STRAWBERRY (*Fragaria x ananassa* 'Strawberry Festival')
Pestalotiopsis leaf spot and fruit rot; *Pestalotiopsis spp.*
Anthracnose fruit rot; *Colletotrichum acutatum*
Leak disease; *Rhizopus* and *Mucor* spp

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Cultivar susceptibility to *Pestalotiopsis spp.*, a developing pathogen of strawberry, 2018-19.

For the first time, *Pestalotiopsis spp.* caused a debilitating leaf spot and fruit rot disease of strawberry in several Florida fields during the 2018-19 growing season. According to growers, traditional strawberry fungicides failed to control the disease. To test strawberry cultivars for disease resistance, an experiment was superimposed on a completed cultivar trial located at the University of Florida Gulf Coast Research and Education Center in Wimauma, FL. Ten named cultivars from Florida and California, and four advanced breeding lines from the UF strawberry breeding program were represented. The original trial was initiated on 9 Oct 2018 by planting bare-root green-top transplants into marked plots on fumigated plastic-mulched beds in a high plastic tunnel. The plants were overhead irrigated during the day for a 10-day period to enhance plant establishment and subsequently irrigated and fertilized through a central drip tape in each bed. Standard farm sprays were applied to control insects and spider mites, but no fungicides were applied. The experimental area was arranged in a randomized complete block design and consisted of four replicate beds on 4-ft centers. Plots consisted of 8 to 12 plants in two staggered rows spaced 15 in. apart within rows and 12 in. between rows, and were separated by sections of unplanted bed. On 27 Feb 2019, plots were inoculating by spraying plants to run-off with a mixed spore suspension of two fresh isolates of *Pestalotiopsis spp.* from local farms. Inoculum was produced from 10-day-old cultures on PDA, adjusted to 5×10^4 spores/ml, and applied with a CO_2 back-pack sprayer calibrated to deliver 75 gal/A at 30 psi through two T-Jet 8002 hollow-cone nozzles. The inoculation was timed to coincide with a humid, rainy period, so only brief overhead irrigations were applied during the following two days. Thereafter, the area was overhead irrigated during the day for four consecutive weekends. Ripe fruit were harvested on 10, 14, 18, and 22 Mar, counted, and evaluated for disease. Fruit disease incidence was expressed as a percentage of total fruit harvested. Foliar disease was evaluated during 9 to 11 Apr by counting the number of leaves on each plant with one or more *Pestalotiopsis* lesions. Total leaf counts were made of four random plants per cultivar and breeding line to express leaf spot incidence as a percentage. Data were analyzed by two-way ANOVA using the Proc GLM procedure in SAS software. Treatment means were separated by Fisher's protected LSD procedure ($\alpha = 0.05$).

Characteristic *Pestalotiopsis* lesions developed on fruit and leaves one week after inoculation, but were sparse. Since water is necessary for disease spread and the experiment was sheltered in a tunnel, periodic overhead irrigation was necessary to promote disease development. Even with irrigation, severe spotting and blighting were not induced. However, progressive and cumulative disease development was sufficient to differentiate cultivar responses to *Pestalotiopsis* spp., as well as *Colletotrichum acutatum* (anthracnose fruit rot, AFR) and *Rhizopus/Mucor* spp. (leak disease of fruit). AFR incidence was lowest among Florida cultivars and breeding lines 16.84-194, 15.21-98, Brilliance, FL-127 (Sensation™), Radiance, and Beauty. AFR incidence was significantly higher among California cultivars San Andreas, Cabrillo, Fronteras, and Monterey. On the other hand, leak disease incidence was lowest in 16.84-194, San Andreas, Radiance, Fronteras, and Festival, but significantly higher in FL-127, Petaluma, Cabrillo, and Beauty. Pestalotiopsis fruit rot data were less discriminating, possibly because young lesions can be confused with AFR. Never-the-less, 16.84-194, 15.21-98, Brilliance, San Andreas and Beauty were significantly more resistant to fruit spotting than Petaluma, Cabrillo, Fronteras, Festival, and 14.34-33. Pestalotiopsis leaf spot data were more discriminating. Three advanced breeding lines as well as Brilliance, FL-127, and Petaluma were more resistant than most of the remaining cultivars. However, one Florida grower reported significant losses in a field planted to FL-127. Most entries showed similar tendencies in their response to *Pestalotiopsis* foliar and fruit diseases. However, Beauty appeared more resistant to fruit rots than leaf spots, whereas Petaluma appeared resistant to leaf spots, but susceptible to fruit rots.

		Disease incidence (%)[z]			
Cultivar	Origin	AFR	Leak	Pest fruit rot	Pest leaf spot[y]
16.84-194	FL	0.7 abc	14.9 ab	3.3 ab	6.6 a[x]
15.21-98	FL	0.7 abc	24.2 cd	2.2 a	8.1 a
16.74-41	FL	2.5 a-d	16.9 bc	5.8 abc	8.8 a
Florida Brilliance	FL	1.2 abc	16.8 bc	2.6 a	9.1 a
FL-127[w]	FL	0.3 ab	37.0 e	3.7 abc	9.7 a
Petaluma	CA	4.1 d	29.8 de	7.8 bc	9.8 a
San Andreas	CA	8.1 f	6.5 a	2.6 a	12.9 ab
Florida Radiance	FL	0.0 a	14.4 ab	5.5 abc	18.5 bc
Cabrillo	CA	4.7 de	31.4 de	8.3 bc	19.4 bc
Fronteras	CA	5.1 de	13.4 ab	7.5 bc	20.7 c
Florida Beauty	FL	0.4 abc	33.7 e	2.6 a	21.0 c
Strawberry Festival	FL	2.8 bcd	8.8 ab	8.0 bc	21.5 c
Monterey	CA	7.2 ef	16.8 bc	5.3 abc	22.0 c
14.34-33	FL	3.1 cd	16.4 bc	7.7 bc	25.6 c
$(Pr > F)_{trt}$		< 0.001	< 0.001	0.0485	< 0.001

[z] Pest = *Pestalotiopsis*; leak is a watery collapse of fruit caused by *Rhizopus* and *Mucor* spp.; AFR = anthracnose fruit rot.
[y] Leaf spot incidence (%) is based on the number of infected leaves/plant divided by the total number leaves/plant for each entry.
[x] Means in a column followed by the same letter are not significantly different by Fisher's Protected LSD test ($a = 0.05$).
[w] Cultivar FL-127 is also known as Sensation, its trade mark.