Southern Region Small Fruit Consortium

Title: Blueberry Soil Amendments (Comprised of Woodland Waste Products) – A Comparison to the Industry Standard Pine Bark

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Public Abstract

In commercial blueberry production, adequate levels of organic matter (OM) are necessary for establishment and development of the crop. On sites where less than adequate OM is present, high mortality and poor root and shoot development can occur. Soils with elevated levels of naturally occurring OM are often difficult to cultivate, due to a periodic high water table and the overall environmental sensitivity of the site (typically deemed as wetlands). The alternative to production in locations with low OM is adding some source of OM to the soil, through incorporation of the amendment (into the soil), creating raised beds and topdressing them with the same product. The product of choice is traditionally pine bark, which is an item of high demand, be it for landscape mulch, heating source, charcoal, nursery potting media or soil amendments. Yet, it is an item of finite supply and its availability is directly correlated to the lumber industry. Thus, in times when prices are high, amending the soil with the proper amount of pine bark for blueberry production can become a limiting factor for some growers.

The primary goal of this project was to evaluate the feasibility of the following materials as soil amendments and their influence on blueberry horticultural performance and soil OM: pine bark (control), partially decomposed pine straw, partially decomposed pine wood (whole tree grind), and chipped (multi-species) hardwood. The four treatments were: pine straw (only), pine wood (only), a 2-way combination comprised of 75% pine straw and 25% pine wood, and a 3-way combination of 50% pine straw, 25% pine wood and 25% hardwood. The application rate of the amendment was 6 yd^3 over the 135 ft (41 meter) row (equivalent to 200 yd^3 per acre). Half of the material was rototilled into the soil, then bedded. The other half of the material was applied as a top dress (mulch) over the top of the row. Three sites were chosen, covering all of the major upland soil types: (1) the Musser Fruit Research Farm in Seneca, SC (clay to clay/loam soil), (2) the Pee Dee Research and Education Center in Florence, SC (loamy/sand soil), and (3) the Sandhill Research and Education Center in Columbia, SC (deep sandy soils).

Three cultivars were selected for each site. The Musser Fruit Research Farm's selections were one Southern highbush (Legacy) and two Northern highbush (Bluegold and Duke). At both the Pee Dee REC and the Sandhill REC, Southern highbush comprised all three selections – Camellia, Farthing, and Legacy. Each trial consisted of five plants of each cultivar. Each trial was replicated and randomized three times per amendment for each of the five amendments. Plant spacing was 3 feet (0.9 meters) apart. Row spacing was 10 feet (3.05 meters). Quantitative data collected included: soil pH and OM content,

survival/loss of plants, plant height and width, and number of new canes. Qualitative data collected included: vigor, health, appearance, and bed condition. Initial data suggests that there are significant differences between the treatments and control, primarily with plant height and vigor. Some of those differences were an improvement over the control. This may be due to the introduction of OM fines from the partially decomposed amendments comprising the treatments. The control did not contain much OM fines. Multiple years of data will be necessary to allow for conclusions. Data from this study could have dramatic impacts upon establishment practices for the blueberry industry.