**STACIA L. DAVIS CONGER, Ph.D. E.I.T.**

LSU AgCenter Red River Research Station

262 Research Station Drive | Bossier City, LA 71112

T: (318) 408-0973 | C: (904) 891-1103 | F: (318) 741-7433

[sdavis@agcenter.lsu.edu](mailto:sdavis@agcenter.lsu.edu)

**Current Appointment:** 80% Extension / 20% Research, Non-tenure Track Assistant Professor

**Requested Action:** Promotion to Non-tenure Track Associate Professor

***Curriculum Vitae***

Table of Contents

[Summary 2](#_Toc139830861)

[Documentation of major program areas and initiatives 3](#_Toc139830862)

[Advisory process and critical issue responsiveness 4](#_Toc139830863)

[Participation in public policy and community issues 7](#_Toc139830864)

[Development and presentation of research-based materials 9](#_Toc139830865)

[External funding, material support, and grants 20](#_Toc139830866)

[Conference presentations 26](#_Toc139830867)

[Participation in and leadership of professional organizations/committees 37](#_Toc139830868)

[Continued coursework, in-service training, sabbaticals, professional improvement 40](#_Toc139830869)

[Awards and recognition 45](#_Toc139830870)

[Cooperation/collaboration with other faculty 46](#_Toc139830871)

[Multi-institution, agency, and state collaboration 48](#_Toc139830872)

[Innovative teaching methods, knowledge, and application of new technology 51](#_Toc139830873)

[Other scholarly or creative activities or other contributions to the profession 53](#_Toc139830874)

[Other educational materials 55](#_Toc139830875)

[Summary of student interactions 56](#_Toc139830876)

[Overall program impact 58](#_Toc139830877)

# Summary

Stacia L. Davis Conger, Ph.D. E.I.T.

LSU AgCenter State Extension Irrigation Specialist

Non-Tenure Track Assistant Professor (80% Extension / 20% Research)

Completed Years of Service: 9 (as of May 14, 2023)

**Education:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| University of Florida | Gainesville, FL | Agricultural/Biological Engineering | Ph.D. | 2014 |
| University of Florida | Gainesville, FL | Agricultural/Biological Engineering | M.E. | 2008 |
| University of Pittsburgh | Pittsburgh, PA | Civil/Environmental Engineering | B.S. | 2005 |

**Professional Experience:**

|  |  |
| --- | --- |
| 2014 – Present | Assistant Professor, Red River Research Station, LSU AgCenter |
| 2005 – 2014 | Research Assistant, Agricultural/Biological Engineering, Univ. of Florida |

**Publications:**

|  |  |  |  |
| --- | --- | --- | --- |
| Refereed Publications – | 14 | In Preparation – 0 |  |
| Extension Publications – | 13 | In Preparation – 5 | Point of Contact – 14 |
| Invited Presentations – | 36 |  |  |
| Proceedings – | 8 |  |  |
| Abstracts – | 7 |  |  |
| Posters – | 19 |  |  |

**Outreach Activities:**

|  |  |  |  |
| --- | --- | --- | --- |
| Agent Trainings – | 12 | YouTube Views (combined) – | 16,347 |
| Meetings – | 36 | Twitter Followers (combined) – | 224 |
| Newsletter articles – | 59 | Facebook Followers (combined) – | 990 |
| Mass media – | 32 | Blog posts – | 32 (3,404 Page Views) |

**Cumulative Funding**:

|  |  |
| --- | --- |
| Grant Funds Awarded – | $2,227,791 (LSU AgCenter Portion Only) |
| Donations Received – | $41,882 |
| Additional Funds Requested – | $20,672,476 |

**Awards and Honors:**

2023 ASABE Educational Blue Ribbon, Category: Extension Publication (Long)

2023 1st Place, Extension Poster Competition, LCAAA, Gonzales, LA

2023 2nd Place, Research Poster Competition, LCAAA, Gonzales, LA

2022 1st Place, Extension Poster, LCAAA, New Roads, LA

2021 LSU AgCenter Denver T. & Ferne Loupe Extension Team Award

2019 Faculty Mentor, Project EXPLORE, AFRI ELI Research and Extension Experiential Learning for Undergraduates (REEU) Fellowships Program, NIFA, USDA

2018 2nd Place Poster, Southwest American Water Works Association, Baton Rouge, LA

2015 LSU AgCenter Delegate, Universities Council on Water Resources

2014 Honorable Mention Student Poster, University of Florida Water Institute, Gainesville, FL

**Professional Service:**

|  |  |  |  |
| --- | --- | --- | --- |
| Graduate Student Committees – | 2 | Professional Committees – | 12 |
| Summer Internships Directed – | 5 | Professional Development Opportunities – | 45 |

# Documentation of major program areas and initiatives

Irrigation has become an important part of agricultural practices in Louisiana. Extension and research responsibilities include agronomic (grain and fiber crops) irrigation, horticultural irrigation, and landscape irrigation. Portions of my program were focused in certain areas based on advisement from program leaders, available opportunities for creating solutions and/or collaboration, and overall clientele support.

Irrigated acreage has increased every year for agronomic row crops. In 2019, USDA Farm Service Agency estimated that over 54% of cultivated crop acreage across the state was reported as using irrigation, showing a steady increase since 2007 when 29% of total acreage was reported as irrigated. Irrigation is necessary to ensure that yield potential is not sacrificed from stress due to deficit soil moisture conditions. As irrigated acreage increases, irrigation efficiency becomes critical in effort to minimize the burden on the state’s water resources. Irrigation in agricultural areas rely heavily on groundwater from aquifers that are experiencing rapid declines in availability and increasingly poor water quality.

Based on communications with clientele, landscape irrigation exploded across mostly urban areas over the last two decades. Though no reliable statistics exist for assessing the scale or efficiency of those systems, communications with contractors indicate that design/installation practices relate to less efficient applications and few advanced technologies are being used. The number of irrigation contractors has grown since 2005 to a climax of 426 licenses but holds steady with approximately 375 active licenses since the pandemic.

Extension programming related to irrigation of horticultural commodities was recently encouraged after supervisor changes resulting in this very new initiative. Fruits, nuts, and vegetables commonly receive irrigation during critical growth stages to ensure high quality yield with full flavor profiles.

The program areas and initiatives were to establish an active extension and outreach program that disseminates research-based results and addresses clientele concerns related to:

* Development and operation of irrigation systems
* Efficient use of irrigation systems
* Irrigation scheduling

These program areas were addressed under the umbrella of the Smart Technologies for Agricultural Management and Production (***STAMP***) program initiated in 2014. STAMP encompasses all science-backed activities related to LSU AgCenter irrigation water management. Specific activities include plot studies, on-farm demonstrations, workshops, trainings, presentations, publications, social media, and related extension and outreach.

# Advisory process and critical issue responsiveness

***LSU AgCenter Agricultural Water Management Committee***

As an immediate response upon hiring, an internal advisory committee was initiated in 2014 to identify critical issues related to agricultural water management from across the state. The committee was composed of researchers, state and regional specialists, and Agricultural and Natural Resources (ANR) agents with interests aligned with water issues. Each committee meeting included an educational water-related presentation followed by discussion concerning the prioritization of research and extension needs, past project outcomes, on-going project objectives, and future goals.

|  |  |  |  |
| --- | --- | --- | --- |
| Meeting | Location | Presentation Topic | Role |
| Oct. 2014 | Dewitt Livestock Facility | Historical Water Use | Chair |
| Feb. 2015 | Red River Res. Sta. | Diverting Surface Water for Irrigation | Chair |
| Jul. 2015 | Rapides Parish Ext. Office | Louisiana Water Resources Research Institute | Chair |

Each meeting built upon the previous activities until the active committee members absorbed strategic discussion into normal professional activities. The following critical issues applicable to irrigation systems and scheduling were identified through these meetings and have been persistently identified through the advisory processes described below.

***Critical Issue:*** Declining groundwater levels in agricultural areas due to increasing irrigation capacity and low distribution efficiencies of irrigation systems

***Soil and Water Conservation Districts (SWCD)***

The SWCDs are local units of state government consisting of elected and appointed producers that provide conservation planning services to landowners within their watershed district. They are assisted by the Louisiana Department of Agriculture and Forestry (LDAF) Office of Soil and Water Conservation and USDA Natural Resources Conservation Service (NRCS). My role was to attend their public meetings, as available, to learn of their local resource concerns and provide technical support for water-related projects.

***Response***: The Caddo SWCD has been a focal relationship due to their progressive management of a surface water diversion project (Red Bayou Irrigation Project) established in 2014 that provides a viable irrigation source to farmers in Caddo Parish. In collaboration with Caddo SWCD and NRCS, we applied for and received a Regional Conservation Partnership Program (RCPP) grant to assist farmers in their district with setting up more efficient irrigation practices.

While attending the Bodcau SWCD meetings for additional advisory contact, it became clear that the board was unaware of their local conservation needs. We collaboratively designed and mailed a survey to ask their landowners about current knowledge levels and interests for targeting conservation education and technical assistance. We applied for a SARE grant using this survey feedback summary to show the need to conduct education and outreach related to water management and cover crops in the area but was not successful.

***NRCS Locally Led Conservation Initiative and Working Group***

Every 1 to 3 years, NRCS local offices conduct a workshop to identify and prioritize resource concerns identified by their landowners. NRCS uses this information to target their limited program funding toward the most critical concerns in their service area. Attending these meetings to observe this process provides advisory content when concerns are water-related.

***Response***: My attendance at the NRCS Shreveport locally led meetings occurred in 2014, 2015, 2017, and 2019. Irrigation was a critical concern for producers in 2014 and 2015 when drought conditions were prevalent. Water management was a continued concern in later years, but less related to irrigation. These concerns were rolled into the RCPP grant (described above), which was obtained in 2016 and continued through 2020.

***Critical Issue:*** Lack of science-based information on irrigation scheduling methods and operation of available technological resources for irrigation scheduling

***Delta Plastics H2O Initiative Steering Committee***

Delta Plastics, the manufacturer of lay-flat plastic pipe used by 91% of Louisiana irrigators to apply furrow irrigation, realized that gravity-fed flooding is a prime target for regulation due to its low irrigation efficiencies (30%-70%) compared to sprinkler (80%-90%) and micro-irrigation (90%-95%) options. While under this pressure, they created a steering committee composed of mid-South extension specialists, ANR agents with water focuses, USDA Agricultural Research Service, and mentor producers. While initiated in 2014, the goal was to reduce consumptive use of furrow irrigators by 20% by 2020. Annual in-person meetings were held in Arkansas.

***Response:*** Upon its creation, the [STAMP](#STAMP) program focused on conducting research, implementing extension demonstrations, and developing extension content related to improving furrow irrigation practices in Louisiana. More specifically, research activities included a multi-year evaluation of irrigation scheduling techniques using sensor-based technologies across three unique soils. Sensor demonstrations were conducted across the state and continue to occur as appropriate. Extension-based technical assistance included education and training on how to use computerized hole selection software, flow meters, and soil moisture sensors to improve distribution uniformity and scheduling. As materials and information became available, it was shared with the H2O Initiative as well as through LSU AgCenter channels.

***Louisiana Irrigation Association (LIA)***

In 2005, Louisiana became one of four states that requires an annual license from LDAF to practice as a landscape irrigation contractor. The license requires six hours of continuing education held in one event every three years. At the time, practicing contractors organized themselves into LIA by 2008 and operates as a member-driven professional society or trade organization that supplies multiple continuing education opportunities each year. Initial educational content was developed by LSU AgCenter faculty, Drs. Ron Sheffield and Bill Branch, to aid with conducting regular training. This content had been repeated so many times that contractors have grown dissatisfied with their educational opportunities.

Interactions with the LIA Board of Directors began in 2014 with attendance of 3 to 4 board meetings per year and shadowing at least one class per year while STAMP was focused on agricultural irrigation through 2019. LIA was encouraged to conduct feedback surveys to determine future educational needs. It became clear that contractor practices were not meeting current industry standards.

***Response***: In 2019, the STAMP program transitioned into developing new modernized course content that elevated contractor standards and kept them minimally engaged. Content was directed toward irrigation scheduling, smart irrigation technologies, and two-wire irrigation systems. With the onset of the pandemic, these courses were recorded and edited into modules that are currently being shifted toward Moodle delivery for on-demand education.

***Critical Issue:*** Lack of direct interaction and feedback from agricultural irrigators caused by the pandemic shutdown

***Independent Advisory Committee***

The pandemic shutdown coincided with the transition of STAMP’s focus from agricultural irrigation to landscape irrigation, resulting in minimal interactions with agricultural irrigators during that time. The NRCS and SWCD meetings stopped happening or were not open to the public. Opportunities for interactions such as in-state conferences, trainings, and extension events were canceled or held in online formats that didn’t encourage traditional networking.

***Response:*** In response to this disconnection, an official independent advisory committee was formed in Winter 2021-2022. In effort to hear new voices and opinions, committee members were recruited by reaching out to extension agents across the state and requesting suggestions from their irrigating clientele. Also, producers collaborating on current research/demonstrations were included as well. This committee has met twice to primarily advise on an irrigation scheduling webtool currently in development.

# Participation in public policy and community issues

***Sparta Aquifer***

The Sparta Aquifer is a depleting resource that spans the AR and LA state lines. I participated in various tours and educational opportunities provided by the Union County Water Conservation Board related to the Ouachita River Alternative Water Supply Project in Union County, AR. The Water Conservation Board collected tax funds to install a potable water system that treats diverted water from the Ouachita River and delivers it to various industries within the county. The Water Conservation Board has documented as much as a 30 ft rebound in aquifer levels within Arkansas and a 6 ft rebound in Louisiana as a result.

The Arkansas representatives introduced me to the Louisiana Sparta Groundwater Commission, which represents sixteen parishes in North Central Louisiana. This commission is legislatively required to conserve, protect, restore, and maintain the Sparta Aquifer through education and advocation. I attended multiple meetings to learn more about possible projects within Louisiana. As a result of these interactions, I collaborated on a proposal with the commission to evaluate indoor and outdoor water use behaviors and develop education and outreach resources for the area. Additionally, I have volunteered to be an educator in multiple Waterfest events organized by the commission over the years.

***Grant Parish Irrigation***

I was approached by the Red River Valley Association, Red River Waterway Commission, and USDA NRCS to evaluate the possibility of a surface water diversion project in Grant Parish. This parish primarily grows pecans but has some acreage in a corn/soybean rotation. Groundwater has become uneconomical, and many producers are operating without the ability to apply irrigation. Some local entities are concerned about the project due to recreational lakes that would be hydrologically affected by the diversion.

I pursued pathways to determine the feasibility and costs associated with diverting water from the Red River into local bayous to supply irrigation water to producers in the region. Prior reports published on this potential project were reviewed in detail and possible options were determined. In collaboration with the Biological and Agricultural Engineering department, I mentored a senior design group who took on this project and worked toward assessing feasibility. While the design process phased out, the political process continues with trying to divert water from Cane River into local bayous for farmers to access.

***Legislative Fete***

I was asked to attend La Fete in 2015 to discuss the importance of water issues in Louisiana and provide information on LSU AgCenter water programs to legislative members and their staff. While I did not interact with any legislators, I spoke to various staffers about LSU AgCenter programs.

***Louisiana Water Resources Commission***

Since 2016, I have been following the progress of the Water Resources Commission as they work to address current and future water issues, develop a state water plan, and produce a state water code through the legislative process. Over time, I have developed relationships with a few of the committee members, including Lindsay Gouedy, Sparta Groundwater Commission, and Anthony Duplechain (Ret.), Capital Area Groundwater Commission. At the request of Matthew Reonas, Education & Marketing Representative, Louisiana Department of Natural Resources, Office of Conservation, I put together a list of LSU AgCenter faculty with specific water-related interests as a reference for future technical expertise and advice.

In 2022, USGS scientists Maxwell Lindaman and Vincent White reached out to me about their on-going work in quantifying groundwater withdrawals to validate their geohydrological models of the Chicot Aquifer. They had identified a pool of funding that was available to state agencies only; these funds could be used to gather withdrawal data from farms. I collaborated with Matthew Reonas and the commission on a funding proposal to support this effort.

