STRAWBERRY (*Fragaria* x *ananassa*)
Phytophthora Crown Rot; *Phytophthora cactorum*

T. Seijo, M. Marin, C.S. Rebello, V.M. Whitaker and N.A. Peres
University of Florida, GCREC
Wimauma, FL 33598

Evaluation of strawberry cultivars and advanced breeding selections for resistance to Phytophthora crown rot caused by *Phytophthora cactorum*, 2021-22.

Eight commercial cultivars and five advanced selections from the UF-GCREC strawberry breeding program were evaluated for resistance to Phytophthora crown rot caused by *Phytophthora cactorum*. Bare-root, green-top strawberry plants were transplanted on 11 Oct 21 into Telone C35 (300 lbs/A) fumigated, raised beds (28-in wide, on 4-ft centers) covered with black plastic mulch. Transplants were planted in two staggered rows per bed with 15-in spacing between rows and 12-in between plants within each row. Four plots of each cultivar containing 10 plants per plot were arranged in a randomized complete block design, with each replication in a separate bed. Transplants, with roots trimmed to 2.5 in., were root-dip inoculated in a 10^4 *P. cactorum* zoospores/ml suspension for 15 min, 1 h prior to planting. Inoculum was a mixture of four *P. cactorum* isolates. Transplants were overhead irrigated during the day for about 10 days to facilitate establishment and then irrigated and fertilized through a single drip tape throughout the season. Plants were monitored weekly for development of typical Phytophthora crown rot symptoms, wilt and mortality, for almost three months. Isolations from symptomatic tissues were performed to confirm the causal agent. An analysis of variance was performed on the AUDPC, final percent disease and final percent mortality using the proc GLM procedure in SAS. Percent data were arcsine transformed for analysis. Multiple mean comparisons were made by the Fisher Protected LSD test ($\alpha = 0.05$).

Disease pressure was high during this trial with disease incidences reaching over 70%. 'Florida Elyana' is known to be resistant (R) to *P. cactorum* causing Phytophthora crown rot and was included as a R control. Florida Pearl™ 'FL 16.78-109' and breeding selections 19.71-53, 19.36-125, 19.66-220, and 19.57-286 were similar to 'Florida Elyana' by all three measures analyzed and were considered R. Advanced selection 19.58-161 had higher wilt and mortality than 'Florida Elyana', but disease incidences were still low at only 10% so it was considered moderately resistant (MR). 'Florida Radiance' and Sweet Sensation® 'Florida127' were highly susceptible (HS) with the greatest wilt, mortality, and AUDPC. The remaining cultivars, Florida Beauty, Florida Brilliance, Sweet Charlie, and Florida Medallion™ 'FL 16.30-128', were classified as susceptible (S) having intermediate levels of wilt and mortality.

Cultivar/ Advanced Breeding Selection	% Wilt*		% Mortality*		AUDPC* (Wilt)		Susceptibility** Category
Sweet Sensation® 'Florida 127'	72.5	A	72.5	a	4618	a	HS
'Florida Radiance'	57.5	Ab	52.5	ab	3220	b	HS
'Florida Beauty'	37.5	Bc	37.5	bc	2139	bc	S
'Sweet Charlie'	32.5	C	20.0	cd	1373	cd	S
'Florida Brilliance'	30.0	C	22.5	cd	1438	cd	S
Florida Medallion™ 'FL 16.30-128'	27.5	C	25.0	cd	1330	cd	S
19.58-161	10.0	D	10.0	de	580	de	MR
Florida Pearl™ 'FL 16.78-109'	5.0	De	2.5	ef	95	e	R
19.71-53	0.0	E	0.0	f	0	e	R
19.36-125	0.0	E	0.0	f	0	e	R
19.66-220	0.0	E	0.0	f	0	e	R
19.57-286	0.0	E	0.0	f	0	e	R
'Florida Elyana'	0.0	E	0.0	f	0	e	R

* Means in a column followed by the same letter are not significantly different by Fisher's protected LSD test (α = 0.05). Wilt and mortality data shown are from final rating date.

** Highly Susceptible (HS), Susceptible (S), Moderately Resistant (MR), Resistant (R)