

LOUISIANA Agriculture

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ENSURING OUR FUTURE THROUGH
SCIENTIFIC RESEARCH AND EDUCATION

CARING FOR
HORSES
THROUGH
RESEARCH

THE POWER OF RESEARCH: *ENCOURAGING RESPONSIBLE MEDICATION USE AMONG HORSE OWNERS*

■ KYLE PEVETO

Examining horse excrement for parasites is not a routine part of research for Erin Oberhaus, an expert on equine reproduction at the LSU AgCenter.

Yet this new avenue of study offered Oberhaus a chance to gain insight into the seasonal pattern of intestinal parasites in horses and educate owners about the effects of overuse of deworming medication that can lead to dewormer resistance.

Out of habit and concern for the horse's health, owners often follow outdated deworming schedules by deworming every two to three months, Oberhaus said. However, that overuse threatens the future effectiveness of dewormers as parasites develop resistance to the drugs.

"We're not developing any new dewormers right now," Oberhaus said. "There are no new compounds that are coming out."

Research is at the heart of the mission of the AgCenter. Scientists in 10 departments and at 14 research stations across the state study many facets of agriculture so the people of Louisiana can be better prepared to raise healthy horses, generate income from crops and livestock, and live better lives.

Solid data from the AgCenter and the LSU School of Veterinary Medicine could alter the habits of horse owners, Oberhaus thought. Over 2021 and 2022, she collaborated with Adriano Vatta, a parasitologist at LSU Vet Med, and Neely Heidorn, the AgCenter state horse specialist, to study whether horses could carry large numbers of parasites and still not need deworming.

The research, funded by the Equine Health Studies Program at LSU Vet Med, one of the premier veterinary biomedical research programs in the country, included two studies. Results from a study focused on parasite loads carried by horses at the AgCenter Doyle Chambers Central Research Station appear in this issue of Louisiana Agriculture. Another study on the effects of metabolic syndrome, or insulin dysregulation, on dewormer effectiveness is in the works.

Oberhaus and Heidorn provide education regarding current recommended deworming practices and, while some horse owners see the benefit in the new strategies, others are slow to adopt change. Recent surveys of Louisiana horse owners reveal that a large percentage of respondents still deworm every two to three months.

"It's important to maintain the efficacy of our current dewormers; otherwise we may find ourselves without them," Oberhaus said. "It's also important to understand that all

grazing animals, including horses, will likely always have some intestinal parasite load. It is not our goal to eliminate them."

Data from the collaboration suggest that horses can maintain larger numbers of parasites and remain healthy. Read more about the study on page 18.

Also in this issue of Louisiana Agriculture, AgCenter researcher M.P. Hayes explains how agricultural producers can use ponds to generate electricity, one example of "innovative yet practical research" he is undertaking.

"The scalable nature of this demonstration project makes the science more accessible for stakeholders to understand the potential benefits in the rapidly growing field of renewable energy," he said. "We see this project as a stepping stone to future sustainability in agricultural energy and water conservation."

Other articles in this issue feature nutrition and community health efforts to educate Louisiana residents on reducing salt in their diets and the team members of Seeds to Success: The Louisiana Farm to School Program, who are working to teach children all over the state about growing food.

Read more in these pages and online at LSUAgCenter.com.

Kyle Peveto is the editor of Louisiana Agriculture and a writer in AgCenter Communications.



Researcher Erin Oberhaus walks with a horse at the LSU AgCenter Doyle Chambers Central Research Station in Baton Rouge. Photo by Olivia McClure

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ON THE COVER:

LSU AgCenter animal scientist *Erin Oberhaus* stands with *Buster Encore* and her foal, *Cajun*, at the *Doyle Chambers Central Research Station* in October. Photo by *Olivia McClure*

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EDITOR:

Kyle Peveto

CONTRIBUTING EDITOR:

Olivia McClure

ASSOCIATE EDITOR:

Marla Elsea

ASSISTANT EDITOR:

V. Todd Miller

DESIGNER:

Ana Iverson

SOCIAL MEDIA EDITOR:

Anna Ribbeck

CONTRIBUTORS:

Tobie Blanchard, Annabelle Lang, Elma Sue McCallum and Olivia McClure

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Kyle Peveto, Editor
Louisiana Agriculture
115 Knapp Hall
Baton Rouge, LA 70803
225-578-2939
kpeveto@agcenter.lsu.edu



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A CHRISTMAS WISH COME TRUE: LOUISIANA LIGHTS DEBUTS AT WINDRUSH GARDENS

An immersive, multnight lightshow will illuminate the historic Windrush Gardens at Burden Museum & Gardens this holiday season at Louisiana Lights: Where the Holidays Shine.

The event will invite residents and visitors to take an hourlong stroll through interconnected garden rooms that are exquisitely lit for the holidays, celebrating a garden where the past and present shine as one.

Louisiana Lights was made possible through a collaboration with Visit Baton Rouge. LSU AgCenter Botanic Gardens resident director Jeff Kuehny praised the dreamlike quality of the experience, emphasizing how unique it is to have it take place in a metropolitan city like Baton Rouge.

Louisiana Lights will be held every Thursday through Sunday from Nov. 29 to Dec. 29. Each night's first session will begin at 5:30 p.m., and the last will start at 8:30 p.m. On-site parking will be \$10. Visit DiscoverBurden.com/LaLights to purchase tickets. ■ **V. TODD MILLER**



The sparkling, majestic trees and colorful paths of the "Holiday Hallway" set the tone for a dazzling adventure through Louisiana Lights, a winter wonderland in historic Windrush Gardens at Burden. Photo by Kim Meadowlark



A vendor hands out a sample of tea to a visitor at the Louisiana Homesteader's Conference. Photo by Anthony Bailey

HOMESTEADER'S CONFERENCE BRINGS LOCALS, EXPERTS TOGETHER TO LEARN ABOUT SELF-SUFFICIENCY

The LSU AgCenter Red River Research Station hosted the second annual Louisiana Homesteader's Conference on Oct. 11 and 12. The convention attracted more than 1,500 people interested in homesteading to check out local vendors and hear from experts on farming and self-sufficiency.

Some visitors already owned farms and land and wanted to learn how to expand while others were hoping to start smaller endeavors on their property.

Because of greater interest in homesteading, AgCenter regional director Ronald Strahan wanted to give people information from researchers they could trust on the topic.

"There are a lot of YouTube channels, and they'll have all kinds of crazy information, but nobody gives out a lot of research-based information on how you can homestead," Strahan said. "So, we have AgCenter experts, we have them here, and they're doing talks or they have a booth here, and that's how we're dispensing information." ■ **ANTHONY BAILEY**

TARIFA TO OVERSEE LOUISIANA 4-H, FFA IN INTERIM AGCENTER YOUTH DEVELOPMENT POSITION

Todd Tarifa, who has spent his career educating Louisiana's young people through organizations and in the classroom, was named interim associate director of youth development for the LSU AgCenter effective Oct. 1. He now oversees both Louisiana 4-H and Louisiana FFA, which together reach nearly 126,000 youths.

Tarifa will continue to serve as the AgCenter's 4-H department head, a role he has held since 2021, and manage statewide 4-H programming efforts. In addition to overseeing FFA, his new

position also includes responsibilities involving the Louisiana 4-H Foundation and 4-H camp and livestock programs.

Tarifa has worked in youth development since 1998, when he joined the AgCenter as a 4-H agent. After several years of working in East and West Baton Rouge parishes, he became a 4-H regional coordinator. From 2012 until returning to the AgCenter in 2021, he taught agriscience and led FFA programming at Northshore High School in Slidell. ■ **OLIVIA MCCLURE**

From Our SOCIAL MEDIA

Join the LSU AgCenter on social media. AgCenter researchers and extension agents reach out via the web with videos, articles and helpful hints on Facebook, YouTube, Instagram, LinkedIn and X.

Join the conversation by following the LSU AgCenter.



FACEBOOK

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[FACEBOOK.COM/LSUAGCENTER](https://www.facebook.com/LSUAGCENTER)

AUG. 28 | If you plan to grow a vegetable garden this fall, donate your extra produce to a charitable food organization by signing up for the LSU AgCenter Grow a Row to Share program.



YOUTUBE

FOLLOW THE AGCENTER AT

[YOUTUBE.COM/LSUAGCENTER](https://www.youtube.com/LSUAGCENTER)

OCT. 21 | The LSU AgCenter's Louisiana Super Plant program identifies excellent plants that look beautiful and grow well throughout Louisiana. On this edition of Get It Growing, LSU AgCenter horticulturist Jason Stagg introduces you to the latest Louisiana Super Plant, Florida Sunshine anise.



INSTAGRAM

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SEPT. 17 | Bailey and Harper Galloway and their mom, Ebony McCallister started their own gourmet popcorn business, Posh Pop, with assistance from the LSU AgCenter Food Innovation Institute, or FOODii. **#FOODII #ENTREPRENEUR #LOUISIANA #LSUAGCENTER**



X

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OCT. 14 | Even coaches have garden questions. Horticulture agent Will Afton assisted Coach Mulkey with a tree inquiry. If you have plant-related questions, contact your local AgCenter horticulture agent on our website.



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OCT. 9 | The LaHouse Research and Education Center has been awarded \$1.5 million from the National Science Foundation (NSF) to develop a software prototype aimed at reducing flood risk across Louisiana. **#RESEARCH #LSUAGCENTER #LOUISIANA**

OCT. 8 | You may see the beautiful swamp sunflower, *Helianthus angustifolius*, popping up in ditches, along fence lines, on edges of woods and in swampy areas in Louisiana this time of year! **#SUNFLOWER #SWAMP #LOUISIANA #NATIVE-PLANTS #LSUAGCENTER #HORTICULTURE**



INAUGURAL LSU AG TAILGATE FEATURES FOOD, FUN, FELLOWSHIP

LSU Vice President for Agriculture and College of Agriculture Dean Matt Lee hosted the inaugural LSU Ag Tailgate on Sept. 21 before the LSU Tigers took on the UCLA Bruins. The LSU Ag Tailgate, presented by Zen-Noh Grain Corporation, brought more than 300 Ag supporters, stakeholders, faculty, staff, alumni, and their families and friends together to celebrate before the big game. Attendees enjoyed a buffet of delicious food, Dairy Store ice cream, LSU ag swag and live music by SwampLand Revival. ■ **GABRIELLE BELLELO**



Live music by SwampLand Revival livened up the LSU Ag Tailgate at the LSU AgCenter Mini Farm before the LSU Tigers football game versus UCLA. Photo by Frankie Gould

Matt Lee, LSU vice president for agriculture and dean of the LSU College of Agriculture, met and greeted many supporters of the LSU College of Agriculture and the LSU AgCenter. From left to right: Katherine Richard; Nicky Trahan and her daughter, Audrey; Landry Richard; Julie Richard, president of the LSU Agriculture Alumni Association; Saul Richard; and Matt Lee, LSU vice president for agriculture and dean of the LSU College of Agriculture. Photo by Frankie Gould



COLLEGE OF AG SUPPORTERS RAISE FUNDS FOR STUDENTS IN GOLDEN BOOT GIVING CHALLENGE

Each year, the LSU Tigers and Arkansas Razorbacks fight for the glory of the "Golden Boot" on the football field. Off the field, LSU and University of Arkansas battle to see which college of agriculture has the most supporters in the Golden Boot Giving Challenge.

The challenge is not based on which college can raise the most money, but which college can gain the most individual donations. This year the LSU College of Agriculture outraised the University of Arkansas Dale Bumpers College of Agricultural, Food and Life Sciences. LSU supporters gave \$3,305, while Arkansas raised \$2,147. However, Bumpers College took home the trophy because their 153 donors outnumbered the 132 who gave to the LSU College of Agriculture.