# Development and presentation of research-based materials

**Published Refereed Research Publications**

1. Sohoulande Djebou, C. D., ***S. L. D. Conger***, A. A. Szogi, K C. Stone, and J. H. Martin. 2021. Seasonal precipitation pattern analysis for decision support of agricultural irrigation management in Louisiana, USA. Agric. Water Manage., 254(2021) 106970. <https://doi.org/10.1016/j.agwat.2021.106970>
2. ***Conger, S. L. D.***, R. L. Frazier, B. Garner, D. Burns, D. R. Lee, and K. Miller. 2020. On-farm furrow irrigation technology demonstrations in Louisiana. J. NACAA, 13(2). ISSN: 2158-9429. Available at: <https://www.nacaa.com/journal>. Accessed on 19 Jan 2021.
3. ***Conger, S. L. D.*** and M. D. Dukes. 2020. Evaluation of testing procedures for weather-based irrigation controllers. Trans. ASABE, 63(5): 1277-1287. <https://doi.org/10.13031/trans.13926>
4. Sanders, K. R., J. Beasley, E. Bush, and ***S. L. D. Conger***. 2019. Fertilizer source and irrigation depth affect nutrient leaching during containerized production of coleus. J. Env. Hort., 37: 113-119. <https://doi.org/10.24266/0738-2898-37.4.113>
5. Adusumilli, N., ***S. L. Davis***, and D. Fromme. 2016. Economic evaluation of using surge valves in furrow irrigation of row crops in Louisiana: A net present value approach. Agric. Water Manage. 174(2016): 61–65. <https://doi.org/10.1016/j.agwat.2016.04.024>
6. ***Davis, S. L****.* and M. D. Dukes. 2016. Importance of ET controller program settings on water conservation potential. Applied Eng. Agric., 32(2): 251-262. <https://doi.org/10.13031/aea.32.11182>
7. ***Davis, S. L****.* and M. D. Dukes. 2015. Implementing smart controllers on single-family homes with excessive irrigation. J. Irrig. Drain. Eng., 141(2), 04015024. <https://doi.org/10.1061/(ASCE)IR.1943-4774.0000920>
8. ***Davis, S. L****.* and M. D. Dukes. 2015. Methodologies for Successful Implementation of Smart Irrigation Controllers. J. Irrig. Drain Eng., 141(3), 04014055. <https://doi.org/10.1061/(ASCE)IR.1943-4774.0000804>
9. Morera, M. C., P. F. Monaghan, M. D. Dukes, O. Wells, and ***S. L. Davis***. 2015. Evaluating Florida homeowner response to smart irrigation controllers. HortTechnology, 25(4): 511-521. <https://doi.org/10.21273/HORTTECH.25.4.511>
10. ***Davis. S. L.*** and M. D. Dukes. 2014. Irrigation of Residential Landscapes Using the Toro Intelli-Sense Controller in Southwest Florida. J. Irrig. Drain. Eng. 140(3), 04013020. <https://doi.org/10.1061/(ASCE)IR.1943-4774.0000694>
11. ***Davis, S. L****.* and M.D. Dukes. 2012. Landscape irrigation with evapotranspiration controllers in a humid climate. Trans. ASABE 55(2): 571-580. <https://doi.org/10.13031/2013.41390>
12. ***Davis, S. L****.* and M. D. Dukes. 2010. Irrigation scheduling performance by evapotranspiration-based controllers. Agric. Water Manage. 98(1): 19-28. <https://doi.org/10.1016/j.agwat.2010.07.006>
13. Shober, A. L., ***S. L. Davis***, M. D. Dukes, G. C. Denny, S. P. Brown, and S. Vyapari. 2009. Performance of Florida landscape plants when irrigated by ET-based controllers and time-based methods. J. Environ. Hort. 27(4): 251-256. <https://doi.org/10.24266/0738-2898-27.4.251>
14. ***Davis, S. L****.*, M. D. Dukes, and G. L. Miller. 2009. Landscape irrigation by evapotranspiration-based irrigation controllers under dry conditions in Southwest Florida. Agric. Water Manage. 96(12): 1828–1836. <https://doi.org/10.1016/j.agwat.2009.08.005>

**Research Publications, Submitted or In Preparation**

None at the time of submission due to uncontrollable project delays.

**Published Extension Publications**

1. Santos, L., J. Beasley, ***S. L. D. Conger***, and T. Gentimos. 2023. Improving Drainage Using UAV-LiDAR Field Elevation Measurements, Tee to Green, Vol. 1, Spring 2023, pgs. 8-10.
2. ***Conger, S. L. D.*** and J. S. Beasley. 2023. Smart Irrigation Technologies for Turfgrass and Landscapes. Louisiana Agriculture Magazine, Winter 2023 Issue. Available at: <https://www.lsuagcenter.com/articles/page1678823450349>
3. Lanza, P., ***S. L. D. Conger***, J. S. Beasley, T. Gentimis, and D. LaBonte. 2022. Applying modernized technologies to map elevation changes in specialty crop fields. Louisiana Agriculture Magazine, Summer 2022 Issue. Available at: <https://lsuagcenter.com/articles/page1663169785611>
4. ***Conger, S. L. D.***, J. S. Beasley, and J. McCurdy. 2022. Irrigation BMPs for Golf Courses in Louisiana and Mississippi. LSU AgCenter Publication 3825. 25 pp. Available at: <https://lsuagcenter.com/articles/page1655842218606>
5. ***Conger, S. L****.* ***D.*** 2021. Considerations for Scheduling Irrigation in Agronomic Crops. Rewritten and republished LSU AgCenter Publication 3454. Available at: <https://www.lsuagcenter.com/profiles/lblack/articles/page1496432407025>
6. McCurdy, J., B. Baker, ***S. L. D. Conger***, J. S. Beasley, and B. D. LeBlanc. 2019. Water Resource Management BMPs for Golf Courses in Louisiana and Mississippi. MS State University Extension Publication P3369. 24 pp. Available at: <http://extension.msstate.edu/publications/water-resource-management-bmps-for-golf-courses%E2%80%A8-louisiana-and-mississippi>
7. ***Conger, S. L. D.***, R. Sheffield, T. J. Koske. 2018. Introduction to Landscape Irrigation in Louisiana. Rewritten and republished LSU AgCenter Publication 3062. Available at: <https://www.lsuagcenter.com/profiles/lblack/articles/page1545326675019>
8. Adusumilli, N., D. D. Fromme, and ***S. L. Davis***. 2017. Evaluation of Net Profits from Surge Irrigation in Row Crops in Louisiana. LSU AgCenter Publication 3566. Available at: <https://www.lsuagcenter.com/profiles/aiverson/articles/page1483977837174>
9. ***Davis, S. L.*** and D. D. Fromme. 2016. Scheduling irrigation for agronomic crops using estimation methods. LSU AgCenter Publication 3559. Available at: <https://www.lsuagcenter.com/profiles/aiverson/articles/page1475509152276>
10. ***Davis, S. L.*** 2016. Speaking the Language of Irrigation: Glossary of Terms. LSU AgCenter Publication 3552. Available at: <https://www.lsuagcenter.com/profiles/kkramer/articles/page1472846723154>
11. ***Davis, S. L.*** 2015. Rain sensors for a landscape irrigation system. LSU AgCenter Publication 3365. Available at: <https://www.lsuagcenter.com/portals/communications/publications/publications_catalog/lawn%20and%20garden/landscaping/rain-sensors-for-a-landscape-irrigation-system>
12. ***Davis, S. L****.* and N. Adusumilli. 2015. Efficient Irrigation Saves Water and Money: The STAMP Program. Louisiana Agriculture Magazine, Winter 2015 Issue. Available at: <https://www.lsuagcenter.com/portals/communications/publications/agmag/archive/2015/winter/efficient-irrigation-saves-water-and-money-the-stamp-program>
13. McClure, O. 2015. Agriculture Irrigation on the Increase. Louisiana Agriculture Magazine, Winter 2015 Issue. **Contributor**. Available at: <https://www.lsuagcenter.com/portals/communications/publications/agmag/archive/2015/winter/agriculture-irrigation-on-the-increase>

**Extension Publications, Submitted or In Preparation**

1. ***Conger, S. L. D.*** and J. S. Beasley. Landscape Irrigation BMP Series: Components. LSU AgCenter Publication, In preparation.
2. ***Conger, S. L. D.*** and J. S. Beasley. Landscape Irrigation BMP Series: Irrigation Scheduling. LSU AgCenter Publication, In preparation.
3. ***Conger, S. L. D.*** and J. S. Beasley. Landscape Irrigation BMP Series: Smart Technologies. LSU AgCenter Publication, In preparation.
4. ***Conger, S. L. D.*** and J. S. Beasley. Landscape Irrigation BMP Series: Design Concepts. LSU AgCenter Publication, In preparation.
5. Kaupp, Z., J. Schexnaydre, Z. Elam, M. Oweineh, L. Hynson, ***S. L. D. Conger***, C. Friedland, and J. S. Beasley. Harvesting rainwater can encourage sustainability in the landscape, LSU AgCenter Publication, In peer-review.

**Extension Publications** (Point of Contact)

1. Stringam, B. 2013. Understanding Water Horsepower. Irrigation Pumping Plant Efficiency Testing Series. LSU AgCenter Publication 3241-A.
2. Henry, C. G. and B. Stringam. 2013. Variable Frequency Drives. Irrigation Pumping Plant Efficiency Testing Series. LSU AgCenter Publication 3241-B.
3. Stringam, B. 2013. Soft Starters for Electric Motors. Irrigation Pumping Plant Efficiency Testing Series. LSU AgCenter Publication 3241-C.
4. Kenney, N. 2013. Determining the Cost of Electricity of a Natural Gas Generator. Irrigation Pumping Plant Efficiency Testing Series. LSU AgCenter Publication 3241-D.
5. Kenney, N. 2013. Measuring Natural Gas at an Irrigation Pumping Plant. Irrigation Pumping Plant Efficiency Testing Series. LSU AgCenter Publication 3241-E.
6. Kenney, N. 2013. Basics of On-site Pumping Plant Evaluations. Irrigation Pumping Plant Efficiency Testing Series. LSU AgCenter Publication 3241-F.
7. Kenney, N. 2013. Diesel and Natural Gas Dual Fuel. Irrigation Pumping Plant Efficiency Testing Series. LSU AgCenter Publication 3241-G.
8. Bankston, D. 2013. Pump Curves. Irrigation Pumping Plant Efficiency Testing Series. LSU AgCenter Publication 3241-H.
9. Henry, C. G. and B. Stringam. 2013. How to Read Electrical Meters. Irrigation Pumping Plant Efficiency Testing Series. LSU AgCenter Publication 3241-I.
10. Stringam, B. 2013. Pump Efficiency. Irrigation Pumping Plant Efficiency Testing Series. LSU AgCenter Publication 3241-J.
11. Henry, C. G., J. H. Massey, H. C. Pringle, L. J. Krutz, and B. Stringam. 2013. Tips for Conserving Irrigation Water in the Southern Region. Irrigation Pumping Plant Efficiency Testing Series. LSU AgCenter Publication 3241-K.
12. Sheffield, R. E., C. G. Henry, D. Bankston, W. A. Hadden. 2013. Measuring Irrigation Flow. Irrigation Pumping Plant Efficiency Testing Series. LSU AgCenter Publication 3241-L.
13. Henry, C. G., R. E. Sheffield, N. Kenney. 2013. Irrigation Pumping Plant Safety. Irrigation Pumping Plant Efficiency Testing Series. LSU AgCenter Publication 3241-M.
14. Bankston, J. D. and R. E. Sheffield. 2008. Louisiana Irrigation: Reducing Crawfish Pumping Costs. LSU AgCenter Publication 3064.

**Newsletter Articles** (By Year)

**2023**

1. ***Conger, S. L. D.*** Smart Irrigation Technologies Are Responsive to Landscape Irrigation Requirements, Louisiana Nursery and Landscape Association Newsletter, Summer Issue.
2. ***Conger, S. L. D.*** Irrigation Scheduling Tool Delayed Through Memorial Day Weekend. Louisiana Crops Newsletter, May Issue. Available at: <https://www.lsuagcenter.com/articles/page1684809933945#title4>
3. ***Conger, S. L. D.***, A. Divine, C. Friedland, and R. Rohli. Soon to Be Released: Irrigation Scheduling Webtool. Louisiana Crops Newsletter, March Issue. Available at: <https://www.lsuagcenter.com/articles/page1678369113225#title6>

**2022**

1. ***Conger, S. L. D.*** Louisiana Irrigator Update. Louisiana Nursery and Landscape Association Newsletter, Fall Issue.
2. ***Conger, S. L. D.*** Introduction to Irrigation of Small Fruits Using Sensor Technologies Under Humid Conditions. Small Fruit News, Summer Issue.
3. ***Conger, S. L. D.*** Recent record-setting temperatures, tropical storms can affect irrigation scheduling. Louisiana Irrigation Association Newsletter, XVI(II), Summer Issue.
4. ***Conger, S. L. D.*** Board of Directors Take First Steps into Public Education at LSU AgCenter Plant Sale. Louisiana Irrigation Association Newsletter, XVI(I): 1, Spring Issue.
5. ***Conger, S. L. D.*** Irrigation season is coming quickly…Time to get prepared! Louisiana Nursery and Landscape Association Newsletter, Spring Issue.

**2021**

1. ***Conger, S. L. D.*** 2021 Annual Meeting and Recertification Class Held In-Person. Louisiana Irrigation Association Newsletter, XV(IV): 1, Winter Issue.
2. ***Conger, S. L. D.*** *Save the Date*: Annual Meeting and Fall Recertification Class Announced as In-Person Event on Nov. 4. Louisiana Irrigation Association Newsletter, XV(III): 1, Fall Issue.
3. ***Conger, S. L. D.*** Pipe Planner Has New Look, Easier to Use. Louisiana Crops Newsletter, March Issue.
4. ***Conger, S. L. D.*** Reminder: Survey on Flood Irrigation Practices Still Open. Louisiana Crops Newsletter, March Issue.
5. ***Conger, S. L. D.*** and S. Taghvaeian. Calling All Irrigators! An Open Survey on Flood Irrigation Practices. Louisiana Crops Newsletter, March Issue.
6. ***Conger, S. L. D.*** What’s Going On with the LIA Board of Directors? Louisiana Irrigation Association Newsletter, XV(I): 4, Spring Issue.
7. ***Conger, S. L. D.*** Membership Renewals, Upcoming Class, and More. Louisiana Irrigation Association Newsletter, XV(I): 1, Spring Issue.

**2020**

1. ***Conger, S. L. D.*** Fall Recertification Classes End, Planning for the Next. Louisiana Irrigation Association Newsletter, XIV(IV): 1, Winter Issue.
2. ***Conger, S. L. D.*** New Executive Director, Fall Recertification Plans, and More. Louisiana Irrigation Association Newsletter, XIV(III): 1, Fall Issue.
3. ***Conger, S. L. D.*** and D. Moseley. Wrapping Up Soybean Production with Irrigation. Louisiana Crops Newsletter, July Issue.
4. ***Conger, S. L. D.*** Important News From the LIA Office. Louisiana Irrigation Association Newsletter, XIV(II): 1, Summer Issue.
5. ***Conger, S. L. D.*** LDAF Ensures July Officially Proclaimed as Smart Irrigation Month. Louisiana Irrigation Association Newsletter, XIV(II): 3, Summer Issue.
6. ***Conger, S. L. D.*** 2020 Irrigation Show Canceled, Opportunities Still Available. Louisiana Irrigation Association Newsletter, XIV(II): 3, Summer Issue.
7. ***Conger, S. L. D.*** IA Provides Workforce Development Resources, Opportunities. Louisiana Irrigation Association Newsletter, XIV(II): 5, Summer Issue.
8. ***Conger, S. L. D.*** Draft Specification Released for WaterSense Labeled Soil Moisture-Based Technologies. Louisiana Irrigation Association Newsletter, XIV(II): 5, Summer Issue.
9. ***Conger, S.*** L. D. Considerations for Upcoming Summer Irrigation. Louisiana Nursery and Landscape Association Newsletter, Summer Issue.
10. ***Conger, S. L. D*.** 2019 Engineer of the Year Award Presented at Fall Meeting. Louisiana Am. Soc. Agric. Bio. Eng. Newsletter, II(I): 2, Winter Issue.

**2019**

1. ***Conger, S. L. D*.** Awards, Keynote Speaker Highlight LIA Annual Meeting. Louisiana Irrigation Association Newsletter, XIII(IV): 1, Winter Issue.
2. ***Conger, S. L. D*.** 2019 Classes Completed, 2020 Class Schedule Announced. Louisiana Irrigation Association Newsletter, XIII(IV): 1, Winter Issue.
3. ***Conger, S. L. D*.** EPA WaterSense Releases Technical Specification for Soil Moisture Sensors. Louisiana Irrigation Association Newsletter, XIII(IV): 2, Winter Issue.
4. ***Conger, S. L. D*.** Annual Irrigation Show Is So Much More Than A Show. Louisiana Irrigation Association Newsletter, XIII(IV): 3, Winter Issue.
5. ***Conger, S. L. D*.** From the Executive Director’s Desk. Louisiana Irrigation Association Newsletter, XIII(III): 1, Fall Issue.
6. ***Conger, S. L. D*.** 2019 LSU BAE Student Scholarships. Louisiana Am. Soc. Agric. Bio. Eng. Newsletter, I(I): 2, Spring Issue.
7. ***Conger, S. L. D*.** Fall Meeting Held at Rockefeller Wildlife Refuge. Louisiana Am. Soc. Agric. Bio. Eng. Newsletter, I(I): 2, Spring Issue.
8. ***Conger, S. L. D*.** Recent Spring Meeting Included Ferrara Fire Apparatus Tour, Member Honors, Crawfish Boil. Louisiana Am. Soc. Agric. Bio. Eng. Newsletter, I(I): 1, Winter Issue.
9. ***Conger, S. L. D.*** It’s Raining! What to Do? Louisiana Irrigation Association Newsletter, XIII(II): 19, Summer Issue.
10. ***Conger, S. L. D.*** Irrigation Basics: A Louisiana Word Game. Louisiana Irrigation Association Newsletter, 13(1): 18-19, Spring Issue.

