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Yields of the Field Experiments 1983

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83/W/CS/273 Intensive Potatoes - Potatoes, S. Barley,

Rothamsted Research

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Object: To study the effects of a range of frequencies of cropping on the occurrence of pests and diseases and on the yield of potatoes - Woburn Lansome III.

The second year, s. barley, potatoes.

For previous year see 82/W/CS/273.

Design: In the second year: 6 randomised blocks of 8 plots.

Whole plot dimensions: 9.00 x 24.7.

Treatments: All combinations of:-

- | | |
|-------------|--|
| 1. SD TREAT | Seed treatment: |
| NONE | None |
| TOL+IMAZ | Tolclofos methyl at 250 g and imazalil at 10 g per tonne
of tubers |
| 2. NEMACIDE | Nematicide: |
| NONE | None |
| OXAMYL | Oxamyl at 5.0 kg worked in to seedbed |
| 3. MOLLCIDE | Molluscicide: |
| NONE | None |
| METHIOCA | Methiocarb at 0.23 kg applied as pellets on 13 July,
1983, 27 July, 8 Sept. |

NOTES: (1) Additional plots were sown to s. barley for cropping sequences with differing frequencies of potatoes. Barley yields were not taken.

(2) Irrigation was applied to the potatoes as follows (mm water):

27 June	12.5	27 July	12.5
30 June	12.5	29 July	25
4 July	12.5	15 Aug	12.5
6 July	12.5	16 Aug	12.5
14 July	12.5	30 Aug	12.5
15 July	12.5	31 Aug	12.5
22 July	12.5		
		Total	175

Standard applications:

Potatoes: Manures: (0:18:36) at 420 kg, (10:10:15+4.5 Mg) at 3000 kg, N at 90 kg as 'Nitro-Chalk'. Weedkillers: Linuron at 1.0 l with paraquat at 0.4 kg ion in 250 l. Fungicide: Mancozeb at 1.4 kg in 250 l on three occasions, with insecticide on the first and third occasions. Fentin hydroxide at 0.28 kg in 250 l on five occasions, with insecticide on the first four occasions. Insecticide: Pirimicarb at 0.14 kg.

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S. barley: Manures: (0:18:36) at 620 kg, N at 160 kg as 'Nitro-Chalk' and N at 60 kg as 'Nitro-Chalk'. Weedkillers: Dicamba with mecoprop and MCPA (as 'Herrisol' at 5.0 l) in 250 l.

Seed: Potatoes: Desiree.

S. barley: Triumph, dressed with ethirimol, sown at 160 kg.

Cultivations, etc.:—

Potatoes: PK applied: 2 Nov, 1982. Ploughed: 9 Nov. Spring-tine cultivated: 8 Mar, 1983. NPK with Mg applied: 13 Apr. Heavy spring-tine cultivated: 14 Apr. N applied, heavy spring-tine cultivated: 5 May. Oxamyl applied, harrowed: 17 May. Spike rotary cultivated with crumbler attached, potatoes planted: 25 May. Rotary ridged, weedkillers applied: 7 June. Mancozeb with pirimicarb applied: 22 June, 8 July. Mancozeb applied: 1 July. Fentin hydroxide with pirimicarb applied: 18 July, 2 Aug, 12 Aug, 26 Aug. Fentin hydroxide applied: 8 Sept. Lifted: 17 Oct.

S. barley: Ploughed after barley: 9 Nov, 1982. Heavy spring-tine cultivated after potatoes: 7 Mar, 1983. Spring-tine cultivated all plots: 8 Mar. PK and N applied, spring-tine cultivated with crumbler attached, seed sown: 15 Mar. Weedkillers applied: 27 May. N applied: 3 June. Combine harvested: 10 Aug.

- NOTES: (1) Plant samples were taken in August for tuber disease assessments.
(2) Potato cyst nematode numbers were assessed before planting and after harvest.
(3) Slug damage assessments were made on the lifted tubers.

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TOTAL TUBERS TONNES/HECTARE

***** TABLES OF MEANS *****

NEMACIDE	NONE	OXAMYL	MEAN
SD TREAT			
NONE	36.1	48.2	42.1
TOL+IMAZ	29.6	45.9	37.7
MEAN	32.8	47.0	39.9

MOLLCIDE	NONE	METHIOCA	MEAN
SD TREAT			
NONE	40.8	43.5	42.1
TOL+IMAZ	39.8	35.7	37.7
MEAN	40.3	39.6	39.9

MOLLCIDE	NONE	METHIOCA	MEAN
NEMACIDE			
NONE	33.8	31.9	32.8
OXAMYL	46.7	47.3	47.0
MEAN	40.3	39.6	39.9

NEMACIDE	NONE		OXAMYL	
MOLLCIDE	NONE	METHIOCA	NONE	METHIOCA
SD TREAT				
NONE	34.9	37.3	46.6	49.7
TOL+IMAZ	32.7	26.5	46.8	44.9

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

TABLE	SD TREAT	NEMACIDE	MOLLCIDE	SD TREAT NEMACIDE
SED	1.67	1.67	1.67	2.36

TABLE	SD TREAT MOLLCIDE	NEMACIDE MOLLCIDE	SD TREAT NEMACIDE MOLLCIDE
SED	2.36	2.36	3.34

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

STRATUM	DF	SE	CV%
BLOCK.WP	35	5.78	14.5

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PERCENTAGE WARE 4.44CM (1.75 INCH) RIDDLE

***** TABLES OF MEANS *****

NEMACIDE	NONE	OXAMYL	MEAN	
SD TREAT				
NONE	55.1	69.1	62.1	
TOL+IMAZ	47.8	68.7	58.3	
MEAN	51.5	68.9	60.2	
MOLLCIDE	NONE	METHIOCA	MEAN	
SD TREAT				
NONE	59.9	64.3	62.1	
TOL+IMAZ	61.7	54.8	58.3	
MEAN	60.8	59.6	60.2	
MOLLCIDE	NONE	METHIOCA	MEAN	
NEMACIDE				
NONE	52.7	50.3	51.5	
OXAMYL	69.0	68.8	68.9	
MEAN	60.8	59.6	60.2	
NEMACIDE	NONE		OXAMYL	
MOLLCIDE	NONE	METHIOCA	NONE	METHIOCA
SD TREAT				
NONE	52.3	58.0	67.6	70.6
TOL+IMAZ	53.1	42.6	70.4	67.0

PLOT AREA HARVESTED 0.00075