14
O	10.95	7.36	0.70	2.68	5.42
F	14.52	10.38	3.06	14.68	10.66
Mean (±0.382)	12.74	8.87	1.88	8.68	8.04
% WARE: 1.5 INCH					
O	89.6	93.8	64.2	75.1	80.7
C	94.9	94.5	48.1	86.5	81.0
O	90.3	94.8	42.2	66.0	73.3
F	94.2	93.5	70.0	95.6	88.3
Mean	92.3	94.2	56.1	80.8	80.8

Varieties MP = Maris Piper
 PD = Pentland Dell

70/W/CS/16

SERIES IV

1966	MP	MP	PD	PD	
1967	MP	PD	PD	MP	
1968	MP	MP	PD	PD	
1969	MP	PD	PD	MP	
1970	MP	MP	PD	PD	Mean
TOTAL TUBERS: TONS					
		(±0.793)			(±0.397)
O	13.58	10.47	2.26	8.12	8.61
C	16.95	11.84	3.44	9.88	10.53
O	14.23	8.33	1.02	3.10	6.67
F	16.30	13.97	4.68	14.91	12.46
Mean (±0.561)	15.26	11.15	2.85	9.00	9.57

% WARE: 1.5 INCH

O	93.6	95.0	66.1	86.0	85.2
C	95.8	94.6	63.7	86.4	85.1
O	94.0	94.1	47.8	76.4	78.1
F	95.5	95.5	82.0	95.9	92.2
Mean	94.7	94.8	64.9	86.2	85.2

Varieties MP = Maris Piper
 PD = Pentland Dell

PLACEMENT OF FUMIGANT

(70/W/CS/20)

Soil fumigation for control of potato cyst-nematode - Woburn
Butt Furlong 1970 fourth year, potatoes.

For treatments etc., see 'Results' 68/C/27 and for previous years' results see 'Results' 67/C/34, 68/C/27 and 69/W/CS/20. In 1970 the fumigant was changed to dazomet applied at None (DZ0), 37.5 (DZ1), 75 (DZ2), 150 (DZ4) and 300 lb (DZ8) in the autumn and rotary cultivated into the top six inches of soil. These treatments were cumulative to 'D-D' treatments applied in 1967, 1968 and 1969 - (D0), (D1), (D2), (D4) and (D8) respectively.

Area of each plot: 0.0024. Area harvested: 0.0024.

Basal applications: 11 cwt (13:13:20). Weedkiller: Linuron at 1 lb in 33 gals. Fungicide: Mancozeb at 1.2 lb in 37 gals on two occasions. Insecticide: Demeton-s-methyl at 3.5 fl oz in 37 gals on one occasion with fungicide.

Cultivations, etc.: Ploughed: 14 Oct, 1969. Dazomet applied, rotary cultivated: 27 Oct. Deep-tine cultivated, NPK applied, potatoes planted, inter-row rotary cultivated and earthed up: 5 May, 1970. Weedkiller applied: 15 May. Fungicide applied: 31 July, 18 Aug. Insecticide applied: 31 July. Lifted by hand: 18 Sept.

NOTE: Soil samples were taken before planting and after harvest for cyst counts.

Standard error per plot.

Total tubers, tons: 1.407 or 15.6% (8 d.f.)

70/W/CS/20

SUMMARY OF RESULTS

DZ0	DZ1	DZ2	DZ4	DZ8	Mean
TOTAL TUBERS: TONS					
(±0.812)					
6.45	7.28	8.24	9.78	13.30	9.01
% WARE: 1.5 INCH					
70.8	72.5	82.2	76.1	77.7	75.9