POTATO (*Solanum tuberosum* 'Yukon Gold')
Common Scab; *Streptomyces scabies*

S. Jordan[1], B. Webster[1], S. Plaster[2], A.J. Gevens[1]
Department of Plant Pathology
[1]University of Wisconsin, Madison, WI 53706
[2]University of Wisconsin Extension, Langlade Co., Antigo, WI 54409

Evaluation of at-plant treatments for control of potato common scab in Wisconsin, 2014.

A trial was established on 29 May at the Langlade County Research Area, Antigo, WI, to evaluate the efficacy of fungicides to manage potato common scab. Seed was cut mechanically from US#1 seed tubers to approximately 2-oz pieces on 15 May. Seed pieces healed for 7 days to suberize before planting. A randomized complete block design with four replications was used and treatment plots consisted of four, 24-ft-long rows spaced 36 in. apart with 12 in. spacing in the row. In-furrow treatments were applied to seed and soil in an open furrow on the day of planting using a CO_2 backpack sprayer equipped with a single TeeJet 8002VS flat fan nozzle calibrated to deliver 12 gal/A at a boom pressure of 40 psi. Seed treatments were applied to cut seed prior to planting using the same sprayer equipment as previously described. Treated seed pieces were allowed to dry thoroughly before planting. After treatments were applied, furrows were mechanically closed using hilling disks. The soil type was Antigo silt loam. To minimize soil compaction and damage to plants in rows used for foliar and yield evaluation, drive rows for pesticide application equipment were placed adjacent to plots. Standard grower practices for field maintenance, fertility, insect management, and prevention of early and late blight were used. The total natural precipitation during the production season was 17.08 in. During the production season, additional common scab-targeted fungicide applications were made for just three of the treatments with the initial application triggered by a soil degree day value of 1440 (reached on 11 Jul). The second and third applications were applied 1 and 22 Aug. Foliar applications were made using a CO_2 backpack sprayer equipped with a boom equipped with 4 TeeJet 8002VS flat fan nozzles spaced 19 in apart, calibrated to deliver 30 gal/A at a boom pressure of 35 psi. Seed emergence data were collected 21 Jun from 10 linear feet of each of the center 2 rows of each plot. Vines were chemically killed with Reglone 1.0 pt/A on 15 and 22 Sep. The center two rows of each plot were harvested 29 Sep. Tubers were graded into marketable (US#1), undersize, and cull categories on 29 Sep. After undersize tubers were graded out and tubers washed, but before scabbed tubers are removed, 20 tubers from each plot were chosen randomly and assessed for scab incidence and severity. Data were analyzed using ANOVA (α=0.05) and Fisher's LSD at α=0.05.

The treatments with Blocker, Blocker + Rejuvenate, and the 3 Nimitz treatments had significantly reduced seed emergence compared to the control. No significant differences in total yield or in US#1 yield, undersize yield, and cull weight (only US#1data shown) were observed among treatments. Disease pressure was low in this field trial. This is a field with no recent history of potato production, in its second year of use as a common scab disease nursery. Common scab was present among all treatments with no significant differences among treatments. Severity of symptomatic tubers was generally low (data not shown).

Treatment and rate*	Application Type	Seed Emergence (%)	US#1 Yield (cwt/A)	Common Scab Incidence (%)
Non-treated Control		61.5c**	337.7	40.0
Blocker 4F 10.4 fl oz	In Furrow	55.0 ab	318.3	20.0
Blocker 4F 5.2 fl oz + Serenade Soil 4.4 fl oz	In-Furrow	57.8bc	310.1	35.0
Quadris 2.08SC 0.6 fl oz	In-Furrow	64.3c	352.3	32.5
Blocker 4F 11.0 fl oz Rejuvenate 6.25SL 0.005 fl oz	In-Furrow Seed Treatment	54.3ab	256.1	27.5
Rejuvenate 6.25SL 0.005 fl oz	Seed Treatment	61.2c	306.2	42.5
Regalia 5SC 4.0 fl oz	In-Furrow	62.5c	293.7	35.0
Serenade Soil 4.4 fl oz	In-Furrow	58.5c	282.2	35.0
Vydate 24L 2gal/4 pt	In-Furrow, 3x Foliar	53.8c	328.6	35.0
Nimitz 480EC 7.2 pt/2 pt	In-Furrow, 3x Foliar	46.3a	256.4	27.5
Nimitz 480EC 7.2 pt/1 pt	In-Furrow, 3x Foliar	47.0ab	253.7	35.0
Nimitz 15G 24 lb/A	7 day pre-plant soil incorporated	55.3ab	297.4	47.5

*Treatment rates applied in-furrow are given per 1000 row ft. Seed treatment rates are given per 100 lb seed. Foliar treatments are given in pints per acre.
**Column numbers followed by the same letter are not significantly different at *P*=0.05 as determined by Fisher's Least Significant Difference (LSD) test.