STRAWBERRY (*Fragaria* x *ananassa*)
Colletotrichum Crown Rot; *Colletotrichum gloeosporioides*

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Evaluation of strawberry cultivars and advanced breeding selections for resistance to Colletotrichum crown rot caused by *Colletotrichum gloeosporioides*, 2021-2022.

Resistance to Colletotrichum crown rot (CCR), caused by *Colletotrichum gloeosporioides*, was evaluated under field conditions in an experimental trial at the Gulf Coast Research and Education Center (GCREC – UF IFAS). Eight commercial cultivars from Florida and four advanced selections from the UF-GCREC strawberry breeding program were evaluated. On 08 Oct 2021, raised beds, previously fumigated with Telone C-35 (300lbs/A) and covered with black mulch, were planted with bare-root transplants in two staggered rows. The plants were arranged in beds with 15-inch spacing between rows and between plants within each row. Four beds were used where each bed contained one replication. For each cultivar, four plots containing ten plants per plot were arranged in a randomized complete block design (RCBD). Irrigation was applied by overhead sprinklers during the day for 10 days to establish the plants and then irrigation and fertilization was applied by single drip tape placed underneath the plastic until the end of the season. On 10 Nov 2021, plants were spray inoculated targeting the crown using a manual pump sprayer following 1 h of overhead irrigation before sunset. A mixture of four isolates of *C. gloeosporioides* at 2 x 10^5 conidia/ml was used. Pathogen presence was confirmed from symptomatic crown tissue collected during the evaluation period. Symptoms of CCR, wilt and mortality, were assessed weekly for about ten weeks. The percent of wilt and mortality data was used to calculate the area under disease progress curve (AUDPC). Data were analyzed with SAS using proc GLIMMIX procedure for an analysis of variance which was performed on the AUDPC, final percent of wilt and mortality. Multiple mean comparisons were made by the Fisher Protected LSD test ($\alpha = 0.05$).

The highest levels of CCR symptoms, wilt and mortality, as well AUDPC were observed on advanced selections 19.58-161 and 19.57-286 classifying them as highly susceptible (HS) with wilt and mortality up to 97.5 and 87.5%, respectively. Susceptible (S) cultivars and selections included Florida Brilliance, Florida Radiance, Sweet Charlie, Florida Beauty, and 19.36-125 with wilt ranging from 40 to 70% and mortality between 20 and 57.5%. Cultivars Sensation® 'Florida127' and Florida Medallion™ 'FL 16.30-128' were classified as moderately resistant (MR) with the wilt and mortality parameters reaching from 15 to 25%. Finally, 'Florida Elyana' and selection 19.66-220 were considered resistant (R) since no wilt nor mortality were recorded until the end of the experiment.

Cultivar/Advanced Breeding Selection	% Wilt*		% Mortality*		AUDPC*		Susceptibility Category**
19.58-161	97.5	a	87.5	a	4385.0	a	HS
19.57-286	95.0	a	75.0	ab	4138.8	a	HS
Florida Radiance	70.0	b	57.5	b	2745.0	b	S
Florida Brilliance	55.0	bc	37.5	c	1822.5	b	S
19.36-125	50.0	bc	37.5	c	2165.0	bc	S
Sweet Charlie	47.5	c	35.0	cd	2031.3	bcd	S
Florida Beauty	45.0	cd	25.0	cde	1563.8	bcd	S
Treasure	40.0	cd	20.0	cde	1571.3	bcd	S
Florida Medallion™ 'FL 16.30-128'	25.0	d	15.0	ef	683.8	de	MR
Sensation® 'Florida 127'	22.5	e	17.5	def	823.8	cde	MR
Florida Elyana	0.0	f	0.0	f	0.0	e	R
19.66-220	0.0	f	0.0	f	0.0	e	R
p-value	0.0001		0.0001		0.0001		

* Means in a column followed by the same letter are not significantly different by Fisher's protected LSD test ($\alpha = 0.05$).
** Highly Susceptible (HS), Susceptible (S), Moderately Resistant (MR), and Resistant (R).