

LOUISIANA Agriculture

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ENSURING OUR FUTURE THROUGH SCIENTIFIC
RESEARCH AND EDUCATION

**PLANT BREEDERS
BUILD ON THE PAST
FOR THE FUTURE**

LEARNING HOW ONE IMPORTANT SUGARCANE VARIETY CONTINUES TO MAKE AN IMPACT

■ KYLE PEVETO

LOUISIANA SUGARCANE PRODUCERS RELY ON PLANT BREEDERS.

Growers can optimize nearly everything in the production process, including cultural practices, herbicide and insecticide treatments, and fertilization regimes, said Brayden Blanchard, who grew up on a sugarcane farm before becoming a geneticist working on plant breeding at the LSU AgCenter Sugar Research Station in St. Gabriel.

“The grower can tweak every other piece of his operation according to how to grow the crop the best way,” Blanchard said. “He can’t make a new variety. For us, that is a huge part of our impact.”

Sugarcane breeders with the AgCenter and the U.S. Department of Agriculture continually work to develop plant varieties that help producers harvest profitable crops that can produce more sugar while withstanding insects, diseases and other challenges. In this issue of Louisiana Agriculture, Blanchard explains the effect that a profoundly impactful sugarcane variety has had on generations of producers.

As a doctoral student, Blanchard studied genetic gains in the sugarcane industry over the past 50 years to prepare himself for his professional field.

“It’s important to know what challenges need to be met,” he said, explaining his motivation behind his research. “That means examining exactly where we are in the industry, what kind of challenges are out there and how we can address those challenges in a new variety.”

Working at the Sugar Research Station as a doctoral student, Blanchard loaded the crossing carts used to breed parent varieties. He decided which male and female plants to cross, and he knew many of the varieties were related to LCP 85-384, the most popular sugarcane variety in the state from 1999 to 2007. The variety, often called 384 in the industry, was produced through a cooperative effort between the AgCenter and the USDA Agricultural Research Service Sugarcane Research Unit.

Blanchard knew 384 well. His grandfather, father and uncle had planted it, and it accounted for more than 90% of the state’s sugarcane acreage in 2004. The variety boosted the amount of sugar from a harvest, increased the number of stalks in a field and had several other attributes that helped make sugarcane production much more profitable. Eventually, the variety succumbed to disease, and new varieties took its place.

However, its presence is still felt in Louisiana agriculture. Plant breeders crossed 384 with other varieties more than 1,000 times in search of the next great development.

“After a while, all of 384’s progeny were making better varieties than 384 was,” Blanchard said. “For us, that’s the best indicator that the breeding program is working. We’re making positive progress.”

With this knowledge, Blanchard devoted a chapter of his doctoral dissertation to understanding 384. He summarizes his findings on Page 16.



Brayden Blanchard stands next to sugarcane plants on crossing carts at the LSU AgCenter Sugar Research Station in St. Gabriel. Photo by Olivia McClure

“Clearly, 384 has historically been an excellent parent, but as a breeder, you want to know why that is so,” Blanchard said. “Why does it contribute such good material to the breeding pipeline? How is it so efficient in transferring its favorable genes? How can we continue to take advantage of that?”

As the progeny of 384 became commercially available varieties on their own and carried on its positive traits, 384 began producing less relevant descendants in the breeding process. Blanchard and his colleagues mapped the genetics of recent commercial sugarcane releases and determined that this occurred around 2013. Today, 384 is used less on the crossing carts to make way for newer, better parents to be used in the breeding process.

“We know the favorable traits that 384 had have now been successfully translated into our modern varieties,” Blanchard said. “Now I can focus on our more modern varieties to continue that process.”

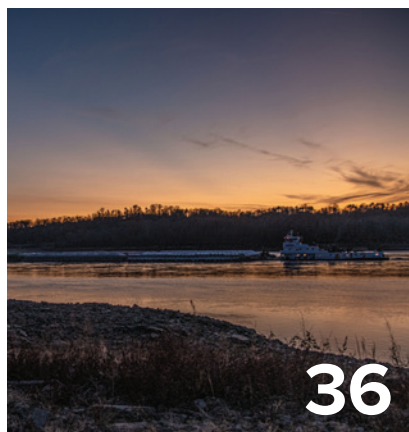
Kyle Peveto, the editor of Louisiana Agriculture, is a writer and editor in AgCenter Communications.

LOUISIANA Agriculture

VOL. 68, NO. 3, SUMMER 2025

ON THE COVER: Sugarcane grows at the LSU AgCenter Sugar Research Station in St. Gabriel.
Photo by Olivia McClure

- 4** AgCenter News
- 5** From Our Social Media
- 6** College of Ag News
- 7** The Year That Stunned Louisiana: An Oral History of the LSU AgCenter Response to Hurricanes Katrina and Rita
KYLE PEVETO, V. TODD MILLER AND ANTHONY BAILEY
- 12** Century-Old LSU AgCenter Dairy Store Modernizes
OLIVIA MCCLURE
- 16** LCP 85-384: A Sugarcane Variety That Keeps on Giving
BRAYDEN BLANCHARD
- 20** Nuisance to Nutrients: Aquaculture Processors' Waste to Agricultural Fertilizers
M.P. HAYES
- 22** Art Contest Celebrates Louisiana Agriculture
TYNE BANKESTER AND JACEY WESLEY
- 24** The Adventuresome Eating Club: Cultivating Curiosity and Healthy Habits for the Next Generation
JACEY WESLEY AND TYNE BANKESTER
- 26** The Bug Biz Publication Series: An Education and Information Tool for Louisiana
T. EUGENE REAGAN, CHRIS CARLTON AND AARON ASHBROOK
- 28** Root of the Issue: Applied Research for Best Tree Installation Practices in the Louisiana Landscape
DAMON EDWARD ABDI
- 32** Judy Myhand's Mission: Building an Army for Good Nutrition
RANDY LABAUVE
- 36** Mississippi River Drought: A Bottleneck for U.S. Agricultural Trade
RAGHAV GOYAL
- 38** Woven Louisiana History: Acadian Textiles
MICHAEL MAMP



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NEW AGCENTER HIRE TACKLES THREE ROLES

LSU AgCenter researcher Christine Coker, who joined the AgCenter in July as the state vegetable specialist, will also serve as general horticulture extension agent for southeast Louisiana and research coordinator at the AgCenter Hammond Research Station.

Originally from Middle Tennessee, Coker attended graduate school at Auburn University before making her way southeast to take a position at the Coastal Research and Extension Center at Mississippi State University, where she worked for 24 years in urban horticulture and commercial vegetable production. ■ V. TODD MILLER



Christine Coker.
Photo by Olivia McClure



A new USDA variety release, HoCP 18-803, was announced at the LSU AgCenter sugarcane field day held July 16. Breeding specialist Michael Pontif said it exhibits good tonnage, stalk size and sugar. Photo by Olivia McClure

NEW VARIETY, NEW THREAT TAKE CENTER STAGE AT RECORD-BREAKING SUGARCANE FIELD DAY

The announcement of a new variety and the arrival of a potentially troublesome weed highlighted the LSU AgCenter's annual Sugar Research Station field day.

