

Supporting Information for

Chemical Analysis of Fermentable Sugars and Secondary Products in 23 Sweet Sorghum Cultivars

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Number of pages: 6

Number of figures: 4

I. Temperature, precipitation, evapotranspiration, soil moisture, and total solar radiation in 2015

Daily minimum and maximum air and soil (10 cm depth) temperatures (in °C); total rain and evapotranspiration (in mm); and maximum soil moisture (in %) from the first planting (April 22) to final harvesting (September 24) dates are provided in Figures S1-S2 of the Supporting Information (University of Georgia Weather Network, 2016). Sucrose, total sugar, and trans-aconitic acid concentrations, TOC, and Brix consistently increased with the planting date from April, June, to July (Table 2). This trend is proportional to increasing air temperature from 12-27 °C (planting 1 on April 22), 18-30 °C (planting 2 on May 14), to 23-36 °C (planting 3 on June 16, Figure S1). Air temperature on the harvest dates slightly decrease from planting 1 (21-23 °C minimum, 30-34 °C maximum), planting 2 (16-24 °C minimum, 33-34 °C maximum), to planting 3 (16-21 °C minimum, 24-32 °C maximum). During the entire planting to harvest period spanning 5 months, air temperature and rainfall ranged from 10-25 °C minimum to 18-36 °C maximum, and 0.0-89.2 mm d⁻¹. Time trends for soil temperature were similar to air temperature at consistently higher minimum values (Figure S1). Likewise, maximum soil moisture followed the trend of total rain in Figure S2.