**2018**

1. ***Conger, S. L. D.*** New Resources Available from the Irrigation Association. Louisiana Irrigation Association Newsletter, 12(4): 18, Winter Issue.
2. ***Conger, S. L. D.*** My First Experiences on the Irrigation Association’s Awards Committee. Louisiana Irrigation Association Newsletter, 12(3): 9-10, Fall Issue.
3. ***Conger, S. L. D.*** Does Water Resources Legislation Affect Irrigators? Louisiana Irrigation Association Newsletter, 12(2): 16-17, Summer Issue.
4. ***Davis, S. L*.** Irrigation Management Plans for the Upcoming Irrigation Season.  Louisiana Crops Newsletter, February Issue.
5. ***Davis, S. L.***Irrigation scheduling becomes most important in transitional rainfall environments. Lousiana Irrigation Association Newsletter, 12(1): 13, Spring Issue.

**2017**

1. ***Davis, S. L.*** Representing Louisiana in the Irrigation Association. Louisiana Irrigation Association Newsletter, 10(4): 17-18, Winter Issue.
2. ***Davis, S. L.*** How much water does your household use?  Louisiana Irrigation Association Newsletter, 10(3): 12-13, Fall Issue.
3. ***Davis, S. L.*** Irrigation Season In Full Swing.  Louisiana Crops Newsletter, July Issue.
4. ***Davis, S. L.*** A Quick Look at California’s Water Budget Tool. Louisiana Irrigation Association Newsletter, 10(2): 18-19, Summer Issue.
5. ***Davis, S. L.*** Retrofitting sprays with multi-stream, multi-trajectory nozzles. Louisiana Irrigation Association Newsletter, 10(1): 18-19, Spring Issue.

**2016**

1. ***Davis, S. L.*** 2016. Sustainability: National Resources Available for Louisiana Irrigation Contractors. Louisiana Irrigation Association Newsletter, 9(4): 17-18, Winter Issue.
2. ***Davis, S. L.*** 2016. Hot and Rainy in 2016: Should You Still Be Irrigating? Louisiana Irrigation Association Newsletter, 9(3): 17-19, Fall Issue.
3. ***Davis, S. L.*** 2016. Consider Soil Moisture Sensors For Your Clients This Year. Louisiana Irrigation Association Newsletter, 9(2): 18-19, Summer Issue.
4. ***Davis, S. L.*** 2016. Revisiting Soil and Water Relationships in Light of the Floods. Louisiana Crops Newsletter, April Issue.
5. ***Davis, S. L.*** 2016. Introduction to Two-wire Irrigation Systems. Louisiana Irrigation Association Newsletter, 9(1): 17-18, Spring Issue.

**2015**

1. ***Davis, S. L.*** A Year in Review. Louisiana Irrigation Association Newsletter, 8(4): 2, 8, Winter Issue.
2. ***Davis, S. L.*** Considerations for Programming Weather-based Irrigation Controllers. Louisiana Irrigation Association Newsletter, 8(3): 2, 6, Fall Issue.
3. Adusumilli, N., and ***S. L. Davis***. Addressing agricultural water challenges in Louisiana through research and extension: LSU AgCenter’s STAMP program. Louisiana Agricultural Consultants Association Newsletter, Vol 20: 4, Spring Issue.
4. ***Davis, S. L.*** Introduction to Smart Irrigation Technologies for Landscape Irrigation. Louisiana Irrigation Association Newsletter, 8(2): 18-19, Summer Issue.
5. ***Davis, S. L.*** Consider improving irrigation management and scheduling practices before the dry season. Louisiana Crops Newsletter, April Issue.
6. ***Davis, S. L.*** Anticipating spring green-up and the up-coming irrigation season with irrigation evaluations. Louisiana Irrigation Association Newsletter, 8(1): 18-19, Spring Issue.

**2014**

1. ***Davis, S. L.*** Functionality and performance of expanding-disk rain sensors for landscape irrigation. Louisiana Irrigation Association Newsletter, 7(4): 18-19, Winter Issue.
2. ***Davis, S. L.*** Introduction to Smart Technologies for Landscape Irrigation. Louisiana Turfgrass Association Newsletter, Winter Issue.
3. ***Davis, S. L.*** Types of rain sensors for a landscape irrigation system. Louisiana Irrigation Association Newsletter, 7(3): 2, 19, Fall Issue.

**Mass Media and Electronic Outreach** (By Year)

**2023**

* + 1. Jain USA. “Ditching the Guesswork: How Online Irrigation Scheduling Apps Can Improve Crop Yields,” National Webinar. **Contributor.** <https://jainsusa.com/training/ditching-the-guesswork-how-online-irrigation-scheduling-apps-can-improve-crop-yields/>

**2022**

1. National Cotton Council. “New Irrigation Decision-Making App Will Help Louisiana Farmers Manage Water Use During Drought,” Video media release. **Contributor**. <https://www.youtube.com/watch?v=3v92CXvShv0>
2. National Cotton Council. “Cotton Newsline: December 14, 2022,” Audio media release. **Contributor**. <https://www.cotton.org/news/av/newsline221214.cfm>
3. LSU AgCenter News Release. “AgCenter-led team receives grant to help farmers irrigate efficiently,” LSU AgCenter, media release, November 10, 2022. **Contributor**. <https://lsuagcenter.com/articles/page1668017514780>
4. LSU AgCenter Video Release. “Hot, dry weather causing farmers to irrigate more,” LSU AgCenter, media release, July 1, 2022. **Contributor**. <https://www.lsuagcenter.com/articles/page1656681925452>

**2020**

1. Delta Farm Press (Alaina Dismukes). 2020. “Soil compaction: Cover crops, conservation tillage, and irrigation,” March 16, 2020. **Contributor.** <https://www.farmprogress.com/soil-health/soil-compaction-cover-crops-conservation-tillage-and-irrigation>

**2019**

1. Delta Farm Press (Ron Smith). “Regional research needed for irrigation efficiency,” Part 3, Efficient and effective irrigation. May 3, 2019. **Contributor.** <https://www.farmprogress.com/irrigation-systems/regional-research-needed-irrigation-efficiency>
2. Delta Farm Press (Ron Smith). “Tools to improve irrigation efficiency,” Part 2, Efficient and effective irrigation. April 26, 2019. **Contributor.** <https://www.farmprogress.com/irrigation-systems/tools-improve-irrigation-efficiency>
3. Delta Farm Press (Ron Smith). “Efficient irrigation improves yields, conserves resources,” Part 1, Efficient and effective irrigation. April 22, 2019. **Contributor.** <https://www.farmprogress.com/irrigation-systems/efficient-irrigation-improves-yields-conserves-resources>
4. LSU AgCenter News Release. “AgCenter experts review programs for crop consultants,” LSU AgCenter, media release, February 19, 2019. **Contributor**. <https://www.lsuagcenter.com/profiles/rbogren/articles/page1550595641314>
5. LSU AgCenter News Release. “Best management practices highlight turfgrass conference,” LSU AgCenter, media release, January 10, 2019. **Contributor.** <https://www.lsuagcenter.com/profiles/jmorgan/articles/page1547136321524>

**2018**

1. LSU AgCenter News Release. “Scientists study irrigation practices,” LSU AgCenter, media release, September 12, 2018. **Contributor.** <https://www.lsuagcenter.com/profiles/aiverson/articles/page1536782304565>
2. KSLA News 12 (James Parish). “Drought impacts corn crop,” August 13, 2018. **Contributor**. <https://www.ksla.com/story/38873189/drought-impacts-corn-crop-excess-rain-now-could-hurt-corn-soybean-cotton-harvests/>
3. LSU AgCenter Video Release. “Dry weather causing many farmers to irrigate early,” LSU AgCenter, media release, May 29, 2018. **Contributor**. <https://www.youtube.com/watch?v=L1eTeUoysaM>
4. ***Davis, S. L.*** and B. Garner. “Technologies for Agricultural Irrigation Management,” LSU AgCenter STAMP Program Publications. April 23, 2018. **Developer/Narrator.** <https://www.youtube.com/watch?v=1DwVC1_1U6E>
5. ***Davis, S. L.*** and S. K. Dodla. “Irrigation Scheduling Overview,” LSU AgCenter STAMP Program Publications. April 23, 2018. **Developer/Narrator.** <https://www.youtube.com/watch?v=XSjNGLYC_s8&t=933s>
6. LSU AgCenter News Release. “LSU AgCenter experts discuss water issues at conference,” LSU AgCenter, media release, April 3, 2018. **Contributor**. <https://www.lsuagcenter.com/profiles/jmorgan/articles/page1522771317225>

**2017**

1. LSU AgCenter News Release. “Scientists working to improve irrigation practices,” LSU AgCenter, media release, November 9, 2017. **Contributor**. <https://www.lsuagcenter.com/profiles/aiverson/articles/page1510254449059>
2. LSU AgCenter News Release. “Timing key to successful irrigation,” LSU AgCenter, media release, April 5, 2017. **Contributor**. <https://www.lsuagcenter.com/profiles/lbenedict/articles/page1491404445153>

**2016**

1. LSU AgCenter News Release. “Sweet potato farmers get updates at AgCenter field day,” LSU AgCenter, media release, September 9, 2016. **Contributor**.<https://www.lsuagcenter.com/profiles/rbogren/articles/page1473186972520>
2. RFD TV Radio Interview. “Agricultural Irrigation Technologies,” June 20, 2016. **Contributor.**
3. LSU AgCenter News Release. 2016. “Black farmers field day set for July 22 in Morehouse Parish,” LSU AgCenter, media release, May 20, 2016. **Contributor.** <https://www.lsuagcenter.com/articles/page1463759055173>

**2015**

1. LSU AgCenter News Release. “Forage producers hear about soil health,” LSU AgCenter, media release, December 16, 2015. **Contributor**. <https://www.lsuagcenter.com/portals/communications/news/news_archive/2015/december/headline_news/forage-producers-hear-about-soil-health>
2. LSU AgCenter News Release. “Sustainable practices highlight irrigation workshop,” LSU AgCenter, media release, December 9, 2015. **Contributor**. <https://www.lsuagcenter.com/portals/communications/news/news_archive/2015/december/headline_news/sustainable-practices-highlight-irrigation-workshop>
3. LSU AgCenter News Release. “LSU AgCenter to host 3 irrigation management workshops,” LSU AgCenter, media release, November 7, 2015. **Contributor**. <https://www.lsuagcenter.com/portals/communications/news/news_archive/2015/november/headline_news/lsu-agcenter-to-host-3-irrigation-management-workshops>
4. LSU AgCenter News Release. “New research will bring about more efficiency, cost savings through irrigation,” LSU AgCenter, media release, August 14, 2015. **Contributor**. <https://www.lsuagcenter.com/topics/crops/soybeans/soybean_grain_promotion_board_reports/new-research-will-bring-about-more-efficiency-cost-savings-through-irrigation>
5. LSU AgCenter News Release. “North La. farm tour informs youth, community about ag technology, research,” LSU AgCenter, media release, July 28, 2015. **Contributor**. <https://www.lsuagcenter.com/portals/communications/news/news_archive/2015/july/headline_news/north-la-farm-tour-informs-youth-community-about-ag-technology-research>
6. LSU AgCenter News Release. “AgCenter agents hear about irrigation efficiency,” LSU AgCenter, media release, July 24, 2015. **Contributor**. <https://www.lsuagcenter.com/portals/communications/news/news_archive/2015/july/headline_news/agcenter-agents-hear-about-irrigation-efficiency>
7. LSU AgCenter News Release. “AgCenter experts give farmers advice for the 2015 growing season,” LSU AgCenter, media release, June 19, 2015. **Contributor**. <https://www.lsuagcenter.com/portals/communications/news/news_archive/2015/june/headline_news/agcenter-experts-give-farmers-advice-for-the-2015-growing-season>
8. LSU AgCenter News Release. “AgCenter taskforce strives to improve water management,” LSU AgCenter, media release, February 19, 2015. **Contributor**. <https://www.lsuagcenter.com/portals/communications/news/news_archive/2015/february/headline_news/agcenter-taskforce-strives-to-improve-water-management>
9. LSU AgCenter News Release. “Conference features turfgrass specialists,” LSU AgCenter, media release, January 15, 2015. **Contributor**. <https://www.lsuagcenter.com/portals/communications/news/news_archive/2015/january/headline_news/conference-features-turfgrass-specialists>

**2014**

1. LSU AgCenter News Release. “New AgCenter team studies water resources, efficiency,” LSU AgCenter, media release, October 22, 2014. **Contributor.** <https://www.lsuagcenter.com/topics/crops/soybeans/soybean_grain_promotion_board_reports/new-agcenter-team-studies-water-resources-efficiency>

**Webpage Development and Related Content**

Extension content related to agricultural irrigation, including system descriptions, extension publications, program information, and social media connections can be found on the LSU AgCenter webpage, <https://www.lsuagcenter.com/topics/crops/irrigation>. The following additional resources are available:

1. STAMP Program Blog

Created on June 5, 2015. Total posts: 32. Total page views: 3,467. Last Post on August 5, 2019 before switching to Louisiana CROPS Newsletter submissions. [www.geauxwater.blogspot.com](http://www.geauxwater.blogspot.com)

1. STAMP Program YouTube Channel

Created on February 5, 2016. Subscribers: 102. Total Views: 16,535. Total Watch Time: 607.8 h. <https://www.youtube.com/channel/UC74grKhLhYb2JC4WseFEE9Q>

|  |  |  |
| --- | --- | --- |
| *YouTube Video Title* | *Views* | *Publishing Date* |
| Micro-Irrigation: An Overview | 14 | April 6, 2022 |
| How to Install Volumetric Water Content Sensors and Telemetric Logger | 101 | August 12, 2019 |
| How to Install a Tube Style Sensor in Slurry | 35 | August 12, 2019 |
| Smart Irrigation in Action | 30 | July 22, 2019 |
| Furrow Irrigation Technologies Overview | 5,156 | April 23, 2018 |
| Irrigation Scheduling Overview | 3,582 | April 23, 2018 |
| Applying Slide Gates to Polypipe | 7,429 | August 31, 2016 |

1. Twitter

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Account* | *Creation Date* | *Last Used* | *Followers* | *Tweets* |
| @staciadavis | May 15, 2014 | June 7, 2019 | 87 | 371 |
| @geauxwater | May 19, 2015 | March 8, 2023 | 119 | 494 |
| @geauxLIA | July 11, 2019 | August 19, 2022 | 18 | 33 |

1. Facebook/Instagram

|  |  |  |  |
| --- | --- | --- | --- |
| *Account* | *Creation Date* | *Last Used* | *Followers* |
| NW Region Page | Unknown | November 23, 2022 | 709 |
| @geauxwater | May 19, 2015 | April 19, 2023 | 194 |
| @geauxLIA | July 11, 2019 | October 8, 2022 | 87 |

# External funding, material support, and grants

**Competitive Funding Awarded** (By Year)

**2023**

* + 1. Friedland, C., M. Franks, S. Rodrigue, ***S. L. D. Conger***, and R. Rohli. “Building Resilience Through Extension Awareness and Knowledge (BREAK),” USDA NIFA AFRI Foundational and Applied Science Program, A1712 Priority Area, Strengthening Grant, Start Date: August 1, 2023 (1 year), $299,995. **LSUAC Portion: $266,995**

1. Friedland, C., R. Bin Mostafiz, ***S. L. D. Conger***, and R. Rohli. “Natural Hazard Risk Assessment for Louisiana,” Louisiana Governor’s Office of Homeland Security and Emergency Preparedness, Start Date: June 1, 2023 (3 years), **$1,055,379**
2. ***Conger, S. L. D.***, A. J. Orgeron, and K. A. Gravois. “Continued Evaluation of Irrigation Strategies for Sugarcane in Louisiana’s Climate,” American Sugarcane League, Start Date: April 1, 2022 (1 year), **$5,000**
3. ***Conger, S. L. D.***, J. Beasley, C. Jeong, C. Friedland, and R. Rohli. “Quantifying Environmental Impacts of Resilient Landscapes: A Pilot Project,” LaHouse Research and Education Center, *Part of* Research and Demonstration on Storm-Resistant Housing and Housing Resilience Study (HB1, 2022), Louisiana State University Board of Supervisors, Start Date: January 2023 (6 mo. of funding), **$100,000**

**2022**

1. ***Conger, S. L. D.***, C. Friedland, and R. Rohli. “Decision Support, Education, and Outreach for Managing Agricultural Drought,” USDA NIFA AFRI Foundational and Applied Science Program, A1712 Priority Area, Strengthening Grant, Start Date: October 1, 2022 (1 year), $295,860. **LSUAC Portion: $258,026**
2. ***Conger, S. L. D.***, A. J. Orgeron, and K. A. Gravois. “Continued Evaluation of Irrigation Strategies for Sugarcane in Louisiana’s Climate,” American Sugarcane League, Start Date: April 1, 2022 (1 year), **$5,000**

**2021**

1. ***Conger, S. L. D.*** “Community Investment Donation for Automated Pump Control Hardware,” Oak River Farms, Gilbert, LA, Start Date: May 31, 2021 (1 year), **$3,000**
2. ***Conger, S. L. D.***, A. J. Orgeron, and K. A. Gravois. “Evaluation of Irrigation Strategies for Sugarcane in Louisiana’s Climate,” American Sugarcane League, Start Date: April 1, 2021 (1 year), **$5,000**