AgCenter breeder Michael Pontif announced a new U.S. Department of Agriculture variety release, HoCP 18-803. After 12 years of testing and more than 200 samples brought to the lab, 803 was determined to exhibit good tonnage, stalk size and sugar — doing statistically better than L 01-299, the leading variety in the state for the past several years.

The positive news about 803 was tempered by weed scientist Matt Foster revealing that a new invasive weed was discovered in St. John the Baptist Parish late last year. *Luffa quinquefida* — part of the cucurbit family — is native to Central America and could potentially cause nightmares for producers come harvest time.

For the second year in a row, the field day broke attendance records, with Sugar Research Station coordinator Al Orgeron estimating that more than 300 attendees took part in the event. ■ V. TODD MILLER

INTERIM AGCENTER VICE PRESIDENT AND LOUISIANA AGRICULTURAL EXPERIMENT STATION DIRECTOR NAMED

The LSU AgCenter has appointed Michael Salassi interim vice president for agriculture and dean of the LSU College of Agriculture following the selection of Matt Lee as interim LSU system president.

Salassi, who served as director of the Louisiana Agricultural Experiment Station, brings more than three decades of experience with the AgCenter to his new leadership role.

As Salassi steps into this position, Glen Gentry, the current Southeast Region director, will serve as interim director of the Louisiana Agricultural Experiment Station. Together, they will continue to support the AgCenter's statewide mission of research, extension and teaching. These AgCenter appointments were effective June 1. ■ V. TODD MILLER

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 | FOLLOW THE AGCENTER AT [FACEBOOK.COM/LSUAGCENTER](https://www.facebook.com/LSUAGCENTER)

MAY 3 | Families in Greensburg have a new place to play, exercise and spend time together thanks to the opening of a pocket park next to the track at St. Helena College and Career Academy.



MAY 7 | Be prepared for upcoming severe weather with LSU AgCenter LaHouse resources! LaHouse offers flood maps, mold remediation classes and resources on how to prepare your home before bad weather strikes.



INSTAGRAM | FOLLOW THE AGCENTER AT [INSTAGRAM.COM/LSUAGCENTER](https://www.instagram.com/LSUAGCENTER)

JUNE 12 | The sunflowers are blooming at the LSU AgCenter Red River Research Station in Bossier City, Louisiana. Bring the family and take free photos! **#SUNFLOWERS**



LINKEDIN | FOLLOW THE AGCENTER AT [LINKEDIN.COM/COMPANY/LSU-AGCENTER](https://www.linkedin.com/company/LSU-AGCENTER)

JULY 14 | LSU AgCenter researcher Christine Coker has big goals in mind as she wears three hats, one being Louisiana's new state vegetable specialist. **#RESEARCH #HORTICULTURE #LSUAGCENTER #EXTENSION**

X | FOLLOW THE AGCENTER AT [TWITTER.COM/LSUAGCENTER](https://twitter.com/LSUAGCENTER)

JULY 8 | For the third year in a row, members of the Louisiana 4-H Shooting Sports Team are reigning national champions after defeating competitors from across the United States.



NEWLY HIRED ENTOMOLOGIST LOOKS TO DEVELOP RESEARCH, EDUCATION ON LOUISIANA POLLINATORS

Morgan Christman is the first assistant professor of pollinator ecology at the LSU AgCenter and LSU College of Agriculture. While her research has already begun, she will begin teaching undergraduate and graduate students about pollinator ecology and conservation in spring 2026.

Christman earned a doctorate in ecology and later worked as a postdoctoral researcher at Ohio State University and a postdoctoral fellow at the U.S. Department of Agriculture Pollinating-Insect Biology, Management, Systematics Research unit.

"I'm excited I'm able to conduct that research that gives back to landowners, beekeepers and the general public and to be able to say, 'Here's what the research we're doing is and why it's so important,'" Christman said.

In her new role, Christman will be able to continue her postdoctoral research on the rusty patched bumblebee and its habitats in Wisconsin and Iowa. She also will be studying how to improve conservation practices for bumblebees before the American bumblebee, potentially gets listed under the Endangered Species Act, which she said would make research harder to complete. As part of the conservation process, Christman rears the bumblebees and eventually releases them back into the wild, which can prove to be difficult.

Christman also will be one of the first researchers to accumulate baseline data about pollinator species in Louisiana, specifically native bees. She will begin to find which specific species are in what areas of the state and try to get a grasp of their population changes over time to see what populations need the most support. With this data, Christman also will do research that looks at the threats and different anthropogenic factors on pollinator populations, specifically bumblebees. ■ **ANTHONY BAILEY**



New entomology professor Morgan Christman will look to expand the research and knowledge that Louisianans have of local pollinator species. Photo by Anthony Bailey

COLLEGE OF AGRICULTURE WINS HONORS AT NATIONAL AGRICULTURAL ALUMNI DEVELOPMENT ASSOCIATION CONFERENCE

The LSU College of Agriculture received two first-place honors in the National Agricultural Alumni Development Association (NAADA) Publications and Projects Competition during the 2025 Annual Conference held in June at Purdue University.

The LSU College of Agriculture Alumni Association Membership Drive campaign was awarded first place in the campaigns for alumni category and for the print media category of magazines produced by a college or outside agency for The Stately Oak annual publication.

NAADA's Publications and Projects Competition celebrates outstanding work in communications, alumni engagement and student outreach. ■ **STAFF REPORT**



The Stately Oak was designed by Roxanne Hare, assistant director of AgCenter Communications for graphic design, and edited by Tobie Blanchard, director of AgCenter Communications. Cover photo by Olivia McClure

COLLEGE OF AG STUDENT PLACES FIRST IN LOUISIANA FARM BUREAU MEET

LSU College of Agriculture School of Animal Sciences student Abbygail Davis placed first in the Louisiana Farm Bureau Federation Young Farmers and Ranchers Discussion Meet.

The Young Farmers and Ranchers Discussion Meet is designed to simulate a committee meeting where discussion and active participation are expected from each committee member. Participants build basic discussion skills, develop a keen understanding of important agricultural issues, and explore how groups can pool knowledge to reach consensus and solve problems.

Davis received a John Deere Gator, a trip to the American Farm Bureau Convention and over \$1,700 in additional prizes.

