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

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Evaluating fumigation and at-plant treatments for the control of potato common scab in Wisconsin, 2011

A trial was established 25 May at the Langlade County Research Area, Antigo, WI, to evaluate fungicide and fumigation efficacy for control of potato common scab. Approximately 2 oz seedpieces were cut mechanically on 15 May from US#1 Yukon Gold tubers. Seedpieces healed for 7 days before planting. A randomized complete block design with four replications was used for the trial and treatment plots consisted of four 40-ft-long rows spaced 36 in. apart with 12-in spacing in the row. Fumigation treatments were applied in the fall of 2010. In-furrow chemical treatments were applied at planting. Furrows were mechanically covered using hilling disks. The soil type was Antigo silt loam and the field was maintained during the growing season according to standard grower practices. 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. The foliar fungicide program included: Bravo Zn at 1.125 pt/acre on 5 Jul; Bravo Zn at 2.0 pt/acre on 12, 26 Jul and 6 Sep; Quadris at 6 oz/acre + Bravo at 1.5 pt/acre on 19 Jul, 2 Aug; Bravo Zn at 2.0 pt/acre on 9, 23 Aug; Tanos at 6 oz/acre + Bravo Zn at 1.5 pt/acre on 16, 30 Aug; and Bravo Zn at 1.5 pt/acre on 9, 13 Sep. Vines were chemically killed with Reglone 1.0 pt/acre on 2 and 9 Sep 2011. Fertility and insecticide programs were consistent with grower standards for the production region. The center two rows of each plot were harvested 17 Sep 2011. Tubers were graded into marketable (US#1), undersize, and cull categories on 23 Sep 2011. After undersize tubers were graded out, all remaining tubers were washed before 20 were arbitrarily selected and assessed for scab incidence and severity. Disease severity was rated on a scale of 0-3 with 0 = no disease, 1 = <10% surface area symptomatic, 2 = 10-25%, and 3 = >25%. An overall symptom severity index was calculated for each plot by summing the product values from the number of tubers multiplied by its respective severity scale value. Precipitation for the site was 9.02 in. from 25 May to 17 Sep 2011. Supplemental irrigation of 1 in. was applied on 28 Jul. Soil samples (approximately 60 g/plot) were taken from each plot on 9 Jun and 1 Aug to assess the macronutrient profile, pH, and % organic material.

Disease pressure was high in this field trial with 100% of tubers in the untreated control exhibiting common scab symptoms. Numerically, all treatments controlled common scab better than the untreated control, with treatments 2, 6, 7, and 9-14 having significantly less symptomatic tubers. Overall symptom severity ranged from 8.5 in treatment 10, to 47.5 in treatment 15. Treatments 6, 10, 12, and 14 had significantly less overall symptom severity than the untreated control. Marketable yield was greatest and significantly different from the untreated control in treatment 2 (Vapam 40 gal/acre). With the exception of treatment 15, there were no significant differences in cwt/acre of culls among treatments.

Treatment and rate/A (application dates)	Symptomatic tubers[z] (%)		Overall symptom severity		Marketable yield (US#1) cwt/A		Culls cwt/A	
1.Unfumigated control……..	100.0	f[y]	37.3	efg	216.3	cdefg	43.3	ab
2.Vapam 40 gal (1)[x]……..	51.3	abcd	14.3	abc	284.6	h	24.0	ab
3.Blocker 10 pt (2)…….	72.5	bcdef	24.0	abcdef	182.1	cdef	33.0	ab
4.Blocker 10 pt Mocap 15G 20 lb (2)……...	68.8	abcdef	23.0	abcde	170.9	bcd	39.8	ab
5.Mocap 15G 20 lb (2)……...	82.5	def	29.0	bcdef	171.1	bcd	47.6	ab
6.Blocker 10 pt NAA 0.33 oz (2)……..	50.0	abcd	11.3	ab	232.5	defgh	19.2	a
7.TigerSul 1000 lb (2)……	56.3	abcde	16.8	abcd	211.9	cdefg	32.7	ab
8.Regalia 29 fl oz (2)……..	76.3	cdef	25.0	abcdef	173.1	bcd	47.5	ab
9.Pic Plus 117 lb (1)……...	51.3	abcd	12.8	abc	232.8	defgh	24.9	ab
10.Pic Plus 234 lb (1)…….	37.5	a	8.5	a	228.6	defgh	25.8	ab
11.Pic Plus 351 lb (1)…….	50.0	abcd	16.5	abcd	236.5	efgh	43.3	ab
12.Pic-C60 167 lb (1)…….	46.3	abc	11.5	ab	251.9	gh	26.1	ab
13.Pic-C60 250 lb (1)…….	55.0	abcd	24.0	abcdef	244.1	fgh	31.9	ab
14.Pic-C60 333 lb (1)…….	42.5	ab	9.5	a	257.4	gh	32.4	ab
15.Quadris 11.6 fl oz (2)……	98.8	f	47.5	g	96.8	a	89.3	c
16.Serenade Soil 64 fl oz (2)…..	91.3	f	41.3	fg	161.2	bc	37.9	ab
17.Serenade Soil 128 fl oz (2)…	88.8	ef	30.8	cdefg	164.3	bc	38.3	ab
18.Mocap 15G 20 lb NAA 0.33 oz (2)……..	90.0	f	39.3	efg	114.0	ab	61.1	bc
19.AmegA 10 pt (2)…….....	82.5	def	33.8	defg	179.2	cde	42.6	ab

[z]Percentage of assessed tubers with common scab symptoms.

[y]Column numbers followed by the same letter are not significantly different using Fisher's LSD (*P*=0.05).

[x]Application date of treatments, 1 = Fall fumigation 30 Sept 2010, 2 = at planting 22 May 2011.