**2020**

1. Beasley, J., ***S. L. D. Conger***, L. Shiratsuchi, R. Strahan, and D. LaBonte. “Using LIDAR technology to evaluate specialty crop field drainage to enhance operations,” Louisiana Department of Agriculture and Forestry Specialty Crops Program, Start Date: October 1, 2020 (1 year), **$44,523**

**2018**

1. Boellstorff, D. (Texas A&M University), J. Barrett (Mississippi State University), ***S. L. Davis***[LSUAC P.I.], and others. “A Southern Regional Water Conference to Improve Producer Adoption of Sustainable Water Management Practices,” Southern SARE Education Grant, Start Date: April 1, 2018 (1.5 years), $48,000. LSUAC Portion: **$3,800**.
2. ***Davis, S. L.*** [P.I.], K. Paudel, and T. Spivey. “Assessing the economic impact of delayed irrigation in agronomic crops,” Louisiana Water Resources Research Institute, Start Date: March 1, 2018 (1 year), **$15,000**
3. ***Davis, S. L.*** [P.I], and N. Adusumilli. “Evaluation of plant response to soil moisture regimes in soybean (Year 4),” Louisiana Soybean and Grain Research and Promotion Board, Start Date: April 1, 2018 (1 year), **$50,000**

**2017**

1. ***Davis, S. L.*** [P.I.], N. Adusumilli, and R. Levy. “Evaluation of plant response to soil moisture regimes in soybean (Year 3),” Louisiana Soybean and Grain Research and Promotion Board, Start Date: April 1, 2017 (1 year), **$57,877**

**2016**

1. Caddo Soil and Water Conservation District, N. Adusumilli, ***S. L. Davis***, and others. “Shiftail Canal Watershed Project,” USDA Regional Conservation Partnership Program, Start Date: October 1, 2016 (4 years), $503,982. LSU AgCenter Portion: **$94,050**
2. ***Davis, S. L.*** [P.I.], N. Adusumilli, and R. Levy. “Evaluation of plant response to soil moisture regimes in soybean (Year 2),” Louisiana Soybean and Grain Research and Promotion Board, Start Date: April 1, 2016 (1 year), **$58,400**
3. ***Davis, S. L.*** [P.I.], N. Adusumilli, and D. Fromme. “Viability of soil moisture sensors for making irrigation decisions in cotton (Year 2),” Cotton Incorporated, Start Date: January 1, 2016 (1 year), **$5,000**

**2015**

1. ***Davis, S. L.*** [P.I.], N. Adusumilli, D. Fromme, C. Jeong, S. Dodla, B. Garner, S. Nipper (NRCS), C. Coreil (NRCS), O. Hill (Southern University). “Sustainable Row Crop Irrigation Management in Louisiana,” Southern SARE Professional Development Program, Start Date: April 1, 2015 (3 years), **$69,167**
2. ***Davis, S. L.*** [P.I.], N. Adusumilli, and R. Levy. “Evaluation of plant response to soil moisture regimes in soybean (Year 1),” Louisiana Soybean and Grain Research and Promotion Board, Start Date: April 1, 2015 (1 year), **$58,400**
3. ***Davis, S. L.*** [P.I.], N. Adusumilli, and D. Fromme. “Viability of soil moisture sensors for making irrigation decisions in cotton (Year 1),” Cotton Incorporated, Start Date: January 1, 2015 (1 year), **$5,000**

**2014**

1. Krutz, L. J. (Mississippi State University), C. G. Henry (University of Arkansas), J. Henggeler (University of Missouri), ***S. L. Davis***[LSUAC P.I.], and others. “Irrigation Water Management for Southern Region Soybean Growers,” United Soybean Board, Start Date: October 1, 2014 (1 year), $461,270. LSU AgCenter Portion: **$47,670**
2. Beasley, J. S. [P.I.], S. G. Hall, E. Bush, and ***S. L. Davis****.* “Development of the LSU Irrigation and Leaching Control System,” LSU LIFT2 Fund, Start Date: September 1, 2014 (1 year), **$20,504**

**Submitted Proposals, Awaiting Announcement or In Preparation**

None at the time of submission.

**Submitted Proposals, Not Funded** (By Year)

**2022**

1. ***Conger, S. L. D.,*** A. Reis,L. Q. Connor, X. Zhang, C. Jeong, and L. Fultz. “Introducing Precision-Based Agricultural Water Management To Louisiana Crop Production Systems,” USDA NIFA AFRI Foundational and Applied Science Program, Strengthening Grant, A1551 Priority Area, Submitted on October 6, 2022, **$796,292**
2. ***Conger, S. L. D.*** [P.I.]*,* D. Abdi, J. Fields, M. Wilson, and W. Afton. “Elevating the irrigation industry through innovative education opportunities,” Louisiana Department of Agriculture and Forestry Specialty Crops Block Grant Program, **$58,484**
3. ***Conger, S. L. D.*** [P.I.], X. Zhang, A. Reis, C. Jeong, and L. Fultz. “Soil functions and agroecosystem services in Louisiana as influenced by agricultural management practices,” LSU AgCenter Pilot Program for Enhancement of External Competitive Funding, **$30,000**
4. ***Conger, S. L. D.*** [P.I.], C. Friedland, J. S. Beasley. “Modernizing Urban Water Conservation Research and Education Strategies in Louisiana,” LSU AgCenter Pilot Program for Enhancement of External Competitive Funding, **$30,000**
5. Rongzhong, Y. (Clemson), X. Zhang [LSUAC P.I.], C. Jeong, ***S. L. D. Conger***, M. Deliberto, and others. “Implementing Climate-Smart Agriculture and Forest Practices to Achieve Greenhouse Gas Reduction Benefits in Diverse U.S. Commodities,” NRCS Climate-Smart Commodities, $29,155,582. LSUAC Portion: **$2,078,114**

**2021**

1. ***Conger, S. L. D.*** [P.I.], X. Zhang, and L. Fultz. “Quantifying soil water dynamics from improved soil health,” Louisiana Soybean and Grain Promotion Board, **$22,335**
2. ***Conger, S. L. D.*** [P.I.] and L. Q. Connor. “Sustainability Of Agricultural Irrigation Systems Under Humid Climate Conditions,” USDA NIFA AFRI Foundational and Applied Science Program, Seed Grant, A1521 Priority Area, **$299,549**

**2020**

1. ***Conger, S. L. D.*** [P.I.] and D. Moseley. “Quantifying water conservation potential through automated pump control options,” Louisiana Soybean and Grain Promotion Board, **$15,000**

**2019**

1. ***Conger, S. L. D.*** “Evaluation of soil properties for scheduling irrigation,” Louisiana Soybean and Grain Promotion Board, **$35,000**
2. Gholson, D. (Mississippi State University), D. Boellsdorf (Texas A&M University), G. Hawkins (University of Georgia), ***S. L. D. Conger*** [LSUAC P.I.], and others. “A Southern Regional Water Conference: A Train the Trainer Approach to Increase Grower Adoption of Sustainable Practices,” Southern SARE, **$79,991**

**2018**

1. ***Conger, S. L. D.*** [P.I.], C. Jeong, and J. Terrell. “Evaluating impacts of cover crops on water management and soil health in the Red River Valley,” Southern SARE, **$14,156**
2. ***Conger, S. L. D.*** “Evaluation of soil properties for scheduling irrigation,” Louisiana Soybean and Grain Promotion Board, **$61,948**
3. ***Conger, S. L. D.*** [P.I.], R. Keim, F. Tsai, J. Copes, and C. Jones (University of Maryland). “Integrated surface and groundwater management in agroecosystems,” USDA NIFA AFRI Sustainable Agricultural Systems, **$10,000,000**
4. Tsai, F. and ***S. L. Davis***. “Irrigation Energy Management Software Development for Energy Reduction,” Chevron Innovative Research Fund, **$30,000**
5. Mukhopadhyay, S., K. Paudel, ***S. L. Davis***. “Big Data Platform: Application in Soybean Farming in Louisiana,” USDA NIFA AFRI Foundational, **$496,797**

**2017**

1. Paudel, K., F. Tsai, ***S. L. Davis***, C. Jeong, D. L. Harrell, C. Busch, Z. Sheng (Texas A&M University), F. Dou (Texas A&M University), L. Gregory (Texas A&M University), D. M. Borrok (University of Louisiana Lafayette). “System approach to improve water use efficiency and water quality for coastal agricultural production regions,” NIFA AFRI Water for Food Production Systems, **$2,247,407**
2. ElGwely, S. I. H., and ***S. L. Davis*** [LSUAC P.I.]. “Evaluation of the Smart Technologies for Agricultural Management and Production (STAMP) extension program and its potential for application in Egypt,” U.S. – Egypt Joint Board on Scientific and Technological Cooperation, $24,950. LSUAC Portion: **$0**
3. ***Davis, S. L.*,** M. W. Alison, K. J. Han, B. Garner. “Translating Conservation Practices to Sustainable Forage Production,” USDA Southeast Regional Climate Hub Science Translation Proposal, **$96,578**
4. ***Davis, S. L.***[P.I.], F. T.-C. Tsai, P. D. Hays (University of Arkansas/USGS), B. D. McGee (USGS), G. Stockton, and R. Letlow. “Exploring conservation practices and perceptions of end-users in the Sparta Aquifer,” National Institute of Water Resources 104(g) National Competitive Grant, **$300,000**
5. ***Davis, S. L.***[P.I.], N. Adusumilli, and D. Fromme. “Viability of soil moisture sensors for making irrigation decisions in cotton (Year 3),” Cotton Incorporated, **$10,000**

**2016**

1. Adusumilli, N., B. LeBlanc, J. Beasley, and ***S. L. Davis****.* “Advancing Understanding of Agroecosystems in Response to Cyclic Extreme Meteorological Events within the Humid Southeastern United States,” USDA NIFA Renewable Energy, Natural Resources, and Environment: Agroecosystem Management Program, Conference Grant, **$42,662**
2. ***Davis, S. L.*** and J. Beasley. “Maximizing production of horticulture material through efficient water resource management,” Louisiana Department of Agriculture and Forestry Specialty Crops Block Grant Program, **$72,971**
3. ***Davis, S. L.*** “Transfer of Irrigation System Knowledge from Texas to Louisiana,” CUAHSI Instrumentation Discovery Travel Grant, **$1,000**
4. Alison, M. W., W. D. Pitman, ***S. L. Davis***, J. Jennings, and B. Macoon. “Evaluation of approaches to overcome primary stresses limiting alfalfa production in the lower mid-South,” USDA NIFA Alfalfa and Forage Research Program, **$247,280**

**2015**

1. Paz, J. (Mississippi State University), M. L. M. Tagert (Mississippi State University), A. Linhoss (Mississippi State University), A. Mercer (Mississippi State University), R. Cossman (Mississippi State University), Q. Huang (University of Arkansas), K. Kovacs (University of Arkansas), ***S. L. Davis*** [LSUAC P.I.] and others. “Environmental and Socio-economic Implications of Adopting Water Conservation Technologies in the Lower Mississippi River Basin,” NIFA AFRI Water For Agriculture Challenge Area. $9,212,793. LSU AgCenter Portion: **$1,031,062**
2. Migliaccio, K. (University of Florida), G. Vellidis (University of Georgia), G. Fox (Oklahoma State University), T. Peters (Washington State University), I. Kisekka (Kansas State University), ***S. L. Davis*** [LSUAC P.I.] and others. “Mobile Irrigation Tools and Apps for Integrated Water Conservation: Applying the Right Amount of Water at the Right Time,” NIFA AFRI Water For Agriculture Challenge Area. $10,557,804. LSU AgCenter Portion: **$303,100**
3. ***Davis, S. L.*** [P.I.], S. Karimiha, S. Dodla, C. Jeong, N. Adusumilli, M. W. Alison. “Water Management – Irrigation and Drainage,” Cochran Fellowship Program, Bosnia Fellows.
4. ***Davis, S. L.*** [P.I.], L. Fultz, M. W. Alison, W. D. Pitman, K. J. Han, N. Adusumilli. “Soil health and forage production benefits of interseeding summer-annual legumes and irrigation in bermudagrass pastures,” USDA Federal Conservation Innovation Grant, **$998,724**
5. ***Davis, S. L.*** [P.I.], N. Adusumilli, D. Fromme. “Using Soil Moisture Sensors in Sugarcane to Prevent Water Stress and Improve Net Profitability,” American Sugarcane League, **$15,525**

**2014**

1. The Nature Conservancy, N. Adusumilli, ***S. L. Davis***, and others. “Comprehensive conservation systems approach to addressing wildlife habitat, water quantity, and water quality on working agricultural lands in Arkansas, Louisiana, and Mississippi,” USDA Regional Conservation Partnership Program, $5,062,612. LSUAC Portion: **$180,100**
2. Paz, J. (Mississippi State University), M. L. M. Tagert (Mississippi State University), A. Linhoss (Mississippi State University), A. Mercer (Mississippi State University), R. Cossman (Mississippi State University), Q. Huang (University of Arkansas), K. Kovacs (University of Arkansas), ***S. L. Davis*** [LSUAC P.I.]. “Environmental and Socio-Economic Implications of Adopting Water Conservation Technologies (EASE IMPACT) in the Lower Mississippi River Valley,” NIFA AFRI Water For Agriculture Challenge Area. $4,389,872. LSUAC Portion: **$855,490**
3. Jeong, C., E. Girouard, ***S. L. Davis***, N. Adusumilli, S. Dodla, D. Fromme, and J. Hendrix. “Assessment of constructed field wetlands to improve water quality of tailwater recovery for agricultural irrigation in Louisiana,” SARE Research and Education, **$222,911**

**In-kind or Monetary Donations**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Year* | *Source* | *Event* | *Type* | *Amount* |
| 2023 | Louisiana Irrigation Association | Gift | Monetary | $1,800 |
| 2023 | Louisiana Irrigation Association | Gift | Monetary | $1,200 |
| 2022 | Irrigation Association | E3 Leadership Program | Travel | $1,500 |
| 2022 | Louisiana Irrigation Association | Gift | Monetary | $4,250 |
| 2022 | Louisiana Irrigation Association | LSU Foundation Donation | Monetary | $250 |
| 2021 | Bold Cypress, LLC | Pump Trakr Installation | In-kind | $3,000 |
| 2021 | Louisiana Irrigation Association | Gift | Monetary | $6,000 |
| 2020 | MidAmerica Farmer Grower | Conservation Systems Conf. | Travel | $250 |
| 2020 | Louisiana Irrigation Association | Gift | Monetary | $6,000 |
| 2019 | Trellis, Inc. | 2 Communication Platforms | In-kind | $1,500 |
| 2019 | Louisiana Irrigation Association | Gift | Monetary | $1,500 |
| 2018 | Triad/Damgates | Surge Valve | In-kind | $3,500 |
| 2018 | MidAmerica Farmer Grower | Conservation Systems Conf. | Travel | $250 |
| 2017 | Irrigation Association | Watersmart Innovations Conf. | Travel | $850 |
| 2017 | Arizona State University | Water Demand Workshop | Travel | $800 |
| 2017 | Soileau Industries | SARE PDP Workshop | Monetary | $100 |
| 2017 | Goldman Equipment | SARE PDP Workshop | Monetary | $300 |
| 2017 | Irrigation-Mart | SARE PDP Workshop | Monetary | $400 |
| 2016 | Irrigation Foundation | Faculty Academy | Travel | $1,632 |
| 2016 | MidAmerica Farmer Grower | Conservation Systems Conf. | Travel | $250 |
| 2016 | Soileau Industries | SARE PDP Workshop | Monetary | $500 |
| 2016 | Goldman Equipment | SARE PDP Workshop | Monetary | $500 |
| 2015 | Irrigation-Mart | SARE PDP Workshop | Monetary | $500 |
| 2015 | Irrigation Foundation | Faculty Academy | Travel | $2,950 |
| 2015 | SiteOne Landscape Supply | Interactive Sensor Demo | In-kind | $300 |
| 2015 | SciPort | Interactive Sensor Demo | In-kind | $200 |
| 2015 | Goldman Equipment | Sensor Installations | In-kind | $1,000 |
| 2014 | Rain Bird Corporation | Sprinkler Heads | In-kind | $100 |
| 2014 | Irrigation Foundation | Faculty Academy | Travel | $500 |

# 

# Conference presentations

**Invited Presentations, Out-of-State** (Count = 7)

|  |  |  |
| --- | --- | --- |
| **Date** | **Title** | **Outlet** |
| Dec. 6, 2021 | Evaluation of testing procedures for weather-based irrigation controllers | 6th Decennial National Irrigation Symposium, San Diego, CA |
| Jul. 12, 2021 | Adapting to IoT Options in Agriculture: The Louisiana Irrigation Experience | IEEE 7th World Forum on IoT, Vertical Track on Agric. (Virtual) |
| Jan. 30, 2020 | Evaluating the Soil Water Balance for Irrigation Scheduling in Louisiana | 23rd Annual Conservation Systems Conference, Memphis, TN |
| Aug. 30, 2019 | Soil Water Relationships & How They Relate to Irrigation Scheduling | Webinar, Irrigation Association, Falls Church, VA (Virtual) |
| Jan. 11, 2018 | An analysis of using efficient irrigation technologies in Louisiana | 21st Annual Conservation Systems Conference, Memphis, TN |
| Jan. 14, 2016 | Soil Moisture Sensor Strategies | 19th Annual Conservation Systems Conference, Memphis, TN |
| Jun. 19, 2014 | Demonstration and evaluation of smart controllers in Orange County, FL | Irrigation Foundation Faculty Academy, Longwood Gardens, PA |