All funds raised from the challenge will go toward each college's respective student support fund. The LSU fund, named the LSU Ag Student Success Fund, helps students in times of hardship and also supports college programming and professional development for students. ■ **STAFF REPORT**



COLLEGE OF AGRICULTURE OPEN HOUSE

In August the College of Agriculture welcomed more than 200 incoming Tigers to campus at an open house, which helped the students connect with faculty. The students beat the heat with a snowball or homemade watermelon smoothie and explored diverse programs and the Hill Farm Teaching Facility on campus. Photo provided by LSU College of Agriculture

AARON ASHBROOK: HELPING OTHERS WITH INSECT ISSUES OFTEN A FASCINATING CHALLENGE

■ KYLE PEVETO

For entomologist Aaron Ashbrook, the insect-rich environment of Louisiana is a fascinating place to work.

“We have more insects in this climate,” he said. “Subtropical areas, like we are in, that warmer temperature and humidity allows for insects to be alive longer, allows them to reproduce more and have more generations per year.”

It’s also a challenge. Staying on top of the state’s insects means continually investigating and conducting research.

“It’s good for us in pest management,” he said. “There’s always something to do.”

As an extension entomologist, researcher and teacher, Ashbrook regularly helps Louisiana residents and pest control operators learn the best ways to treat the insects that have become a nuisance. He leads training sessions and answers inquiries from AgCenter agents.

“His expertise in entomology is exceptional, particularly in his ability to quickly identify insects and provide effective responses,” said Ed Brooks, an account manager for a pest control service based in Baton Rouge. “His extensive knowledge of industry-specific products and treatment procedures has been crucial in addressing challenging pest infestations.”

Growing up in Coloma, Michigan, near the banks of Lake Michigan, Ashbrook loved animals. He likes to fish, he earned his Boy Scouts insect collection merit badge and he admits to being enamored with dinosaurs as a kid. His favorite was the triceratops or the ankylosaurus (their armoring and spikes were awesome, he said).

In college at Grand Valley State University in western Michigan, Ashbrook started out pre-med and then switched to biology. His heart was in insects.

“I wanted to have a job that wasn’t necessarily work,” he said.

Because Grand Valley lacked an entomology major, Ashbrook took all the courses he could that helped him gain knowledge in the field and worked in research



labs for experience. One summer he collected butterflies in a restored prairie, and in another project, he pinned insects to prepare them for measurement.

Ashbrook didn't dream of becoming a professor when he went to Purdue University in Indiana to start his master's degree.

"I was just interested in it, and I enjoyed it," he said.

At Purdue, Ashbrook delved into urban entomology, learning ways to improve pest management by "exploiting insect behavior," he said. He studied bed bugs and German cockroaches, two of the most feared insects that may invade homes.

Ashbrook considered working in the pest control industry, but he chose to keep researching and earned a doctorate at Purdue. He continued studying cockroaches and bed bugs in a postdoctoral research role at North Carolina State University.

In 2022, Ashbrook joined LSU and the AgCenter as an assistant professor of urban and peri-urban entomology.

Over the past two and a half years, Ashbrook has worked with entomologists from the University of Tennessee and University of Georgia who led a working group researching delusory infestations — a neuropsychological condition that

occurs when people become convinced that insects are infesting them when no insects are present.

"It's a challenge," he said. "You must be careful. They are people that are suffering from a real condition."

Ashbrook helped develop a protocol for extension agents and pest control operators for handling these delicate situations. He teaches them to trap insects or helps guide the affected person to collect potential specimens. The agent or operator also gives a list of possible irritants that could cause the condition. If no solution is found, the person is encouraged to contact a doctor.

"What usually happens is these individuals, they just get moved around from entomologist to pest control operator to doctor because the doctor thinks they have a real pest issue," Ashbrook said.

Spreading the word about this affliction offers an opportunity to truly help, he said.

"One of the cool things about being in extension is the people," Ashbrook said. "I get to help people with their problems."

Kyle Peveto is the editor of Louisiana Agriculture and a writer in AgCenter Communications.



THE LSU AGCENTER CAN HELP WITH PESTS AT HOME

Insects or other arthropod pests can become a nuisance in and around your home. Aaron Ashbrook, assistant professor of urban and peri-urban entomology, can help identify problem pests and give advice on how best to treat them.

Ashbrook and the Entomology Department staff can identify pests through pictures or dead specimens and recommend the correct treatment. In difficult-to-solve cases, a diagnostician will inspect the affected property to properly understand the pest.

To learn more, visit the Entomology Department website at www.lsu.edu/departments/entomology/extension.html



Huizhen “Jane” Niu, an instructor and GIS manager in the LSU AgCenter Department of Agricultural Economics and Agribusiness, is pictured in the department’s GIS lab.

Photo by Olivia McClure



A PIONEERING IDEA 36 YEARS AGO, AGCENTER GIS LAB CONTINUES TO PLAY IMPORTANT ROLE IN ECONOMIC RESEARCH

■ OLIVIA MCCLURE

When hurricanes and other natural disasters strike Louisiana, it's usually not long before elected officials, industry leaders and reporters call the LSU AgCenter seeking expert insight into how widespread and serious the damage is to the state's agriculture sector.

Economists, being familiar with the financial value and geographic distribution of Louisiana's various commodities, are among the first AgCenter personnel to start working on these requests. In a short timeframe, they draft data-packed reports that put estimated dollar figures to the damage — numbers that can

prove crucial in obtaining federal disaster aid.

Behind the scenes of these reports — and countless other projects — are the AgCenter's Agricultural Economics Geographic Information System Laboratory and the instructor who has overseen it for much of its history, Huizhen “Jane” Niu.

From analyzing huge datasets to turning them into easy-to-digest maps, the lab plays a crucial role in putting agricultural economics into perspective. Economists today have an abundance of data about commodity prices, land

use, consumer trends, trade patterns and many other issues at their disposal, and the lab helps them leverage this information in their research.

“The ability to have this kind of capacity and expertise to look at these kinds of things brings a different dimension to our research,” said Lynn Kennedy, head of the AgCenter Department of Agricultural Economics and Agribusiness. “It brings to life things like here's where these impacts are made, or here are the benefits of a certain policy to consumers or to producers, or where are the potential damages going to be from flooding in a hurricane? There's

huge potential. If we didn't have this lab here, it would certainly be a loss to the department and the AgCenter."

TECHNOLOGY CHANGED THE WAY RESEARCH IS DONE

When the lab was founded in 1988, it was the first GIS lab to be established in an agricultural economics department in the nation. Jane Luzar, a faculty member at the time, led the effort to launch the lab, seeing potential in up-and-coming computer software to boost research.

GIS, which stands for geographic information system, makes it possible to collect, analyze and visualize large

amounts of data. Relying on computers to comb through the numbers, researchers can easily identify trends, draw conclusions, propose solutions and connect these findings to real-life points on a map.

An early project at the lab involved using data from 4,470 wells to help study the growing problem of saltwater intrusion in Louisiana's rice-producing parishes.

"As efforts are made to tap the analytical potential of GIS for spatial economic analysis, undoubtedly further applications will be made," Luzar wrote in a 1989 paper. "The challenge remains

for applied economists to move GIS past its initial use as a visual depiction of research results into a role as a true analytical tool."

Since then, computing power has only gotten stronger, enabling more detailed data collection and analysis. GIS is now an integral part of economists' work, and they've found many ways to use it beyond just making maps.

"Thirty years ago, we thought it was really cool to have a map that we could put in our journal article or a poster," Kennedy said. "But now, you're using spatial econometrics, and it's not just about making a map. It's about using this

A map depicting land prices in Louisiana hangs on a bulletin board in the LSU AgCenter Department of Agricultural Economics and Agribusiness GIS lab. The data used to make this map is from 1998, the same year instructor and GIS manager Huizhen "Jane" Niu began working in the lab. Photo by Olivia McClure



information in an econometric regression to show the relationship between all these attributes of the land, the environment and the people around to see how they are affected and how they affect other things. It's really changed the way we do research."

FACULTY, STUDENTS DEPEND ON LAB

Niu is modest about the important role she has played in AgCenter research programs over the past three decades. Her job, she explained, is simply to help with the spatial data aspects of projects.

"I go out of my way to showcase our GIS capabilities and encourage faculty and students to use GIS and provide the best support for their research," she said.

Virtually everyone in the department relies on Niu when they need assistance crunching numbers or making a map.

"I can't think of a single one of our faculty members that hasn't seen the benefits of using the GIS lab," Kennedy said. Undergraduate and graduate students can take advantage of Niu's services in the GIS lab, too.

Jinggang Guo, a forestry economist, recalled working with Niu for the first time in 2021. Guo was a newer faculty member in the department, and Hurricane Ida had just hit Louisiana. He needed to determine how the storm had affected the state's forestry sector.

"Ms. Jane is a big supporter of all of my forestry extension work, especially during the hurricane seasons," Guo said. "She has already established huge datasets for Louisiana agriculture. She can quickly pull the data from the database, then we can do a very responsive analysis."

He also has worked with Niu to illustrate global trade flow. This type of research and analysis is valuable because it can impact policy decisions, he said.

Rex Caffey, an economist who works with both the AgCenter and Louisiana Sea Grant, said Niu has been central to a project he has been part of for about 20 years: a spatial damage model that was launched in the wake of Hurricane Katrina in 2005.

"One of the things that's unique about GIS is how it connects one discipline to another," Caffey said. "The model says, 'Where is the business located?' If you have an address, Jane can geocode it, so that's a dot on a map. Then we can bring in financial data about that firm — like its appraised value and recent production — and then combine that information with physical data on topography and elevation and meteorological data on storm intensity. These variables are used to run damage equations that allow us to estimate losses across an entire sector and determine where financial recovery funds should go to get the most efficient taxpayer allocations."

With many tweaks made to the tool over the years, the team is now able to start running numbers and estimating potential impacts before a storm even comes ashore.

"We've moved away from this reactionary approach to being more proactive with GIS, to where we can frontload information," Caffey said.

Caffey was a student in the department when Luzar started the lab. He returned as an assistant professor in 1998, the same year Niu was hired.

Like many of his colleagues, Caffey has long marveled at the ever-changing technology and the ever-increasing volume of data — and Niu's ability to adapt.

When Niu first began working in the field after studying geography in her native China, maps were all drawn by hand. In the ag economics department's base in Woodin Hall on the LSU campus, a special table purchased about 30 years ago specifically for sketching

maps now helps corral large posters featuring Niu's data visualizations.

The world of ArcGIS — a widely used GIS platform — has seen significant transformations over the years, driven by advancements in technology and the evolving needs of its users. Niu has kept on top of these changes.

"Imagine being in a very esoteric science like GIS without somebody central to your lab," Caffey said. "It'd be really hard to run."

He said Niu's contributions have allowed faculty members to secure grants and contracts totaling \$6.9 million in just the past 10 years. She also has been part of award-winning research groups and has taken on initiatives in partnership with governmental agencies and commodity organizations.

One of Niu's latest projects is a massive undertaking: assisting AgCenter economist Qingxiao Li in building a comprehensive, nationwide database of SNAP-authorized retailers to identify SNAP deserts, or areas with limited access to these retailers. SNAP, which stands for Supplemental Nutrition Assistance Program, provides low-income families with food benefits.

"This work is crucial for understanding and addressing food insecurity, as it may inform policymakers and help target resources to improve food access in underserved communities," Niu said.

She enjoys these kinds of complex projects, saying they provide opportunities to continue to grow her skills and use them to help others.

"I'm glad I have a job here," she said. "The reason I stay is because of the faculty. This is my area, my background — and I enjoy enhancing their research."

Olivia McClure is a writer, photographer and videographer in AgCenter Communications.

