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

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85/W/CS/273

INTENSIVE POTATOES

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.

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The fourth year, s. barley, potatoes.

For previous years see 82-84/W/CS/273.

Design: In the fourth year: 2 randomised blocks of 2 plots split into 8.

Whole plot dimensions: 9.00 x 24.7.

Treatments: All combinations of:-

Whole plots

1. VARIETY Varieties (both following Desiree in 1983, s. barley in other years)

DESIREE	Desiree
M PIPER	Maris Piper

Sub plots

2. SD TREAT Seed treatment:

NONE	None
TOL+IMAZ	Tolclofos methyl at 250 g and imazalil at 10 g per tonne of tubers

3. NEMACIDE Nematicide:

NONE	None
OXAMYL	Oxamyl at 5.0 kg worked in to seedbed

4. MOLLCIDE Molluscicide:

NONE	None
METHIOCA	Methiocarb at 0.23 kg applied as pellets on 2 Aug, 1985, 16 Aug, 30 Aug, 13 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):

5 June 12.5	15 July 12.5
9 July 12.5	26 July <u>12.5</u>

Total 50

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Standard applications:

Potatoes: Manures: (0:14:28) at 540 kg. (10:10:15+4.5 Mg) at 2940 kg.
Weedkiller: Linuron at 0.90 kg in 500 l. Fungicides: Mancozeb at 1.4 kg in 250 l on six occasions, with the insecticide on the second occasion. Fentin acetate with maneb (as 'Brestan 60' at 0.50 kg) in 250 l. Insecticide: Pirimicarb at 0.14 kg.

S. barley: Manures: (20:10:10) at 640 kg. Weedkillers: Clopyralid at 0.07 kg with bromoxynil at 0.34 kg and mecoprop at 2.1 kg in 250 l applied with the fungicide. Fungicide: Tridemorph at 0.52 kg.

Seed: S. barley: Triumph, dressed with flutriafol, thiabendazole and ethirimol, sown at 160 kg.

Cultivations, etc.:-

Potatoes: Disced: 14 Sept, 1984. PK applied: 4 Oct. Ploughed: 29 Nov. Spring-tine cultivated with crumbler attached: 19 Mar, 1985. Rotary harrowed: 20 Mar. NPK with Mg applied, spring-tine cultivated: 9 Apr. Oxamyl applied, rotary cultivated, potatoes planted: 26 Apr. Weedkiller applied: 29 May. Mancozeb applied: 20 June, 3 July, 23 July, 5 Aug, 13 Aug, 7 Sept. Insecticide applied: 3 July. 'Brestan 60' applied: 21 Aug. Lifted: 30 Sept.

S. barley: Disced: 14 Sept, 1984. Ploughed: 28-29 Nov. NPK applied, spring-tine cultivated with crumbler attached: 19 Mar, 1985. Rotary harrowed, seed sown: 20 Mar. Weedkillers and fungicide applied: 17 May. Combine harvested: 30 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 crop.