**Invited Presentations, In-State** (By Year)

**2021-2023** (Count = 4)

|  |  |  |
| --- | --- | --- |
| **Date** | **Title** | **Outlet** |
| Mar. 14, 2023 | Considerations for Designing and Improving Irrigation and Drainage on Golf Courses | Louisiana and Mississippi Golf Course Superintendents Association Meeting, Avondale, LA |
| Jan. 31, 2023 | Informing future irrigation strategies using drought status, hydrological conditions, and historical rainfall patterns | 26th Annual Conservation Systems Conference, Baton Rouge, LA |
| Dec. 13, 2022 | Precision Irrigation | LSU AgCenter Annual Conference, Baton Rouge, LA |
| Jun. 7, 2021 | Improving Irrigation Efficiency: Developing Options for Scheduling Irrigation | Louisiana County Agric. Agents Assoc. Meeting, Natchitoches, LA |

**2019-2020** (Count = 4)

|  |  |  |
| --- | --- | --- |
| **Date** | **Title** | **Outlet** |
| Feb. 12, 2020 | Soil Compaction Panel | Louisiana Agric. Tech. and Manage. Conference, Marksville, LA |
| Mar. 12, 2019 | Water Quality and Best Management Practices for Forest Landowners | Ark-La-Tex Forestry Forum, Shreveport, LA |
| Feb. 12, 2019 | Updates on Irrigation Strategies | Louisiana Agric. Tech. and Manage. Conference, Marksville, LA |
| Jan. 8, 2019 | Considerations for Using Smart Irrigation Technologies Effectively | Louisiana Turfgrass Association, Annual Meeting, Baton Rouge, LA |

**2018** (Count = 3)

|  |  |  |
| --- | --- | --- |
| **Date** | **Title** | **Outlet** |
| Mar. 14, 2018 | 2017 Update on Irrigation Efficiency in Louisiana | Commercial Pesticide Applicators Meeting, Alexandria, LA |
| Feb. 16, 2018 | Techniques for Scheduling Furrow Irrigation: Introduction of the STAMP Decision Tool | Louisiana Agric. Tech. and Manage. Conference, Marksville, LA |
| Jan. 18, 2018 | Managing Irrigation Using the STAMP Irrigation Tool | Groundwater Management District Assoc. Meeting, Baton Rouge, LA |

**2017** (Count = 5)

|  |  |  |
| --- | --- | --- |
| **Date** | **Title** | **Outlet** |
| Nov. 2, 2017 | Using smart technologies to make smart irrigation decisions | Restricted Use Pesticide Salesperson Meeting, Alexandria, LA |
| May 17, 2017 | Mid-south irrigation technologies | LSU AgCenter Internal Leadership Program, Bossier City, LA |
| Mar. 22, 2017 | Using smart technologies to make smart irrigation decisions | Ornamental and Turfgrass Pesticide App. Meeting, Bossier City, LA |
| Feb. 16, 2017 | Sensor Strategies in Cotton | Louisiana Agric. Tech. and Manage. Conference, Marksville, LA |
| Jan. 3, 2017 | Sensor Strategies for Improving Irrigation in Louisiana | LSU AgCenter Agric. Leadership Program, Baton Rouge, LA |

**2016** (Count = 7)

|  |  |  |
| --- | --- | --- |
| **Date** | **Title** | **Outlet** |
| Nov. 22, 2016 | Franklin Parish Round Table | Scott Center, Winnsboro, LA |
| Nov. 3, 2016 | Irrigation Scheduling  Water Resources and Irrigation in Louisiana | Crop Consultants Assoc. Recert. Training, Alexandria, LA |
| Nov. 2, 2016 | Using smart technologies to make smart irrigation decisions | Restricted Use Pesticide Salesperson Meeting, Alexandria, LA |
| Oct. 5, 2016 | Using smart technologies to make smart irrigation decisions | Ornamental and Turfgrass Pesticide Applicators Meeting, Lafayette, LA |
| May 24, 2016 | Introduction to Irrigation | Delta Master Gardener Meeting, St. Joseph, LA |
| May 9, 2016 | Connecting data between modern agriculture, water research, and policy | Panel Discussion, Data Flow 2016, Baton Rouge, LA |
| Mar. 16, 2016 | Using smart technologies to make smart irrigation decisions | Ornamental and Turfgrass Pesticide App. Meeting, Bossier City, LA |

**2014-2015** (Count = 6)

|  |  |  |
| --- | --- | --- |
| **Date** | **Title** | **Outlet** |
| Dec. 4, 2015 | The Importance of Maintaining Adequate Soil Moisture in Pastures | Louisiana Forage and Grassland Council, Annual Meeting, Alexandria, LA |
| Mar. 25, 2015 | Using smart technologies to make smart irrigation decisions | Ornamental and Turfgrass Pesticide App. Meeting, Bossier City, LA |
| Mar. 20, 2015 | Using smart technologies to make smart irrigation decisions | Seminar series, SPESS, Baton Rouge, LA |
| Jan. 12, 2015 | Using Technologies for Good Agricultural Irrigation Management | Commercial Pesticide Applicators Meeting, Alexandria, LA |
| Jan. 8, 2015 | Using smart technologies to make smart irrigation decisions | Louisiana Turfgrass Association, Annual Meeting, Baton Rouge, LA |
| Sep. 10, 2014 | Using smart technologies to make smart irrigation decisions | Master Gardeners Meeting, Shreveport, LA |

**Proceedings and Conference Articles**

*Note:**Regularly attended irrigation-specific conferences no longer publish proceedings and conference articles. The Irrigation Show phased out the technical program after 2018.*

1. Lanza, P., Santos, L., Gentimis, A., Yang, Y., ***Conger, S***., and Beasley, J. (In press). Parameters to increase LiDAR mounted UAV efficiency on agricultural field elevation measurements, 14th European Conference on Precision Agriculture, Bologna, Italy.
2. ***Davis, S. L.*** and D. Fromme. 2017. STAMP Decision Tool for Agronomic Crops in Louisiana. Irrigation Show, Conference Paper, Orlando, FL
3. ***Davis, S. L*.** and B. Garner. 2017. Flooding impacts to row crop agriculture in Northeast Louisiana. UCOWR/NIWR Conference, Fort Collins, CO
4. Thiessen, M. and ***S. L. Davis***. 2017. Rainfall variability and its impacts on irrigation in Louisiana. UCOWR/NIWR Conference, Fort Collins, CO
5. ***Davis, S. L.*** 2016. Sensor Strategies for Scheduling Irrigation in Louisiana. Irrigation Show, Conference Paper, Las Vegas, NV
6. ***Davis, S. L.*** and M. D. Dukes. 2015. Simulated performance of evapotranspiration-based irrigation controllers using soil water balance models, Conference Paper 2181829, ASABE Annual International Meeting, New Orleans, LA
7. Smith, D., J. Beasley, S. G. Hall, ***S. L. Davis***, M. Thiessen, D. Bordelon, 2015. Development of an Efficient Irrigation and Leaching Control System, Conference Paper 2189135, ASABE Annual International Meeting, New Orleans, LA
8. ***Davis, S. L.****,* E. M. Breder, and M. D. Dukes. 2014. The effect of approximating irrigated area on the gross irrigation requirement, Conference Paper, Irrigation Show, Phoenix, AZ

**Abstracts**

*Note: Abstracts listed below were submitted to request a presentation at an event and were published on their website or program. Abstract submissions that resulted in a poster are listed in the poster section.*

1. ***Conger, S. L. D.***, C. Friedland, and R. Rohli. 2023. “Developing a Decision Support Webtool for Agricultural Drought in Louisiana,” ASABE Annual International Meeting, Omaha, NE.
2. ***Conger, S. L. D.***, C. Sohoulande, A. J. Orgeron, and K. A. Gravois. 2022. “Exploring responses to irrigation of sugarcane in southcentral Louisiana,” ASABE Annual International Meeting, Houston, TX.
3. ***Conger, S. L. D*.** and D. Fromme. 2019. “Developing Options for Irrigation Scheduling Using Estimated Plant Water Requirements,” Southern Region Water Conference, College Station, TX
4. ***Davis, S. L.*** and D. Fromme. 2018. “Advancing Irrigation for Agronomic Crops through STAMP,” 12th Annual Louisiana Surface Water, Groundwater, and Water Resources Conference, Baton Rouge, LA
5. ***Davis, S. L.*** and D. Fromme. 2018. “Evaluation of the STAMP Irrigation Decision Tool for Agronomic Crops in Louisiana,” UCOWR/NIWR Conference, Pittsburgh, PA
6. ***Davis, S. L.*** and M. D. Dukes. 2015. “Importance of ET controller program settings on water conservation potential,” Irrigation Show and ASABE Irrigation Symposium, Long Beach, CA
7. ***Davis, S. L.*** and M. D. Dukes. 2015. “Effects of user-programmed settings on estimating irrigation application by Rain Bird weather-based irrigation controllers,” World Environmental and Water Resources Congress, Austin, TX

**Posters**

1. ***Conger, S. L. D.***, M. Franks, C. Friedland, and R. Rohli. 2023. “Developing DIRT: Using Community Engagement as a Drought Mitigation Strategy,” Extension Disaster Education Network, Savannah, GA.
2. ***Conger, S. L. D.*** 2023. “Initiating Cross-Platform Recertification Opportunities for Licensed Irrigation Contractors,” National Association of County Agricultural Agents, Des Moines, IA
3. Franks, M., ***S. L. D. Conger***, C. Friedland, R. Rohli, and A. M. Divine. 2023. “A Community-Engagement Approach to Managing Agricultural Drought,” 14th Annual Louisiana Water Conference, Baton Rouge, LA
4. Lanza, P., L. Santos, T. Gentimis, Y. Yang, ***S. L. D. Conger***, and J. S. Beasley. 2023. “Parameters to increase LiDAR mounted UAV efficiency on agricultural field elevation measurements,” Louisiana County Agricultural Agents Association, Gonzales, LA
5. Franks, M., ***S. L. D. Conger***, C. Friedland, R. Rohli, and A. M. Divine. 2023. “A Community-Engagement Approach to Managing Agricultural Drought,” Louisiana County Agricultural Agents Association, Gonzales, LA
6. ***Conger, S. L. D***., C. Friedland, R. Rohli, S. Mithila, A. Rahim, A. Garcia, M. Franks, and S. Hall. 2022. “Decision support, education, and outreach for managing agricultural drought in Louisiana,” LSU AgCenter Annual Conference, Baton Rouge, LA
7. ***Conger, S. L. D.*** 2022. “Initiating Cross-Platform Recertification Opportunities for Licensed Irrigation Contractors,” Louisiana County Agricultural Agents Association, New Roads, LA
8. DeSoto, A., ***S. L. D. Conger***, and W. D. Pitman. 2020. “Effects of Flooding on Mimosa Strigillosa Seed Germination,” 5th Annual LSUS Regional Student Scholars Forum, Shreveport, LA
9. DeSoto, A., ***S. L. D. Conger***, and W. D. Pitman. 2019. “Flooding Effects on Mimosa Strigillosa Seed Germination,” Southern Region Water Conference, College Station, TX
10. McMahon, D., ***S. L. D. Conger***, A. DeSoto, and K. Dean. 2019. “Analyzing the Distribution Uniformity of Center Pivot and Lateral Move Sprinkler Systems,” Southern Region Water Conference, College Station, TX
11. ***Conger, S. L. D.*** and M. D. Dukes. 2018. “Determining Conservation Needs by Evaluating Utility Billing Data: A Florida Case Study,” Southwest American Water Works Association, Baton Rouge, LA
12. ***Davis, S. L.*** 2017. “Managing Irrigation using the STAMP Irrigation Tool,” 11th Annual Louisiana Groundwater, Surface Water, and Water Resources Conference, Baton Rouge, LA
13. ***Davis, S. L.*,** B. Garner, and M. W. Alison. 2016. “Using soil moisture sensors to determine soil water movement in mixed grass pastures,” Southern Pastures and Forage Crop Improvement Conference, Monroe, LA
14. ***Davis, S. L.***, D. D. Smith, J. Beasley, S. G. Hall, M. Thiessen, and D. Bordelon. 2016. “LSU Irrigation and Leaching Control System: Development and Implementation,” UCOWR/NIWR Conference, Pensacola, FL
15. ***Davis, S. L.*** 2016. “When to pull the trigger: Using technologies to irrigate row crops,” Data Flow 2016, Baton Rouge, LA
16. ***Davis, S. L.*** 2016. “Agricultural Irrigation Water Management Using Soil Moisture Sensors in Row Crops,” 10th Annual Louisiana Groundwater, Surface Water, and Water Resources Conference, Baton Rouge, LA
17. Thiessen, M. and ***S. L. Davis****.* 2015. “What does Louisiana do with all that water?” WaterSmart Innovations Conference, Las Vegas, NV
18. Adusumilli, N. and ***S. L. Davis***. 2015. “Evaluation of Management Strategies to Promote Water Resource Conservation in Louisiana,” Mississippi Water Resources Conference, Jackson, MS
19. W. D. Pitman, A. Shadow, and ***S. L. Davis****.* 2015. “Herbaceous Mimosa Potential as a Pasture Legume,” Poster, Southern Pasture and Forage Crop Improvement Conference, Apalachicola, FL

**Agent Trainings**

*Note: The following events were personally planned and organized unless noted otherwise (\*). Each event may have had additional speakers, but the titles listed below were presented by me during the training opportunity.*

|  |  |  |
| --- | --- | --- |
| **Date** | **Title** | **Outlet** |
| Mar. 16-17, 2023 | Irrigation Basics Two-day Introductory Course | Louisiana Irrigation Association, New Orleans, LA |
| Oct. 27, 2022 | Full-day Recertification Class | Louisiana Irrigation Association Annual Meeting, Hammond, LA |
| Sep. 1, 2022 | Irrigation and Water Quality Workshop | Red River Research Station, Bossier City, LA |
| Feb. 14, 2017 | Louisiana Water Resources Overview  Irrigation Scheduling Tool | Central Regional Irrigation Conference, Marksville, LA |
| Jan. 25, 2017 | Louisiana Water Resources Overview  Irrigation Scheduling Tool | Northeast Regional Irrigation Conference, Winnsboro, LA |
| Jan. 17, 2017 | Louisiana Water Resources Overview  Irrigation Scheduling Tool  Sensor Research Summary | Northwest Regional Irrigation Conference, Bossier City, LA |
| Feb. 16-17, 2016 | Irrigation Technologies  Irrigation Scheduling  Irrigation Technologies Research Summary | Central Regional Irrigation Conference, Marksville, LA |
| Jan. 21-22, 2016 | Irrigation Technologies  Irrigation Scheduling | Northeast Regional Irrigation Conference, Winnsboro, LA |
| Dec. 8-9, 2015 | Irrigation Technologies  Irrigation Scheduling  Irrigation Technologies Research Summary | Northwest Regional Irrigation Conference, Bossier City, LA |
| Jul. 23, 2015 | Technologies used in the USB Project | \*Northeast Rolling Field Tour, Concordia Parish, LA |
| Feb. 10, 2015 | Technologies for Agricultural Irrigation Management | Louisiana Agricultural Consultants Association Irrigation Symposium, Marksville, LA |
| 2014 | Integrating Soil Moisture Sensors into Agricultural Irrigation Management | \*Joint NRCS/LSU AgCenter Agent Training, Winnsboro, LA |

\*Did not organize the listed event.