AGCENTER SUGARCANE EXPERT'S TRAVELS

FULL CIRCLE:

LEAD HIM BACK TO THE CROP THAT STARTED IT ALL

■ V. TODD MILLER

LSU AGCENTER PATHOLOGIST ANDRE GAMA EXAMINES SUGARCANE FOR RUST AT THE SUGAR RESEARCH STATION IN ST. GABRIEL.

Photo by V. Todd Miller



Taking the place of a 40-year veteran of the Louisiana sugarcane industry is no small task,

so when LSU AgCenter plant pathologist Andre Gama replaced longtime researcher Jeff Hoy, he knew he had big shoes to fill. Due to his extensive travels, Gama's own shoes were well worn, so he was up for the challenge. Gama grew up in Piracicaba, São Paulo, Brazil, and became interested in plant pathology during his junior year of college.

What did your undergraduate studies entail?

During my undergraduate studies at the University of São Paulo Luiz de Queiroz College of Agriculture, I researched the effects of brown and orange rusts of sugarcane on photosynthesis. A postdoctoral assistant I was working for recommended me to Richard Raid, a pathologist at the University of Florida, where I finished my degree researching pineapple rot of sugarcane in 2014.

Where did you conduct your post-graduate studies?

I applied for my master's degree in my previous lab in Brazil and was given the choice to work on grapevines or citrus. The citrus project reeled me in because it involved developing an automated, online, decision-support system to aid growers in deciding the best time for fungicide applications based on weather forecasts and disease models.

I thought it was cool that the growers could use the online system to guide their fungicide applications because before that, they were spraying four to six times in a season without knowing if the conditions were conducive for the disease.

How exactly does that work?

Using mathematical models that correlate disease risk with weather variables like temperature and leaf wetness periods to guide sprays, our team was able to reduce fungicide applications by up to 75% per season with the same efficacy, reducing environmental impacts from fuels, fungicides and water usage and providing financial benefits for growers with a positive effect on yield.

Where did you get your doctoral degree?

I returned to Florida when the state was facing postbloom fruit drop in citrus. The University of Florida had a similar system for strawberries as Brazil had for citrus, so my professor collaborated with counterparts in Brazil to implement and design an automated system for orange production in Florida.

We validated the system for oranges, and it worked very well. This disease doesn't occur every season, but the growers were spraying every year out of a sense of caution. There is now an app where producers get an alert on their phone when it's the best time to spray.

How did you find your way to the LSU AgCenter?

I was working in the private sector on Huanglongbing, or citrus greening, a devastating disease that caused a steep decline in orange juice production in Florida. After a year and a half, I realized my true passion was teaching and putting my own research ideas to the test, so I told myself if a good academic job came up, I would apply for it. That's when I saw the AgCenter position, giving me the opportunity to work with sugarcane again, which I hadn't done since my undergrad days. I especially liked the job description, which was applied disease management, working directly with growers.

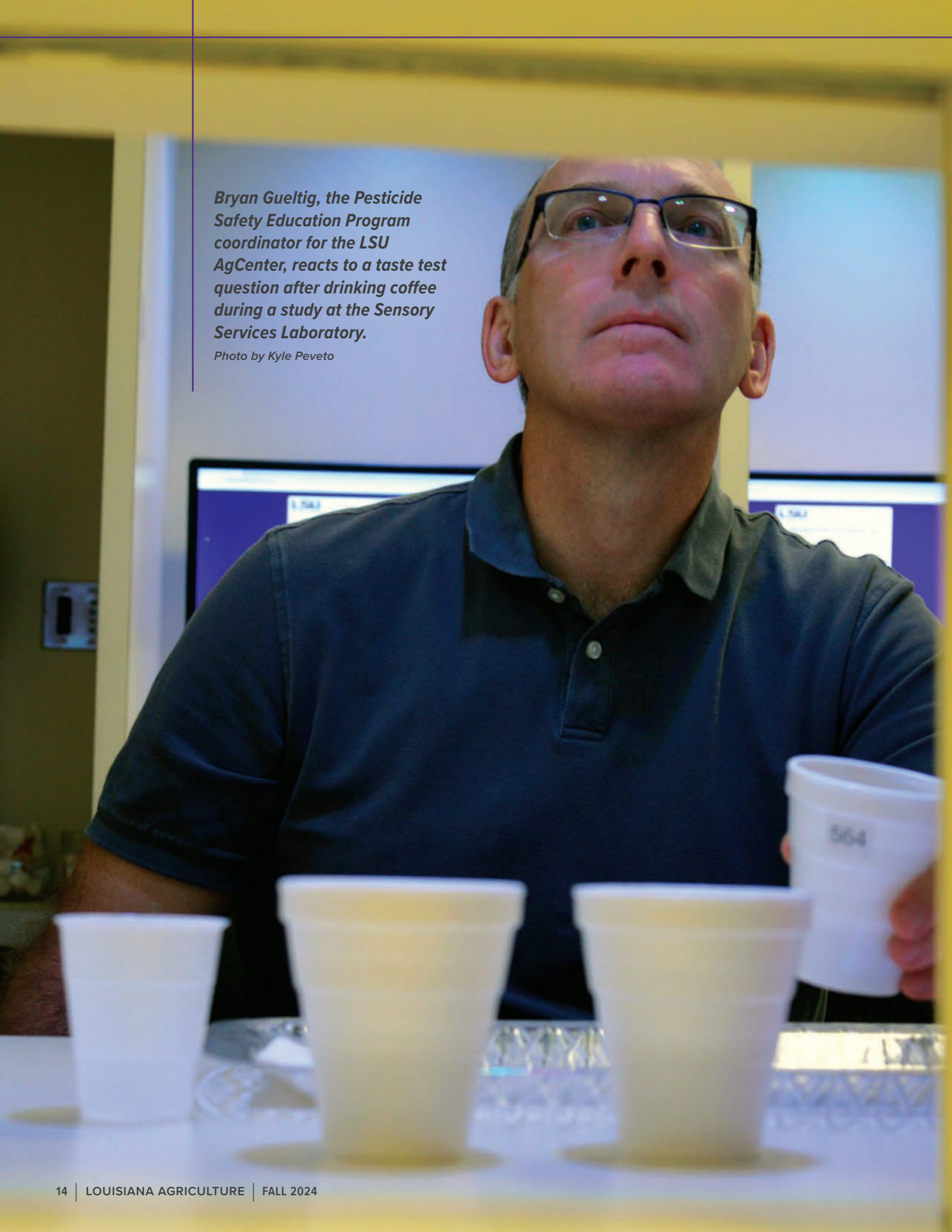
What are you currently doing in your AgCenter position?

I now get to teach epidemiology, describing how diseases grow in the field, become more severe and how to test ways to mediate that effect. I also provide free diagnostic services for sugarcane growers in Louisiana, sponsored by the American Sugar Cane League. To optimize the diagnosis for local growers, my team is working on improving methods for detecting sugarcane pathogens, including the causal agents of ratoon stunting disease and sugarcane leaf scald.

How does working in Louisiana and at the AgCenter differ from your previous academic stops?

Well, first, the food is amazing! And the growers are very curious and involved. The difference here is you have a sugarcane industry that is more composed of families rather than big corporations, which I really enjoy because I feel that we as researchers can make a bigger difference.

V. Todd Miller is a writer, editor and photographer in AgCenter Communications.



Bryan Gueltig, the Pesticide Safety Education Program coordinator for the LSU AgCenter, reacts to a taste test question after drinking coffee during a study at the Sensory Services Laboratory.

Photo by Kyle Peveto

SENSORY SERVICES LAB

■ KYLE PEVETO

MARKS 10 YEARS OF CONSUMER-FOCUSED FOOD STUDIES

Before they hit grocery shelves with labels that shout, “New and Improved!” or “Lower in Calories,” several foods first pass a gauntlet of everyday Louisianans who taste, smell and scrutinize the product in a lab in Baton Rouge.

For a decade the LSU AgCenter Food Innovation Institute (FOODii) Sensory Services Lab has recruited consumers to taste coffee, rice milk, fish filets and dozens of other products and answer carefully designed surveys to help food scientists decide what version of their products get to market.

“We perform the study, and we interpret the result,” said Witoon Prinyawiwatkul, a professor of nutrition and food sciences. “They make their own recommendations. We realize what we have done for the company when we see the product in the store.”

The Sensory Services Lab was a long-term goal for Prinyawiwatkul early in his career. More than 20 years ago, he began sketching designs of a possible facility. In 2014, when the LSU AgCenter Animal and Food Sciences Laboratory Building was completed, the 47,550-square-foot building housed a professional test kitchen, a demonstration kitchen, 29 laboratories and the sensory lab on the first floor.

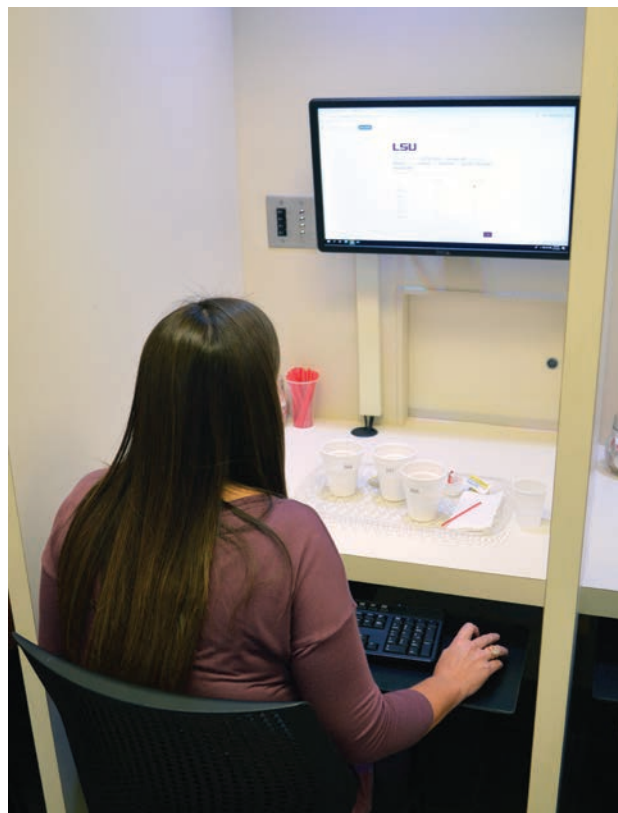
Performing tests for food companies creates revenue for the AgCenter Nutrition and Food Sciences program, and the lab provides students in the program with experience running studies and developing their own products, such as gluten-free bread.

“It benefits students,” said Yupeng Gao, a research and development scientist at the lab. “Students learn what the industry wants, and they practice and gain experience for their jobs.”

Companies from all over the world have used the lab to study new foods and revamp existing recipes. An international brand may want to test a product on American consumers before taking on the expense of entering the market. Or a company may need to replace an ingredient or change suppliers for one, and the food scientists will test whether possible customers can taste the difference in the product.



Study participants taste three different coffee samples during a study at the Sensory Services Laboratory in October. Photo by Kyle Peveto



A study participant fills out a survey after tasting one of three different coffee samples during a study at the Sensory Services Laboratory in October. Photo by Kyle Peveto



A member of the LSU AgCenter Food Innovation Institute (FOODii) Sensory Services Lab team distributes coffee cups for testing during a study at the Sensory Services Laboratory. Photo by Kyle Peveto

WORKING WITH THE FOOD INDUSTRY

When a Pennsylvania-based wood-smoked meat company needed to switch ingredients in its turkey bacon recipe or try different sausage links, the company contacted the team at the Sensory Services Lab.

“I know the work they do, and I know about the service and how detailed they are, so I trust the outcome,” said Reshani Senevirathne, the director of food science at the company and an alumna of LSU.

