Establishment of a TPUPS (Trellised Production Using Primocane Suppression) blackberry demonstration orchard for use in regional extension and teaching activities.

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Objective: To establish a blackberry orchard using the TPUPS method (Trellised Production Using Primocane Suppression) for use in regional extension and teaching activities.

Public Abstract:

A teaching and demonstration TPUPS (Trellised Production Using Primocane Suppression) blackberry planting was successfully installed at the Dean Lee Research Station in Alexandria, Louisiana. Four rows of berries were planted, and the cultivars were Caddo, Kiowa, and Ponca. The establishment phase is still on-going but preliminary results are promising so far. As of the November 28, 2023; trellis coverage of the varieties was 25% for 'Caddo', 75% for 'Kiowa', and 85% for 'Ponca'. Irrigation has proven to be invaluable to this endeavor, especially with the extreme drought conditions this growing season. There has been significant stakeholder and educational interest in the project. An agent irrigation training was hosted in the blackberry planting and interest was expressed for further blackberry and trellising trainings. One sizable mayhaw producer in North Louisiana has emulated the design for a blackberry planting on their orchard and the Burden Research Station in South Louisiana is considering a blackberry cultivar evaluation planting. Future plans include a fifth row of 'Sweetie Pie' blackberries being installed in Spring of 2024 in addition to anticipated blackberry field days and trainings after orchard establishment in 2025.

Justification and Description:

The TPUPS method has several advantages for low to medium input operations in the Southeast production region. It keeps the orchard floor around the plants much cleaner which makes weed management through chemical control easier to implement. It also allows removal of lower leaves which makes management of leaf spot issues simpler. When maintained correctly, spray penetration of applied fungicides is much more effective which increases the long-term health of the planting. Dr. Powell, Petals from the Past in Jemison, Alabama, has found that the 'Kiowa' cultivar is well suited to the TPUPS method. Petals from the Past has 'Kiowa' plantings that have been grown for 22 years using the technique.

The architecture of the plants is conducive for small scale agriculture, you-pick, and agrotourism operations. The fruit is easily accessible and reduces possible contact with thorns. We have had

several inquiries from small-scale growers looking to expand into blackberry production for retail or you-pick operations and we think the TPUPS method would be a good fit for them. The trellising component of blackberry production is the most intimidating aspect for most of our stakeholders considering jumping into it. Having an example they can see in person and practice on would be invaluable in encouraging those who want to get started.

‘Caddo’, ‘Kiowa’, and ‘Ponca’ plants were purchased in February of 2023 to ensure that the material would be available. They were one year old bare root plants that were promptly potted into 2-gallon containers upon receipt in early March. Plants were held in those container at a nursery in Forest Hill s until the site was ready for blackberry installation. A late frost in March damaged some of the ‘Kiowa’ plants that had started growing early but ‘Caddo’ and ‘Ponca’ were not affected.

There was a delay in getting the site ready for planting. Getting the rows and trellis installed went smoothly but irrigation for the rows was delayed until late July. Spring of 2023 gave an early indication that the growing season would be hot and dry, so plants were held at the nursery site where they could receive adequate water. Plants were put in the ground, trellised, and mulched in early August. One row of ‘Caddo’, one row of ‘Ponca’ and two of ‘Kiowa’ were planted. Plants are five feet apart and there are ten plants per row. Half of the second row of ‘Kiowa’ is currently vacant as some plants died due to the late freezing damage. Replacement plants were generated through rooting cuttings from existing plant material, and they will be added in Spring of 2024. Because of the irrigation system, there was not a single loss after planting.

Establishment of the blackberries is still ongoing. As of November 28, 2023; trellis coverage of the varieties was 25% for ‘Caddo’, 75% for ‘Kiowa’, and 85% for ‘Ponca’. This is an early indication that ‘Kiowa’ and ‘Ponca’ will be successful in this region using the TPUPS system. The low trellis coverage for ‘Caddo’ does not preclude it from being successful in the TPUPS system but it may take a little longer to get established. The later planting date and extreme weather conditions may have influenced ‘Caddo’ negatively as well. One modification to the process was the use of rubber tree tying bands in addition to green nursery tape for the trellising process. The rubber bands have made it easier to attach plants to the trellis, are fast to apply, and increase visual appeal.

Grant Project Results:

There has been significant stakeholder and educational interest in the project. An agent irrigation training was hosted in the blackberry planting and interest was expressed for further blackberry and trellising trainings. One sizable mayhaw producer in Columbia, Louisiana has emulated the design for a blackberry planting on their orchard and the Burden Research Station in Baton Rouge Louisiana is considering a blackberry cultivar evaluation planting. Future plans include a fifth row of ‘Sweetie Pie’ blackberries being installed in Spring of 2024 in addition to anticipated blackberry field days and trainings after orchard establishment in 2025. Pictures of highlights are included in the following figures.

Figure 1: Top photo is an overview of the planting at the Dean Lee Research Station in Alexandria, Louisiana about 3 weeks after plant installation. Pumpkins were planted in the fifth row as a placeholder for ‘Sweetie Pie’ that will be put in Spring of 2024. Bottom photo is of one of the more successful ‘Ponca’ plants that established quickly.

Figure 2: Photo of trellising a newly planted ‘Kiowa’ blackberry by Kyleigh Bass and Michael Polozola. Kyleigh assisted with installation as part of her summer extension internship. The irrigation system of drip tape on both sides of the plant can be seen at this stage but it was later covered by mulch.

Figure 3: Blackberry planting installed at a mayhaw orchard of Michael Book in Columbia, Louisiana. Michael Book visited the blackberry planting at the Dean Lee Research Station in Alexandria, Louisiana prior to his installation and incorporated some practices into his.

Questions related to project can be directed to Michael Polozola at MPolozola@agcenter.lsu.edu