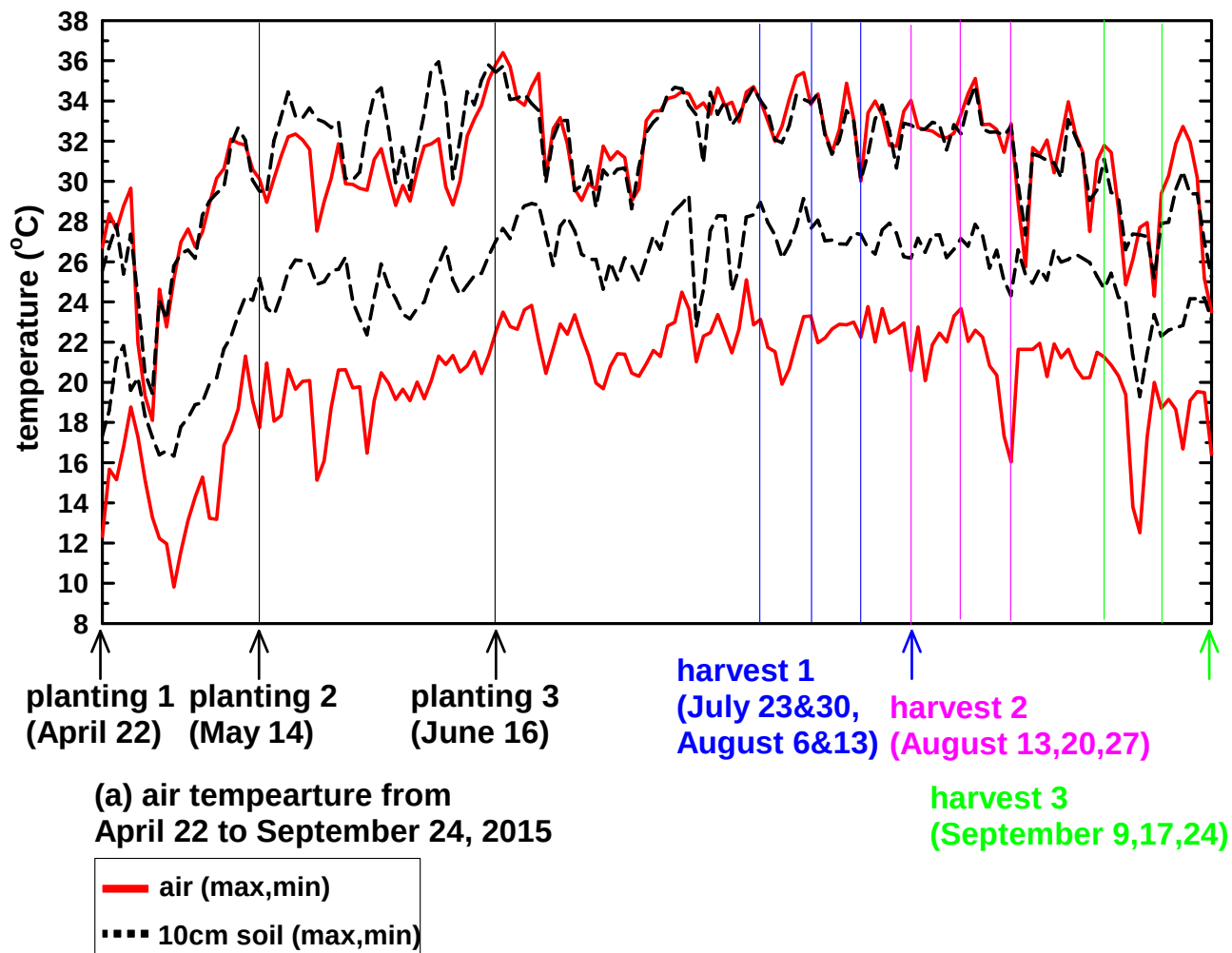


Figure S1. Maximum and minimum air (red solid lines) and soil (10 cm depth, black dashed lines) temperatures in Tifton, GA from April 22 to September 24, 2015. Vertical lines (arrow for overlapping dates) are color coded for planting dates (black) and harvest dates for planting 1 (blue), planting 2 (pink), and planting 3 (green). Source:(University of Georgia Weather Network, 2016)

