POTATO (*Solanum tuberosum*)
Late blight; *Phytophthora infestans* US-23

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Evaluation of Stadium fungicide with chlorpropham (CIPC) for control of late blight of potato in storage, 2012-2013.

A storage trial was established on 15 Dec 2012 to determine the effect of CIPC, a sprout inhibitor, on the efficacy of Stadium fungicide for the control of potato tuber late blight. Three potato cultivars were used for the trial and included, 'Russet Burbank,' 'Dark Red Norland,' and 'Snowden.' Forty asymptomatic tubers were used in each of 4 replicates per treatment. Replications were randomized within the storage area and maintained at 55±2°F, relative humidity of 97%, with appropriate airflow for proper potato tuber storage. To simulate rough harvest conditions which result in wounding and promote disease, tubers were subjected to 3 min. in a modified cement mixer. Inoculation immediately followed simulated wounding. *Phytophthora infestans* inoculum was grown on leaves of late-blight-susceptible tomato cultivars, raised in a disease-free growth chamber. Tubers were dip-inoculated on 15 Dec 2012 in a suspension of 5000 sporangia per ml of water. After inoculation, tubers were allowed to dry prior to fungicide treatment. Stadium fungicide at a rate of 1.0 fl oz/ton was applied in a carrier volume of 2.37 fl oz using a 1 gal handheld pump sprayer. For CIPC treatment, crates of tubers were placed in storage bins with humidification systems shut off. CIPC was applied at a rate of 24 ppm using a Nelson Thermal Fogger designed by Dale Nelson of Nelson Vegetable Storage Systems, Inc. Humidification systems were turned on 24 hrs following the application. Ten tubers were randomly selected and evaluated for the incidence and severity of late blight infection from each replicate at 30 days post-inoculation (DPI), or 15 Jan. Three disease evaluations were made: 1) incidence and 2) severity (% tissue symptomatic) of late blight symptoms from external surface of intact tubers, and 3) severity (% tissue symptomatic) of late blight on cut surface of tubers sliced in half. Statistical analyses were conducted separately for each cultivar.

Stadium significantly reduced the incidence and severity of late blight on inoculated tubers of all cultivars. The inclusion of a CIPC treatment did not reduce the efficacy of Stadium treatments, regardless of cultivar. CIPC by itself did not offer significant control of late blight.

Cultivar and Treatment (rate/ton)		Disease Severity of Infected Tubers (%)	
	Incidence (%)	Outer Surface	Inner Surface
Russet Burbank			
Untreated, non-inoculated control.....	0.0a[z]	0.0a	0.0a
Untreated, inoculated control…….	100.0b	40.5b	45.0b
Stadium 34.78SC (1.0 fl oz)……..	0.0a	0.0a	0.0a
Stadium 34.78SC (1.0 fl oz) + CIPC Sprout Nip 7A (24 ppm)……...	10.0a	1.5a	0.5a
CIPC Sprout Nip 7A (24 ppm)…….	90.0b	33.5b	42.0b
Dark Red Norland			
Untreated, non-inoculated control.....	0.0a	0.0a	0.0a
Untreated, inoculated control…….	90.0b	29.0b	19.5b
Stadium 34.78SC (1.0 fl oz)……..	10.0a	1.0a	1.0a
Stadium 34.78SC (1.0 fl oz) + CIPC Sprout Nip 7A (24 ppm)……...	0.0a	0.0a	0.0a
CIPC Sprout Nip 7A (24 ppm)……..	100.0b	32.0b	20.0b
Snowden			
Untreated, non-inoculated control.....	0.0a	0.0a	0.0a
Untreated, inoculated control…….	100.0b	33.5b	42.0c
Stadium 34.78SC (1.0 fl oz)……..	0.0a	0.0a	0.0a
Stadium 34.78SC (1.0 fl oz) + CIPC Sprout Nip 7A (24 ppm)……...	10.0a	1.5a	0.5a
CIPC Sprout Nip 7A (24 ppm)……..	90.0b	50.0c	27.5b

[z]Column numbers followed by the same letter are not significantly different at P=0.05 as determined by Fisher's Least Significant Difference test.