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84/R/P/2 Methods of Applying Fungicides to Seed - Potatoes

Rothamsted Research

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84/R/P/2

POTATOES

METHODS OF APPLYING FUNGICIDES TO SEED

Object: To compare spraying methods and rates of applying two fungicides to tubers on disease control and yield of potatoes - Gt. Knott II.

Sponsors: G.R. Cayley, G.A. Hide.

Design: 4 randomised blocks of 14 plots.

Whole plot dimensions: 1.5 x 9.52.

Treatments: All combinations of:-

- | | |
|--------------|---|
| 1. FUNGICIDE | Fungicides applied to seed tubers: |
| IMAZALIL | Imazalil |
| TOLC MET | Tolclofos methyl |
| 2. FUNGRATE | Rates of applying fungicides, per tonne of tubers: |
| 1 | 5 g imazalil, 12.5 g tolclofos methyl |
| 2 | 10 g imazalil, 62.5 g tolclofos methyl |
| 3. FUNGMETH | Methods of applying fungicides: |
| CNVTIAL | Conventional, hydraulic, sprayer in 2.0 l per tonne of tubers |
| SP DS | Spinning disc sprayer in 0.8 l per tonne of tubers |
| SP DS ES | Spinning disc sprayer with electrostatically charged particles in 0.8 l per tonne of tubers |

plus one extra treatment:

EXTRA

NONE No fungicides to seed tubers (duplicated)

Basal applications: Manures: FYM at 45 t. (10:10:15+4.5 Mg) at 1960 kg.
Weedkiller: Metribuzin at 1.0 kg in 500 l. Fungicide: Fentin hydroxide at 0.28 kg in 200 l applied on seven occasions, the first and third occasion with the insecticide. Insecticide: Pirimicarb at 0.14 kg on two occasions. Desiccant: Diquat at 0.56 kg ion in 200 l.

Seed: King Edward.

Cultivations, etc:- Subsoiled, tines 45 cm deep, 76 cm apart: 6 Oct, 1983.
FYM applied: 4 Nov. Ploughed: 9 Nov. NPK Mg applied, heavy spring-tine cultivated: 23 Mar, 1984. Rotary harrowed: 14 Apr. Planted by hand: 16 Apr. Weedkiller applied: 31 May. Fungicide with insecticide applied: 19 June, 17 July. Fungicide alone applied: 3 July, 30 July, 13 Aug, 28 Aug, 11 Sept. Haulm mechanically destroyed, haulm desiccant applied: 4 Oct. Lifted: 16 Oct. Previous crops: S. barley 1982, w. oats 1983.

NOTE: Assessments of stem base infections were made in mid-July.

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TOTAL TUBERS TONNES/HECTARE

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

FUNGRATE	1	2	MEAN	
FUNGCIDE				
IMAZALIL	30.5	32.8	31.7	
TOLC MET	29.9	29.4	29.7	
MEAN	30.2	31.1	30.7	
FUNG METH	CNVNTIAL	SP DS	SP DS ES	MEAN
FUNGCIDE				
IMAZALIL	31.5	30.5	33.0	31.7
TOLC MET	28.9	31.5	28.5	29.7
MEAN	30.2	31.0	30.8	30.7
FUNG METH	CNVNTIAL	SP DS	SP DS ES	MEAN
FUNGRATE				
1	28.8	31.1	30.9	30.2
2	31.6	30.9	30.7	31.1
MEAN	30.2	31.0	30.8	30.7
FUNGRATE	1		2	
FUNG METH	CNVNTIAL	SP DS	SP DS ES	CNVNTIAL
FUNGCIDE				
IMAZALIL	29.5	29.6	32.6	33.5
TOLC MET	28.0	32.6	29.1	29.8
NONE	30.7			
GRAND MEAN	30.7			

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

TABLE	FUNGCIDE	FUNGRATE	FUNG METH	FUNGCIDE FUNGRATE
SED	0.98	0.98	1.21	1.39
TABLE	FUNGCIDE FUNG METH	FUNGRATE FUNG METH	FUNGCIDE FUNGRATE FUNG METH	
SED	1.70	1.70	2.41	

SED FOR COMPARING NONE WITH ANY ITEM IN
FUNG.CIDE.FUNGRATE.FUNG METH TABLE IS 2.09

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

STRATUM	DF	SE	CV%
BLOCK.WP	40	3.41	11.1

