POTATO (*Solanum tuberosum*)
Early Blight; *Alternaria solani*
Late Blight; *Phytophthora infestans*
Black Scurf; *Rhizoctonia solani*
Silver Scurf; *Helminthosporium solani*
Leak; *Pythium spp.*
Pink Rot; *Phytophthora erythroseptica*

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EVALUATION OF FUNGICIDE TREATMENTS APPLIED TO POTATOES AT PLANTING OR AT HILLING FOR DISEASE CONTROL - SPOONER, 2000: A field trial was established May 3 at the Spooner Agricultural Research Station, in northwestern WI to evaluate the effect of selected fungicides applied as seed treatments, in the furrow at planting, or at hilling. This trial was designed to compare the performance of Maxim, TOPS and azoxystrobin for control of Rhizoctonia stem canker and effect on plant stand, vigor and yield. Tubers were harvested and graded 19 Sep 2000 and a 20-30 pound sample was stored from each replicate plot. Any diseased tubers observed were discarded during the grading process and recorded as culls. Tubers were placed in the potato storage area at the Hancock Agricultural Research Station, maintained at approximately 50º F and 90% RH until evaluation on 21 Mar 2001. All tubers were rated for presence or absence of symptoms of late blight, soft rot, pink rot, silver scurf, black scurf and early blight.

Table 1. Spooner seedpiece/furrow treatment trial, 2000 - Effect of treatment on yield and quality after storage.

	Treatment Chemicals [1]	Rate		Application schedule	Yield (cwt/A)		% of tubers with:							Silver scurf index [2]	Rhizoctonia index [3]
		Formulated product	Active ingredient		Total	US#1	No symptoms	Late blight	Soft rot	Pink rot	Silver scurf ONLY	Rhizoctonia ONLY	Early blight		
1.	Untreated Seed				382.5	238.7	62.5	0.0	1.0	0.0	35.9	1.5	0.0		
2	L1036	0.75 lb/ cwt seed		Seedpiece trt	392.5	240.6	66.1	0.0	1.5	0.0	32.4	1.6	0.0	17.5	0.9
2.	Untreated Seed														
	Quadris SC	0.96 fl oz/1000 rft	0.25 oz/1000rft	Appl. in-furrow	417.3	276.3	57.8	0.0	0.0	0.0	42.2	1.3	0.0	20.3	0.3
3.	Untreated Seed														
	Quadris SC	1.15 pt/A	0.3 lb/A	Appl. at hilling	384.9	242.5	63.5	0.0	1.5	0.0	35.0	3.6	0.0	19.3	4.4
4.	L1036	0.75 lb/ cwt seed		Seedpiece trt											
	Quadris SC	1.15 pt/A	0.3 lb/A	Appl. at hilling	375.4	247.7	72.3	0.0	1.9	0.0	24.8	3.7	0.0	10.5	1.6
5.	Untreated Seed														
	Quadris SC	0.96 fl oz/1000 rft	0.25 oz/1000rft	Appl. in-furrow											
	Quadris SC	1.15 pt/A	0.3 lb/A	Appl. at hilling	358.5	226.3	60.0	0.0	1.0	0.0	38.5	1.7	0.6	16.8	1.9
6.	Maxim	0.08 oz/lb seed	0.0004 ozai/lb	Seedpiece trt	319.0	198.7	69.8	0.0	2.0	0.0	28.2	0.0	0.0	10.5	0.0
7.	TOPS MZ	0.08 oz/lb seed	0.0068 ozai/lb	Seedpiece trt	360.2	218.3	71.6	0.0	0.4	0.0	25.5	3.4	1.0	11.0	2.2
	Pr > F [4]				0.38	0.42	0.45	---	0.82	---	0.22	0.33	0.46	0.42	0.13
	LSD				NS	NS	NS	---	NS	---	NS	NS	NS	NS	NS

1 All treatments received the same foliar fungicide program: Quadris 2SC, 0.38 pt/A (application 1), 0.76 pt/A (applications 3, 5); Bravo Zn, 1.5 pt/A - remaining sprays

2 Silver scurf index: Tubers were spread out and the % of the top surface area with silver scurf symptoms was rated on a 5 point scale with 0 = none; 1 = 1-10% of the surface area of the tuber affected; 2 = 10-25% affected; 3 = 25-50% affected; 4 = 50-75% affected; 5 = > 75% affected. The lesion area index was calculated by summing the number in each class times the class number / 5 times the total number of tubers rated. The index represents a percentage of the worst possible case (if all tubers were rated 5, the index would = 100).