■ **STAFF REPORT**

THE YEAR THAT STUNNED LOUISIANA:

AN ORAL HISTORY OF THE LSU AGCENTER RESPONSE TO HURRICANES KATRINA AND RITA

■ Kyle Peveto, V. Todd Miller and Anthony Bailey

A PAIR OF NATURAL DISASTERS STUNNED SOUTH LOUISIANA IN 2005.

When Hurricane Katrina hit the coast on Aug. 29 and Hurricane Rita followed on Sept. 24, much of south Louisiana sustained tremendous damage. The storms caused more than 1,100 deaths, according to the Louisiana Department of Health; displaced several communities; and led to \$108 billion in damage, according to the National Weather Service. LSU AgCenter economists estimated that the state's agricultural sectors sustained nearly \$1.6 billion in losses from the storms.

With personnel across the state dedicated to serving others, the AgCenter committed to help shelter and provide care for displaced people and their pets, rescue livestock and support Louisianans in the aftermath of the storms.

"You are never prepared for these kinds of things, and it's not something that you expect to have to deal with when you take a job doing extension work," said Paul Coreil, the current chancellor of LSU Alexandria. In 2005, Coreil was the director of extension, which is a system of educating and assisting people on important topics such as agriculture and healthy living. "Extension has a tradition of helping people in crisis and improving quality of life. It's so close to the mission that we felt very strongly that we needed to be responsive to the whole state."



A boat sits capsized after Hurricane Katrina. One of the greatest obstacles to the rebound of the state's commercial fishing industry was that Katrina and Rita virtually destroyed all the infrastructure. AgCenter file photo

Hundreds of AgCenter employees — including many whose own homes were damaged or destroyed — worked long hours in the months following the hurricanes. A few of them recounted their experiences to mark the 20th anniversary of hurricanes Katrina and Rita and to discuss how these storms affected Louisiana and the AgCenter.

After Katrina struck, safety was of top importance. Communication was difficult, and it took administrators several days to locate all AgCenter employees.

COREIL: “We couldn’t find a lot of employees. We just couldn’t connect to them. Really, we didn’t know if they were alive or dead because so many people escaped and migrated out any way they could. And we ended up finding people all over the country — I mean, Chicago and St. Louis and Houston and Dallas and Arkansas. People just went wherever they could go and many of them didn’t have a home to go to. Survival was the mode for many of them.”

Frances “Frankie” Gould was AgCenter director of communications in 2005. She is now an associate vice president in the Office of the Vice President of Agriculture.

GOULD: “We did not know where 40 of our people were. Usually, you report to your supervisor in your department, region or parish or research station coordinator. They were unaccounted for. Eventually, the 40 people were located. They had all been displaced from their homes. Many went out-of-state.”

AgCenter facilities in the path of the storm sustained damage or were destroyed. The AgCenter Citrus Research Station in Port Sulphur in Plaquemines Parish was inundated by 5 to 6 feet of saltwater, killing or harming the majority of citrus trees and destroying or heavily damaging all buildings and equipment. The work of the station then changed to focus on a variety of coastal issues, and it closed in 2011.



TOP: Dr. Scott Buzhardt, a veterinarian at the Zachary Animal Center, and LSU student volunteer Dana Wooley examine one of the many dogs and cats at the animal shelter in Parker Coliseum after Hurricane Katrina. AgCenter file photo

BOTTOM: The Baton Rouge River Center served as a temporary home to a fluctuating population of around 6,000 people for weeks after Hurricane Katrina hit in 2005. Many of those evacuees were children, and LSU AgCenter 4-H agents and other volunteers worked to keep the children occupied and lift their spirits. AgCenter file photo

COREIL: “We knew for sure that the Orleans Parish Extension Office was gone. I mean, it was devastated — completely underwater and everything. And in Plaquemines, St. Bernard and all the parishes south of New Orleans, the most important priority was finding and seeking out our employees and making sure they were safe.”

Lauren Faust was a St. Bernard Parish 4-H agent in 2005. She is now the Southeast Region coordinator. She was unable to gut her flooded home for several months.

FAUST: “We lived at the Lod Cook Hotel on the LSU campus for two weeks following Katrina. We didn’t get back in to see our house until after Hurricane Rita because we

weren't allowed back in St. Bernard Parish.

"We went to the school system and said, 'What do you need us to do?' And they said, 'We need y'all to come do after-school programming.' I want to say they started in November with 300 kids, and there were more than 1,000 by the time school ended in May. ... We were working with second, third, fourth, fifth grade. And we were just pulling programs, any kind of 4-H curriculum we could find at the time. The kids were dealing with the stress of losing everything."

Before Katrina made landfall, the AgCenter's Grant Walker Educational Facility, a 4-H camp in Grant Parish, became a Red Cross shelter for evacuees. Over the next three weeks, more than 800 people passed through the camp. After Hurricane Rita hit, more than 50 people from southwestern Louisiana found shelter there, and after that, it housed hundreds of powerline workers who came to restore power to affected areas. Another shelter in need of volunteers was the River Center in Baton Rouge, which took in up to 6,000 evacuees. Todd Tarifa, now the AgCenter associate director of youth development, was a West Baton Rouge Parish 4-H Youth Development agent in 2005.

TARIFA: "They were sending 18-wheelers of meals in these big, Hefty plastic containers, and we were unloading that. We got volunteers from 4-H to go in and unload that stuff. We did that for days. Then then the River Center really filled up and became like a tent city. ... The most impactful part was the kids because the kids, they didn't have anything. Adults lost everything, but we can kind of deal with it mentally. A kid loses everything. They lost their school, they lost their toys, a lot of them lost their pets. A lot of emotions."

Parker Coliseum on the LSU campus in Baton Rouge, the home of livestock shows and the AgMagic youth educa-

tional program, became a temporary pet shelter for companion animals rescued after Katrina and for pet owners who could not take their animals with them to emergency shelters. A joint project of the AgCenter, the LSU School of Veterinary Medicine, state agencies, animal welfare groups and volunteers across the state ensured the animals were safe.

GOULD: "People had taken their pets to vet hospitals to board or other places for them to be kept. Those places realized that the animals might not be safe, so they put them in transports and started bringing them up the interstate, trying to find any place that worked."

COREIL: "Parker Coliseum for multiple weeks was engulfed with taking care of these rescued animals, and there was a tremendous amount of volunteer effort and coordination of volunteers to help to walk these dogs and feed and clean out the pet carriers that we had."

GOULD: "We weren't set up to get them, but it just gradually happened. Well, not 'gradually'. It was pretty fast. We had cages in the arena and then we had the cattle stalls in back for the bigger dogs and other animals."

COREIL: "Many of them needed medicines and everything, but the [LSU School of Veterinary Medicine] was wonderful. The AgCenter staff jumped in and volunteered together with the community volunteers, and then many of the pet food companies donated truckloads of dog food and cat food to help feed these animals."

