

Evaluation of fungicides for postharvest management of *Dickeya dadantii* in sweetpotato, 2020.

This experiment was conducted at the Central Crops Research Station in Clayton, NC. Sweetpotato roots used in the study were grown at the Cunningham Research Station in Kinston, N.C. and were rinsed with water prior to use. Roots were previously cured and were selected based upon similar size, shape, and disease-free appearance. The experiment was started on 18 Nov. Sweetpotatoes were wounded using a calibrated, rubber-band-propelled wooden dowel. After wounding, roots were inoculated with 250 µL of a 1x10⁶ CFU/mL suspension of bacteria applied with a repeating micropipette. Following inoculation, roots were allowed to air dry. Roots were then placed onto a miniature packing line and fungicide spray treatments were applied using a compressed air pressurized sprayer delivering 0.5 gal/2,000 lb of roots at 40 psi with four TG-1 full cone nozzles. After fungicide application, sweetpotatoes were placed into clear, plastic containers (40 x 50 x 17.9 cm) and stored at 16°C and 99% relative humidity for 30 days. Roots used for the non-treated control were inoculated, but with no treatments applied. Four replicated blocks per treatment were included with 10 roots per block. Roots were rated for disease incidence (percentage of wounds infected) and severity (size of lesion in mm) at 7, 10, 14, 20, and 30 days after inoculation on 25, 28 Nov, 2, 8, and 18 Dec. Data were analyzed in the software ARM (Gylling Data Management, Brookings, SD) using analysis of variance (AOV) and Fisher's Protected LSD test (P=0.05) to separate means.

Dickeya soft rot was first observed 7 days after inoculation. Disease incidence in the non-treated control was high (82.5%) as estimated by number of infected sweetpotatoes on 18 Dec. No treatment provided a significantly lower disease incidence than the nontreated on 18 Dec nor 8 Dec. SP2700 + Capsil, Bio-Save 10LP, and Selectrocide 12G all provided a significant reduction in disease incidence on 2 Dec. Bio-Save 10LP and Selectrocide 12G provided a significantly lower disease incidence on 28 Nov. Howler, TDA-NC-1 + Silwet L77, SP2700 + Capsil, Bio-Save 10LP, and Selectrocide 12G all provided a significantly lower disease incidence on 25 Nov. Howler, SP2700 + Capsil, Bio-Save 10LP, and Selectrocide 12G all provided a significant reduction in disease severity on 18 Dec, Bio-Save 10LP and Selectrocide 12G provided a significantly lower severity on 8 Dec. All treatments provided a significantly lower severity on 28 Nov, while no treatment provided a significant reduction in severity on 2 Dec nor 25 Nov. No phytotoxicity was observed in any treatment.

Product Name and Rate	Disease Incidence (%) ^z					Disease Severity (mm) ^y				
	18 Dec	8 Dec	2 Dec	28 Nov	25 Nov	18 Dec	8 Dec	2 Dec	28 Nov	25 Nov
Howler - 0.125 oz/gal	82.5 a ^x	80.0 a	77.5 ab	67.5 ab	37.5 bc	62.50 cd	85.00 a	49.50 a	28.25 bc	12.75 a
Fruitguard - 2.5g A, 0.5 g B	82.5 a	82.5 a	82.5 ab	67.5 ab	55.0 ab	78.75 abc	73.75 ab	55.00 a	27.00 bc	13.75 a
SP2480 - 0.25 fl oz/gal										
Capsil - .08 fl oz/gal	82.5 a	85.0 a	77.5 ab	72.5 a	45.0 abc	80.00 abc	67.50 abc	61.25 a	32.50 b	16.25 a
Nontreated	82.5 a	82.5 a	80.0 a	80.0 a	67.5 a	90.00 a	80.00 ab	65.00 a	48.75 a	16.75 a
Sanidate 5.0 - 1.9 fl oz/gal	77.5 a	75.0 a	77.5 ab	67.5 ab	50.0 ab	82.50 ab	72.50 abc	52.50 a	21.00 bc	13.00 a
StorOx 2.0 - 2.56 fl oz/gal										
KM1110 WDG - 0.32 oz/gal	75.0 a	75.0 a	77.5 ab	67.5 ab	52.5 ab	80.00 abc	80.00 ab	58.75 a	24.25 bc	12.75 a
TDA-NC-1 - 11.4 g/gal										
Silwet L-77 - .0125 % v/v	72.5 a	72.5 a	65.0 ab	60.0 ab	32.5 bc	81.25 ab	78.75 ab	53.75 a	22.25 bc	16.25 a
SP2700 - 0.078 fl oz/gal										
Capsil - .08 fl oz/gal	72.5 a	77.5 a	60.0 bc	57.5 ab	35.0 bc	70.00 bcd	65.00 bcd	50.00 a	29.00 bc	17.00 a
Bio-Save 10LP - 16.67 g/gal	70.0 a	62.5 a	60.0 bc	47.5 bc	32.5 bc	60.00 d	55.00 cd	40.00 a	25.50 bc	13.00 a
Selectrocide 12G - 5 ppm	65.0 a	57.5 a	42.5 c	25.0 c	20.0 c	52.50 d	47.5 d	38.75 a	18.50 c	13.50 a

^z Disease Incidence was calculated for each treatment based on the percentage of sweetpotatoes per box infected.

^y Disease Severity was calculated by the percentage of each sweetpotato in the box that soft/infected

^x Treatments followed by the same letter(s) within a column are not statistically different (P=0.05, Fisher's Protected LSD).