SWEETPOTATO (*Ipomoea batatas* 'Hernandez')
Rhizopus soft rot; *Rhizopus stolonifer*

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Effect of postharvest dip treatments on Rhizopus soft rot of sweetpotato, 2004.

This study was conducted at the Central Crops Research Station in Clayton, NC and the Horticulture Crops Research Station in Clinton, NC. Sweetpotato roots were harvested on 30 Oct 03 and stored at 55°F at a commercial sweetpotato storage facility until experiments were conducted on 11 Jun and 27 Sep 04. Roots were gently washed by hand with tap water and allowed to dry at room temperature. An impact bruise injury (8 mm diam × 1 mm deep) was made to opposite sides of the mid-section of each root (two injuries per root) with the sharp impact of a wood dowel. Inoculum was introduced by brushing a spore suspension (10^6 sporangiospores/ml) of *Rhizopus stolonifer* over the wounded area with a foam paintbrush. Treatments were applied by completely submerging roots in treatment solutions for 30 sec. The copper ionization treatment solution was prepared by applying a low current to silver and copper electrodes in water to release ions into the water. The current was applied until the desired ppm of copper was reached. Treated roots were allowed to air dry, placed in plastic storage crates (15 per crate; four crates [replicates] per treatment) and evaluated after 10 days of storage at 55 to 60°F. Not all treatments were included in both experiments.

The inoculation method produced extremely high levels of disease (100%) in non-treated roots. Therefore, treatments were evaluated under conditions very favorable to disease development. Botran, the industry standard for decades, performed very well in both experiments. Certain markets are no longer accepting Botran-treated sweetpotatoes and packers are searching for suitable alternatives. Bio-Save 11LP (a biopesticide: *Pseudomonas syringae*) and Pristine (a reduced-risk fungicide) provided very high levels of decay control. Other products such as Scholar and Freshgard 25 were marginally effective, while copper ionization, bleach, and Storox were ineffective against Rhizopus soft rot.

	Experiment 1		Experiment 2	
Treatment and rate of product per 100 gal	**Number of decayed roots per 15**	**% Roots decayed**	**Number of decayed roots per 15**	**% Roots decayed**
Control 1: non-inoculated, non-wounded……	0.0 c*	0.0	0.0 e	0.0
Control 2: non-inoculated, wounded……..……	0.0 c	0.0	1.0 de	1.7
Control 3: inoculated and wounded…….	15.0 a	100.0	15.0 a	100.0
Bio-save 10LP, 70.5 oz……..	11.8 b	78.3	**	**
Bio-Save 11LP, 70.5 oz……..	**	**	1.0 de	1.7
Bleach (6.15% sodium hypochlorite), 50 ppm…...	14.5 a	96.7	**	**
Bleach (6.15% sodium hypochlorite), 200 ppm…..	15.0 a	100.0	14.7 a	98.3
Botran 75WP, 1lb……	4.5 b	30.0	1.8 de	11.7
Copper ionization (120 sec dip), 5.2 ppm Cu….....	15.0 a	100.0	**	**
Copper ionization (30 sec dip), 5.2 ppm Cu…..….	15.0 a	100.0	**	**
Pristine 38WG, 72.5 oz……..…….	2.5 bc	16.7	**	**
Pristine 38WG, 36.3 oz……..…….	2.3 bc	15.0	1.0 de	6.7
Pristine 38WG, 18.1 oz……..…….	**	**	0.8 de	5.0
Pristine 38WG, 9.1 oz……...……..	**	**	1.8 d	11.7
Scholar 50WP, 8 oz…….	3.5 b	23.3	3.5 c	23.3
Freshgard 25 (25% SOPP), 89.3 fl oz…….	**	**	6.5 b	43.3
Storox, 125 fl oz……..	15.0 a	100.0	15.0 a	100.0

* Values followed by the same letter within a column are not significantly different at P=.05 according to the Student-Newman Keuls test.

** This fungicide treatment was not included in this experiment