ROTHAMSTED RESEARCH

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87/R/P/4 Effects of Seed Tuber Treatments - Potatoes

Rothamsted Research

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87/R/P/4

POTATOES

EFFECTS OF SEED TUBER TREATMENTS

Object: To study the effects of seed tuber health, size and fungicide treatment on crop growth, yield and quality of potatoes after storage - Little Hoos.

Sponsor: K.J. Boorer.

Design: 3 randomised blocks of 8 plots.

Whole plot dimensions: 6.0 x 12.2.

Treatments: All combinations of:-

1. SEED STK — Seed stock:

   STOCK A
   STOCK B

2. SIZE — Size of seed tubers:

   SMALL — 25 - 55 g
   LARGE — 100 - 160 g

3. FUNGCIDE — Fungicide to seed tubers:

   NONE — None
   TOL+IMAZ — Tolclofos methyl plus imazalil

NOTES: (1) The fungicide treatments were applied as a dip in a mixture containing 0.5 % tolclofos methyl and 0.05 % imazalil.
(2) It was intended that on STOCK A there would be few tuber borne diseases at planting and on STOCK B many. In practice the differences were slight and varied with particular pathogens.

Basal applications: Manures: Chalk at 5.0 t. FYM at 35 t. (0:18:36) at 690 kg. (10:10:15+4.5 Mg) at 1960 kg. Weedkillers: Linuron at 1.6 kg with paraquat at 0.50 kg ion in 500 l. Fungicides: Mancozeb at 1.4 kg in 200 l on four occasions, applied with the pirimicarb on the second occasion. Fentin hydroxide at 0.28 kg in 200 l on two occasions. Insecticide: Pirimicarb at 0.14 kg. Desiccant: Diquat at 0.80 kg ion in 300 l.

Seed: Estima.

Cultivations, etc.:- (0:18:36) applied: 17 Sept, 1986. Chalk applied: 24 Sept. FYM applied: 12 Nov. Ploughed: 17 Nov. (10:10:15+4.5 Mg) applied: 14 Apr, 1987. Rotary harrowed: 21 Apr. Potatoes planted: 22 Apr. Rotary ridged: 29 Apr. Weedkillers applied: 8 May. Mancozeb applied: 24 June, 28 July and 10 Aug. Mancozeb and pirimicarb applied: 8 July. Fentin hydroxide applied: 28 Aug, 9 Sept. Desiccant applied: 21 Sept. Haulm mechanically destroyed: 26 Sept. Lifted: 28 Sept and 10 Nov. Previous crops: W. barley 1985, w. oilseed rape 1986.

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NOTE: Emergence and ground cover percentages were recorded. Samples were taken on six occasions, from late June to early September, for measurements of haulm weight, leaf area, weight and disease assessments of stem bases and tubers.

TOTAL TUBERS TONNES/HECTARE

***** Tables of means *****

SIZE	SMALL	LARGE	Mean
SEED STK			
STOCK A	65.3	57.9	61.6
STOCK B	58.1	57.4	57.7
Mean	61.7	57.6	59.7

FUNGCIDE	NONE	TOL+IMAZ	Mean
SEED STK			
STOCK A	60.8	62.4	61.6
STOCK B	56.7	58.8	57.7
Mean	58.7	60.6	59.7

FUNGCIDE	NONE	TOL+IMAZ	Mean
SIZE			
SMALL	62.9	60.5	61.7
LARGE	54.6	60.7	57.6
Mean	58.7	60.6	59.7

FUNGCIDE	NONE	TOL+IMAZ
SEED STK	SIZE	
STOCK A	SMALL	66.0	64.6
	LARGE	55.6	60.2
STOCK B	SMALL	59.7	56.4
	LARGE	53.6	61.2

*** Standard errors of differences of means ***

Table	SEED STK	SIZE	FUNGCIDE	SEED STK SIZE
s.e.d.	2.56	2.56	2.56	3.63

Table	SEED STK FUNGCIDE	SIZE FUNGCIDE	SEED STK SIZE FUNGCIDE
s.e.d.	3.63	3.63	5.13

***** Stratum standard errors and coefficients of variation *****

Stratum	d.f.	s.e.	cv%
BLOCK.WP	14	6.28	10.5

PLOT AREA HARVESTED SIZE SMALL 0.00018
PLOT AREA HARVESTED SIZE LARGE 0.00030
PERCENTAGE WARE NOT RECORDED

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