GOULD: "We cared for more than 2,300 at Parker Coliseum. So, some people were able to come get their animals after the storm — 2,000 were reunited with their owners. Others were put up for adoption because no one ever came to get them. We had dogs, cats, we had some ducks, chickens, tortoises, rodents and a pig. ... The Katrina pet experience led to a state law passed that you

are allowed to take your pets with you to shelters."

A few weeks later, Hurricane Rita struck the southwestern Louisiana coast.

COREIL: "We had Katrina that was an international disaster and then you have Rita, and it didn't get as much international news or coverage because the population centers aren't in southwest Louisiana. There is a lot of marsh, and it's a smaller population. Cameron Parish is one of the smallest parishes in the state, but the damage was severe."

Coreil began his career as a Louisiana Sea Grant and AgCenter Extension agent in Cameron Parish. After the storm hit, he found a way to be there to help.

COREIL: "I needed to go see what was going on in Cameron because it was close to my heart. ... It was hard to tell where you were at. The homes weren't there."

Hilton Waits, a 4-H agent in Vermilion Parish and parish chair for the Louisiana Cooperative Extension Service, remembers the water rising as storm surge buffeted the parish.

WAITS: "Within just hours, the whole one-third of the south part of the parish was on the water. The water just started coming in. It was really amazing how fast it came in."

COREIL: "And we had agents that didn't have homes anymore in Vermilion Parish. Andrew Granger [a now-retired livestock agent] is an example, and he was out there helping people rescue their cattle. I mean, that's the kind of commitment you had."

WAITS: "A lot of cattle got washed away, but a lot of them did survive. So, they found just high ground where they could, or some of them just were standing in belly-deep water in places."

Granger worked to rescue and feed cattle, while Waits was tasked with supplying water to the stranded cattle

around the parish, driving a truck with a 600-gallon water tank supplied by a sugarcane farmer to find livestock in need.

WAITS: “I would go, and I’d fill up water troughs. A lot of troughs that I would fill up were places where they were bringing cattle. The cowboys would go out into the fields or sugar cane fields everywhere and they were gathering cattle and pushing them back to these pens or maybe it might just be a high spot in the in the road.”

LaHouse Research and Education Center, a model of sustainable, healthy home building practices from the LSU AgCenter, was in the middle of construction when Katrina struck. The idea was conceived in 2000 to teach Louisianans about energy efficiency, storm proofing and other housing practices.

Claudette Reichel was then the director of LaHouse.

REICHEL: “A third of our housing stock in the state had been damaged. I mean, it was massive.

“When Katrina happened, we were at the phase of midconstruction, and at that time, every contractor and tradesman was needed to help people who had damaged homes. So, we just said, ‘OK, let’s shift gears. Let’s just leave it like this and showcase it in this midconstruction, because it really shows everything better.’”

GOULD: “LaHouse was in the process of being finished, and they stopped everything. And the reason was because you could see the different kinds of building processes to make a house hurricane-resilient. So, what they did was they featured those building processes and left those as a window into how you build something to be more resilient for hurricanes.”

REICHEL: “After Katrina and after the water receded, mold was a big deal. Someone with the Associated Press



TOP: The LSU AgCenter Citrus Research Station located near Port Sulphur in lower Plaquemines Parish was struck by storm surge in Hurricane Katrina. The station was closed in 2011. AgCenter file photo

BOTTOM: LaHouse, a tool for teaching about sustainable, resilient building practices for Louisiana, was under construction when Hurricane Katrina struck. Building ceased while contractors were busy working to rebuild following hurricanes Katrina and Rita, and the AgCenter used the incomplete structure to teach about creating storm-resilient homes. AgCenter file photo

called LSU looking for someone who knew something about mold. ... I did 60 interviews about mold from reporters all over the country. After that, my coworkers started calling me the ‘Mold Queen.’”

Reichel became a prominent voice for resilient home building information and was interviewed by countless media outlets across the nation.

REICHEL: “In July 2006, I was invited to speak by the Department of Energy in Washington, D.C., at the National Building Museum about the aftermath of Katrina, and I didn’t speak about the construction stuff. I spoke about the stories of what

happened and how overwhelming it was and the process to try and figure out what to do and to bring people together.”

The people of Louisiana worked for years to recover from these storms. After storm surge soaked sugarcane and rice fields and other farms in southern Louisiana, producers had few answers about the future. AgCenter researchers studied saltwater contamination in the area. The AgCenter also provided assistance to the U.S. Department of Agriculture Farm Services Agency to use geographic information systems to map sugarcane farms affected by the storm to help distribute \$40 million in aid.



SOUTH LOUISIANA WAS HIT HARD BY HURRICANE KATRINA, WHICH STRUCK THE LOUISIANA AND MISSISSIPPI COASTS ON AUG. 29, 2005.

AgCenter file photo

The faculty and staff at the AgCenter learned from these hurricanes and became better prepared for future storms. AgCenter experts readily share their learnings whenever other states are in need.

COREIL: “I think it just expanded and magnified how important it is to have that connection to research-based information and that connection to a university, a land-grant and a Sea Grant university that has the expertise to help people deal with crisis.”

GOULD: “We were looked at as the disaster communications experts, so we gave a lot of presentations and workshops about this, sharing a lot

of that information ahead of time. We would share radio scripts. I’ve sent them all over the Southern region. ... When somebody was facing a similar situation, we helped them to adapt the text for their state or situation. I even sent them to California when they were having fires.”

TARIFA: “Katrina was a very confusing time. It’s hard to explain because everybody was reactive. For hurricanes following Katrina, we’ve been proactive. Extension has been part of prepping for the storm. Part of this is explaining, ‘This what you bring. This is what you do.’ How long stuff lasts in a refrigerator or

generator safety. Everything is more proactive now when we see a storm coming in.”

COREIL: “Everything we learned helped drive programming over the next several years, knowing that these hurricanes are not going to end. We were going to deal with them again. And we have.”

Kyle Peveto is the editor of Louisiana Agriculture, and V. Todd Miller and Anthony Bailey are writers and editors in AgCenter Communication.



The LSU AgCenter Dairy Store moved to a new location in 2024, months after its longtime home on South Stadium Drive was demolished. Standing in the storefront are Nick Uzee, store manager, and Chuck Boeneke, dairy science professor. Photo by Olivia McClure

CENTURY-OLD LSU AGCENTER DAIRY STORE MODERNIZES

■ Olivia McClure

IN FEBRUARY 2024, Chuck Boeneke stood behind the Food Science Building on LSU's campus, staring across a parking lot toward a low-slung brick structure where he'd spent much of his life: the Dairy Science Building, the longtime home of the LSU AgCenter Dairy Store.