**Participation in Meetings, Symposia, Workshops, and Conferences** (By Year)

*Note: Events listed here include some sort of scientific contribution such as a presentation. Events already listed in other sections (e.g., Posters, Invited Presentations, Agent Trainings, etc.) are not duplicated here. Events that were attended without direct contribution can be found in the professional development section.*

**2023** (Count = 6)

|  |  |  |
| --- | --- | --- |
| **Authors** | **Title** | **Outlet** |
| ***Conger, S. L. D.*** | Irrigation Basics for Homeowners | New Orleans Spring Garden Show, New Orleans, LA |
| ***Conger, S. L. D.*** | Introduction to Home Irrigation | St. Tammany Parish Spring Into Color Seminar |
| ***Conger, S. L. D.*** | Irrigation and Drainage | East Baton Rouge Parish Master Gardener Library Series, Baton Rouge, LA |
| ***Conger, S. L. D.*** and C. Sohoulande | Historical Rainfall Patterns  and Their Effect  on Irrigation Strategies | Caddo Parish Crop Production Meeting, Shreveport, LA |
| ***Conger, S. L. D.*** | Introduction to Irrigation | Tangipahoa Parish Master Gardener Meeting, Hammond, LA |
| ***Conger, S. L. D.*** | Recap of the 2022 Irrigation Show, Including New Products | January Recertification Class, Louisiana Irrigation Association (Virtual) |

**2022** (Count = 3)

|  |  |  |
| --- | --- | --- |
| **Authors** | **Title** | **Outlet** |
| ***Conger, S. L. D***., M. D. Dukes, and P. Seacrist | Distribution Uniformity Outdoor Demonstration  Smart Controller Demonstration | October Recertification Class, Louisiana Irrigation Association, Hammond, LA |
| ***Conger, S. L. D.*** | Introduction to Smart Irrigation | River Parishes Master Gardener Event, Destrahan, LA |
| ***Conger, S. L. D.*** and C. Sohoulande | Historical Rainfall Patterns  and Their Effect  on Irrigation Strategies | Caddo Parish Crop Production Meeting, Shreveport, LA |

**2020** (Count = 3)

|  |  |  |
| --- | --- | --- |
| **Authors** | **Title** | **Outlet** |
| ***Conger, S. L. D.*** | Hydrological Considerations to Compaction | Caddo Parish Crop Production Meeting, Shreveport, LA |
| ***Conger, S. L. D.*** | Introduction to Two-Wire Systems  Introduction to Smart Irrigation Technologies  Soil, Water, and Plant Relationships and How They Relate to Irrigation Scheduling | March Recertification Class, Louisiana Irrigation Association, Denham Springs, LA |
| ***Conger, S. L. D.*** | Introduction to Two-Wire Systems  Introduction to Smart Irrigation Technologies  Soil, Water, and Plant Relationships and How They Relate to Irrigation Scheduling | January Recertification Class, Louisiana Irrigation Association, Ruston, LA |

**2019** (Count = 4)

|  |  |  |
| --- | --- | --- |
| **Authors** | **Title** | **Outlet** |
| ***Conger, S. L. D.*** | Irrigation Discussion Panel | October Recertification Class, Louisiana Irrigation Association, Denham Springs, LA |
| ***Conger, S. L. D.*** and D. Fromme | Developing Options for Irrigation Scheduling Using Estimated Plant Water Requirements | Southern Region Water Conference, College Station, TX |
| ***Conger, S. L. D.*** | Available Tools for Improving Irrigation of Agronomic Crops | Caddo Parish Crop Production Meeting, Shreveport, LA |
| ***Conger, S. L. D.*** and V. West | Overview of Cover Cropping and Soil Health | Area 1 Meeting, Bodcau Soil and Water Conservation District, Bossier City, LA |

**2018** (Count = 2)

|  |  |  |
| --- | --- | --- |
| **Authors** | **Title** | **Outlet** |
| ***Davis, S. L.*** and D. Fromme | Advancing Irrigation for Agronomic Crops through STAMP | 12th Annual Louisiana Surface Water, Groundwater, and Water Resources Conference, Baton Rouge, LA |
| ***Davis, S. L.*** | Available Tools for Improving Irrigation of Agronomic Crops | Caddo Parish Crop Production Meeting, Shreveport, LA |

**2017** (Count = 5)

|  |  |  |
| --- | --- | --- |
| **Authors** | **Title** | **Outlet** |
| ***Davis, S. L*.**, B. Garner, and M. Theissen | Sensors and soil health | Southern University Field Day, Morehouse Parish, LA |
| ***Davis, S. L*.** | Update on Irrigation Technologies | Northeast Region Field Day, St. Joseph, LA |
| ***Davis, S. L.*** | Hydraulics and Irrigation Design | Irrigation Basics Course, Louisiana Irrigation Association, Denham Springs, LA |
| ***Davis, S. L.*** | Available Tools for Improving Irrigation of Agronomic Crops | Caddo Parish Crop Production Meeting, Shreveport, LA |
| ***Davis, S. L.*** | Furrow Irrigation Technologies | Master Farmer University, Bossier City, LA |

**2016** (Count = 4)

|  |  |  |
| --- | --- | --- |
| **Authors** | **Title** | **Outlet** |
| ***Davis, S. L.*** | Irrigation Basics Two-day Course | Louisiana Irrigation Association, Denham Springs, LA |
| ***Davis, S. L.*** | Sensor Research Update | Sweet Potato Field Day, Chase, LA |
| ***Davis, S. L.*** | Sensor Research Update | Northeast Region Field Day, St. Joseph, LA |
| ***Davis, S. L.*** | Sensor Research Update | Northwest Region Field Day, Bossier City, LA |

**2015** (Count = 6)

|  |  |  |
| --- | --- | --- |
| **Authors** | **Title** | **Outlet** |
| ***Davis, S. L.*** | Irrigation Efficiency Demonstrations – USB Summary | Madison Parish Irrigation Workshop, Tallulah, LA  East Carroll/West Carroll Parish Irrigation Workshop, Oak Grove, LA  Concordia/Tensas Parish Irrigation Workshop, Ferriday, LA |
| ***Davis, S. L.***, N. Adusumilli, B. Garner, S. Nipper (NRCS) | Irrigation Efficiency | Southern University Field Day, Morehouse Parish, LA |
| Burns, D., R. L. Frazier, J. Hendrix, ***S. L. Davis***, and others | Irrigation Efficiency | Northeast Region Field Day, St. Joseph, LA |
| ***Davis, S. L.*** | Technologies to Improve Agricultural Irrigation Management | Concordia Parish Crop Production Meeting, Ferriday, LA |
| ***Davis, S. L.*** | Technologies for Good Agricultural Irrigation Management | East Carroll Parish Crop Production Meeting, Lake Providence, LA |
| Adusumilli, N. and ***S. L. Davis*** | The Future of Louisiana’s Water: Introduction to the Water Resources Faculty | Caddo Parish Crop Production Meeting, Shreveport, LA |

**2014** (Count = 3)

|  |  |  |
| --- | --- | --- |
| **Authors** | **Title** | **Outlet** |
| ***Davis, S. L.*** | Using Sensors for Irrigation Scheduling in Agriculture | Catahoula/Concordia Parish Irrigation Workshop, Ferriday, LA |
| ***Davis, S. L.*** | Irrigation Technologies for Improving Efficiency | Corn 101, Tallulah, LA |
| ***Davis, S. L.*** | LSU AgCenter Water Resource Activities | Northwest Regional Meet and Greet with NRCS, Red River Research Station, Bossier City, LA |

# Participation in and leadership of professional organizations/committees

***Irrigation Association (IA)***

As a member since 2008, I try to attend the annual trade show and technical conference each year to network with the industry and remain current on new technologies, products, and standards. The following contributions have been made:

* In 2015, I joined the Smart Water Application Technologies (SWAT) Promotions Working Group (PWG) and agreed to be ***vice-chair*** of the committee from 2019 – 2022. This group was created to become a cohesive resource for use by the public to educate consumers (contractors, distributors, end users) on the testing of smart technologies, thus falling directly into my extension mission.
* I participated on the Awards Task Force Committee in 2017 where we developed a streamlined plan to honor achievements related to the irrigation industry.
* Based on my performance on the Task Force, I was asked to join the Awards Committee in 2018 and became ***vice-chair*** of this committee from 2019 – 2021. I am currently serving my final year on the committee as ***chair*** from 2022 – 2023.
* In 2022, I ***volunteered*** to provide and edit metric conversions to Chapters 8-10 of the Principles of Irrigation textbook, a main resource for those advancing in the irrigation industry.

***American Society of Agricultural and Biological Engineers (ASABE)***

Primarily involved at a local level, I have been active in ASABE since 2006. Involvement at the national level has significantly increased in the last few years.

* State Level
  + I have attended both spring and fall Louisiana section meetings every year since 2016 except missing the one held during my wedding and the canceled events due to the pandemic.
  + In Fall 2018, I was elected as the ***vice-chair of public relations***. As part of those duties, I started a bi-annual newsletter.
  + In Spring 2022, I was elected as the ***chair*** of the organization.
* National Level
  + I presented at the 2015 ASABE Annual International Meeting in New Orleans, LA where I also volunteered to moderate two sessions.
  + I joined the NRES 24 Irrigation Technical Committee and attend all committee meetings. In 2021, I became ***vice-chair*** of NRES 242: Surface Irrigation and Water Supplies Sub-committee. I will transition into the ***chair*** position for the 2023 – 2025 term.
  + I attended the 2019 Annual International Meeting in Boston, MA and moderated a special session on irrigation in humid regions.
  + I attended the 2020 Decennial Irrigation Symposium (held in Dec. 2021) and moderated a session.
  + I attended the 2022 Annual International Meeting in Houston, TX and co-moderated a session.

***American Society of Civil Engineers (ASCE)***

I have been a member of ASCE with a focus in the Environmental and Water Resources Institute since 2002. This Institute provides significant contributions to the development and application of evapotranspiration estimates used for irrigation scheduling. Due to the lack of a viable weather network in Louisiana, participation in this organization has been severely reduced.

* I passed the Fundamentals of Engineering Exam in 2004, resulting in the Engineer-In-Training (E.I.T.) designation, in effort to become a professional engineer. Passing an additional 8-hr exam and two years of training under a registered professional engineer is required to move forward with this process.
* In 2005, I participated in the Order of the Engineer ceremony where I pledged to maintain ethical practices throughout my career.
* I attended the 2015 World Environmental and Water Resources Congress in Austin, TX.
* In 2017, I started attending the monthly meetings for the ASCE Shreveport Branch as my schedule allows.

***Universities Council of Water Resources (UCOWR)***

I was selected by administration to become 1 of 7 delegates representing the LSU AgCenter and was tasked with selecting the other six delegates at the time. This organization is stronger on the research and teaching sides to academia, making it a less beneficial for extension faculty. As a result, participation stalled after 2018 and it was recommended that the LSU AgCenter decline future membership.

* I volunteered to participate in the conference planning committee for the 2016 UCOWR/NIWR Conference to be held in Pensacola, FL.
* In 2017, I attended the conference in Fort Collins, CO and organized a special session on Louisiana’s flooding issues.
* In 2018, I attended and presented at the conference in Pittsburgh, PA.

***Louisiana Irrigation Association (LIA)***

This trade organization was established to provide educational opportunities for recertification to irrigation contractors who are state licensed to design, install, and maintain irrigation systems. Contributions to education and outreach can be found throughout this document. A description of additional activities not listed elsewhere can be found below.

* In 2014, I became a Board Member at Large (non-voting) and continue to advise the board on technical and administrative matters.
* Participated in LDAF’s Licensing Exam Committee in 2014 – 2015. I have remained available to LDAF for additional questions and resources.
* In November 2015, I designed and worked a booth at the SiteOne Trade Show in Mandeville, LA
* I contributed to a booth at the Louisiana Turfgrass Association’s Annual Meeting in 2019 and 2020.
* In 2018, I wrote the LIA strategic plan meant to guide the organization in moving forward.
* In 2019, I modernized the organization through the pandemic while the organization was absent in leadership. These responsibilities include organizing and digitizing records, continuing the planning and execution of all educational opportunities, and developing tools for the next director for managing finances, membership, and other resources.

***Data Flow 2016***

This conference was envisioned to communicate and foster partnerships within and between Louisiana agencies about water-related data collected throughout the state.

* I joined the conference planning committee in 2015
* I was asked to create a panel discussion on agriculture’s role in water and data collection

***Louisiana County Agricultural Agents Association (LCAAA)***

This association organizes an annual meeting and professional improvement conference each year to provide professional development opportunities while networking with other agents.

* I became a member in 2016 and joined the board as a ***board member*** in 2023
* I attended the 2015, 2018, 2021, 2022, and 2023 annual conferences.
* As a state poster competition winner, I will attend my first national conference (NACAA) in August 2023.

***Louisiana Water Resources Research Institute (LWRRI)***

This organization is federally mandated to perform a statewide function of promoting research, education and services in water resources. They accomplish this mission through grant opportunities and annual conferences.

* Participated in the annual conference each year it was held since 2015
* I participated on the planning committee for the 11th Annual Louisiana Groundwater, Surface Water, and Water Resources Symposium, held in 2017
* Obtained a one-year grant from LWRRI in 2018 to conduct a study that evaluated the concept of delayed soil moisture availability on soybean yield.

***Louisiana Master Farmer Program Committee***

From 2017 – 2020, I was asked to participate in the regularly occurring Master Farmer planning meetings.

# Continued coursework, in-service training, sabbaticals, professional improvement

***WERA 1022***

This multi-state project titled “Meteorological and Climate Data to Support ET-based Irrigation Scheduling, Water Conservation, and Water Resources Management” was developed to address the following objectives:

1. Coordinate the documentation of crop coefficients used in irrigation scheduling,
2. Coordinate efforts to promote adoption of improved irrigation scheduling technology, including computer models based on crop coefficients and ETO, remote sensing and instrumentation that will help producers more efficiently apply irrigation water, and
3. Coordinate the development of quality control (QC) procedures for weather data used for irrigation scheduling.

Research and extension activities from all over the United States are summarized during this professional development opportunity. Additionally, this opportunity was advantageous for networking with faculty who have advanced resources resulting in the potential to bring those resources to Louisiana. My contributions included:

* 2014 (Orlando, FL): “Summary of Irrigation Practices and Water Use in Louisiana”
* 2015 (Ft. Collins, CO): “2015 Louisiana State Report”
* 2016 (Stuttgart, AR; unattended): “2016 Louisiana State Report”
* 2017 (Twin Falls, ID): “2017 Louisiana State Report” (***Vice-Chair***)
* 2018 (Ocean City, MD): “2018 Louisiana State Report” (***Vice-Chair***)
* 2019 (Las Vegas, NV): “2019 Louisiana State Report” (***Chair***)
* 2020 (Virtual): “2020 Louisiana State Report”

This multi-state project is currently going through the renewal process and has not reconvened since the pandemic shutdown.

***SERA 43***

This multi-state committee titled “Southern Region Integrated Water Resources Coordinating Committee” focuses on addressing water issues inherent to the southern region. Though somewhat inactive in the last five years, this group came together to obtain grant funding for the 2019 Southern Region Water Conference held at Texas A&M University in College Station, TX. The transdisciplinary faculty participating in SERA 43 are unfamiliar to me from my normal professional circles and has become a strong networking opportunity. Immediately after the conference, I contributed to writing a new four-year plan of work that resulted in renewing the multi-state project through 2024.

***Additional Professional Development Opportunities***

Below are lists of 45 activities and events that were attended for professional development and networking opportunities.

**2023** (Count = 7)

|  |  |  |
| --- | --- | --- |
| **Date** | **Title** | **Outlet** |
| Jun. 22-24 | Louisiana Farm Bureau Convention | New Orleans, LA |
| May 25 | Power BI Working Group | Virtual |
| Mar. 29 | Annual Review Training | Virtual |
| Feb. 2 | Moodle Training | Virtual |
| Jan. 27 | EIB Spreadsheet Training | Virtual |
| Jan. 19 | Demographics Reporting Training | Virtual |
| Jan. 18 | Precision Ag Summit | Alexandria, LA (Virtual) |

**2022** (Count = 5)

|  |  |  |
| --- | --- | --- |
| **Date** | **Title** | **Outlet** |
| Dec. 4-9 | Irrigation Association E3 Leadership Program | Irrigation Show, Las Vegas, NV |
| Sep. 26 | Mandatory Extension Reporting Training | Jackson Parish Extension Office, Jonesboro, LA |
| June 24-26 | Louisiana Farm Bureau Convention | New Orleans, LA |
| Feb. 3 | Caddo Soil Health Workshop | NRCS, Belcher, LA |
| Jan. 25 | Digital Agriculture Conference | State Evacuation Shelter, Alexandria, LA |

**2021** (Count = 3)

|  |  |  |
| --- | --- | --- |
| **Date** | **Title** | **Outlet** |
| May 18 | Uncomfortable Conversations with a Black Man Discussion Group | Council for Diversity, Inclusion, Equity, and Change, LSU College of Agriculture (Virtual) |
| March 4 | Overview of AFRI Plant Health and Production and Plant Products Program Area | USDA NIFA Staff (Virtual) |
| March 3 | Overview of AFRI Agriculture Systems and Technology Program Area | USDA NIFA Staff (Virtual) |

**2020** (Count = 4)

|  |  |  |
| --- | --- | --- |
| **Date** | **Title** | **Outlet** |
| July 15 | CMS/Sitecore Express Training | Virtual |
| July 14 | Everything You Need to Know in order to apply for BARD funding | U.S.-Israel Bi-national Agricultural Research and Development Fund (Virtual) |
| June 25 | Ground Penetrating Radar | ASCE Shreveport Chapter |
| May 8 | How to pull from weather data API | Virtual |

**2019** (Count = 3)

|  |  |  |
| --- | --- | --- |
| **Date** | **Title** | **Outlet** |
| Sep. 24 | Inter-Agency Field Days to Introduce Best Management Practices on the Patrick F. Taylor Model Farms | Louisiana Master Farmer Program, Newellton, LA |
| Jul. 19 | Morehouse Parish Farmer’s Field Day | Southern University and LSU AgCenter, Bonita, LA |
| Jun. 27 | LSU AgCenter Field Day and Expo | Dean Lee Research Station, Alexandria, LA |

**2017** (Count = 4)

|  |  |  |
| --- | --- | --- |
| **Date** | **Title** | **Outlet** |
| Jul. 13 | Caddo Soil Health Workshop | NRCS, Belcher, LA |
| Feb. 22-23 | Water Conference | Red River Valley Association, Shreveport, LA |
| Mar. 27 – 29 | Center Pivot Retreat | Ogalalla Aquifer Irrigation Efficiency Grant, USDA Agricultural Research Service – Bushland, Texas A&M University, and Kansas State University |
| Jan. 30-Feb. 1 | Conservation Systems Conference | MidAmerica Publications, Baton Rouge, LA |