For food product companies, the AgCenter food scientists design a study that zeroes in on the important information needed and removes subjectivity from the sample. Volunteers sit in specially designed booths to sample the products and answer a carefully created survey. They receive no packaging and no clues about the identity of the manufacturer.

“They know what we can do, so they trust us,” Prinyaw-iwatkul said of the companies that use the service. “They keep coming back.”

A Louisiana-based hot sauce company has worked with the lab several times to try new sauces. At one point, the company considered switching the material of the tanks in which the sauce is mixed, and the food scientists questioned if the switch would change the flavor. Charlie Cheng, director of research and development for the company, said he trusts the Sensory Services Lab procedures.

Occasionally, studies at the lab emanate from a government agency. Food scientists at the U.S. Department of Agriculture Food Processing and Sensory Quality Research Unit at the Southern Regional Research Center in New Orleans regularly use the lab to test rice and aquaculture products in their work to assist farmers and food processors in creating competitive products for consumers.

“We’re looking at the whole gamut of sensory evaluations — color, mouthfeel, taste, flavor and aroma,” said Ryan Ardoin, a food sensory scientist for the USDA. “We’re really hitting on all of those aspects of the products.”

Ardoin has used the lab’s resources to test a rice milk and a sorghum beverage as well as trout and catfish.

“There are some so-called off flavors that affect fish quality in the eyes of the consumer, and it allows foreign competitors to occupy some of our U.S. market,” he said. “We want to make our domestic commodities more competitive, so with this fish taste test that we’ve been running, we’re trying to understand and solve the off-flavor problems in aquaculture.”

Some testing occurs outside of the lab. The scientists have taken coffee makers on the road to other LSU-affiliated offices for tests in break rooms and employee lounges. Occasionally, companies will desire an at-home test, and the lab will send ingredients to a small group of consumers who prepare a meal and then complete an online survey and send in a photo of the

finished product. The lab can also perform studies on nonfood items such as personal care products and anything else that consumers experience through taste, smell, sight and feel.

CONNECTING WITH THE COMMUNITY

Many of the study participants come from the LSU community of students, staff and faculty. The lab is a short walk from the office of Nicole Schmitz, department coordinator and program adviser for the LSU Department of Public Administration. She regularly enrolls for testing — unless it includes seafood, which is “not really my jam,” she said.

“I think it helps the research that students are doing, and I know that I am not old, but I’m of an older age demographic than the majority of folks on campus, i.e., students,” Schmitz said after taking a test for light roast coffee.

Study participants usually get rewarded with a gift like free ice cream from the AgCenter Dairy Store, a mug, a blanket or a gift card. After the coffee test, Schmitz took home an insulated travel mug.

“So, I figure for their research, they do need different age groups,” she said. “That’s how I justify free swag.”

In 2017 the lab created Tiger Tasters, a database of consumers outside of the LSU community that helps them recruit a targeted demographic. Those interested can join by completing a survey on [the LSU AgCenter website](#).

“Most of the time, companies do not just want anyone coming in,” said Ashley Gutierrez, assistant director of FOODii. “They want people of a certain age group or people who have purchased that type of product and that have used it in a certain amount of time.”

Tiger Tasters has grown popular, with more than 1,000 Baton Rouge-area volunteers on the list. Word spreads about the program, and tasters recommend it to friends, Gutierrez said.

“It’s a nice connection to the community,” Gutierrez said. “We can’t say what it is that we’re doing because the companies don’t want them to know, but they really enjoy it because they feel like they’re having an input on what is being launched in the stores.”

Kyle Peveto is the editor of Louisiana Agriculture and a writer in AgCenter Communications.

**HORSES GRAZE IN A PASTURE AT THE LSU
AGCENTER DOYLE CHAMBERS CENTRAL
RESEARCH STATION IN BATON ROUGE.**

Photos by Olivia McClure



EXAMINING EQUINE PARASITE MANAGEMENT: EGG SHEDDING PATTERNS AND RESISTANCE TRENDS IN SOUTHERN LOUISIANA

■ **ERIN OBERHAUS, NEELY HEIDORN
AND ADRIANO VATTA**

All grazing horses are susceptible to internal parasites or worms, and deworming is an important management practice to ensure the continued health and well-being of horses. An overburden of intestinal and stomach parasites can interfere with nutrient absorption, leading to weight loss. Additionally, poor hair coat, fever, diarrhea, decline in performance and abdominal pain known as colic can be attributed to an overburden of internal parasites.

Over the last several decades, the recommended approach to deworming has changed as resistance to available

dewormers has increased. In years past, deworming was recommended at regular intervals (e.g., every two to three months); however, overuse of dewormers has led to resistance. A more individualized approach is now recommended based on the parasite egg-shedding status of a particular horse. Fecal egg counts (FEC) are a way to determine the egg-laying activity of strongyles and roundworms (*Parascaris equorum*), both of which are parasites found in the intestines of horses. Strongyles, including both large and small, are commonly found and present the greatest threat to an adult horse's health. Large strongyles are particularly harmful as they can cause significant damage to the lining of blood vessels. Fortunately, the prev-

alence of large strongyles in the United States has been greatly reduced, and small strongyles (cyathostomins) now represent most parasite eggs seen on a fecal exam. Adult horses are largely unaffected by roundworms; however, roundworms do pose a significant threat to horses under 2 years of age.

A fecal egg count is made by examining a fresh fecal sample and counting the number of eggs per gram (epg) of feces. The shedding status is then determined based on the number of eggs. While FECs are a great way to assess the shedding status of a horse, they do not determine the risk of disease associated with parasites in that horse. In other words, high-shedding horses are not necessarily at a greater risk of para-



site-associated disease. However, many of the eggs that are shed will develop into infective larvae in a pasture, and these pose a risk to other horses, who may be more susceptible to parasites. So, what exactly is the shedding pattern of groups of grazing horses in southern Louisiana?

Researchers at the LSU AgCenter and LSU School of Veterinary Medicine joined together to determine just how many strongyle eggs per gram of feces were being shed over the course of one year by horses residing in herds at the Doyle Chambers Central Research Station horse unit in Baton Rouge and the Reproductive Biology Center in St. Gabriel. Fecal samples were collected from 68 mares and geldings every two weeks for one year (2021-2022). The horses were divided into two groups: those that were dewormed with ivermectin only in spring and fall, and those that received dewormer when individual FECs were greater than 500 epg.

EGGS PER GRAM	SHEDDING STATUS
Fewer than 200	Low shedders
200-500	Moderate shedders
More than 500	High shedders

One of the goals of deworming horses anytime FEC exceeded 500 epg was to determine the amount of time it took for the eggs to reappear after deworming. One of the first indications of dewormer resistance is a shortened egg reappearance period following deworming with any of the three classes of dewormers. Ivermectin and moxidectin are the most widely used compounds in equine management, and the average egg reappearance periods in susceptible parasites are eight weeks and 10-12 weeks, respectively.

From the yearlong study, it was determined that the average FEC remained below 1,400 epg for horses at both farms and appeared to be highest during the



summer months (July to September) and lowest during the winter (Figures 1 and 2). The egg reappearance period after deworming with ivermectin was approximately six weeks in the summer and 10 weeks in the fall for the horses at the Central Research Station, and six weeks in both summer and fall for horses residing at the farm in St. Gabriel.

Resistance to ivermectin (for example, Durvet Ivermectin Paste) and moxidectin (for example, Quest Gel) has progressed more slowly in horses than to compounds such as fenbendazole (for example, Panacur) and oxbendazole (for example, Anthelcide EQ); however, evidence of resistance to ivermectin and moxidectin has now emerged, and owners are now tasked with using dewormers more judiciously. With few new deworming compounds on the horizon, owners are now encouraged to

deworm all horses only once or twice per year with additional deworming as deemed necessary for high-shedding horses. It is worth noting that all horses in the study were apparently healthy with no evidence of parasite-related disease. Fecal egg counts as high as 3,800 epg were recorded for some horses that persisted throughout the summer. This raises the question as to whether higher parasite loads should be left alone in the absence of clinical symptoms. Of course, special considerations may be needed for horses who have evidence of parasite-related illness or decline in performance.

One interesting finding of the study was the prevalence of tapeworms in the herds year-round. Fecal egg counts do not accurately assess the degree to which a horse is infected with tapeworm infection, but if their eggs are detected

on fecal examination, this indicates that a horse is infected. Only one compound, praziquantel, is approved for killing tapeworms in horses. In the present study, tapeworms reemerged fairly soon after deworming, which was attributed to their long life cycle and the inability of any dewormer to target all developmental stages. These findings did, however, shed light on the year-round tapeworm population in grazing horses in Louisiana. In extreme cases, tapeworm burdens can contribute to certain types of digestive upset (colic), such as an obstruction of the intestines. Therefore, it is recommended to include praziquantel as a compound in at least one yearly deworming. Parasite management of the horses residing at the research stations now includes deworming with a praziquantel-containing dewormer during the fall.

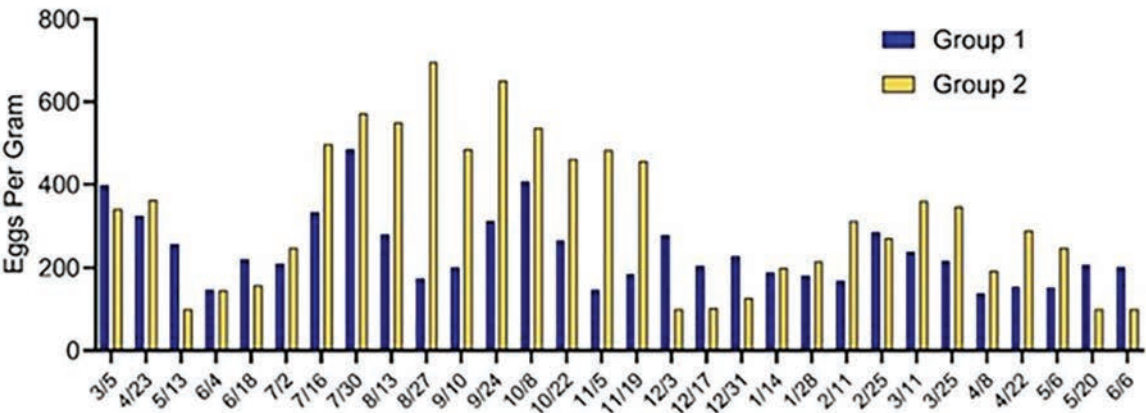


Figure 1. Average number of strongyle-type eggs per gram of feces in mares residing at the Reproductive Biology Center who were dewormed whenever eggs exceeded 500 (Group 1) and those who were dewormed only in the spring and fall (Group 2).

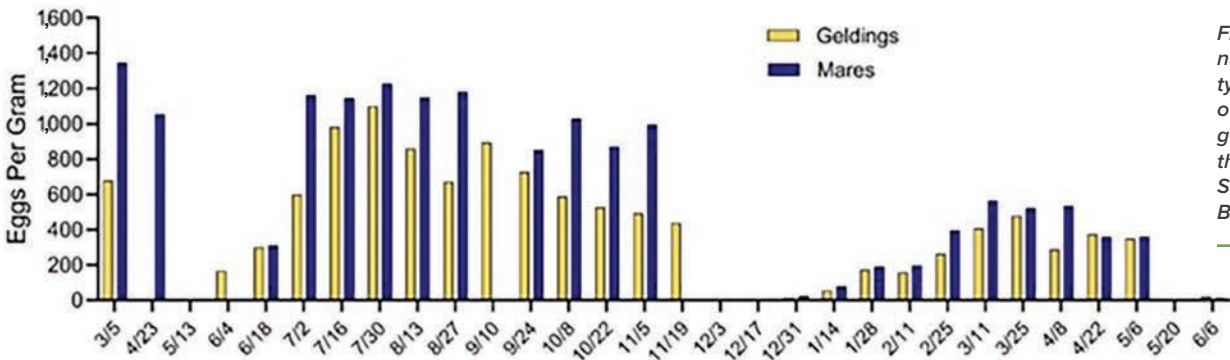


Figure 2. Average number of strongyle-type eggs per gram of feces in mares and geldings residing at the Central Research Station horse unit in Baton Rouge.