The beloved ice cream shop and creamery equipment had been dismantled, and now, the midcentury building was surrounded by construction fencing and heavy machinery. Boeneke, a dairy science professor, watched as workers turned the place into a pile of rubble — the first step in preparing the corner of South Stadium Drive and Tower Drive for the construction of a new science building.

"It was very surreal to watch that," Boeneke recalled. "We had a lot of history in that building. We had a lot of students come through, a lot of memories in that building."

Boeneke — along with scores of college students — had mixed, frozen and scooped countless batches of ice cream over the years in the Dairy Science Building. In summers, they toiled in the facility's sweltering, unair-conditioned creamery, and year-round, they tinkered with aging equipment to keep the production plant up and running. It was where Boeneke taught classes and even where he met his wife.

For all its faults, the building — and the ice cream that was churned out inside — had a way of bonding people. Boeneke can't help but miss it.

But parting ways with the Dairy Science Building has brought new opportunities. As demolition day approached, the nearby Food Science Building was renovated. Classrooms and offices on the upper level were overhauled, and the Dairy Store set up shop downstairs in a spacious, shiny storefront and production facility.

A NEW HOME FOR AN LSU TRADITION

This isn't the first time the Dairy Store has moved.

The store traces its history back to 1904, when the Louisiana Legislature allocated \$5,000 for a dairy herd and creamery on LSU's campus, then located in downtown Baton Rouge. The creamery moved with the campus in 1925 to LSU's present location. It first operated in the basement of Coates Hall, moving in 1929 to what is now the Nuclear Science Building.

There, employees opened a sales room that proved wildly popular. But when World War II broke out in the 1940s, declining enrollment at LSU, labor shortages and food rationing spelled trouble for the creamery, and the sales room was shuttered.

In 1955, the creamery moved into the newly constructed Dairy Science Building. The sales room returned in 1972 with a new moniker: the Dairy Store.

All along, the ice cream recipe has stayed the same. A key ingredient is milk from university-owned cows. For decades, the herd grazed on Gourrier Avenue on the outskirts of the LSU campus; that farm closed and is now the site of a pet shelter. Today, the Dairy Store sources its milk from the AgCenter's Southeast Research Station in Franklinton, which has about 100 cows.

Boeneke oversaw the last 400-gallon run of ice cream in the old creamery, with its familiar yellow walls and slick red-orange tile floors, in October 2023. A few months later, the new store opened its doors, selling its signature 16 flavors of ice cream as well as cheese, meat and more.

The difference is "night and day," Boeneke said.

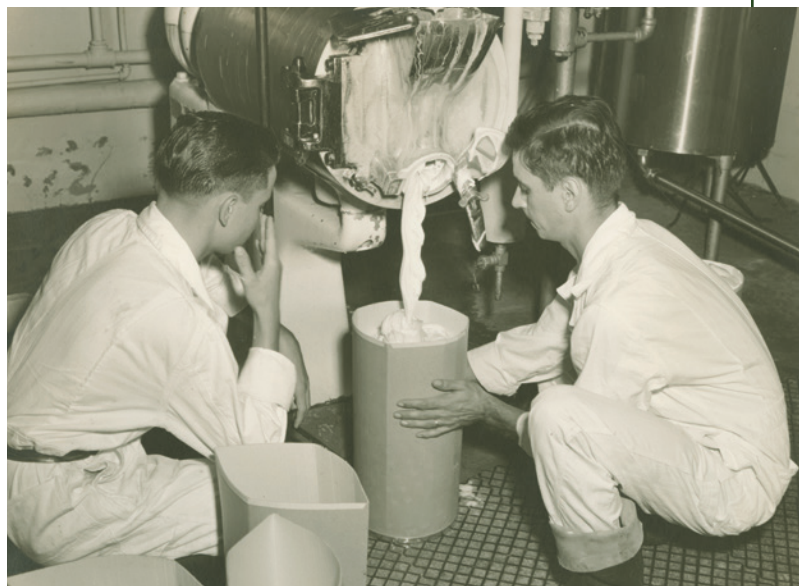
"Just look at it," he said, beaming with pride as he showed off the airy, modern facility. "It's so clean. The classroom and the teaching lab are state of the art with the electronics that are in there. Downstairs in the store, we've got digital menu boards."

Almost everything in the new plant is bigger and better, and Boeneke had a hand in selecting much of the specialized equipment. With an ice cream freezer double the size of the old one, Boeneke has plans for expanded production. The new milk bottle filler is faster, the air is super filtered and machinery is easier to clean.

"We don't have any valve assemblies in the plant that have to be taken apart and manually cleaned," Boeneke said. "Everything is directed with what we call flow panels, where there are stainless steel jumpers that look like a big elbow of pipe that we take and swing from one part to the other to direct the flow of product or cleaning solution through the plant. That saves a whole bunch of time."

High-tech tools are at every turn in the gleaming, white-tiled creamery. But Boeneke is particularly fond of one basic feature the former facility lacked.

LSU student workers make ice cream. The LSU AgCenter Dairy Store has a long history of teaching dairy production. Photo courtesy of LSU Libraries Special Collection



Health inspectors participating in an FDA milk pasteurization and control class examine equipment in the new production facility. Photo by Olivia McClure

“The air conditioning is so nice. I’m not going to lie,” he said, laughing. “Typically, the summers were when we would make our cheese, and that was mainly because we had more labor and the students could work all day. It was hot. We had fans. We eventually bought a water-cooled air conditioner that we’d stick in there. It would help and you could work — but you were still hot.”

EDUCATION THROUGH ICE CREAM

In May, health inspectors from 13 states crowded around equipment in the new production area while Boeneke explained the machines’ functions. They were participating in a Food and Drug Administration milk pasteurization and controls class — a training that’s essential to the inspectors’ ability to enforce complex regulations governing dairy processing and understand the intricate machinery used in the business.

Boeneke was excited about the class. Because it has up-to-date equipment and more space, the new facility is making it possible to host more educational events — something that wasn’t feasible in the old creamery.

Industry education has always been a part of the Dairy Store and the dairy science program.

“Even though we’re not as big in the state as what we once were, we do still have some dairy industry left in Louisiana,” Boeneke said. “I met with a gentleman who has a 500-cow dairy up in the northern part of the state, and he is putting in a processing plant on his farm. He wanted to use us for a model for his building and had tons of questions. We’re really one of the only school dairies in the Southeast that are left.”

Students, of course, benefit from the Dairy Store, too. It has served as the basis for many class projects for majors in everything from agriculture to business to engineering.

Students — usually about a dozen — also make up the store’s workforce. Most are not in the College of Agriculture.

“Each of them finding their own niche within the Dairy Store and how they might be able to help us improve efficiency or operations or things like that is really helpful,” said Nick Uzee, the store manager. “And they have the opportunity to find their own little piece within the greater picture of agriculture. You don’t have to graduate with a degree from the College of Agriculture to play an important part in agriculture.”