**2016** (Count = 5)

|  |  |  |
| --- | --- | --- |
| **Date** | **Title** | **Outlet** |
| Jun. 27-30 | Irrigation Faculty Academy | Irrigation Foundation, Fresno, CA |
| Jun. 1 | Water Conference | Red River Valley Association, Texarkana, AR |
| Apr. 19 | Pasture Walk Series | Vining Farms, Louisiana Grassland Council |
| Feb. 29 | Row Crop Round Table | LSU AgCenter Northeast Region |
| Feb. 23 | Louisiana Cotton and Grain Association | Bayou DeSiard Country Club, Monroe, LA |

**2015** (Count = 8)

|  |  |  |
| --- | --- | --- |
| **Date** | **Title** | **Outlet** |
| Dec. 15 | Irrigation Summit | Mississippi Department of Environmental Quality, Stoneville, MS |
| Aug. 17-18 | Oklahoma Irrigation Conference | Oklahoma State University, Ft. Cobb, OK |
| May 13-15 | LA4W Workshop Training | The Nature Conservancy, LDAF, NRCS, LDWF, West Carroll/Tensas Parish, LA |
| Jun. 24-27 | Irrigation Faculty Academy | Irrigation Foundation, San Luis Obispo, CA |
| Apr. 28 | LSU AgCenter Beef and Forage Field Day | Red River Research Station, Bossier City, LA |
| Feb. 2 | Producer Irrigation Workshop | Ryan Frey, Ferriday, LA |
| Jan. 14-16 | 18th Annual Conservation Systems Conference | MidAmerica Publications, Baton Rouge, LA |
| Jan. 9 | Tri-State Soybean Meeting | Oak Grove, LA |

**2014** (Count = 6)

|  |  |  |
| --- | --- | --- |
| **Date** | **Title** | **Outlet** |
| Dec. 5 | Louisiana Forage and Grassland Council Annual Meeting | Alexandria, LA |
| Nov. 13 | NRCS and LSU AgCenter Agent Training | Hill Farm Research Station, Homer, LA |
| Jul. 17 | Central Region Field Day | Dean Lee Research and Extension Center, Alexandria, LA |
| Jul. 8-9 | Louisiana Rural Water Association Annual Conference and Trade Show | St. Charles, LA |
| Jun. 30-Jul. 3 | Multi-state Professional Development Trip through LA, AR, and MS | Gilliam, LA, Stuttgart, AR, and Stoneville, MS |
| Jun. 18-20 | Irrigation Faculty Academy | Irrigation Foundation, Kennett Square, PA |

# Awards and recognition

|  |  |  |
| --- | --- | --- |
| **Year** | **Award** | **Outlet** |
| 2023 | [2nd Place Poster](#LCAAA2) | LCAAA AM/PIC |
| 2023 | [1st Place Poster](#LCAAA1) | LCAAA AM/PIC |
| 2023 | Educational Blue Ribbon Award, [Extension Publication: Long](#BlueRibbon) | ASABE |
| 2022 | [1st Place Poster](#LCAAA2022) | LCAAA AM/PIC |
| 2021 | Denver T. and Ferne Loupe Extension Team Award, “Turfgrass” | LSU AgCenter |
| 2019 | Project EXPLORE Faculty Mentor | AFRI ELI Research and Extension Experiential Learning for Undergraduates (REEU) Fellowships Program, NIFA, USDA |
| 2018 | [2nd Place Poster](#AWWA) | SW Section American Water Works Association |
| 2015 | Delegate | Universities Council on Water Resources |
| 2014 | Honorable Mention Poster | University of Florida Water Institute |
| 2012 | Water Conservation Award for Excellence | FL Section American Water Works Association |
| 2012 | Graduate Student Mentor | Research Experience for Undergraduates, NSF |
| 2008 | [3rd Place Best Student Paper Award](https://journals.flvc.org/fshs/article/view/87430) | Florida State Horticultural Society |

# Cooperation/collaboration with other faculty

The STAMP program is a dynamic collaborative effort that can only be successful with the dedication and support obtained from various cooperators and clientele.

The following ***LSU and LSU AgCenter cooperators*** have been integral to collaborative opportunities related to seeking external funding, supporting irrigation programs, and acting as sources of science-based information needed to conduct irrigation research and extension activities. They have included:

* Northwest Region
  + Changyoon Jeong, Ph.D., Water Quality
  + Xi Zhang, Ph.D., Soil Physics
  + William Pitman, Ph.D., Forage Agronomics
* Central Region
  + Daniel Fromme, Ph.D., Corn, Cotton, and Grain Sorghum Agronomics (Ret.)
  + David Moseley, Ph.D., Soybean Agronomics
  + Todd Spivey, Ph.D., Soybean Agronomics (North Carolina)
  + Ronnie Levy, Ph.D., Soybean Agronomics (Rice Agronomics)
  + Michael Polozola, Ph.D., Fruit and Nut Agronomics
  + Randy Price, Ph.D., Agriclimatic System LAIS
  + Andre Reis, Ph.D., Sugarcane and Soybean Agronomics (MU)
* Northeast Region
  + Wink Alison, Ph.D., Forage Agronomics (Ret.)
* Southeast Region
  + Jeb Fields, Ph.D., Commercial Horticulture
  + Damon Abdi, Ph.D., Horticulture
  + Al Orgeron, Ph.D., Sugarcane Management
  + Kenneth Gravois, Sugarcane Agronomics
* LSU A&M Campus
  + Bill Branch, Ph.D., Irrigation Engineering
  + Jeffrey Beasley, Ph.D., Horticulture
  + Lisa Fultz, Ph.D., Microbiology
  + Thanos Gentimos, Ph.D., Statistics
  + Krishna Paudel, Ph.D., Economics (USDA)
  + Michael Deliberto, Ph.D., Economics
  + Connor Lawson, Ph.D., Economics (U of A)
  + Carol Friedland, Ph.D., Resilience
  + Robert Rohli, Ph.D., Climate Science

***Agricultural Resilience Collaboration:*** In 2022, I joined the already highly functioning team of Dr. Carol Friedland, LaHouse Director, and Dr. Robert Rohli, Professor in the Department of the Coast and Environment, on the State Hazard Mitigation Plan. This collaboration has helped to bring agricultural resilience into the research and extension priorities of LaHouse’s resilience program while also bringing climate science into irrigation research and extension programming. While the collaboration is recent, multiple federal and state grants approaching $2M have been obtained thus far. Landscaped research and demonstration plots are currently being installed at LaHouse that will evaluate best management practices for landscape design and maintenance as it affects water management from a resiliency perspective.

***Clientele***: Collaborations with ANR agents initially occurred in the Northeast Region where they expressed interest in conducting on-farm irrigation research and providing irrigation-related educational content. As these projects phased out, efforts have been made to collaborate with agents across Louisiana. In the last year, many of the horticulture agents have asked for inclusion of my extension content in their programs. Recent efforts have been made to expand agent-based extension programming outside of the northeast region through on-farm demo opportunities.

# Multi-institution, agency, and state collaboration

***Multi-state collaborations*** have been highly advantageous toward professional development and growth, both within and adjacent to my area of work. The following collaborators have strongly influenced my program through external funding efforts and learning opportunities:

* Mary Love Tagert, Ph.D., Water Quality/Irrigation Management, MS State University

*Grant funding opportunities, overall extension mentorship, ASABE committee leaders*

* Joel Paz, Ph.D., Crop Modeling, MS State University

*Grant funding opportunities, unfunded project collaboration*

* Jay McCurdy, Ph.D., Horticulture, MS State University

*Extension publications*

* Dana Porter, Ph.D., Agricultural Engineering, Texas A&M University

*Center Pivot Working Group invitation and financial support, mentorship*

* Diane Boellstorff, Ph.D., Soil and Crop Science, Texas A&M University (Ret.)

*Funded conference grant, contributor to SERA 43 multi-state proposal resubmission*

* Clement Sohoulande, Ph.D., Agricultural Engineering, USDA ARS South Carolina

*Collaborated on a rainfall modeling publication*

* Lyle Pringle, Agricultural Engineer, MS State University (Ret.)

*Data-sharing and discussion opportunities*

* Saleh Taghvaeian, Ph.D., Extension Irrigation Engineer, Oklahoma State University (now University of Nebraska)

*Supported the inclusion of Louisiana in a NASS-style farmer survey related to irrigation practices, funded by a Conservation Innovation Grant*

* Davie Kadyampakeni, Ph.D., Water and Nutrient Management, University of Florida

*Supported the inclusion of Louisiana in a southeast regional survey on producer perceptions of irrigation*

In 2014, I collaborated with Joe Henggeler, Ph.D. (University of Missouri, Ret.), Jason Krutz, Ph.D. (Mississippi State University), and Chris Henry, Ph.D. (University of Arkansas) on creating the first Delta States Irrigation Conference held in Sikeston, MO. This conference was funded through a United Soybean Board grant that originally included Ronnie Levy, Ph.D. as the LSU AgCenter representative. Once hired, Dr. Levy transitioned the project to me. After the first year, this conference was transitioned into the Conservation Systems Conference (‘Cotton & Rice’) held annually by MidAmerica Publications.

***Agency collaborations*** have also been highly advantageous to the STAMP program. Collaborators provide different perspectives and resources to both research and extension that truly enhance education and outreach opportunities. The following collaborators have strongly influenced my program over the years:

* USGS
  + Maxwell Lindaman, Hydrogeology, USGS (LA)

*Grant funding opportunities, development of state water use reports*

* + John Lovelace, Hydrogeology, USGS (LA) (Ret.)

*Development of state water use reports*

* NRCS
  + Brian Baiamonte, Soil Conservationist, Shreveport Office

*Cooperative grant proposals, extension programming*

* + Biff Handy, Assistant State Engineer, Bastrop Office (Ret.)

*Pump efficiency testing, extension programming*

* + Steve Nipper, Water Quality Specialist

*Extension programming*

* + Jacob Paul, Supervisory Area Engineer, Ruston Office
  + Jeremy Acosta, Area Engineer, Ruston Office
  + Wendall Meaux, Area Engineer
  + Skie Ebanks, Soil Conservation Technician

*LA-ASABE executive committee collaborators*

* USDA ARS
  + Paul White, Ph.D. – Louisiana, Sugarcane Research Leader

*Scientific content reviews*

* + Michelle Reba, Ph.D. – Arkansas, Hydrology

*Scientific content reviews, professional committee collaborator*

* + Joe Massey, Ph.D. – Arkansas, Agronomy

*Working group participants*

* + Gary Marek, Ph.D. – Texas, Agricultural modeling

*Shared scientific data*

* + Clement Sohoulande, Ph.D. - South Carolina, Agricultural modeling

*Co-published a study*

* Ducks Unlimited
  + Karl Barry, Engineer (Ret.)
  + Biff Handy, Engineer

*Pump efficiency testing*

* Red River Valley Association
  + Rich Brontoli, Executive Director

*Collaborated on the Grant Parish Irrigation Project*

***State collaborations*** are imperative to the irrigation industry as water availability is typically regulated at the state level. While few regulations exist currently, maintaining a strong relationship with these state agencies helps to include agriculture’s voice in these critical discussions.

* LDAF
  + Ansel Rankins, Ph.D., Assistant Commissioner
  + Tina Peltier, Director
  + Marsha Dugas, Assistant Director

*Irrigation contractor licensing and pesticide recertification classes*

* LDNR
  + Matthew Reonas, Ph.D., Policy Planner

*Cooperative grant proposals, extension programming*

* Soil and Water Conservation Districts
  + Caddo SWCD

*Cooperative grant proposals, technical support, extension programming*

* + Bodcau SWCD

*Cooperative grant proposals, technical support, extension programming*

I have also cultivated relationships with private industry that has ultimately supported much of my research and extension activities. Connections include: Irrigation-Mart, Goldman Equipment, Soileau Industries, Valmont Industries, Polydrip, Netafim, and Delta Plastics. These relationships have resulted in donations, extension content, and general support of research and education opportunities.

# Innovative teaching methods, knowledge, and application of new technology

***Louisiana Irrigation Association***

Opportunities included revamping the current educational material, developing new classes, improving the state license exam, and providing science-based technical expertise to all educational opportunities. These actions were taken to modernize education and introduce new technologies to contractors. The first class developed from scratch, “Introduction to Two-Wire Systems,” was conducted in Jan. 2016 and repeated by other instructors twice in 2016 and three times in 2017 and 2018. I also developed a class modeled after a discussion panel filled with volunteers from backgrounds in academia, industry, and regulatory bodies to provide broad perspectives to audience-supplied questions. The panel class was taught three times in 2019.

In late 2019, I accepted the role of transitioning LIA from the prior executive directorship to help modernize and improve the organization for better sustainability as a professional society. This temporary role included developing various accounting tools and procedures, bringing creative ideas to the board, and generally keeping operations going until a new executive director could be hired. This period corresponded to the pandemic resulting in the need to adapt the full-day educational opportunities into a virtual recertification program with continued success. Beyond the pandemic, multiple natural disasters such as Hurricane Laura (Aug 27, 2020), Hurricane Delta (Oct 9, 2020), Winter Storm Uri (Feb 13-17, 2021), and Winter Storm Viola (Feb 15-20, 2021) exacerbated issues with holding in-person classes. To date, six virtual educational opportunities have been held from October 2020 through July 2023.

***Social Media***

As the newest method for reaching the most people, efforts have been made to create an online presence through social media outlets including FaceBook, Twitter, and YouTube. Specifically, educational and informative videos and tutorials were a focus for circulating knowledge about sensor installations, irrigation scheduling, and introductions to furrow irrigation technologies. Additionally, the STAMP program tries to participate in water-related campaigns such as promoting irrigation efficiency for Smart Irrigation Month each year. All written extension material related to irrigation will be used to create future extension videos for dissemination. The blog was discontinued in 2019 when focus turned to contributions to the AgCenter-wide CROPS newsletter. Statistics concerning social media outreach can be found in the [Webpage development and related content](#Webpage) section.

***On-farm Demonstrations***

In effort to merge research with extension, a total of 27 on-farm demonstrations were conducted over the last nine years using technologies designed to improve irrigation water use efficiency such as soil moisture sensors, computerized hole selection, and surge valves. Ten of the demonstrations were conducted directly by parish ANR agents to facilitate the program with the producers. One of these ten on-farm demonstrations was showcased in 2015 interagency rolling field tour in Concordia Parish.

***Field days/Workshops***

The STAMP program participated in providing an irrigation technologies demonstrational stop at the following events: Northeast Research Station Field Day, Jul. 2015, Jun. 2016, and Jun. 2017; Northeast Interagency Rolling Farm Tour, Jul. 2015; Northwest Field Day, Jun. 2016; Sweet Potato Field Day, Aug. 2016; and Morehouse Parish Farmer’s Field Day, Jul. 2015, Jul. 2016, and Jul. 2017. Through a SARE Professional Development Grant, I conducted six multi-day workshops dedicated to agricultural irrigation practices from Dec. 2015 through Feb. 2017. I also organized and held an Irrigation and Water Quality Workshop in Sep. 2022.

# Other scholarly or creative activities or other contributions to the profession

***BAE Senior Design***

In 2015, I advised Biological and Agricultural Engineering students on a senior design project that involved design and economic evaluation for the Grant Parish Irrigation Project. As their advisor, I asked these students to define the watershed, calculate crop consumptive use requirements, and determine any adjustments necessary for the bayou to hold enough water for irrigation purposes.

In 2022, I collaborated with Jeffrey Beasley (SPESS) and Carol Friedland (LaHouse) to advise on a project that included re-designing a rainwater harvesting, irrigation, and drainage system at LaHouse Home and Resource Center.

***Outdoor Water Demand Workshop***

This Water Research Foundation Project, 4633: Urban Landscape Water Use Research Evaluation, was awarded to the Decision Center for a Desert City at Arizona State University. Their objective was to develop a comprehensive literature review database and determine future research needs pertaining to this topic. I participated in the workshop located in Raleigh, NC as an expert who had conducted much of the research connected to Florida.

***Golf Course BMP Manuals***

As part of a multi-state partnership headed by Jeffrey Beasley (SPESS) and Jay McCurdy (Mississippi State University), a series of manuals describing best management practices for designing, installing, and managing golf courses are being developed for the LA-MS Golf Course Superintendents Association. In 2018, I collaborated with Beth Baker (Mississippi State University) and Brian LeBlanc (LSU) to develop the manual for water resource management, including stormwater and water quality considerations, which was published by Mississippi State University as a numbered extension document. In 2020, I finished the first draft of the irrigation manual as the next installment of the series that was fully published as an LSU AgCenter Numbered Extension Publication in 2022.

***Funding Review Panels***

In February 2019, I participated in the video conference review panel for the Small Business Innovative Research grant related to natural resources and the environment. I reviewed 13 proposals submitted by small businesses and startups that used technology and innovative science to solve largescale environmental issues or improve resource management.

In March 2020, I participated in the video conference review panel for the Agricultural Engineering and Technology program area of the Foundational and Applied Sciences funding opportunity. I reviewed 17 proposals submitted by faculty from across the United States and submitted detailed feedback for each.

