SWEETPOTATO (*Ipomoea batatas* 'Covington')
Black Rot; *Ceratocystis fimbriata*

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Evaluation of fungicides for control of black rot of sweetpotato, Clayton 2022.

The experiment was performed at the Central Crops Research Station in Clayton, NC. Covington sweet potato roots were bedded on 16 May on four 150-ft long field rows. One row served as a control and the three remaining rows were treated with one of the three 2-application treatments using a CO2-pressurized backpack sprayer equipped with a two-nozzle, handheld boom with flat fan nozzles (8004) delivering 50 gal/A at 35 psi. Slips produced from the field beds were cut on 8 Jul and transferred to a field with eight 5 x 120 ft long bed rows with 20-ft plots and 10-ft buffers formatted using a randomized complete block design with four replications. The field bed slips were inoculated prior to transplant by soaking slips in a *C. fimbriata* spore suspension (3 x 10^5 spores/mL) for 20 min. Slips were then hand-transplanted and applied with the same treatment they received at bedding via transplant water applied with a CO2-pressurized backpack sprayer equipped with a single-nozzle handheld boom with no nozzle delivering 100 gal/A at 35 psi. A second set of untreated slips were propagated in a greenhouse and transplanted into the same field following the same inoculation and transplant water application procedure as the field bed slips and were denoted as 1-application treatments. Slips were spaced at 1 plant per ft in row with 20 plants per plot. Plotts were rated for stand count and growth vigor throughout the duration of the trial. Sweet potatoes were harvested on 3 Nov. Roots were washed, sorted by size, weighed, and rated for disease immediately after harvest. Roots were cured for 4 days and rated again for black rot. Data were analyzed in the software ARM (Gylling Data Management, Brookings, SD) using analysis of variance (AOV) and Fisher's protected least significant differences (LSD) test to separate means.

Symptoms of black rot were not observed in the field. None of the double application treatments had a significantly higher final average stand count than the control plots with bedding slips, but the single application of Mertect had a significantly higher stand count than the greenhouse slip control plots. Both application timings of Mertect and the double application of Quadris had a significantly higher average vigor ratings than the greenhouse slip control plots. The single application of Mertect was the only treatment that produced statistically higher root weights than the non-treated greenhouse slip controls, and there was no statistical difference among the treatments for the total number of roots infected with black rot.

Treatments	Rate	Stand count[z]	Vigor[y]	Total lbs[x]	Total infected[w]
Inspire (2 app.)	5.5 fl oz/a	12.5 b[v]	65.0 cd	5.55 ab	0.8 a
Non-treated control (greenhouse)	N/A	13.0 b	56.3 d	3.00 b	1.5 a
Quadris (1 app.)	15.5 fl oz/a	13.3 ab	68.8 bcd	3.80 ab	1.0 a
Inspire (1 app.)	5.5 fl oz/a	13.3 ab	70.0 bcd	3.70 ab	0.5 a
Mertect (2 app.)	1.07 fl oz/gal	15.0 ab	90.0 ab	6.50 ab	3.0 a
Non-treated control (bedding)	N/A	15.5 ab	86.3 abc	6.10 ab	1.8 a
Quadris (2 app.)	15.5 fl oz/a	16.5 ab	81.3 abc	7.05 ab	3.8 a
Mertect (1 app.)	1.07 fl oz/gal	17.8 a	97.5 a	7.65 a	1.5 a

[z]Stand count was calculated for each treatment based on the average number of living slips.
[y]Vigor ratings were calculated by assigning the plot with the highest vigor in each block a rating of 100 and comparing it to the remaining plots in the block.
[x]Total lbs is based on the combined weights of canners, No. 1's, and jumbos harvested from the plot.
[w]Total infected is based on the combined number of canner, No. 1, and jumbo roots with black rot incidence.
[v]Treatments followed by the same letter(s) within a column are not statistically different (P=0.05, Fisher's Protected LSD).