Students are the Dairy Store’s primary customer base, so their input has been handy in developing creative, limited-run flavors — a recent push Uzee has made.

“We don’t want the cabinet to get stale,” he said.

On a recent summer afternoon, Uzee, Boeneke and a pair of student workers were crafting a batch of a new flavor of ice cream: birthday cake. Laughter and lighthearted conversation about summer plans and the upcoming school year filled the room as the students, Zoey Delaney and Parker Haydel, filled cartons with the frozen confection.

“See how much fun we have?” Boeneke said with a smile.

Delaney, an animal science junior from Virginia Beach, likes the practical experience she is getting at the Dairy Store.

“I want to go into dairy production, I think, so I’m able to come here and do something that I would actually be doing for an actual job in the future,” she said.

She and Haydel, a construction management senior from Houma, both enjoy their work trips to the Southeast Research Station, where they get to interact with the dairy cattle.

Haydel was looking for an easily accessible, on-campus job when he applied to the Dairy Store. While his duties don’t have much to do with his major, he said, he appreciates the “chill” atmosphere and sees value in improving his customer service skills and broadening his horizons.

“I’m not an agriculture major, so I get to see how all that goes down,” he said. “Especially being a construction major, it’s cool. I get to learn a lot about agriculture.”

Uzee was a member of the Dairy Science Club, which runs the store on home football game days, throughout his time as an animal science student at LSU. After a stint as a 4-H agent in East Baton Rouge Parish, he was hired at the Dairy Store about two years ago. He likes his job but realizes it comes with unique responsibilities.

WHAT IS YOUR Favorite Flavor?

BOENEKE:
Chocolate chip

UZEE:
Kernels, a caramel and sweet corn ice cream made for LSU’s home opener against Nicholls State University last football season

PARKER:
Cookies and cream

DELANEY:
Key lime pie

BOTH STUDENTS:
Golden nugget, a vanilla version of cookies and cream



LSU AgCenter Dairy Store student employees Parker Haydel, left, and Zoey Delaney fill boxes with birthday cake-flavored ice cream.
Photo by Olivia McClure



“It’s definitely nerve-wracking at times — just having the pressure to maintain what we’ve done for so long while also trying to be as inventive as we possibly can,” he said. “It’s that interesting balance that we’re tasked with — keeping things interesting but also respecting tradition and the past.”

He’s thankful to have a mentor like Boeneke, who’s known around the store as “Dr. Chuck.”

“He knows the product better than anyone else. If we’re trying to create a new flavor, odds are he’s made it,” Uzee said. “And if he hasn’t made it, he might have a clue on ways we can navigate around issues we might encounter.”

‘IT MAKES THEM HAPPY’

Boeneke has been part of the Dairy Store for a significant chunk of its history. He started working in the creamery in 1988 after graduating from high school.

“I was always drawn to agriculture because I was raised on a farm,” said Boeneke, who is from Pride, a community in northeastern East Baton Rouge Parish. “We had beef cows, though. But I always liked milk, I liked ice cream, things like that.”

At LSU, a couple of dairy science classes was all it took for Boeneke to realize where he belonged.

“We had our dairy farm right here on campus,” he said. “One of the classes I took was Dairy 1049. You were assigned a heifer, and you had to halter break that heifer, and then you had to learn how to groom that heifer for show. I just really liked it. So I stuck with it.”

Boeneke went on to get his master’s and doctoral degrees while working on campus, eventually shifting from creamery manager to the professorial ranks.

The job has never gotten old. After all, Boeneke gets to make ice cream for a living.

“While I’m working in the back, prepping for class or something, I can look out and see the families bringing the little kids in,” he said. “People who graduated from here years ago, they’ll come back, they’ll bring their kids. People really enjoy coming. The ice cream is really good, and it makes them happy.”

A homecoming of sorts is on the horizon: When the Our Lady of the Lake Health Interdisciplinary Science Building is complete, the Dairy Store will have a kiosk inside — and, once again, ice cream will be sold at the corner of South Stadium and Tower drives.

Olivia McClure is a writer, editor and photographer for AgCenter Communications.

LCP 85-384: A SUGARCANE VARIETY THAT KEEPS ON GIVING

■ BRAYDEN BLANCHARD

THE ART AND SCIENCE OF PLANT BREEDING relies on aligning the right genes for desired traits into a new variety that addresses the needs of farmers. It is a game of probability. The same is true in sugarcane breeding for Louisiana, and the story of variety LCP 85-384 is the modern-day success story of addressing the needs of an industry through variety development. Scientists at the LSU AgCenter recently compiled this story in a publication for the *Journal of Plant Registrations*, highlighting the extensive contribution of LCP 85-384 to the long-term productivity of the Louisiana sugarcane industry.

LEGACY

The full magnitude of LCP 85-384's impact can only be understood by first considering its development, which dates back to the late 1950s. A resurgence of the mosaic virus in the Louisiana industry after the release of susceptible variety NCo 310 led breeders to look to the wild species of sugarcane, *S. spontaneum*, for much-needed resistance. By crossing hybrids to this wild species, genes for these resistance traits could be recovered in the offspring, which would then be backcrossed to the hybrid parent a series of times to develop near-commercial varieties for testing. This basic breeding effort conducted by the U.S. Department of Agriculture Agricultural Research Service Sugarcane Research Unit continues today with the same objectives: to incorporate genes for disease resistance, cold tolerance, stubbling ability (the ability of the plant to regrow for multiple harvests from the

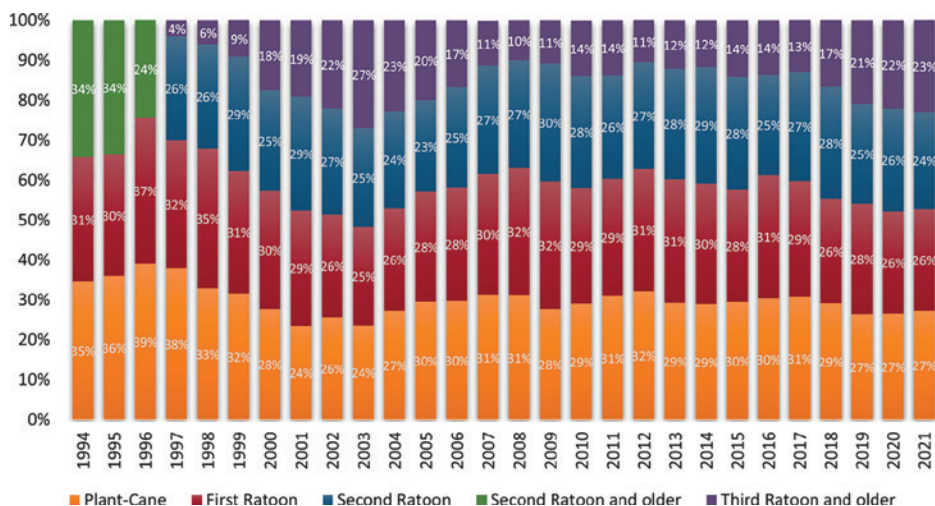
same root system) and improved yield from the wild species into modern varieties. LCP 85-384 was the first variety to be released as a result of this project in 1993 and quickly grew in popularity among farmers.