In April 2023, I participated in a video conference review panel for the Agricultural Engineering and Technology program area of the Foundational and Applied Sciences funding opportunity. I reviewed 11 proposals submitted by faculty from across the United States and submitted detailed feedback for each.

***Peer Review Activity***

As a dedicated professional, I agree to peer-review articles for various journals when time allows. The following journals have requested reviews:

* Transactions of the ASABE (4)
* Applied Engineering in Agriculture (9)
* Journal of Irrigation and Drainage Engineering (5)
* Agricultural Water Management (2)
* Agronomy Journal (1)
* Water Resources Research (1)
* Irrigation and Drainage (2)
* Environmental Management (1)
* Urban Forestry and Urban Greening (4)
* University of Hawaii Water Resources Research Center (2)
* Journal of the American Society of Sugar Cane Technologists (1)
* Computers and Electronics in Agriculture (1)
* Landscape and Urban Planning (1)
* Hatch Projects (5)

# Other educational materials

***Sci-Port Exhibit***

As a part of a National Science Foundation grant received by Louisiana’s Science Center, I created an exhibit that showcased the functionality of a soil moisture sensor used in conjunction with a landscape irrigation system. This exhibit was demonstrated for the public at Sci-Port during two 4-hour events in 2015. Prior to the exhibit demonstration, I participated in three classes provided by Sci-Port that practiced methods for positive public interaction and educating through demonstrations.

***WaterFest Activities***

WaterFest is an annual outdoor water conservation education event for 5th and 6th graders. Educators bring resources to conduct up to six 20-minute activities using lessons provided by Project Wet. I conducted the ‘A-maze-ing Race’ activity in 2018 and 2019 in Claiborne Parish at the request of Teresa Raley. Also, I conducted ‘How much water do we use?’ activity at least once (up to six) in 2017, 2018, and 2019 at the request of Lindsay Gouedy from the Sparta Groundwater Commission. These programs were suspended due to the pandemic.

***Red River Watershed Festival***

The Army Corps of Engineers organized a youth water education day at the J. Bennett Johnston Waterway Regional Visitor Center in Shreveport, LA. In collaboration with LaHouse, we demonstrated flooding and preventative concepts to maintain safety and well being through the interactive Flood Fighter Challenge. We conducted this event on May 11, 2023.

***Advanced Master Gardner Program***

In 2015, I developed a 1.5-hour extension module for the Advanced Master Gardener Program related to irrigation. This was an extensive tutorial on irrigation components, design, scheduling, and smart technologies.

# Summary of student interactions

*Note*: *There are no degree programs or classes in institutions of higher education that relate to irrigation sciences or irrigation engineering in Louisiana. Thus, there are few opportunities to pursue student interactions beyond summer internships.*

***2022 – 2023: 1 M.S. Student, committee member, graduating Summer 2023***

Name: Leticia Santos

Home Institution: LSU A&M Campus

Department: SPESS

Advisors: Thanos Gentimos, Ph.D., Jeffrey Beasley, Ph.D.

Thesis: Machine Learning-based soybean yield prediction and optimizing LiDAR-Mounted UAV Efficiency

Leticia started her program working under the precision agriculture team, but transitioned toward a healthier working environment for her. During her time at LSU, she was able to convert project results for two large-scale, data-intensive projects into publications without having collected the data herself. Also while at LSU, she gained practical knowledge of extension, including the differences between farmer practices and research recommendations, while shadowing me for three days. She presented a poster at the 2023 LCAAA Conference in Gonzales, LA to provide additional perspective on extension.

***2020: Hosted one summer intern who contributed to on-going research projects***

Name: Logan Cerullo

Home Institution: West Virginia University

Department: Industrial Engineering

Project: Updated anti-clogging design for rain gauges

Logan redesigned the outer structure of various rain gauges to prevent perching animals and debris from restricting accuracy of rainfall measurements. Along with rain gauge data, he collected weather data through an AgCenter approved API and processed it into evapotranspiration data. He also helped with one season of sensor data for the sugarcane project. This internship occurred during the pandemic shutdown resulting in a less substantial project opportunity.

***2019: Hosted two Project EXPLORE summer interns with individual field projects***

Name: Alexia DeSoto

Home Institution: LSU Shreveport

Department: Biological Sciences

Project: 1) Evaluating technologies for early detection of pests in irrigated agriculture; 2) Flooding Effects on Mimosa strigillosa Seed Germination

Lexi came into the internship with strong research ideas and the willingness to push herself to meet her goals. Unfortunately, the collaboration with the entomologist at UC Riverside did not follow through on his commitments to send the equipment needed to begin her study. She quickly pivoted toward running a seed germination study that was designed to support other research conducted by Dr. Pitman and myself. While Lexi agreed to continue this work into the fall months, the study was terminated after she experienced major life changes and then became a Masters degree-seeking student in SPESS.

Name: Drew McMahon

Home Institution: LSU A&M Campus

Department: Biological and Agricultural Engineering

Project: Evaluating Distribution Uniformity of Agricultural Sprinkler Systems in Louisiana

Drew conducted a distribution uniformity test on the linear move sprinkler irrigation system located at the Red River Research Station. He set up the experiment, collected the data, and quantified the efficiency of the system. As a result of this work, the station invested in improving the irrigation system by replacing sprinklers, gaskets, and other small maintenance concerns. This effort was attempted in an on-farm setting, but the farmer’s system turned out to be non-functional on the day of the experiment.

***2019: Hired two Computer Science interns who contributed to on-going research projects***

Name: Kathryn Dean

Home Institution: LSU Shreveport

Department: Computer Sciences

Project: Expansion of the STAMP Program Electronic Footprint

Kat’s responsibilities were to 1) update the irrigation section the LSU AgCenter website by working with Liz Black on uploading and organizing content, 2) create or edit video content to upload to the YouTube page, and 3) support the technological side to all field projects. Before taking an industry job in her field, Kat was able to accomplish her summer responsibilities. Kat’s knowledge and maturity helped nurture a strong co-hort amongst the interns and helped push the projects forward as a team effort.

Name: Ashton Hamm

Home Institution: LSU Shreveport

Department: Computer Sciences

Project: Technology Support for Summer Field Projects

Ashton’s responsibilities included repairing and deploying data loggers for summer field projects, tech support for the auditory pest identification equipment (Alexia DeSoto’s project), and provide field labor as part of the co-hort of interns. Ashton took an industry job in his field of expertise halfway through the crop season.

***2015 – 2018: 1 Ph.D. Student, co-chair with Dr. J. Beasley, resigned prior to graduation***

Name: Maureen Theissen

Home Institution: LSU A&M Campus

Department: Biological and Agricultural Engineering

Project: Exploring soil water holding capacity in agricultural soils under differing management techniques

While on campus, Maureen took all of her course credit hours required to graduate with a Ph.D. but was unable to take classes specific to her graduate area of work (agricultural irrigation). To cover this gap, Maureen spent time at Macon Ridge Research Station and at Red River Research Station conducting field projects under supervision and participating in extension activities. While this experience was meant to inspire her doctoral project ideas and move her forward with her dissertation, the practical knowledge gained helped her obtain unique employment opportunities elsewhere. During her short time working on her project, she collected some highly valuable scientific information on soil physical properties, thus identifying distinct compaction patterns that help to interpret soil moisture sensor data around the state. Maureen now works as a research associate at the Hammond Research Station.

# Overall program impact

Over 20,000 individuals were logged as having directly benefited from the dissemination of science-based extension and outreach conducted through the STAMP program. These totals were estimated from sign-in sheets, direct counts, and visual estimates at workshops, tours, meetings, and reach reported through third party entities. Beyond these direct counts, indirect methods utilized to reach clientele included newsletter articles, extension publications, webinars, videos, and social media. While impact can always be improved or more effective in all programming, these efforts were maximized with the available resources.

The brief summaries provided below were most impactful for state level science-based irrigation extension programs.

**Impact from Agricultural Irrigation Programs**

***Regional Irrigation Conferences***

While immersed in learning agricultural irrigation practices during my early career (2014-2015), it became clear that science and engineering principles were not a strong influence on irrigation practices in Louisiana. Supported by NRCS and private industry, STAMP obtained a grant from the SARE Professional Development Program to develop train-the-trainer style education and outreach with extension agents and mentor farmers.

The objective of this project was to develop a comprehensive training program to support professional development, in-depth instruction, and interactive learning environments concerning sustainable agricultural water management practices. This objective was accomplished by hosting six regional two-day irrigation conferences from December 2015 through March 2017. Across the six conferences held, survey results indicated that the training opportunities helped farmers learn about and adopt irrigation efficiency practices, financial tools, and newly introduced technologies.

The 122 attendees across the first three conferences (2015-2016) indicated that 44% were already familiar with the concepts presented during the training with an additional 46% indicating knowledge gained. The technologies covered during the training had 20%-40% adoption prior to the training with approximately half indicating interest in pursuing at least one of them afterward. More than 81% of attendees agreed that the events were informative and valuable (92%), easily understandable (81%), interactive (91%), introduced new and emerging concepts (92%), and felt comfortable contacting the presenters for future guidance (97%).

Possibly due to the success of the first round of conferences, the second round of three conferences (2017) had less substantial attendance with just 33 attendees. Those that took the survey at the end of the training indicated that 77% already understood the concepts and an additional 21% gained knowledge from the experience. They also indicated that 50%-70% of the technologies discussed during the training were already adopted in some form on their farms. There was still a high potential for adoption from these attendees, with 10%-40% indicating interest in pursuing adoption in the near future. More than 90% of attendees agreed that the events were informative and valuable (100%), easily understandable (100%), interactive (100%), introduced new and emerging concepts (90%), and felt comfortable contacting the presenters for future guidance (90%).

Several inquiries for site-specific technical support were received after the events, indicating some level of success in breaching adoption barriers. Anecdotal reporting from collaborators indicated improvements in understanding available tools and resources, which has led to higher participation in conservation assistance programs and on-farm demonstrations. Upon completion of the conferences, core presentation materials were recorded as educational modules and released through STAMP’s YouTube channel. Two of these modules have been very highly viewed, boasting 8,738 views since uploading in 2017, despite lack of strong promotion in the past.

***Agricultural Drought Response Advisory Process***

In 2022, funding was obtained to support the development of an irrigation scheduling web tool that provides a science-based solution for farmers that must better manage agricultural drought in Louisiana. The project's goals include improving farmers' access to technical information that supports site-specific water use strategies, and developing, strengthening, and sustaining relationships with the community for future partnerships. The Carnegie Foundation’s community engagement framework was utilized for the development process, which emphasizes a two-way collaborative approach to interacting with partners to address societal needs. This process empowers key stakeholders to serve as co-creators of knowledge, programs, research, and scholarship that better meets the needs of communities across the globe. Integrating community voice as a crucial component of project development is expected to result in a webtool application that better meets the community's needs and produce quantifiable environmental change.

To capture input from stakeholders as potential end-users, five focus group sessions were initiated throughout the project’s development, virtually and in-person, at various locations across Louisiana. Evaluation results from the community-engaged development process demonstrate that stakeholders who participated (n=11) became significantly more aware of irrigation resources (60% to 86%) and technologies (58% to 82%) provided by the LSU AgCenter. They also rated the LSU AgCenter more favorably as a credible resource for irrigation information (87% to 96%), and a collaborative partner (83% to 90%), and felt that the AgCenter involved them in decisions that impact their community (78% to 86%). Additionally, stakeholders stated that the AgCenter had a positive impact on them (87% to 91%) and valued their expertise (83% to 86%). Furthermore, stakeholders also stated that they would utilize AgCenter resources (76% to 80%) and personnel (78% to 82%) when making decisions regarding irrigation. Lastly, stakeholders that participated in multiple sessions continued to rate the AgCenter more favorably as a credible resource (96% to 100%), collaborative partner (90% to 100%), and felt more valued as a community expert (86% to 90%). These results further demonstrate that a community-driven approach to project development creates stronger partnerships with stakeholders and the community.

Prior to its release, overall feedback on the irrigation web tool from advisory members stated that they are looking forward to the application's development and plan to adopt, utilize, and test the irrigation resources and technologies being developed throughout the project (100%). Advisory members stated that "*this is a very worthwhile project,”* and were pleased that the *“AgCenter is investing in irrigation research to improve agriculture in Louisiana.”* Several stakeholders wrote that they would “*absolutely use [the webtool],”* as it is a “*tool to improve efficiency.”* Stakeholders also showed their support for marketing and piloting the application by “*working directly with a farming group to test,”* as it will be *“helpful to customers and my employees.”*

In summary, the community-driven approach to the application’s development created stronger partnerships with stakeholders, an irrigation web tool that will better meets the needs of irrigators and community, as well as the identification of mutual goals for future collaborations.

***Non-event related impacts***

In addition to the specific programs described above, the STAMP program provides limited technical services for improving on-farm irrigation efficiency when requested. I have performed over thirty flow tests across the state to aid in running computerized hole selection (CHS) software with personalized CHS analysis for at least fifteen fields across four producers, totaling over 1,000 acres, to improve efficiency of furrow irrigation practices. Annual on-farm demonstrations have affected irrigation practices over another estimated 2,000 acres. Additionally, improved irrigation practices were observed by interacting with over thirty producers that had purchased and installed soil moisture sensors. Overall survey results collected during training events indicate significant gains in knowledge of irrigation systems, irrigation scheduling, and water quality.

**Impact from Landscape/Horticulture Irrigation Programs**

The LDAF Horticultural Commission’s licensing program for landscape irrigation contractors includes taking one lengthy exam to assess basic knowledge of the profession and ensure minimum understanding of the industry and environmental standards. Once licensed, contractors require six hours of continuing education every three years to remain in good status. All six hours must be provided at one time according to the regulations resulting in full-day trainings for each recertification event. Contractors rotate through educational opportunities once every three years, resulting in 100-200 recertifications per year. I have supported these events since hiring and have been solely responsible for planning education since 2019.

***Irrigation Basics Course***

This class was taught by a number of different educators over the years resulting in historical passing rates mostly ranging from 60% to 80%. After providing support for this class for several years, it became clear that several updates were necessary to ensure maximum understanding by the participants moving forward. In 2021, eleven new or updated modules were created to advance this educational opportunity into a highly detailed and expansive practice session. According to LDAF feedback, more than 85% of aspiring contractors received their license after taking this updated preparatory two-day crash course.

Approximately half of the 60 participants responded to the feedback survey across the three classes held since 2021 resulting in direct feedback about the updated content and effectiveness for passing the exam. Participants felt that the course content was organized and easy to understand (75%), study materials were helpful in reinforcing concepts (86%), and the instructor presented the course clearly and effectively (86%). They also responded that the class met their expectations (79%) and their overall experience was positive (93%). Based on open feedback, some participants envisioned the class in terms of hands-on learning (i.e., building systems) instead of providing study materials for the exam, which accounts for some of the lower reporting on meeting expectations. Also, the course material was designed in the exam’s image but more comprehensive than the exam itself, resulting in lower agreement on whether the material was easy to understand. For the 2023 class, an additional question asked about whether they gained knowledge with 91% reporting in agreement.

***Recertification Courses***

Similar to the Irrigation Basics course, the classes offered for recertification became a priority in 2019 resulting in feedback from six classes held from 2020-2023. The goal was to develop and utilize versatile educational material appropriate for cross-platform delivery (in-person or virtual) that is educational, interesting, applicable to their businesses, and relatively new to Louisiana contractors while meeting the regulatory requirements of recertification. The educational content was designed to introduce the newest technologies, connect nationally conducted research to Louisiana’s climate and culture, and relate familiar basic concepts from irrigation scheduling and system auditing to the functionality and automation of smart technologies and two-wire systems.

Direct feedback about the quality and delivery of the educational material as well as the overall experience resulted in 70% indicating that these classes were an improvement to previous classes from different educators. A majority of the 115 participants that responded, which represent a third of the licensed landscape irrigation contractors in the state, thought the educational content was interesting and informative (89%), teleconferencing software was suitable (90%), they could see/hear content appropriately (89%), class was at the same level or an improvement to previous classes (69%) and many preferred future virtual class options (80%). As a secondary metric, basic technical questions were asked after each covered topic to assess attendance and attention. The educational content was designed to introduce the newest technologies, connect nationally conducted research to Louisiana’s climate and culture, and relate familiar basic concepts from irrigation scheduling and system auditing to the functionality and automation of smart technologies and two-wire systems. Out of six classes, the correct answer for each technical question was selected by most contractors (60%-93% correct response rate). Ideally, knowledge implied through quiz results would directly translate to water, energy, and labor savings for both the contractor and irrigator.

***Introduction to Home Irrigation***

Over the last year, irrigation has become a topic of interest for programs involving horticulture agents across the state. While several agents or Master Gardener groups have enlisted my extension services for this purpose, a summary of survey results based on a 20% response rate were provided from a public educational event held in Destrahan, LA. Participants felt that the information was useful (100%), applicable to their growing situation (100%), strongly agreed that I was engaging as a speaker (100%), and strongly agreed that they would attend another lecture like this (100%). These results serve as a snapshot into the overall satisfaction across similar programs that received this education. Some participants requested irrigation education related to vegetable gardens, fruit trees, and nut trees. Upcoming extension programming will focus on these types of crops.