

Evaluation of pesticides for postharvest management of *Dickeya dadantii* in sweetpotato, 2021.

This experiment was conducted at the Central Crops Research Station in Clayton, NC. Sweetpotato roots used in the study were obtained from a commercial packing facility 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 29 Oct. 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 isolated bacteria applied with a repeating micropipette. Following inoculation, roots were allowed to air dry. Roots were then placed onto a miniature packing line and packing line spray treatments were applied using a compressed air pressurized sprayer delivering 0.5 gal/2,000 lb of roots at 20 psi with four TG-1 full cone nozzles. Dip treatments were applied by placing roots into a plastic bin filled with 10 gal of water plus formulated product. Fumigation products were placed into sachets, and sachets placed into the clear storage bin. After 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 replications per treatment were included with 10 roots per replication. Roots were rated for disease incidence (percentage of sweetpotatoes infected) and severity (size of lesion in mm) at 7, 10, 14, 20, and 30 days after inoculation on 5, 8, 12, 18, and 29 Nov. 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 root rot was first observed 7 days after inoculation. Disease incidence in the non-treated control was high (72.5%) as estimated by number of infected sweetpotatoes on 29 Nov. TDA-NC-1 + Silwet L77, Selectrocide 12G, SP2480 + Capsil, SP2700 + Capsil, and Howler all provided a significant reduction in disease incidence on 29 Nov. TDA-NC-1 + Silwet L77, Selectrocide 12G, SP2480 + Capsil, SP2700 + Capsil, Howler, StorOx 2.0 + KM1110 WDG, and Bio-Save 10LP all provided a significant reduction in disease incidence on 5 Nov. SP2480 + Capsil, TDA-NC-1 + Silwet L77, SP2700 + Capsil, , StorOx 2.0 + KM1110 WDG, Selectrocide 12G, and Howler all provided a significant reduction in disease severity on 29 Nov. SP2480 + Capsil, TDA-NC-1 + Silwet L77, SP2700 + Capsil, , StorOx 2.0 + KM1110 WDG, Selectrocide 12G, Howler, and Bio-Save 10LP all provided a significant reduction in disease severity on 12 Nov. SP2480 + Capsil, TDA-NC-1 + Silwet L77, StorOx 2.0 + KM1110 WDG, and Howler all provided a significant reduction in disease severity on 5 Nov. No phytotoxicity was observed in any treatment. In the table, treatments are sorted by Disease Incidence on 5 Nov.

Product Name and Rate	Disease Incidence ^z			Disease Severity ^y		
	5 Nov	12 Nov	29 Nov	5 Nov	12 Nov	29 Nov
Fruitguard - 2.5g A, 0.5 g B	73.0 a ^x	72.5 a	75.0 a	3.5 a	28.9 a	64.4 a
Nontreated	63.0 ab	75.0 a	72.5 ab	3.0 ab	28.8 a	59.8 ab
Bio-Save 10LP - 16.67 g/gal	48.0 bc	60.0 ab	62.5 abc	2.4 abc	11.3 bc	41.8 bc
Sanidate 5.0 - 1.9 fl oz/gal	53.0 abc	50.0 abc	55.0 a-d	2.6 abc	21.3 ab	48.5 ab
StorOx 2.0 - 2.56 fl oz/gal						
KM1110 WDG - 0.32 oz/gal	35.0 cd	45.0 bc	47.5 bcd	1.5 cde	14.0 bc	24.1 cde
Howler - 0.125 oz/gal	35.0 cd	35.0 bcd	45.0 cde	1.7 cde	4.1 c	27.3 cd
SP2700 - 0.078 fl oz/gal						
Capsil - .08 fl oz/gal	38.0 cd	37.5 bcd	42.5 cde	1.8 bcd	8.9 bc	19.5 de
SP2480 - 0.25 fl oz/gal						
Capsil - .08 fl oz/gal	35.0 cd	30.0 cd	32.5 de	1.7 cde	2.7 c	7.4 e
Selectrocide 12G - 5 ppm	15.0 d	25.0 cd	30.0 de	0.6 e	4.6 c	25.0 cde
TDA-NC-1 - 11.4 g/gal						
Silwet L-77 - .0125 % v/v	20.0 d	17.5 d	20.0 e	1.0 de	6.0 c	14.8 de

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

^y Disease Severity was calculated by averaging the lesion diameter on each sweetpotato in the box.

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