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

H. Collins, M. L. Adams, and L. M. Quesada-Ocampo
Dept. Entomology and Plant Pathology
North Carolina State University, Raleigh, NC 27695

Evaluation of fungicides for postharvest control of black rot in sweetpotato, 2019.

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 22 Mar. A spore suspension was created by dislodging ascospores from cultures of *Ceratocystis fimbriata* isolate AS186 grown on 100-mm agar plates and adding them to 190 L of water. The approximate concentration of the spore suspension was 1.0×10^3 spores/ml. Sweetpotatoes were placed into a 379-L bin containing the spore suspension. The spore suspension, with the wounded roots, was gently agitated for 20 min to ensure a homogenous solution throughout the inoculation. Following inoculation, roots were taken out of the spore suspension and 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 0.69 gal/2,000 lb of roots at 20 psi with a TXVS-26 hollow cone nozzle. After fungicide application, sweetpotatoes were placed into clear, plastic containers (40 x 50 x 17.9 cm) and stored at 24ºC and 99% relative humidity for 28 days. Roots used for the non-treated control were inoculated but had no treatments applied. Four replications per treatment were included with 10 roots per replication. Roots were rated for disease incidence (number of roots per box showing lesions) at 7, 14, 21, and 28 days after inoculation on 29 Mar, 4 Apr, 11 Apr, and 18 Apr. 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.

Black rot was first observed on sweetpotato roots 7 days after inoculation. By 4 Apr, disease incidence in the non-treated control was high (100%), as estimated by the percent of infected wounds. Stadium, Quash, and Mertect 340F all provided significant control for a 14-day period. Quash and Mertect 340F provided the longest period of control through 21 days. No phytotoxicity was observed in any treatment. In the table, treatments are sorted by disease incidence on 18 Apr.

	Disease incidence (%)*			
Treatment and product rate	29 Mar	4 Apr	11 Apr	18 Apr
Mertect 340F 0.42 fl oz/2,000 lb roots	7.5 c**	55.0 b	62.5 b	95.0 a
Quash 1.4 g/2,000 lb roots	12.5 bc	35.8 b	61.1 b	97.2 a
Intuity 3.375 fl oz/2,000 lb roots	87.5 a	100.0 a	100.0 a	100.0 a
Graduate A+ 0.6 fl oz/2,000 lb roots	27.5 b	95.0 a	100.0 a	100.0 a
Stadium 1 fl oz/2,000 lb roots	12.5 bc	50.0 b	92.5 a	100.0 a
Non-treated	97.5 a	100.0 a	100.0 a	100.0 a

* Disease incidence was calculated for each treatment based on the percentage of sweetpotatoes infected with black rot.
** Treatments followed by the same letter(s) within a column are not statistically different (P=0.05, Fisher's Protected LSD).