LCP 85-384's performance was unprecedented. Compared to other commercial varieties at the time, smaller stalk diameter and higher stalk populations contributed to higher yields that could be sustained for more stubble crops and greatly increase the profitability for farmers. New methods of evaluating stubbling ability estimate that LCP 85-384 provided a 67.8% increase in sugar yield over the crop cycle and the ability to harvest three to four and sometimes five crops in an extended crop cycle. Its adoption could not have

come at a more opportune time. In the mid-1990s, the combine harvester was introduced as an alternative to the soldier harvester, representing a major milestone in sugarcane mechanization. (See Page 19.) With improved genetics and harvesting capabilities, a perfect storm of innovation was created, and farmers took full advantage.

With every improved variety comes a new "high score" to beat, and every subsequent victory is built on previous success. While its impact on commercial production was unprecedented, its impact on the future of sugarcane in Louisiana was not and will not be realized for years to come. Scientists learned from LCP 85-384. It served as a model variety for pure genetics and molecular studies to understand how

ANNUAL PROPORTION OF CROP AGE (PLANT-CANE THROUGH THIRD RATOON AND OLDER) FROM 1994 TO 2021.



Improved ratoon ability of LCP 85-384 and its ability to pass on those traits to later generations of varieties has allowed growers to keep older sugarcane crops on their farms, reducing planting costs and increasing profitability.



**LEARN MORE ABOUT
Brayden Blanchard and his work at
www.LSUAgCenter.com
or scan the QR code.**

that ideal package of genes came to be. Important discoveries took place related to how the divisions and combinations of genes are inherited in later breeding generations. We better understood how we could exploit this phenomenon to increase our chances of aligning these favorable genes again in new varieties. We still use LCP 85-384 as an example of how we “got it right” so we can figure out how to continue the progress.

We have since found similar success, much to the credit of LCP 85-384. By simultaneously raising the bar to “beat” LCP 85-384 and using it as a parent in the breeding program, it didn’t take long to develop other commercial varieties that were its direct progeny. HoCP 95-540, L 97-128, L 01-299, L 01-283 and L 11-183 are all first-generation progenies that were released for commercial production in Louisiana. The impact of LCP 85-384 can be translated into the impact these varieties have also had on production. HoCP 96-540 (released in 2003) and L 01-299 (released in 2009) sustained the increasing sugar yield trends after the eventual decline of LCP 85-384 due to brown rust susceptibility in 2004. L 01-299 continues today as the industry-leading variety, planted on 53% of the acreage in 2024. It is favored for many of the same qualities as LCP 85-384, including its high population and impressive stubbling ability. When historical sugar yield increases were compared before versus after the release of LCP 85-384, a 41% increase in the annual rate of gain of sugar yield was realized. In other words, from 1969 until 1995 (the year LCP 85-384 was



Sugarcane variety LCP 85-384 led to greater production for Louisiana producers, and it continues to affect sugarcane production as it is a parent or grandparent of many popular varieties planted today.

LSU AgCenter file photo

heavily adopted for production), annual sugar yields had increased on average by 63 pounds of sugar per year. After the adoption of LCP 85-384, that rate of gain increased to an average of 89.2 pounds of sugar per year. Meanwhile, better stubbling ability allowed farmers to keep more of their older stubble crops in production for increased profitability.

LOOKING AHEAD

We continue to raise the bar with newly released varieties that are contributing to greater yields and longer crop cycles. LCP 85-384 is far from finished making its impact. It is still the leading variety in Tucumán, Argentina, where the climate is similar to south Louisiana. It was reported to make up around 67% of the acreage there in 2020. At the LSU AgCenter, it has been used over 1,000 times in crossing. It is the parent of over 100 other parent varieties, the grandparent of over 223 parents and the great-grandparent of over 60 parents. It has produced 13 commercial varieties as either a parent, grandparent or great-grandparent. Of the parents currently used in the breeding program, 78% are highly related to LCP 85-384. Its legacy will live on for decades, and generations of sugarcane varieties will only build on the progress that has been made so far.

By exploiting LCP 85-384 as a parent and understanding its genetic composition, we can better identify what genes



WHAT IS IN A NAME? WHAT DOES THE NAME LCP 85-384 MEAN?

■ KYLE PEVETO

The letters and numbers that compose a sugarcane cultivar name may seem like a dense secret code. However, this form of variety designation is well known among producers and scientists, and the code tells a great deal about that cultivar's origin.

The letters in the cultivar name denote the research facilities that are the sources of the cultivar. For LCP 85-384, the L indicates that the variety was selected at the LSU AgCenter sugarcane breeding program at the Sugar Research Station in St. Gabriel from the offspring of a cross made at Canal Point in Florida, which accounts for the CP in the name. Canal Point is the location of a cooperative sugarcane development program among the USDA-ARS, University of Florida Institute of Food and Agricultural Sciences and the Florida Sugar Cane League.

Then, two numbers represent the year the variety was selected. In this case, 85 signifies 1985. The numbers after the hyphen — 384 — are unique numbers assigned to varieties that year.



The adoption of variety LCP 85-384, combined with the introduction of the combine harvester in the mid-1990s, helped increase production in Louisiana.

LSU AgCenter file photo

cause the traits that we are after and target those genes more precisely in crossing and selection. New approaches in precision breeding allow us to select varieties not just based on how they perform in variety trials, but by what genes they may have in common with the wild-type species, LCP 85-384 or any other variety for which we have genetic information. In this game of probabilities, it will give the breeders the best chance to create and identify the best packages of genes in more improved varieties.

It's often in the past that plant breeders and researchers find optimism for the future. While it is exciting to recount the full magnitude of the impact

of LCP 85-384, it is more exciting to learn where our progress can lead. Plant breeding stories like this one give hope for generations of a sustainable food supply and the security of livelihoods in the agricultural sector. In Louisiana, where sugarcane is so embedded in the history and culture of the region, it means an ambitious outlook for the future of our sweet way of life.

The legacy of LCP 85-384 continues today as a Louisiana sugarcane variety that keeps on giving.

Brayden Blanchard is an assistant professor of sugarcane breeding and quantitative genetics at the LSU AgCenter Sugar Research Station in St. Gabriel.

