

SWEETPOTATO (*Ipomoea batatas*)
 Fusarium root rot; *Fusarium solani*,
 Fusarium surface rot; *Fusarium oxysporum*

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Susceptibility of sweetpotato cultivars to Fusarium Surface and Root rot, 2016

This experiment was conducted at the North Carolina State University Phytotron in Raleigh, NC. Sixteen commercial and advanced breeding sweetpotato cultivars from the NC State Sweetpotato Breeding and Genetics Program were evaluated for susceptibility to Fusarium surface and root rot. Storage roots were surface-disinfected with a 5% bleach solution, rinsed and air dried under sterile conditions. A 3-5 mm deep wound was made on six roots per variety and inoculated with 40µL of a 0.01% Tween solution of 1×10^6 spores/ml of either *F. solani* or *F. oxysporum*. After inoculation, roots were placed in a 28 cm x 20 cm x 14 cm container with 3 sterile paper towels dampened with 35 ml of sterile water to maintain 100% humidity. Six noninoculated roots per cultivar inoculated with 40µL of 0.01% Tween solution were also included. Inoculated roots were arranged in a complete randomized design and incubated at 25°C for 21 days. The experiment was repeated once. Lesion diameter was recorded twice a week for three weeks. Data was analyzed in the software ARM (Gilling Data Management, Brookings, SD) using the analysis of variance (AOV) and the Tukey's HSD test to separate means.

Fusarium root rot was first detected 5 days post inoculation; while Fusarium surface rot was first detected ten days post-inoculation. Lesion diameter for *F. solani* infections was the highest on the breeding lines NC05-198 and NC09-165 with 96.2 and 89.6 mm, respectively, while for *F. oxysporum* infections; Evangeline and Jewel had the highest lesion diameter with 38.0 and 36.0 mm, respectively. Mean lesion diameter was estimated by measuring the visible lesion after 21 days post-inoculation. Means shown are average among 6 replicates and two independent runs of the entire experiment.

Variety *	<u>Fusarium Root Rot</u>	Variety	<u>Fusarium Surface Rot</u>
	Mean Lesion Diameter (mm)		Mean Lesion Diameter (mm)
NC05-198	96.2 a	Evangeline	38.0 a
NC09-165	89.6 ab	Jewel	36.0 ab
Evangeline	85.8 ab	NC05-198	35.3 abc
Bellevue	84.0 ab	Covington	30.7 a-d
Burgundy	79.2 abc	NC09-165	30.5 a-e
Beauregard	78.8 bc	Porto Rico	27.3 a-f
Jewel	75.0 bcd	Burgundy	25.7 a-f
NC04-531	72.3 bcd	Orleans	25.4 a-g
Orleans	72.3 bcd	Bayou Belle	23.1 b-g
Covington	65.0 cde	Bonita	22.7 b-g
Porto Rico	65.0 cde	NC04-531	21.7 c-g
NC09-122	62.3 cde	Beauregard	18.7 d-g
Murasaki-29	60.0 de	Bellevue	16.6 e-h
Bayou Belle	54.7 e	NC09-122	15.4 gh
Bonita	49.8 e	Murasaki-29	12.1 gh
Stokes purple	0.00 f**	Stokes purple	2.90 h

* Sweetpotato lines were sorted by lesion diameter after 21 days post inoculation.

** Means followed by the same letter within a column are not statistically different (P>0.05, Tukey's. HSD).