

Excellence in Crop Production “Development, Implementation and Dissemination of Precision Agriculture Technologies On-farm to Support Field Crop Producers in Louisiana.”

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Educational Objectives:

- Support and direct precision agriculture applications to enhance efficiencies across major field crops produced in Louisiana inclusive of various equipment applications (variable rate and precision application technologies, drone usage, yield monitors and irrigation efficiency).
- Serve as a liaison between research scientists and producers to ensure rapid dissemination and practical implementation of various technologies on-farm.
- Train and support other extension field faculty in existing and newly developed technologies.
- Train and support stakeholders and clientele in the areas of precision and digital agriculture.
- Increase the knowledge of stakeholders by developing and disseminating educational programs relating to precision agriculture.
- Educate youth about precision agriculture technologies.

Program Activities:

- Implement on-farm demonstrations featuring precision agriculture research based information focusing on using EC data, NDVI and yield determinations.
- Implementation of project farms (rice, corn, sugarcane) using precision agriculture technologies to make site specific prescription applications of nitrogen, with monitoring . Employing grid sampling, remote-sensing data(NDVI), tissue sampling as well.
- Educate field crop producers about precision agriculture.
- Provide extension educational programs on precision agriculture.
- Provide training to other extension professionals.

Teaching Methods:

- On-Farm Demonstrations
- Extension Factsheets
- Presentations (Power Point PPT) and seminars
- Newsletter articles
- Podcasts
- Field visits
- Email and Phone consultation

Results:

Development, Implementation and Dissemination of Precision Agriculture Technologies On-farm to Support Field Crop Producers in Louisiana.

This team of extension professionals has been working together for many years to support the development and dissemination of precision agriculture technologies related to field crop production and management in Louisiana. Specifically, in the last three years, they have organized a statewide Digital Agriculture Conference. The conferences featured current applications in precision agriculture and producers, crop consultants, and extension professionals from several states participated. The conferences also featured an EXPO component, where various vendors showcased available precision agriculture technologies. The group has presented at numerous field days across Louisiana as well. In January of 2020, the group was invited to lead a round table discussion at the Cotton and Rice Conference in Memphis, TN . Dennis Burns served as a panel member in this discussion and there were 25 producers, industry and University Specialists in attendance from across the southeast.

In 2018, the group supported the Louisiana Agri-Science Teachers Tour. The group has delivered presentations on various aspects of precision agriculture to diverse audiences, including, use of satellites for yield monitors, auto steer, variable rate chemical applications, drone imagery for monitoring plant health. The nominees also held several meetings and supported on-farm demonstration to educate producers about using UAV technologies on-farm. In addition to various demonstrations across the state, the group is working with three model project farms (rice, corn, sugarcane) where precision agriculture technologies are being used to make site specific prescription applications of nitrogen. The group is employing grid sampling, remote-sensing data (NDVI), and tissue sampling on the project farms. The goal with the project farms is to employ as many precision agriculture practices as is practical (i.e. fertility management-grid sampling, collecting EC data with a veris rig, developing prescriptions for fertilizer application, monitoring crop development in season with NDVI imagery, collecting tissue samples to determine issues in problematic areas and collecting yield data.

The group has been proactive and forward thinking during the previous year and plans are in place to deliver several virtual precision agricultural programs in the coming months.

Impact Statement:

Digital agriculture is being developed and implemented at a rapid pace. Long gone are the days of applying blanket amounts of nutrients, pesticides and otherwise making broad-based production and pest management decisions on-farm. Employing technologies to apply variable rate nutrients and pesticides, assess crop development, predict yield, apply irrigation and efficiently plant and harvest a crop are the new normal. This group of extension faculty is supporting our various field crops industries in the state by educating our clientele and stakeholders, other agents and the general public about the advantage and utility that precision agriculture can and does have on-farm. Because of their efforts, our producers are maximizing efficiency of various inputs, and ultimately yield and crop quality. The group has over 80 years of collective extension experience supporting the needs of field crop producers in Louisiana. I strongly believe that their extension educational program has made a positive impact and

benefitted the various field crop industries in Louisiana and will continue to do so for years to come.

Evaluation:

Formal evaluation metrics of the above mentioned activities, conferences and workshops are not available at present, however, one measure of success and impact of the various programs outlined herein is the LSU AgCenter 's commitment to this programming area based on input received through advisory meetings and direct correspondence with our various commodity groups. Our field crop industries are implementing these technologies at a rapid pace. The work that the nominees are doing to educate and demonstrate these technologies on-farm is contributing to increased sustainability and efficiency across all of the major field crops produced in Louisiana. Precision agriculture and digital agriculture applications are a priority research and extension area. The faculty listed above are supporting over 20 demonstrations each year in addition to presentations at field days, workshops and conferences that occur annually.

Specific evaluations and observations from precision agriculture demonstration plots are included here:

Example 1: The farmer precision graded a 20 acre block of land. Severe cuts were made across the middle portion of the field. The soil was cut to the subsoil region or B layer. The affected area was shown as a management zone across the entire block. This zone was divided into two blocks, A & B. Block A had two tons per acre of chicken litter applied. Block B was the check with no litter applied. Soybeans were planted in the field followed by sugarcane. Soybean yields for the treated zone were 62bu./ac compared to 28 in the check. Sugarcane yields were 7 ton/ac. higher in the treated area vs the check.

Resulting Impact: The farmer has developed a plan to address other fields with similar issues in the same manner by only making applications on affected areas of field.

Awards: This group was awarded the LSU AgCenter Extension Excellence Award in 2018 for their efforts.