Individualized deworming protocols, as opposed to treatment of all the horses on a farm at defined regular intervals, is gaining acceptance but does require knowledge of seasonal egg shedding patterns and individual horse susceptibility to parasite infection. However, in an industry survey distributed by LSU researchers and extension professionals, 73.4% of respondents indicated that they do not rely on fecal egg counts to determine their deworming practices and outdated practices such as deworming every other month are still prevalent. Fifty-five percent of respondents also indicated that they were not concerned with their horses' current parasite load and that they strongly believe current deworming products are effective. The goal of parasite management in horses and other grazing livestock is not to eliminate parasites, but to reduce the risk of disease associated with a parasite burden while preventing further resistance due to overuse of the products. It is apparent that there is a gap in the acceptance of new recommendations for deworming and additional education is warranted. Over-the-counter deworming products range from \$10 to \$20 per treatment. Owners who reduce the number of dewormings to twice per year can save an average of \$60 per horse per year and, more importantly, prevent further contribution to dewormer resistance.

Erin Oberhaus is an associate professor, and Neely Heidorn is the state equine extension specialist and an associate professor, both in the AgCenter School of Animal Sciences. Adriano Vatta is an associate professor at the LSU School of Veterinary Medicine.



LOUISIANA FOOD *FOR* LOUISIANA SCHOOLS

■ CELESTE FINNEY AND TYNE BANKESTER

The COVID-19 pandemic exposed major shortcomings in conventional food supply chains, revealing food accessibility gaps and insecurity across the country. This event halted production and shipping of food products, creating disruptions in supply. As a result, local, shorter food pathways became more dependable and nimbler in providing food to consumers versus national or global supply chains. In response, the United States Department of Agriculture (USDA) provided supply chain assistance funds for schools to purchase locally sourced, minimally processed agricultural items.

The USDA's Local Food for Schools (LFS) Cooperative Agreement, announced in 2022, provided \$3,393,196 to Louisiana to be spent specifically on local foods while strengthening local food systems. The LSU AgCenter farm to school team was instrumental in the planning and implementation of the LFS funding in partnership with the Louisiana Department of Agriculture and Forestry (LDAF). All Louisiana school districts were allocated LFS funds based on their average daily participation.

Funding specific for supporting local agriculture has many school districts heading into uncharted territory. Seeds to Success: The Louisiana Farm to School Program — the AgCenter's Louisiana farm to school team — is behind the scenes providing procurement training and resources to help support school districts in their search for local products for their menus. Local producers interested in selling their product to Louisiana schools can fill out an inquiry form on

www.seedstosuccess.com under the "Purchase Local" tab and "Finding Local Food." Producers can also contact LDAF to be vetted and then added to a vendor list on the Seeds to Success website. Interested buyers can use that list to find local vendors' contact information and a description of what products they sell.

Seeds to Success further supported school districts alongside the Louisiana Department of Education (LDOE) by offering technical assistance through webinars on procurement regulations and sourcing local products for school meal programs.

The LDOE Division of Nutrition Support has held several informational webinars since the launch of the LFS grant in spring 2023. Seeds to Success team members held virtual meetings to help answer questions and give procurement guidelines for schools who are planning to use their LFS allotment.

"This funding gives schools the opportunity to utilize the increased purchasing threshold for minimally processed agricultural items," explained Crystal Besse, program director of Seeds to Success.

According to Louisiana R.S. 17:194(D), any governing authority of a child nutrition program may use informal acquisition procedures for small purchases up to the federal level of \$250,000 to support procurement of local agricultural products and farm to school initiatives. The dollar amount of the purchase of locally grown food can then determine the procurement process. This increased threshold means that schools can use the infor-

mal procurement process rather than formal requests for proposal or sealed bids, which would involve adequate advertising.

The Calcasieu Parish School Board is a large school district located in the southwestern corner of Louisiana. It serves about 28,000 students among 60 school sites. Jacqueline Richard, the food service director, used LFS funds to source local ground beef to make spaghetti, a popular item on their school menu.

It's a "win-win-win" for all involved: students, farms and communities in southwest Louisiana. Students were able to enjoy a scratch-cooked meal while learning about a real Louisiana cattle ranch. Richard was happy to build a relationship with a local beef producer and plans to purchase their product for the Calcasieu Parish schools' menu "indefinitely" now that the LFS grant has helped to open the door to this new purchasing pathway.

LSU College of Agriculture alumna Tara Morris is excited to forge new markets with the help of the Local Food for Schools Cooperative in Louisiana. She is also enthusiastic about sharing lessons learned in selling to schools with other producers, as well as helping those in child nutrition understand the needs and limitations of small-scale producers. Morris led an informational session at the annual Louisiana Farm to School Conference as well as the recent Meet the Buyer, Greet the Grower event, a gathering of producers and school food authorities from across the state. Both events were hosted in early October in Baton Rouge.

***Josh and Tara Morris
raise cattle in the area
around Slaughter north of
Baton Rouge. Their beef
has been purchased by
Louisiana schools.***

Photo by Tara Morris



Morris explained that there is a learning curve for school districts and producers alike when it comes to bringing local items to the menu. Morris shared strategies that school district child nutrition programs can use to optimize their relationships and ordering with local producers.

Morris went on to explain pertinent details, such as the yield of beef per head of cattle and that cattle need a minimum of two years to fully mature for harvest.

"We would love to be able to supply whatever our customers want; however, a rancher needs much more lead time than a national distributor to plan and fill the order," Morris said.

Her speaking sessions both at the conference and Meet the Buyer event helped to demystify and breakdown the process for all schools in attendance who are looking to put local beef on their menu.

Although the initial LFS funding is set to expire soon, The USDA announced on Oct. 1 an additional \$1.2 billion in Commodity Credit Corporation funding for the USDA Local Food Purchase Assistance (LFPA) and Local Food for Schools (LFS) Cooperative Agreement Programs. The additional funding will provide an opportunity to continue the tremendous work of states, territories and tribal nations in building agricultural supply chain resiliency through the procurement and distribution of local

foods in their communities. Of the funding, \$500 million will be made available for LFS, while another \$500 million will be available for LFPA. For the first time, the USDA will also provide \$200 million in funds specifically for child care facilities, which face similar challenges purchasing food as schools.

Many positive and productive producer-district relationships have been built through the use of LFS funding, and the farm to school team will continue to continue supporting producers and institutional buyers into the future.

Celeste Finney is a former extension associate for Seeds to Success: The Louisiana Farm to School Program. Tyne Bankester is the program manager for curriculum integration and MarketMaker for Seeds to Success.

INNOVATIVE FLOATING PHOTOVOLTAIC (FPV) FOR RENEWABLE ENERGY IN AGRICULTURE

■ M.P. HAYES

Louisiana continues to progress toward renewable alternatives for energy with offshore wind structures and urban solar installation projects, which are also known as photovoltaic systems. For the agricultural landscape, this often means a large acreage conversion from crops to solar infrastructure. The diverse landscape of Louisiana offers additional opportunities for solar energy production in noneconomic waterbodies, which include ponds used for industrial oxidation, municipal wastewater treatment and agricultural irrigation. Incorporating a floating photovoltaic (FPV) system into your pond is a feasible form of on-site energy generation while maintaining natural resources. LSU and LSU AgCenter researchers are learning more about floating photovoltaic systems through a yearlong demonstration at the AgCenter Hammond Research Station.

Land-based photovoltaic (LPV) is a highly studied area with swift growth anticipated over the next few decades. The implementation of LPV has many benefits, including energy independence, long-term savings and decreases in nonrenewable resources. It also faces many challenges, such as land constraints, permanent infrastructure to host panels and environmental or economic impact in selected regions. Some communities are pursuing creative solutions to land challenges by sharing land space for solar and crop production, a system called agrivoltaics. Agrivoltaics are limited to certain types of crops and are most beneficial for areas with a specific microclimate (soil temperature, moisture, crop temperature and other factors), and there are limited opportunities for Louisiana farms. As a permanent installation, the construction of large solar farms must consider the ever-changing dynamic of Louisiana's landscape due to hurricanes, subsidence and land loss.

These uncertainties yield an opportunity for a novel approach to energy through floating photovoltaic units. Though floating photovoltaic has a higher estimated cost and a negative impact on recreational space, it has many benefits, which include increased efficiency from water cooling, decreased evaporation for the water body, reduced maintenance cost and a lack of a permanent structure. These benefits provide potential incentives for Louisiana communities. The AgCenter research study addresses the two challenges of FPV by using noneconomic inland water bodies with shallower depths, lower wind profiles and reduced vertical water movement. These sites are also unsuitable to support wildlife, which reduces environmental habitat concerns, and are isolated from public areas to reduce exposure. A common complaint about solar panels is that they harm the aesthetics of the community, and FPV in wastewater ponds will be hidden from sight.

Louisiana has a unique solar radiation profile averaging 5.31 kWh/m²/day across the entire year, with the peak month for energy in May. This number represents the average amount of energy per square meter per day, which can be used to calculate areas of land or water for solar installation projects. The National Renewable Energy Lab (NREL) PVWatts Calculator, which estimates the energy production of grid-connected photovoltaic systems, was used to assess the potential energy footprint of Louisiana's noneconomic waterbodies. The research study being conducted will compare the NREL PVWatt Calculator estimates to the field-collected data at the demonstration site to show accuracy and provide a template for future stakeholder technical assistance publications. Currently in the United States, the largest floating solar farm produced 8.9 megawatts on a 17-acre pond, which would power an estimated 1,400 homes annually.

This demonstration project will be located at the LSU AgCenter Hammond Research Station for 12 months to study the efficiency of LPV versus FPV. Studies have shown that water cooling on floating units increases the panel's ability to produce energy, thus increasing efficiency. The floating units are deployed in the research station's irrigation pond where water quality parameters, including temperature, algae, nitrate and dissolved oxygen, are being measured. The environmental



View an animated video that explains
the floating photovoltaic process at

[www.LSUAgCenter.com/
agmagfall2024](http://www.LSUAgCenter.com/agmagfall2024)

impacts of the floating units are being closely monitored to show potential benefits in pond health from the panel's shading. In Louisiana, high temperatures can result in ineffective processing of pond nutrients leading to algae production. The resulting algae blooms can negatively affect operations, maintenance and native wildlife. The floating solar units will provide shading as a sunlight barrier, stabilizing the temperature, reducing algae production and mitigating evaporation loss from the pond, which increases the overall pond health. The decrease in evaporation is imperative to Louisiana agricultural irrigation ponds after recent harsh summers have had effects on water conservation.

With the availability of water resources across the state, floating photovoltaic units can be utilized in a wide range of applications. Whether it is increasing the aeration in your pond or producing power for irrigation systems, take stock of available pond space for energy production and added benefits for water conservation.

M.P. Hayes is a dual-appointed assistant professor in the LSU AgCenter School of Plant, Environmental and Soil Sciences and Louisiana Sea Grant.



