

Project Evaluator Summary Next Steps in South Carolina

PD-Dr. Matthew Cutulle and two students that were funded by the project met on December 11th to discuss the results of the project and how to leverage the momentum generated from it moving forward in South Carolina. Sohaib Chattha's (Phd student funded under the grant) focused on Anaerobic Soil Disinfestation (ASD). This bio-fumigation process looks like it has potential to be successful in South Carolina if a local carbon source can be optimized. A carbon source that performed well with respect to weed control and watermelon yield was cotton seed meal especially when included with an improved mulch system (Solar Shrink UV reactive mulch was mentioned in the report. **Cotton seed meal is a local carbon source, and I recommend the researchers follow up with local cotton processing plants to obtain raw materials and test the C:N to see if it is the same as the processed material used in this study. I would also recommend evaluating cover crops in the future. The researchers need to work with an economist next to determine if the practices are economically feasible for commercial growers in SC.**

Take Home Points ASD Portion: Cotton Seed Meal works to facilitate ASD, especially with novel plastic mulches,

Not worth using Rhizobacteria

Five growers successfully implemented ASD in organic watermelon.

If the practices are determined to be economically competitive with other conventional or organic weed management practices, then I recommend additional grower field days and Extension agent trainings on ASD implementation.

The 2nd portion of the meeting focused on competition between watermelon and weeds in partial saltwater agroecosystems. This portion of the project was lead by MS student Joseph Bazzle under the supervision of Dr. Cutulle. Ultimately, it was identified that greater salinity stress gave an advantage to the weeds (specifically yellow nutsedge) more than the watermelon even when using grafted plants. In coastal areas the **researchers should focus on emphasizing techniques to reduce saltwater inundation into irrigation sources. I would also recommend the researchers follow up with projects focusing on remediation of coastal cropland that has been subjected to salt stress by exploring cover crops and other phytoremediation techniques.**

TAKE HOME POINTS

COTTON SEED MEAL IS AN EFFECTIVE CARBON SOURCE TO FACILITATE ASD

GOOD SAFETY WHEN TRANSPLANTING ONE WEEK AFTER ASD TERMINATION

NOT WORTH PURSUING GRAFTING FOR GROW WATERMELON IN MARGINAL AREAS IF NUTSEDGE IS A PROBLEM IN FIELD, (MOST CERTAINLY WILL BE)

NEED ECONOMIC SUPPORT TO FINE TUNE ASD IN WATERMLON IN SC