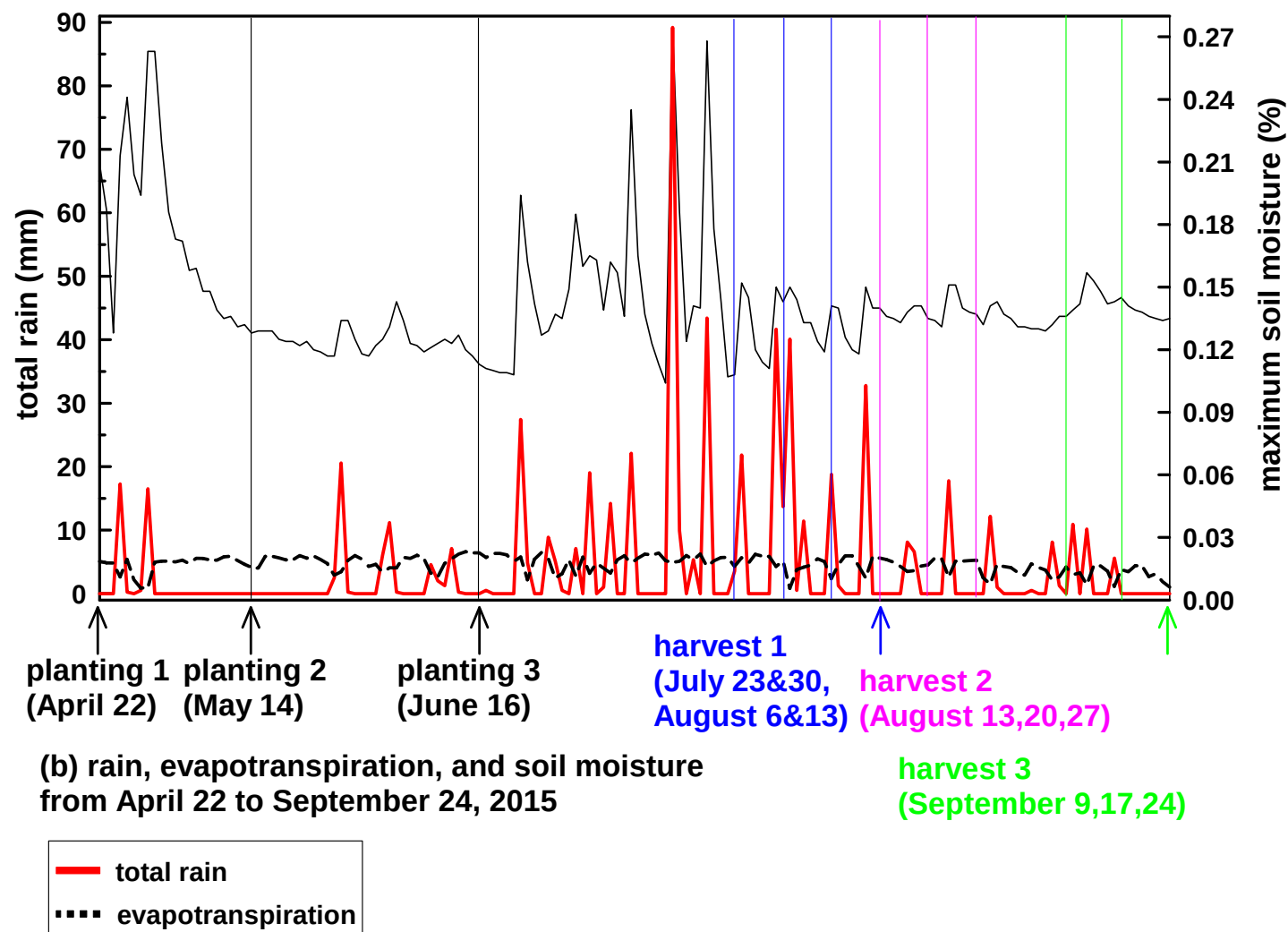


Figure S2. Left y-axis: Total daily precipitation (red solid line) and evapotranspiration (black dashed lines) in Tifton, GA from April 22 to September 24, 2015. Right y-axis: maximum soil moisture (thin black line in %). Vertical lines (arrow for overlapping dates) are color coded for planting dates (black) and harvest dates for planting 1 (blue), planting 2 (pink), and planting 3 (green).