**RESEARCHER M.P. HAYES SETS UP A
FLOATING PHOTOVOLTAIC SYSTEM
AT THE LSU AGCENTER HAMMOND
RESEARCH STATION.**

Photo by Mason Marcantel

LSU AGCENTER VARIETY AND FUNGICIDE TRIALS

HELP DETERMINE BEST MANAGEMENT PRACTICES

■ DAVID MOSELEY, BOYD PADGETT AND TREY PRICE

The LSU AgCenter conducts research that provides valuable information for Louisiana farmers. To help growers make informed decisions about variety selection and fungicide use, the LSU AgCenter conducts side-by-side soybean official variety trials (OVT) at research stations. For the OVT, seed companies and university-based breeding programs enter varieties to be evaluated in different growing conditions across Louisiana. Researchers plant two sets of the OVT varieties side by side to evaluate their tolerance to fungal diseases and determine the effectiveness of fungicide applications. One set receives a fungicide application at the beginning pod (R3) growth stage, which is where a pod at one of the four uppermost nodes on the main stem measures 3/16 of an inch long. The set that received a fungicide application is compared to the second set that does not receive a fungicide application.

VARIETY PERFORMANCE AND DISEASE RESISTANCE

A great example of the yield performance and yield protection data that the variety and fungicide trials can provide was observed at the Dean Lee Research and Extension Center in 2021. Results from the trials indicated differences in soybean yield and disease susceptibility among varieties. Some varieties exhibited better genetic tolerance to charcoal rot (*Macrophomina phaseolina*), with minimal disease symptoms and higher yields without a fungicide treatment. However, significant yield losses were observed in other varieties that were more susceptible to the disease. Char-

coal rot is a soilborne disease that can interfere with the plant's ability to uptake water. Symptoms of charcoal rot include black spots (microsclerotia) in the roots and stems and premature plant death (Figure 1).

GENETIC DIFFERENCES IN SYMPTOM SEVERITY

The average yield for all varieties in the untreated plots was 48.6 bushels per acre (Table 1). There was a negative correlation between the average charcoal rot damage rating and yield, with an R² value of 0.235. On this scale, 0 signifies no correlation, and 1 denotes complete correlation (Figure 2). In other words, as the damage rating increased, the yield decreased but with a weak correlation. The weak correlation is partly explained by the expected yield variation among varieties, as evidenced

by those without disease symptoms (damage score of 1 where 1 signifies no damage and 5 denotes plant death). Among the 22 varieties with no symptoms, yields ranged from 37.4 to 56.1 bushels per acre. The negative correlation between the damage rating and yield was stronger (R² value of 0.574) after accounting for the expected yield variation under no disease pressure (Figure 2).

FUNGICIDE EFFICACY

The average yield for all varieties in the treated plots was 62.3 bushels per acre (Table 1). Overall, the varieties in the untreated plots yielded an average of 13.7 bushels per acre less than in the treated plots. The yield differences between the varieties ranged from 5.3 to 26.6 bushels per acre. Furthermore, the percentage of yield loss between plots



Figure 1. Two row soybean variety plots not treated with a fungicide showing various levels of severity from charcoal rot. Photos by David Moseley

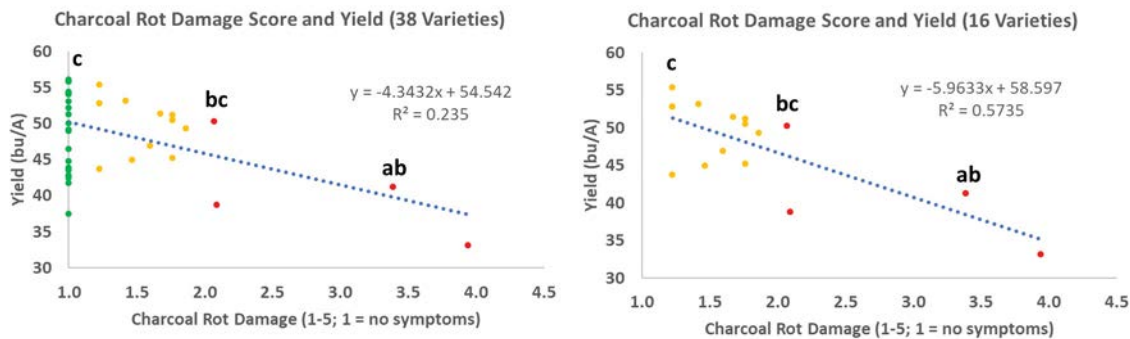


Figure 2. Correlation between the charcoal rot damage rating and yield (bushels per acre, or bu/A) for the two-row untreated soybean plots with all varieties (left) and only varieties with noticeable damage from charcoal rot (right). The charcoal rot damage data points with the same letter are not significantly different at $P=0.05$.

with and without a fungicide application ranged from 8.7% to 44.6%. Varieties with an average charcoal rot symptom rating of 1.5-plus had an average loss of 26.5%, while those with a rating of 3.4 to 3.9 had an average loss of 39%. (Figure 3). The treated and untreated trials were not randomized together, so the variety yield between the trials was not compared with statistics. However, the observed differences when the plots were planted side-by-side in the same field and day indicated there was a yield advantage when applying a fungicide at the R3 growth stage in the presence of high disease pressure. This data set represents one year and location of variety and fungicide testing. Analyzing data from multiple years and locations should be considered when defining agriculture best management practices.

PRACTICAL IMPLICATIONS FOR FARMERS

These findings emphasize the importance of choosing soybean varieties with good disease resistance and considering fungicide applications as a management tool when needed. By carefully selecting varieties and timing fungicide applications, Louisiana soybean farmers can improve their chances of achieving high yields and profitability.

David Moseley is a soybean specialist and assistant professor at the AgCenter Dean Lee Research and Extension Center in Alexandria. Boyd Padgett is a plant pathologist and professor at Dean Lee, and Trey Price is a plant pathologist and assistant professor at the AgCenter Macon Ridge Research Station in Winnsboro.

FUNGICIDE TREATMENT	TREATED	UNTREATED
Average Yield (bushels per acre)	62.3	48.6
Least Significant Difference ($P=0.05$)	6.6	8.2
Standard Deviation	4.7	5.9
CV	7.6	12.1

Table 1. Yield and statistics data for the two-row untreated soybean plots and four-row fungicide-treated soybean plots.



Figure 3. Two-row untreated soybean plots (left) and four-row fungicide-treated soybean plots (right) showcase the same variety in the center.



EXPLORING THE HEART OF LOCAL AGRICULTURE:

A GLIMPSE INTO THE 2023 ACADIANA SUSTAINABLE FARM TOUR

■ ISABELLA FRANK AND CARL MOTSENBOCKER

As the buzz around local agriculture grows louder, a new wave of consumers and community members is eager to connect directly with the sources of their food. This surge in interest is driven by a desire to understand and appreciate the origins of the ingredients on their plates.

Recognizing this trend, Louisiana Sustainable Agriculture Research and Education (SARE), with the support of U.S. Department of Agriculture funding, planned the 2023 Acadiana Sustainable Farm Tour, an event that brought together more than 80 attendees to connect with four distinctive local producers from the Acadiana region.

Acadiana is renowned for its vibrant culture. While the region is traditionally celebrated for its robust sugarcane, crawfish and rice production, the focus of this year's farm tour was to highlight smaller producers who mainly cater to the direct-to-consumer market with Louisiana-grown vegetables, flowers and animal products.

The tour was held on the morning of May 24, 2023, and brought attendees to various corners of Cajun country. The morning kicked off in Lafayette with a gathering at a hydroponic greenhouse owned by Camille Schuneman. Attendees enjoyed coffee and donuts while immersing themselves in the innovative world of hydroponic farming.

**CAMILLE SCHUNEMAN, A
HYDROPONIC GREENHOUSE OWNER,
SPEAKS TO GUESTS AT THE ACADIANA
SUSTAINABLE FARM TOUR.**

Provided photo

Owning a small business can be overwhelming, and farming presents its own unique set of challenges, often involving long hours and significant isolation. Events like the Acadiana Sustainable Farm Tour help bridge this gap, offering farmers a chance to connect with their community and combat the feelings of isolation that often accompany rural life.

Schuneman described the experience as “very motivating and reassuring.”

“Facing a crowd of 100 people, sharing what I do and answering their questions was incredibly empowering,” she said.

**READ MORE
ABOUT ALISHA
DELAHOUSSEY AND
OTHER CUT FLOWER
FARMS ON PAGE 36.**

A short drive north to Sunset brought the group to a cut flower farm owned by Alisha Delahoussaye. Delahoussaye shared about her cut flower business before everyone was invited to partake in a picnic-style lunch among the blooming flowers.

Six miles away at a pasture-raised livestock operation owned by husband-and-wife team Tim Melancon and Monica Hernandez, visitors encountered piglets and explored a U.S. Department of Agriculture-inspected kitchen.

The final leg of the farm tour brought the group to a family farm in Cankton. There, participants were able to meet Trey Johnson and tour the property, where the rows of lettuce showcased the farm’s dedication to quality and sustainability.

“Farm tours like this are a fantastic opportunity for the public to engage with and learn about small farms in our region,” said Delahoussaye. “It’s not only educational but also empowering.

I was thrilled to share my knowledge and forge connections with fellow farmers and extension professionals.”

Hernandez echoed similar sentiments.

“It’s incredibly rewarding to showcase our work and the reasons behind it,” she said. “Seeing people appreciate every aspect of our operation reinforces the value of what we do.”

Delahoussaye further emphasized the importance of such events.

“Building community through in-person networking like farm tours is crucial for small businesses, especially those as fragile and often overlooked as small farms,” she said. “Experiential learning has a profound impact on our decision-making and growth.”

The importance of supporting local agriculture extends beyond mere convenience. Hernandez highlighted the economic benefits as well.

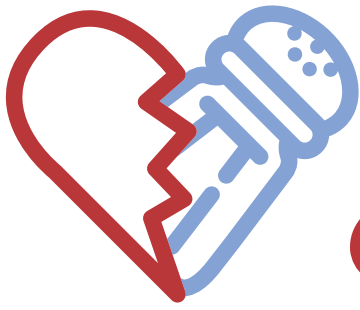
“When people buy local, their dollars stay within the community,” she said, “We use our revenue to create local jobs and purchase supplies, which supports the entire local economy.”

Beyond economic impact, the pride and cultural significance of Acadiana was palpable among tour attendees. The region’s deeply cherished and celebrated history and traditions in agriculture and food only helped add layers of meaning and deepen community connections to every farm and product showcased.

The 2023 Acadiana Sustainable Farm Tour was a resounding success, facilitating meaningful connections between producers and consumers. However, this event only scratched the surface of Acadiana’s rich agricultural landscape. Attendees and producers alike expressed a desire for more frequent farm tours with a shared enthusiasm for further exploration and appreciation of Louisiana’s locally grown food. For information on future events, visit the Louisiana SARE Facebook page.

SARE’s Professional Development Program offers training, grants and resources to enhance agricultural professionals’ knowledge and skills in sustainability. The program includes two main components: regional competitive grants for creating training materials and outreach projects and a network of part-time state coordinators who host workshops and field days and provide travel scholarships to share sustainable practices and research. The Acadiana Farm Tour was just one of the trainings Louisiana SARE put on in 2023.

Isabella Frank is an extension associate with the LSU AgCenter Louisiana Sustainable Agriculture Research and Education Professional Development Program and Louisiana Farm to School Program. Carl Motsenbocker is a professor in the AgCenter School of Plant, Environmental and Soil Sciences and state co-coordinator of Louisiana SARE. He is also program director of the Louisiana Farm to School Program and Grow Louisiana.



Break UP WITH Salt

TEACHING SIMPLE CHANGES TO REDUCE HYPERTENSION RISK

■ EMELIA CLEMENT AND ELIZABETH GOLLUB

Hypertension, often referred to as high blood pressure, is a global public health concern. It is a major risk factor for heart disease and stroke, which are leading causes of death among adults in the U.S. and worldwide. Louisiana ranks among the highest state levels nationwide, with approximately 40% of adults diagnosed with hypertension (America's Health Rankings Report, 2022). Louisiana also has one of the highest rates of heart disease and stroke (Louisiana Department of Health Report, 2022).

