

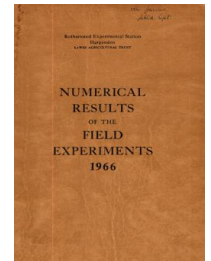
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66/W/WCE/C/32 Irrigation and Eelworm - Potatoes

Rothamsted Research

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66/C/32.1

IRRIGATION AND EELWORM

(WCE)

Butt Close Woburn, the first year - potatoes.

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

Site: 3 replicates on Series I (Potatoes 1950, 1951, 1954, 1961), 3 on Series IV (last potato crop 1950) of the Irrigation Experiment 1951 - 1965.

Design: (each Series) 3 blocks of 4 whole plots, sequences of varieties on strips of 2 half plots, fumigants on quarter plots.

Area of each quarter-plot: 0.0114. Area harvested: 0.0068.

Treatments: All combinations of:-

1. Whole plots: Irrigation: None (O), full irrigation (C).
2. Strips of 4 plots: Sequences of varieties: (D = Pentland Dell, susceptible P = Maris Piper, resistant).

1966	1967	1968	1969
D	D	D	D
D	P	D	P
P	P	P	P
P	D	P	D

3. Quarter-plots: Fumigants: None (FO), DD injected at 400 lb at 6 inches in rows 12 inches apart (F).
Irrigation (C) 1966: (inches water)

	Series I	Series IV
May 27	0.5	May 26 0.5
June 1	0.5	June 2 0.5
June 7	0.5	June 6 0.5
June 10	0.5	June 9 0.5
July 4	0.5	July 5 0.5
July 18	0.5	July 14 0.5
Total	3.0	3.0

Basal applications, etc.: 7 cwt (17:11:22). Weedkiller: Sprayed with 1 lb linuron plus 0.75 lb ion paraquat in 37 gals.
Fungicide: Mancozeb at 1.2 lb in 33 gals on 3 occasions.

Cultivations, etc.: Series I ploughed: Sept 27, 1965. Series IV

NOTES: (1) Soil samples were taken from each plot after fumigation and before cropping. Cyst and egg counts were made, and soil used for root invasion tests.

(2) Plots were scored for magnesium deficiency and general appearance at the beginning of July.

Series I

Series IV

Strip: 1.332 or 7.9% (8 d.f.)
1/2 plot: 1.900 or 11.3% (8 d.f.)
1/4 plot: 1.546 or 9.2% (20 d.f.)

66/C/32.3

SUMMARY OF RESULTS

SERIES I

TOTAL TUBERS

	D	P	O	F	Mean
	(1) and (2)		$(\pm 0.526)^*$		
O	11.47	14.79	10.97	15.29	13.13
C	9.57	12.69	8.82	13.44	11.13
			(3) and (4)		(± 0.628)
		D	7.77	13.27	10.52
		P	12.02	15.45	13.74
		Mean (± 0.372)	9.90	14.36	12.13

* For use in horizontal and interaction comparisons only

- (1) (± 0.644) For use in interaction comparisons only
- (2) (± 0.887) For use in horizontal comparisons only
- (3) (± 0.730) For use in vertical and diagonal comparisons only
- (4) (± 0.526) For use in horizontal and interaction comparisons only

66/C/32.4

SERIES I

% WARE

	D	P	O	F	Mean
O	86.4	92.6	84.6	94.4	89.5
C	78.9	89.4	76.3	91.9	84.1
	D		73.2	92.1	82.7
	P		87.7	94.3	91.0
	Mean		80.5	93.2	86.8

66/c/32.5

SERIES IV
TOTAL TUBERS

	D	P	O	F	Mean
	(1) and (2)		$(\pm 0.446)^*$		
O	16.66	19.70	17.79	18.58	18.18
C	13.73	17.28	14.00	17.01	15.50
			(3) and (4)		(± 0.544)
		D	14.02	16.37	15.19
		P	17.77	19.21	18.49
		Mean (± 0.316)	15.89	17.79	16.84

* For use in horizontal and interaction comparisons only

- (1) (± 0.776) For use in interaction comparisons only
- (2) (± 0.769) For use in horizontal comparisons only
- (3) (± 0.629) For use in vertical and diagonal comparisons only
- (4) (± 0.446) For use in horizontal and interaction comparisons only

66/C/32.6

SERIES IV

% WARE

	D	P	O	F	Mean
D	94.8	94.8	94.7	94.9	94.8
C	92.0	92.1	89.6	94.5	92.1
		D	92.5	94.4	93.4
		P	91.9	95.1	93.5
		Mean	92.2	94.7	93.5