3 Rhizoctonia index: Tubers were spread out and the severity of Rhizoctonia symptoms on the top surface was rated on a 5 point scale with 0 = none; 1 = 1-5 sclerotia; 2 = 5-10 sclerotia; 3 = 10-20 sclerotia; 4 = > 20 sclerotia. The Rhizoctonia index was calculated by summing the number in each class times the class number / 4 times the total number of tubers rated. The index represents a percentage of the worst possible case (if all tubers were rated 4, the index would = 100).

4 Analysis of variance was performed on data, and Fisher's protected least significant difference (LSD) was calculated. NS = not significant at the P = 0.10 level.

Table 2. Spooner seedpiece/furrow treatment trial, 2000 – Effect of treatment on internal quality of stored tubers (treatment numbers as listed in table 1).

trt	% with no internal defects	% with any kind of internal defect	Com-bined defect rating [1]	Hollow heart [2]				Internal browning [2]				Black spot/bruising				
				% with ANY HH	% with SLIGHT HH	% MODER-ATE HH	% SEVERE HH	% with ANY IB	% with SLIGHT IB	% MODER-ATE IB	% SEVERE IB	% Bruise free	% with 1 spot (< 1cm)	% with 1 spot (> 1cm)	% with 2-3 spots	% with > 3 spots
1	37.5	62.5	1.5	10.0	0.0	5.0	5.0	17.5	7.5	5.0	5.0	50.0	30.0	5.0	12.5	2.5
2	72.5	27.5	0.4	0.0	0.0	0.0	0.0	7.5	5.0	2.5	0.0	80.0	15.0	0.0	2.5	2.5
3	55.0	45.0	0.5	4.5	4.5	0.0	0.0	5.0	5.0	0.0	0.0	64.5	30.7	2.5	2.3	0.0
4	55.0	45.0	0.7	7.5	0.0	5.0	2.5	12.5	10.0	2.5	0.0	67.5	27.5	2.5	2.5	0.0
5	57.5	42.5	0.6	5.0	5.0	0.0	0.0	2.5	0.0	0.0	2.5	65.0	30.0	0.0	5.0	0.0
6	70.0	30.0	0.5	7.5	2.5	2.5	2.5	2.5	2.5	0.0	0.0	75.0	22.5	0.0	2.5	0.0
7	45.0	55.0	1.1	12.5	5.0	2.5	5.0	12.5	5.0	5.0	2.5	57.5	35.0	0.0	7.5	0.0
8	40.8	59.2	1.4	15.3	5.0	5.3	5.0	10.0	0.0	5.0	5.0	51.1	30.8	2.5	15.6	0.0
Pr>F [3]	0.03	0.03	<0.01	0.42	0.72	0.33	0.38	0.17	0.66	0.66	0.29	0.22	0.79	0.46	0.12	0.58
LSD	22.4	22.4	0.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

1. The worst possible rating would be 10. Hollow heart and internal browning categories given values of 1(slight), 2 (moderate), 3 (severe); bruising categories given values of 1 (1 spot<1cm) to 4 (> 3 spots). Combined defect rating = sum of Hollow heart, int. browning and bruising values//10 (the worst defect value a tuber could have if hh=3, ib=3 and bruise=4.
2. Hollow heart and internal browning evaluation: slight – longest dimension < 1 cm; moderate 1-2 cm; severe > 2cm.
3. Analysis of variance was performed on data, and Fisher's protected least significant difference (LSD) was calculated. NS = not significant at the P = 0.05 level.