Hypertension often has no symptoms, but if untreated, it can damage blood vessels in the eyes, kidney, brain and heart. Family history, race or ethnicity, age and gender are risk factors that cannot be controlled. However, other risk factors, including diet, obesity, physical inactivity, stress, smoking and alcohol consumption, can be. Therefore, changes in diet and lifestyle are an effective approach to preventing onset of high blood pressure and improving disease management among those who are affected.

The LSU AgCenter developed a hypertension management program called Break Up With Salt (BUWS). This program was initiated in 2020 to meet the need for simple, practical and research-based strategies to direct lifestyle modification for adults. BUWS was built around the Dietary Approaches to Stop Hypertension (DASH) eating

plan for which the Pennington Biomedical Research Center, a division of the LSU System, was a key contributor. The program teaches skills in meal planning, grocery shopping, reading nutrition fact labels and cooking as well as strategies for applying these skills in daily routines. The goal of BUWS is to help prevent and/or manage high blood pressure. The program is delivered virtually or in-person and consists of four sessions. Typically, a follow-up session is also included three to four months later.

Statewide successes include the BUWS program delivered in-person by an LSU AgCenter nutrition and community health (NCH) agent in partnership with the New Orleans Council on Aging (NOCOA). A group of 21 adults at one NOCOA site participated in the program in 2023. Each session included an informational presentation, a Q&A and dialogue, goal-setting activities, healthy recipes and handouts to reinforce the topics.

Session one, Hypertension, Setting Goals and Making Changes, focused on facts about hypertension including risk factors, symptoms and blood pressure categories. Participants learned simple lifestyle changes associated with healthy eating, physical activity and stress reduction. They also practiced goal setting, cueing and habit formation techniques to make and maintain these lifestyle changes.

In session two, DASH Diet and Nutrition Facts Label, participants were introduced to the evidence-based DASH diet. The diet recommends servings and sources of foods low in sodium and high in fiber, such as fruits, vegetables, whole grains, nuts, seeds and legumes, as well as choosing low-fat or fat-free dairy options and limiting high-fat meats. Participants were given resources to guide sodium reduction. These included general tips, food packages to practice reading nutrition fact labels, worksheets to track daily sodium intake, lists of high-sodium foods and facts about salt substitutes.

In session three, DASH in for Groceries, participants experienced a virtual grocery store tour interspersed with activities for practicing how to select foods low in salt and avoid added sugars and unhealthy fats. Tips on making the most of food dollars were also included. Participants exchanged tips as they began to understand and apply the knowledge and skills.

In the fourth session, Mastering Meals with Flavor, participants learned how to prepare lower-sodium meals and use herbs and spices instead of salt to enhance flavor. They also received a general introduction on pairing herbs and spices with specific foods. To support healthy food selections when eating out, participants were taught to associate certain menu words and terms,



such as pickled, barbecued or au jus, with high sodium content.

At the follow-up session, the NCH agent gave a presentation on the Mediterranean Diet, which works well with the DASH eating plan.

To evaluate program effectiveness, participants completed surveys before and after the program. With 82% program completion, participants reported a 20% increase (68% to 88%) in their ability to use nutrition fact labels when grocery shopping. Other reported increases included learning to follow the DASH eating plan to prepare food that tastes good without salt and to make lower sodium choices when eating out. These key improvements suggest that BUWS has the potential to help participants reduce long term salt/sodium consumption and their risk for hypertension.

In Louisiana, maintaining a DASH eating plan can be achieved using locally grown foods. With their reach through local connections, partnerships and nutrition education programs such as BUWS, LSU AgCenter NCH agents can promote behavior change for better health outcomes in Louisiana.

Emelia Clement is a nutrition and community health agent in Orleans Parish and delivers BUWS programming. Elizabeth Gollub is an assistant professor in the School of Nutrition and Food Sciences.

TIPS TO REDUCE SODIUM (SALT) IN YOUR DIET

■ ELIZABETH GOLLUB

- Choose low- or reduced-sodium, or no-salt-added versions of foods and condiments when available.
- Limit intake of smoked/cured and processed meats, poultry and fish.
- Look for and select ready-to-eat breakfast cereals that are lower in sodium.
- Limit your intake of foods packed in brine (e.g., pickles, pickled vegetables, olives and sauerkraut) and condiments (e.g., mustard, horseradish, ketchup, barbecue sauce, and soy and teriyaki sauce) — even lower sodium versions.
- Cook or prepare rice, pasta and hot cereals without added salt.
- If convenience items are a must, choose lower-sodium versions, especially when choosing frozen dinners, mixed dishes, pizzas, packaged mixes, canned soups or broths and salad dressings.
- Rinse canned vegetables and meats to help remove the salt.
- Use herbs and spices, lemon, lime or vinegar in place of salt. Start by using half the amount of salt you currently add to your foods.

LITTLE ONES CAN GARDEN TOO

■ CELESTE FINNEY AND TYNE BANKESTER

If you have ever thought that gardening is an activity suited only for older children and adults, think again. The Child Development Center at the University of Louisiana at Lafayette (ULL), which provides childcare and preschool for children of ULL students, faculty and staff, has strong evidence to the contrary.

Three years ago, Denise Hebert, a prekindergarten teacher at the center, started a small garden for her students and the center. Since then, the school garden and student experiences within it have been growing and expanding both inside and outside the classroom. The garden began in 2021 with help from the LSU AgCenter farm to school program, which is now developing ways to help more childhood educators across the state reach more children.

“A parent brought me information from LSU AgCenter’s Seeds to Success: The Louisiana Farm to School Program, and we started by signing up to receive a windowsill kit and then we grew beans and cucumbers,” Hebert said. “Now we are growing several containers, and the kids love it.”

The garden has become a cornerstone of Hebert’s classroom culture and experiences for the littlest of learners. Students ranging in age from 1 to 6 years old take care of the plants, watch them grow and learn about different things in the garden from insects to weather, all before they are in kindergarten. Susan Arceneaux, director of the Child Development Center, explains that starting at 1 year old, the children are watering the plants daily and talking about what they observe.

“It is a skill just like any other,” Arceneaux said. “If you can teach a child a nursery rhyme, you can also teach them about gardening and plants.”

Over the past few years, participation in farm to school programming within early childhood education (ECE) has increased at an exponential rate across the country. Research performed at ECE institutions has shown that these programs benefit young children by increasing vegetable intake and a willingness to try new foods. Because farm to school participation has historically focused on K-12 integration, resources to support ECE farm to school programming are much more limited. The Seeds to Success team received overwhelming feedback from early childhood educators that they often feel left out of farm to school programming.

The Seeds to Success team has taken this feedback seriously and is working diligently to launch a new pre-K and ECE component to the Seeds to Success website under “Seeds to Know.” This section of the website houses curriculum that has already been vetted and aligned to state standards. Starting

in spring 2024, ECE teachers are now able to access a lesson and resource library that has lessons and support materials appropriate for ECE environments.

The Seeds to Success team is taking this a step further by developing a “Growing Minds Toolkit for ECE,” which will provide standard-aligned lesson plans, recipe suggestions, parent newsletters and coloring sheets, with one Louisiana Harvest of the Month product for each segment. Unlike other toolkits that have been prepared for use over a traditional school year, the ECE toolkit will be broken into 12 sections to better serve childcare centers that remain open 12 months out of the year. All installments are scheduled to be released in spring 2025.

Although early childhood may have the reputation of being too young for such involved hands-on activities, the University of Louisiana at Lafayette’s program has continued to show parent and student engagement as they get deeper into farm to school programming. Children are naturally curious about the world around them and are excited to see the plants grow and then taste what the plant produces. These children in turn have a better chance of developing healthy eating behaviors because of this encounter with gardening. It is never too early to start teaching little ones about the fun in a garden.

Celeste Finney was an extension associate for Seeds to Success: The Louisiana Farm to School Program. Tyne Bankester is the program manager for curriculum integration and MarketMaker for the program.



Denise Hebert, right, a teacher at the Child Development Center at the University of Louisiana at Lafayette has spearheaded a school garden for the preschool center. Susan Arceneaux, left, the director of the center, sees the value in educating young children about growing food. Photo by Kyle Peveto

EVERYONE LEARNS THE LOVE OF SCIENCE AT L. LEO JUDICE ELEMENTARY

■ TYNE BANKESTER

In the city of Scott, L. Leo Judice Elementary School serves as Lafayette Parish's only academy for environmental sciences for elementary students. For more than a decade, this school's environmental science program has increased awareness of local environmental needs, promoted stewardship and provided opportunities to make meaningful connections between its curricula and the environment, all with help from the LSU AgCenter.

The growth and expansion of this program is due in large part to the vision and devotion of veteran teacher Paula Guidry, who began teaching 25 years ago at L. Leo Judice as a first-grade teacher. She made the jump to fifth grade 15 years ago as the school became an environmental science magnet program. Since then, Guidry has cultivated several relationships with community partners and LSU AgCenter programs. For 14 years she has worked with the Lafayette Parish 4-H school garden program. This program represents a collaborative effort among school administration, faculty, students, Lafayette Parish Master Gardeners, the LSU AgCenter 4-H Youth Development Program and the Lafayette Parish School System Child Nutrition Program. The resulting gardens are outdoor laboratories that incorporate school curricula in multiple subjects including science, math, English, history, language arts and physical education.

While Guidry integrated the school garden into her curriculum and supported other teachers to do the same, meaningfully reaching every

child at her school felt like an impossible task. In the 2023-2024 school year, a solution appeared with another layer of hands-on experiential learning with the creation of the Environmental Science Lab. The lab, and its dedicated, full-time teaching position, is designed to reach all kindergarten-through-fifth grade students with focused 30-minute segments of experiential science lessons on a weekly basis. Guidry was selected to facilitate the programming of the lab full time.

"It was a great year for us to get more hands-on activities and to really dive into environmental science lessons and units with each grade level," she said of the inaugural year.

Guidry has additional experiences planned for the students of L. Leo Judice for the 2024-2025 school year, many of which are made possible through LSU AgCenter programming. Although every student visits the lab regularly, their experiences are unique to their grade level — each cohort engages in a specific yearlong focus that ties into the school's environmental science mission. Upcoming plans shared by Guidry include third grade students working with the AgCenter Coastal Roots program and the University of Louisiana at Lafayette's Ecology Center to grow plants to help restore the Cajun Prairie in their region, and fourth grade students learning how to grow their own vegetables in the school garden with support from the Lafayette Parish Master Gardeners.

To unify the school community across the grade levels, L. Leo Judice has

also implemented a robust Louisiana Harvest of the Month (HOM) program through the Environmental Science Lab. The Harvest of the Month program is a promotional campaign produced by the LSU AgCenter's Seeds to Success: The Louisiana Farm to School Program and showcases locally grown foods. Guidry plans monthly programming around a new Harvest of the Month that all 370 students experience through the Environmental Science Lab. Students participate in taste tests, read books about the featured agricultural product, study its life cycle and complete lab activities involving the product. Guidry reports that the science lab has increased Harvest of the Month participation among students and improved the vegetable garden program. It "brings an awareness of where food comes from, the process and the life cycle of different plants," she said.

Tyne Bankester is the program manager for curriculum integration and MarketMaker for the Seeds to Success: The Louisiana Farm to School Program.



