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73/W/P/2 - Control of Verticillium - Potatoes

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73/W/P/2

POTATOES

CONTROL OF VERTICILLIUM

Object: To study the effects of trace elements, benomyl and forms of nitrogen on yields and incidence of Verticillium of potatoes - Woburn Broadmead I.

Sponsor: G.A. Hide.

Design: 2 blocks of 2 plots, split into 6.

Whole plot dimensions: 5.69 x 27.4. **Area harvested:** 0.00108.

Treatments: All combinations of:-

Whole plots: 1. Forms of nitrogen (applied at 163 kg N):	FORM
Sulphate of ammonia	SA
Nitrate of soda	NS
Sub plots: 2. Foliar sprays and drench:	SPRAY
None	O
Foliar spray of trace elements	TE
Foliar spray of trace elements with NPK fertiliser	TEF
Single foliar spray of benomyl	BS1
Three foliar sprays of benomyl	BS3
Soil drench of benomyl at crop emergence	BD

- NOTE:** (1) The foliar spray of trace elements contained ferrexanol, borax, ammonium molybdate, and sulphate of magnesium, manganese, copper, cobalt and zinc, applied at a total rate of 0.10 kg. The foliar spray of trace elements with NPK, included in addition, compound fertiliser (22:21:17) at 2.35 kg. Both sprays were applied in 540 l.
- (2) Benomyl was applied as a spray at 1.1 kg in 540 l to BS1, at 2.37 kg in 540 l repeated on three occasions to BS3 and at 1.1 kg in 7400 l as a drench to BD.
- (3) Because plants died earlier than expected, a planned fourth benomyl spray was omitted.

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Basal applications: Manures: (0:14:28) at 1140 kg. Epsom salts at 650 kg. Weedkillers: Mecoprop at 2.5 kg in 280 l. Paraquat at 0.56 kg ion in 280 l on two occasions. Linuron at 1.7 kg plus paraquat at 0.42 kg ion in 280 l. Fungicide with insecticide: Mancozeb at 1.3 kg plus demeton-s-methyl at 0.25 kg in 390 l. Fungicide: Mancozeb at 1.3 kg in 390 l on the first occasion and in 370 l on the second occasion.

Variety: Pentland Dell.

Cultivations, etc.:-- Mecoprop applied: 13 Mar, 1973. Paraquat applied: 17 Mar. Basal PK and Mg and test N applied: 28 Mar. Deep-tine cultivated: 5 Apr. Rotary cultivated twice: 11 Apr, 17 Apr. Potatoes planted: 18 Apr. Linuron plus paraquat applied: 14 May. Paraquat applied: 21 May. Soil drench applied: 5 June. Grubbed: 6 June. Rotary ridged: 16 June. Foliar sprays applied to TE, TEF, BS1 and BS3 plots: 28 June. Fungicide with insecticide applied: 5 July. Additional foliar sprays applied to BS3 plots: 11 July, 17 July. Fungicide applied twice: 26 July, 13 Aug. Haulm mechanically destroyed: 23 Aug. Potatoes lifted: 10 Sept. Previous crops: Beans 1971, winter wheat 1972.

- NOTES: (4) Verticillium leaf symptom scores were made in June and July.
(5) Yields were poor and there was a large difference between the two blocks, (associated with a difference in past cropping) no standard errors are presented.

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TABLES OF MEANS

FORM	SPRAY						Mean
	O	TE	TEF	BS1	BS3	BD	
	TOTAL TUBERS: TONNES/HECTARE						
SA	5.1	5.0	6.0	6.4	5.3	4.9	5.4
NS	3.3	2.3	4.6	4.8	3.5	5.4	4.0
Mean	4.2	3.6	5.3	5.6	4.4	5.2	4.7

FORM	PERCENTAGE WARE: 4.44 CM (1.75 INCH) RIDDLE						Mean
	O	TE	TEF	BS1	BS3	BD	
SA	23.1	13.9	21.7	17.7	14.6	12.6	17.3
NS	4.6	0.0	5.7	17.9	16.3	8.7	8.9
Mean	13.9	7.0	13.7	17.8	15.5	10.7	13.1