Evaluating Host Resistance to Macrophomina Crown Rot in Strawberry - 2020

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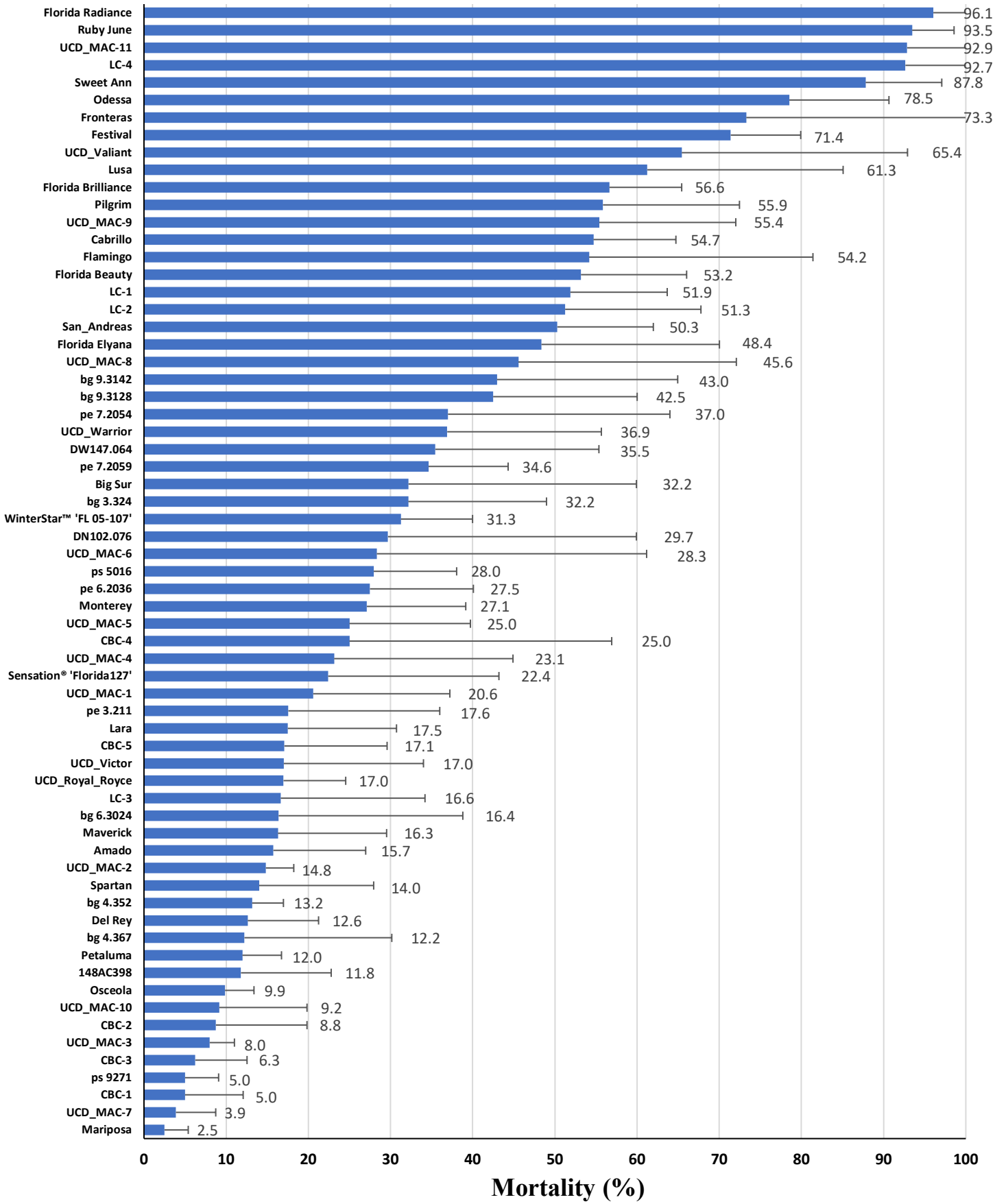
In the fall of 2019, our fourth consecutive field trial was established to evaluate 65 strawberry cultivars and elite selections for resistance to crown rot caused by *Macrophomina phaseolina*. Strawberry germplasm was selected from six breeding programs: University California Davis (UC), University of Florida (FL), Driscoll's (DR), Plant Sciences (PSI/PE/BG), California Berry Cultivar (CBC) and Lassen Canyon (LC). The trial consisted of 20-plant plots replicated four times, with a fifth non-inoculated replicate. The non-inoculated area was bed-fumigated with Ally 33 at 534 lb/A in the fall of 2019. On 23 Oct 2019, bare-root strawberry transplants were set in field 35b on the Cal Poly San Luis Obispo farm (Fig. 1). Two weeks later each plant in the inoculated replicates received 5 grams of cornmeal-sand-*Macrophomina* inoculum placed around the crown and root zone (Fig. 2A). Plants were drought stressed by withholding irrigation for 3 consecutive days per week starting 1 Jun. Presence of the pathogen in plants was confirmed by standard plating techniques. Disease assessments were conducted every two weeks. Plants were considered dead when all foliage was necrotic.

Figure 1. Aerial view of *Macrophomina* host resistance trial located in field 35b on Cal Poly San Luis Obispo farm. Plants in the area outlined in red were inoculated; plants in the area outlined in yellow were not inoculated (control). (Photo taken on 13 July 2020)

Figure 2. A) Inoculating a transplant with *M. phaseolina* inoculum. B) Early wilt symptoms of crown rot (plant circled in yellow). C) Cross section of a necrotic crown showing brown discoloration of the tissue due to *M. phaseolina*.

Average % mortality due to Macrophomina crown rot on 3 August 2020



Average % mortality due to Macrophomina crown rot (By breeding program) on 3 August 2020