Paula Guidry, a fifth-grade teacher at L. Leo Judice Elementary School in Scott, works with the Lafayette Parish 4-H school garden program. Photo courtesy of Louisiana Farm Bureau

GROWING WHERE YOU ARE: CAFETERIA MANAGER BRINGS THE FARM TO THE TABLE FOR SHREVEPORT STUDENTS

■ TYNE BANKESTER

Steven Wagner is the child nutrition program manager at Summerfield Elementary School in Shreveport. He has a passion for gardening, and in 2022 he began sharing his interest with students by establishing a pollinator garden. The chef in him had bigger dreams of showing students how food is grown. A 2023 school garden leadership training from the LSU AgCenter Seeds to Success Program provided Wagner with skills and inspiration to expand the school garden to include a pollinator garden and a small-scale school vegetable garden. The 2024 school year is Wagner's third year gardening and second year growing fruits and vegetables with Summerfield Elementary School students.

How did you decide to start a garden at your school?

Whenever I was working as a para-professional at a different school in the district, the principal approached me about starting a butterfly garden, and that was fun. When I transferred to the nutrition department and started here at Summerfield, I did another butterfly garden. Since I grow vegetables at home, I started to bring over potted plants like tomatoes and herbs from my own garden and added them into the school garden last year. We also were able to get 95 students, with the help of their teachers, to start seeds in their classrooms. Last year, I pulled three to four students each day to help with the garden during the school day, so we were able to reach a lot of students and get them excited about the food we were growing. Throughout the school year, we started preparing our in-ground garden plot and started composting to help build our soil up. With this new year, I'm excited to get more students involved with the school garden and hopefully grow more things so we can cook more of what we harvest and less of what we have to buy.

What do you want to tell others to encourage them to integrate cooking gardens into their school culture?

It's not hard. You have to realize that you're not going to be able to grow enough to feed everybody, but everyone can have a special experience. For example, I will never be able to grow enough sweet potatoes to feed 400 students. But I can let the kindergarten class plant and care for sweet potato slips, harvest them and then let those students sample the potatoes. If I have a child that harvests tomatoes, I make sure that they get a separate salad the next day with the tomatoes they harvested on it, but we used purchased tomatoes for the rest of the salads that meal. None of it is hard if you're excited to do this work, but you have to carve out the space to make it happen.

What are you most excited about with the start of the new school year?

I'm excited that we're going to have homegrown tomatoes in our salad on the first day of school. I'm also excited for the kids to see how much the garden has changed over the summer. One boy grew basil from seed last school year and planted his transplants in the garden at the end of the school year. When he comes back this fall, he's going to see this big patch of basil. We're going to pick and dehydrate the leaves together so that we save and use it all year long in our kitchen.

Tyne Bankester is the program manager for curriculum integration and MarketMaker for the Seeds to Success: The Louisiana Farm to School Program.

**STEVEN WAGNER, THE CHILD NUTRITION
PROGRAM MANAGER AT SUMMERFIELD
ELEMENTARY SCHOOL IN SHREVEPORT,
POSES IN HIS GARDEN.**

Photo by Anthony Bailey



NATIVE PLANTS FOR CUT FLOWER FARMING AND FLORAL PRODUCTION IN LOUISIANA: A BOOMING BLOSSOM BUSINESS IN THE BAYOU STATE

■ JENNIFER BLANCHARD

Floral sales are a multibillion-dollar industry in the United States. Americans spent \$72.8 billion on flowers, seeds and potted plants in 2023, according to the Society of American Florists. Louisiana flower farming is a growing industry, and producers have an opportunity to share in this booming market by marketing flowers traditionally sold at retail as well as native plants that already thrive in the state.

Flowers in the U.S. are grown in controlled environment greenhouses, hoop houses and the field. The U.S. boasts flower farms in all 50 states and almost 9,000 producers across the country. Eighty percent of the cut flowers grown in the U.S. are sourced from California and Florida, with the two states battling it out each year for the top spot. In Louisiana, there are more than 40 cut flower farms, and the value of sales in Louisiana from cut flowers and cut florist greens grew from \$113,245 in 2017 to \$432,570 in 2022, according to the U.S. Department of Agriculture.

This spring, more than 30 old, new and enthusiastic future flower farmers attended an AgCenter commercial cut flower training led by Denyse Cummins, program adviser of the Louisiana farm to school Program and a cut flower grower in Lafayette. The event was hosted by Carl Motsenbocker of the LSU AgCenter School of Plant, Environmental and Soil Sciences and cohosted by the Southern University Ag Center and supported by funding from a Louisiana Southern Sustainable Agriculture Research and Education grant. They attended the session to learn more about sustainably growing, planting and marketing cut flowers.

The cut flower industry in Louisiana is dominated by women, and some of these female farmers also work full-time jobs. Dawn Saucier, in Zachary, works as a project manager for a chemical plant. Destin Sims, of Loranger, is an attorney. Reesa Gravois-Arabie, of Lockport, is a shipyard supervisor. In addition, some are wives, full-time moms, grandmothers and students while also tending their flower fields.

Most of the cut flower varieties currently being grown are non-native, and for myriad reasons each farmer in the state has unique experiences growing these plants depending on

their location. Roberta McKowen, the snapdragon queen of Jackson, Louisiana, is a retired small animal veterinarian and sheep farmer. She has access to more than 1,000 acres and forages for some of her native blooms, like obedient plant (*Physostegia virginiana*). Most of the varieties grown for cut flowers are not native to Louisiana and don't grow easily in the hot, humid climate. Many who attended the training were eager to discuss using natives as cut flowers and exchange information about which plants are already being used and what potential new species could be added to the list.

Natives have evolved and adapted to our environment, making them sustainable selections for growing and providing multiple ecological services, such as food, habitat and pollinator plants. Growers could see some samples of the plants up close. Of these samples, many growers were interested in the rattlesnake master (*Eryngium yuccifolium*) — the king of the Cajun prairie once used by Native Americans to heal snakebite, hence the name. It has a long, sturdy stem with chartreuse-to-white-colored flowers (called buttons) and an interesting texture, making it an ideal selection for use in floral arrangements fresh or dried. There are three other species of *Eryngium* native to the state. Hooker's eryngo (*Eryngium hookeri*) and blueflower eryngo (*Eryngium integrifolium*) have purple-to-blue flowers that represent hard-to-find hues in the floral industry, making them ideal candidates for native cut flower exports.

Louisiana flower farmers have an opportunity to cultivate and develop a booming, blossoming business and take a bite out of a big billion-dollar pie, but getting there is going to take some knowledge, expertise and experience coupled with failed trials along the way. The LSU AgCenter works hard to do valuable research and help alleviate some of the guesswork for farmers. Of the growers who attended the training, only a few used natives.

Farmers Alisha and Jacob Delahoussaye in Sunset use wax myrtle (*Morella cerifera*) and Southern magnolia (*Magnolia grandiflora*) as greenery in their arrangements. Leah Latiolais, of Husser in Tangipahoa Parish, is the leader of the pack in growing natives for cut flowers in Louisiana. A graduate of



DESTIN SIMS
WORKS AT A
BOUQUET BAR
AT FLOWER
FEST IN BATON
ROUGE.

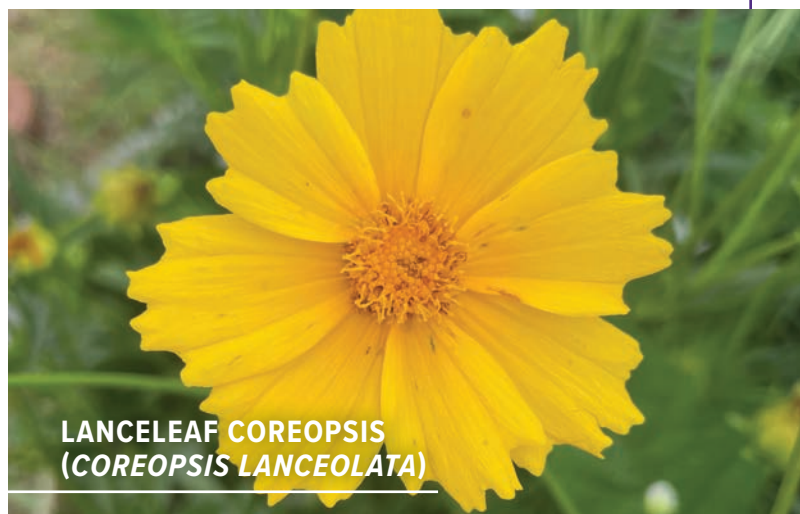


Further resources for cut flower farmers can be found on the [AgCenter's website](#).



Access information on the required [Louisiana Department of Agriculture and Forestry permits for growing and selling cut flowers in the state](#).

If you would like to learn more or share information about Louisiana native plants as cut flowers or would like further assistance with resources for acquiring these seeds and plants, please contact Jennifer Blanchard at JenBlanchard@lsu.edu.



LANCELEAF COREOPSIS
(*COREOPSIS LANCEOLATA*)



FORGET-ME-NOT
(*MYOSOTIS SYLVATICA*)



EASTERN PURPLE CONEFLOWER
(*ECHINACEA PURPUREA*)

Southeastern Louisiana University with a degree in ecology, she started growing cut flowers in 2018 for a commercial farm in Tangipahoa Parish. She is now entering her seventh season as a grower turning her passion into her own business and growing more than 25 species of native flowers in addition to non-natives. Her go-to natives include pepper grass (*Lepidium virginicum*), purple and white varieties of echinacea (*Echinacea purpurea*) and pale coneflower (*Echinacea pallida*), rudbeckias (*Rudbeckia triloba* and *Rudbeckia hirta*), and baptisia — all colors and varieties, including the white baptisia (*Baptisia alba*) and the yellow (*Baptisia sphaerocarpa*).

Latiolais grows several varieties and colors of beebalms and wild bergamots like lemon beebalm (*Monarda citriodora*), bergamot (*Monarda fistulosa*), scarlet beebalm (*Monarda didyma*), and dotted or spotted horsemint (*Monarda punctata*). In addition to the natives, she grows more than 75 other varieties of non-natives for cut flowers. Latiolais said many of the non-natives will be cut (pun intended) from the team this year. Her focus has been and will continue to be on natives because she finds them to be less problematic and better for the environment, feeding and supporting the life cycle of native bees and other pollinators.

As for the future of horticulture in cut flower production in Louisiana, there is tremendous growth possible. Further research on natives for cut flowers is needed to identify additional species that would be suitable for growing in our beautiful state.

Jennifer Blanchard is a botanist and an instructor of horticulture in the LSU College of Agriculture School of Plant, Environmental and Soil Sciences and the AgCenter.



FLOWER FARM AT LORANGER



**BUTTERFLYWEED
(ASCLEPIAS TUBEROSA)**



SCARLET BEEBALM

LEAH LATIOLAIS, OF NORTHSORE NATIVES, WALKS WITH HER SONS AT A FLOWER FARM IN HUSSER.



RASPBERRY WINE CULTIVAR
OF SCARLET BEEBALM



THE WORLD TRADE OF CUT FLOWERS, which is defined as “cut flowers and flower buds of a kind suitable for bouquets or for ornamental purposes, fresh, dried, dyed, bleached, impregnated or otherwise prepared” by the Observatory of Economic Complexity (OEC), was **\$9.66 billion dollars in 2022**.

Imports of cut flowers to the U.S. were \$3.3 billion in 2022, according to the U.S. Department of Agriculture, with most of these floral products coming into the country from 81 countries around the world including Colombia, Canada, Ecuador, the EU, Mexico, Kenya and others, the OEC found in 2023.



SEE INSIDE

Floating solar panels placed in ponds can generate electricity without taking up valuable land and are often out of sight. Researchers are studying how to make this technology work for Louisiana landowners.

SEE PAGE 24.

The Acadiana Sustainable Farm Tour highlighted producers of locally raised vegetables, flowers and animal products. Attendees made professional connections and built a sense of community.

SEE PAGE 28.

Across Louisiana, more and more people are interested in growing flowers for the floral industry. Some experts see an opportunity to introduce native plants to the booming business.

SEE PAGE 36.



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