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

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82/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 first year, s. barley, potatoes.

Design: In the first 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 |
| IPR+IMAZ | Iprodione at 100 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 5 July, 1982, 19 July, 2 Aug, 16 Aug, 31 Aug, 13 Sept. |

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

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

8 June	8
23 July	12.5
26 July	12.5
30 July	12.5
4 Aug	25
Total	70.5

Standard applications:

Potatoes: Manures: Magnesian limestone at 7.5 t, (0:14:28) at 820 kg, (10:10:15+4.5 Mg) at 2960 kg. Weedkillers: Linuron at 1.2 kg with paraquat at 0.28 kg ion in 280 l. Fungicides: Mancozeb at 1.4 kg in 250 l applied four times, with pirimicarb on the first two occasions. Ofurace with maneb (as 'Patafol-Plus' at 2 kg) in 250 l applied twice, with pirimicarb on the first occasion. Insecticides: Phorate granules at 1.7 kg, pirimicarb at 0.14 kg. Haulm desiccant: Undiluted BOV at 220 l.

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S. barley: Manures: Magnesian limestone at 7.5 t, (0:14:28) at 820 kg, N at 160 kg as 'Nitro-Chalk'. Weedkillers: Mecoprop with bromoxynil and ioxynil (as 'Brittox' at 3.5 l) in 280 l.

Seed: Potatoes: Desiree.

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

Cultivations, etc.:-

Potatoes: Magnesian limestone applied: 26 Sept, 1981. Ploughed twice: 2-3 Nov, 1 Feb 1982. PK applied: 7 Jan. Spring-tine cultivated with crumbler attached: 31 Mar, 2 Apr, 22 Apr. NPK with Mg applied: 19 Apr. Oxamyl applied, rotary cultivated with crumbler attached: 22 Apr. Phorate applied, potatoes planted: 23 Apr. Rotary ridged: 14 May. Weedkillers applied: 18 May. Mancozeb with pirimicarb applied: 16 June, 2 July. Mancozeb applied: 13 July, 23 Aug. 'Patafol-Plus' with pirimicarb applied: 27 July. 'Patafol-Plus' applied: 11 Aug. Haulm desiccant applied: 30 Sept. Lifted: 14 Oct.

S. Barley: Magnesian limestone applied: 26 Sept, 1981. Ploughed twice: 2-3 Nov, 1 Feb, 1982. PK applied: 7 Jan. Spring-tine cultivated with crumbler attached: 31 Mar, 2 Apr. N applied, seed sown: 2 Apr. Weedkiller applied: 17 May. Combine harvested: 12 Aug.

- NOTES: (1) Slug traps were set out in the potatoes at intervals and catches monitored during the growing season.
(2) Plant samples were taken in August for tuber disease assessments.
(3) Potato cyst nematode numbers were assessed before planting and after harvest.
(4) OXAMYL was not applied to one plot with treatment combinations

SD TREAT	IPR+IMAZ
NEMACIDE	OXAMYL
MOLLICIDE	METHIOCA

Estimated values was used in the analysis.

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TOTAL TUBERS TONNES/HECTARE

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

NEMACIDE	NONE	OXAMYL	MEAN
SD TREAT			
NONE	35.9	59.5	47.7
IPR+IMAZ	39.9	62.2	51.1
MEAN	37.9	60.9	49.4
MOLLCIDE	NONE	METHIOCA	MEAN
SD TREAT			
NONE	49.5	45.8	47.7
IPR+IMAZ	52.0	50.1	51.1
MEAN	50.8	48.0	49.4
MOLLCIDE	NONE	METHIOCA	MEAN
NEMACIDE			
NONE	41.0	34.8	37.9
OXAMYL	60.5	61.2	60.9
MEAN	50.8	48.0	49.4
NEMACIDE	NONE	OXAMYL	
MOLLCIDE	NONE	METHIOCA	METHIOCA
SD TREAT			
NONE	40.9	30.9	58.1
IPR+IMAZ	41.1	38.6	62.9
			60.8
			61.6

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

TABLE	SD TREAT	NEMACIDE	MOLLCIDE	SD TREAT NEMACIDE

SED	2.49	2.49	2.49	3.52
TABLE	SD TREAT	NEMACIDE	SD TREAT	
	MOLLCIDE	MOLLCIDE	NEMACIDE	MOLLCIDE

SED	3.52	3.52	4.98	

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

STRATUM	DF	SE	CV%
BLOCK.WP	34	8.63	17.5

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PERCENTAGE WARE 4.44CM (1.75 INCH) RIDDLE

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

NEMACIDE	NONE	OXAMYL	MEAN
SD TREAT			
NONE	57.2	78.3	67.7
IPR+IMAZ	59.6	78.2	68.9
MEAN	58.4	78.2	68.3

MOLLCIDE	NONE	METHIOCA	MEAN
SD TREAT			
NONE	70.3	65.1	67.7
IPR+IMAZ	70.3	67.5	68.9
MEAN	70.3	66.3	68.3

MOLLCIDE	NONE	METHIOCA	MEAN
NEMACIDE			
NONE	61.5	55.2	58.4
OXAMYL	79.1	77.4	78.2
MEAN	70.3	66.3	68.3

NEMACIDE	NONE	METHIOCA	OXAMYL	
			NONE	METHIOCA
MOLLCIDE				
SD TREAT				
NONE	62.1	52.3	78.6	78.0
IPR+IMAZ	61.0	58.2	79.6	76.8

PLOT AREA HARVESTED 0.00075