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POTATOES

TOTAL TUBERS TONNES/HECTARE

***** TABLES OF MEAN *****

SD TREAT	NONE	TOL+IMAZ	MEAN		
VARIETY					
DESIREE	22.2	21.7	21.9		
M PIPER	19.9	17.7	18.8		
MEAN	21.1	19.7	20.4		
NEMACIDE	NONE	OXAMYL	MEAN		
VARIETY					
DESIREE	14.7	29.1	21.9		
M PIPER	13.7	23.9	18.8		
MEAN	14.2	26.5	20.4		
NEMACIDE	NONE	OXAMYL	MEAN		
SD TREAT					
NONE	14.4	27.8	21.1		
TOL+IMAZ	14.1	25.3	19.7		
MEAN	14.2	26.5	20.4		
MOLLCIDE	NONE	METHIOCA	MEAN		
VARIETY					
DESIREE	19.1	24.7	21.9		
M PIPER	18.8	18.9	18.8		
MEAN	19.0	21.8	20.4		
MOLLCIDE	NONE	METHIOCA	MEAN		
SD TREAT					
NONE	19.3	22.9	21.1		
TOL+IMAZ	18.7	20.7	19.7		
MEAN	19.0	21.8	20.4		
MOLLCIDE	NONE	METHIOCA	MEAN		
NEMACIDE					
NONE	11.6	16.9	14.2		
OXAMYL	26.4	26.7	26.5		
MEAN	19.0	21.8	20.4		
VARIETY	NEMACIDE	NONE	OXAMYL		
DESIREE	MOLLCIDE	NONE	METHIOCA		
	SD TREAT				
	NONE	9.6	19.9	27.6	31.7
	TOL+IMAZ	11.4	18.0	27.9	29.3
M PIPER	NONE	13.2	14.9	26.6	25.1
	TOL+IMAZ	12.0	14.8	23.4	20.7

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POTATOES

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

TABLE	VARIETY	SD TREAT	NEMACIDE	MOLLCIDE
SED	0.36	1.88	1.88	1.88

TABLE	VARIETY SD TREAT	VARIETY SD TREAT	NEMACIDE SD TREAT	NEMACIDE SD TREAT	VARIETY SD TREAT
SED	1.92	1.92	2.66	2.66	1.92
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:					
VARIETY	2.66	2.66			2.66

TABLE	SD TREAT MOLLCIDE	NEMACIDE MOLLCIDE	VARIETY SD TREAT NEMACIDE	VARIETY SD TREAT MOLLCIDE
SED	2.66	2.66	3.28	3.28
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
VARIETY			3.76	3.76

TABLE	VARIETY NEMACIDE MOLLCIDE	SD TREAT NEMACIDE MOLLCIDE	VARIETY SD TREAT NEMACIDE MOLLCIDE
SED	3.28	3.76	4.99
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
VARIETY	3.76		5.32

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	14	5.32	26.1

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POTATOES

PERCENTAGE WARE 4.44 CM (1.75 INCH) RIDDLE

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

SD TREAT	NONE	TOL+IMAZ	MEAN		
VARIETY					
DESIREE	66.1	67.5	66.8		
M PIPER	73.2	81.0	77.1		
MEAN	69.7	74.3	72.0		
NEMACIDE	NONE	OXAMYL	MEAN		
VARIETY					
DESIREE	58.3	75.3	66.8		
M PIPER	72.6	81.6	77.1		
MEAN	65.4	78.5	72.0		
NEMACIDE	NONE	OXAMYL	MEAN		
SD TREAT					
NONE	64.4	74.9	69.7		
TOL+IMAZ	66.5	82.1	74.3		
MEAN	65.4	78.5	72.0		
MOLLCIDE	NONE	METHIOCA	MEAN		
VARIETY					
DESIREE	67.2	66.4	66.8		
M PIPER	75.1	79.1	77.1		
MEAN	71.1	72.8	72.0		
MOLLCIDE	NONE	METHIOCA	MEAN		
SD TREAT					
NONE	69.4	69.9	69.7		
TOL+IMAZ	72.9	75.7	74.3		
MEAN	71.1	72.8	72.0		
MOLLCIDE	NONE	METHIOCA	MEAN		
NEMACIDE					
NONE	63.3	67.6	65.4		
OXAMYL	79.0	78.0	78.5		
MEAN	71.1	72.8	72.0		
	NEMACIDE	NONE	OXAMYL		
	MOLLCIDE	NONE	METHIOCA		
VARIETY	SD TREAT				
DESIREE	NONE	60.6	58.1	73.8	71.9
	TOL+IMAZ	54.9	59.6	79.4	76.2
M PIPER	NONE	66.7	72.3	76.6	77.3
	TOL+IMAZ	71.1	80.3	86.1	86.6

SUB PLOT AREA HARVESTED 0.00075