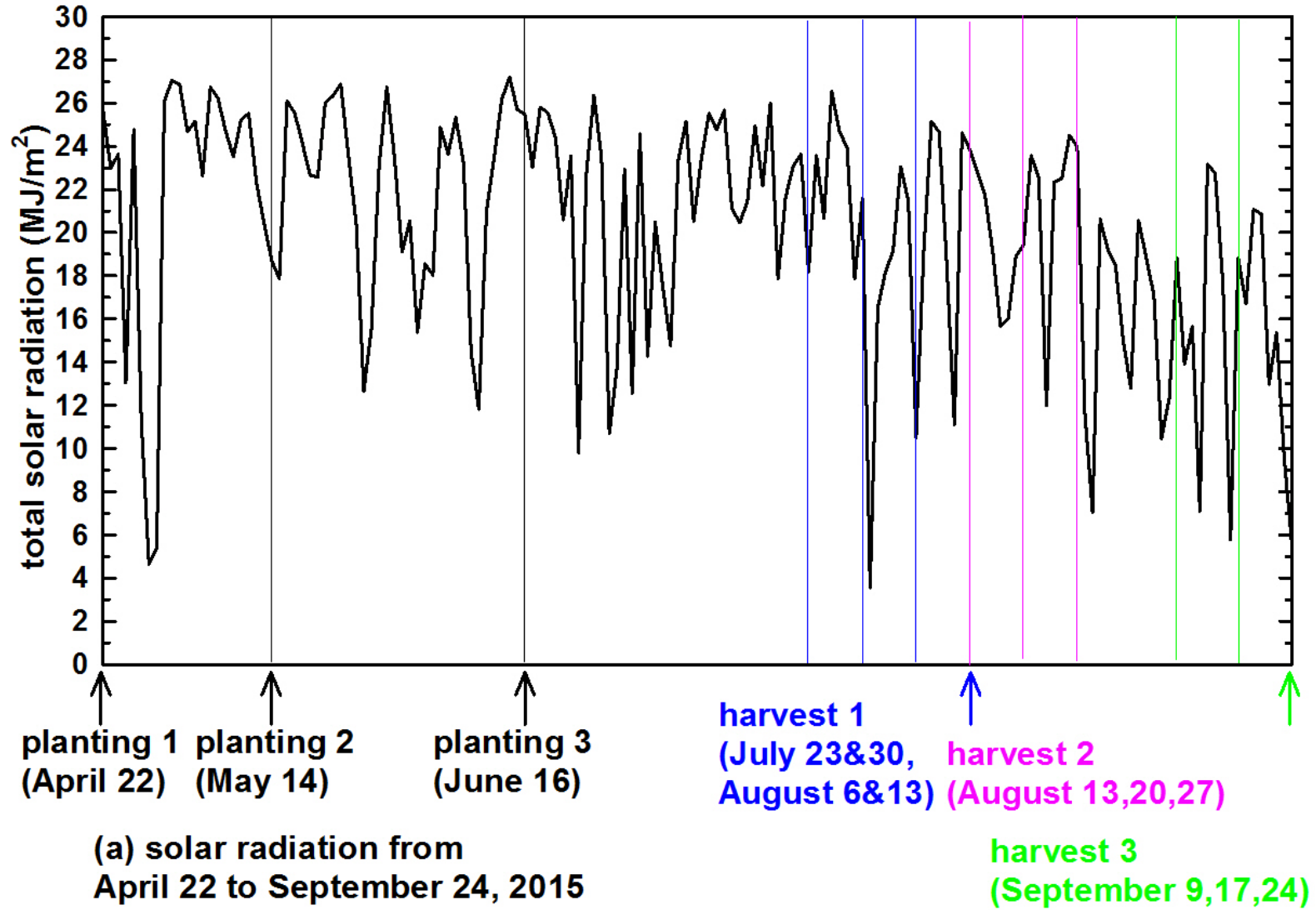


Figure S3. Total solar radiation during the field experiments in 2015.

II. Colors observed in methanol extracts of bagasse

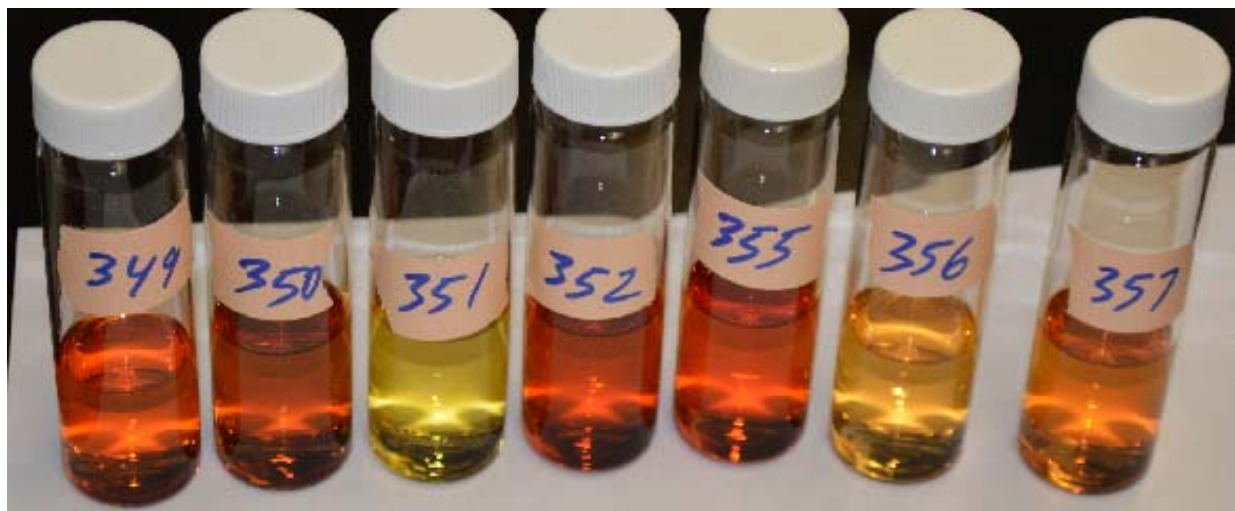


Figure S4. Representative colors of sweet sorghum bagasse extracted by methanol.

References

University of Georgia Weather Network *University of Georgia Weather Network*; University of Georgia Weather Network, Griffin, GA. Available: <http://weather.uga.edu/index.php> (30 November 2016) (2016).