THE INTRODUCTION OF THE COMBINE HARVESTER

■ BRAYDEN BLANCHARD

At a time when farmers were growing more cane than ever before, the combine harvester solved major challenges in the harvestability of the crop compared to the previously popular soldier harvester. The soldier harvester relied on erect stalk growth to cut the stalks at the base and stack them on top of the beds. Loaders with hydraulic grapples would then collect the stalks and load them into wagons for transport to the mills. However, lodging, or the tendency for stalks to fall over due to strong winds, was a typical challenge and became more common as newer varieties like LCP 85-384 had more height and higher stalk populations. Thicker leaf canopies that accompanied high-population varieties also tended to choke and disrupt the functionality of the soldier harvester, causing in-field delays and breakdowns. The combine could more reliably contain the stalks on top of the bed, direct them into the base cutters and efficiently manage the unwanted leaf residue that accompanied the stalks. By cutting the stalks into smaller, more manageable pieces and loading them directly into adjacent wagons with an elevator, it eliminated the need for the loader and could fit more biomass of sugarcane into wagons and trucks for more efficient transport.

NUISANCE TO NUTRIENTS:

AQUACULTURE PROCESSORS' WASTE TO AGRICULTURAL FERTILIZERS

■ M.P. HAYES

MANY MANUFACTURERS AND AQUACULTURE PRODUCERS strive to create environmentally sustainable practices for their businesses, but for waste, there is an inadequate framework for disposal methods that reduce the environmental impact. There are 350 permitted aquaculture or seafood businesses in Louisiana that have an economic impact of \$2.4 billion annually and employ one out of every 70 jobs in the state, according to the Louisiana Department of Health. Most processors spend a minimum of \$50,000 per year on waste removal services for solid waste. Through partnerships with the LSU AgCenter, research is being conducted to transform a common waste stream into a source of organic fertilizer.

The byproducts of many seafood processing operations are the wastewater effluent that contacts the products during the processes and nutrient-enriched solid shells. For many facilities, there is an expense associated with the collection, storage, treatment and transportation of these waste streams. The cost of disposal over time can minimize the company's revenue and create a bottleneck for the manufacturing processes. Though many studies have been conducted on the use of seafood waste, the limiting factor is high chitin content. Chitin is a nitrogen-containing polysaccharide with a comparable structure to cellulose. To access or "unlock" the valuable nutrients in shells, the chitin must be broken down. This is normally done through chemical digestion, which adds a processing cost to create a beneficial use product from waste, such as fertilizer. There are numerous companies that provide this service for densely populated groups of processes. In Louisiana, the geographical isolation of processors makes it difficult to dedicate a single facility for the chemical processing of waste shells. To create more practical solutions for waste management, research has turned to organic solutions using insect larvae to break down shells.

Industrial insect rearing is a commercialized business that offers high-protein-source feedstocks for poultry, swine and aquaculture production. There are many different species of insects that have relatively fast generation cycles used in these industrial operations. The black soldier fly (BSF) was chosen for these research trials because of many benefits, including

the flies' high protein content, relatively short lifecycles, no known vector for transmitting disease and no known effects on human or environmental ecosystems. Like other species used in insect farming, BSF larvae are capable of decomposing various organic solid wastes into a nutrient-dense material called frass. The organic frass yields a suitable soil amendment that can be chemically characterized to determine its nitrogen, phosphorus and potassium (NPK) ratio, a measurement of the three of the most important macronutrients for plant growth. This form of composting offers an avenue for waste valorization, which involves converting waste products for a beneficial community use.

To develop a waste valorization pathway to convert seafood processing waste to agricultural fertilizer, the research team has characterized shrimp and crab shells using the LSU AgCenter Agricultural Chemistry lab. The analysis provided data for nitrogen, phosphorus, potassium, protein, fat, fiber, metals and minerals to trace compounds throughout the insect-farming processes. For the initial trials, it was noticed that the shrimp and crab shells had fluctuating nutrient concentrations with an average NPK percentage of 3.0 N, 2.5 P and 0 K for shrimp shells and 3.7 N, 2.3 P and 0.3 K for crab shells. The slight fluctuations in nutrient content are associated with the season change and species variability from the partnering seafood processors. By analyzing each unique batch of shells, the data can be traced through the insect-rearing process to ensure the nutrient percentages in the frass are valid. A preliminary trial was conducted using small-batch diets of 100 grams of various homogenous blends of ground seafood shells and a propriety industrial insect feed. Each seafood trial, the volumes of shells were increased from 25% to 100% to determine the viability of the diet for larvae. These trials were replicated for both shrimp and crab shells to determine independent diet formulations for both seafood industries. Each diet trial was tested in triplicate to compare with a control sample of 100% insect feed. After eight days, the larvae were harvested and allowed to evacuate for growth and survival rate measurements. Additionally, frass and larvae samples were sent to the Ag Chemistry lab for analysis to trace chemical parameters from the original waste stream through the larvae digestion processes.

TOP: Black soldier fly larvae are pictured blended with a seafood waste diet to help break down the seafood waste and transform it into a frass that can be used as fertilizer. Photo by Shruti Upadhyaya

BOTTOM: Graduate researcher Shruti Upadhyaya conducts her master's degree research on mixing seafood shell diet blends. Photo by M.P. Hayes



Key findings from the preliminary diet trials showed similar larvae survival rates for shell blends up to 60%. The growth rate of larvae slightly declined with the increase of shells in the diets. This can be mitigated by extending the feeding time longer than eight days or increasing the number of larvae per trial. The decline in growth rate was not associated with chitin content because of the increased calcium in the larvae when analyzed. The seafood waste shells contained significantly more calcium than the proprietary insect feed, and as the blends of shells increased, the larvae calcium percentage also increased. Thus, it is believed the larvae were able to consume the homogenized shells.

The 25% blends of shrimp and crab had the highest NPK percentages at 2.3 N, 0.7 P and 0.9 K and 2.6 N, 0.7 P and 0.9 K, respectively. With the nitrogen and phosphorus results being lower than the original input, it can be concluded that more larvae or longer feed times are needed for the trials. The increased potassium content was seen due to the high percentage of insect feed in the diet blend.

The LSU AgCenter team has started the next round of testing, increasing the volume of diet blends from 100 grams to 8.35 pounds (3,788 grams). These trials will be conducted for both shrimp and crab shells at five blends between 25% and 60% waste. The data produced from this macro-experiment will show scalability and identify the optimized nutrient concentration for the frass. This will pivot the project into collaborations with AgCenter assistant professor of landscape horticulture Damon Abdi for amendment viability using plant trials and a food web analysis with Jeff Plumlee from the team's recently funded 2025 AgCenter Center of Excellence Crop Development and Biotechnology proposal. With an immediate need for innovative solutions for waste valorization for seafood byproducts, the use of insect farming may offer feasible onsite composting opportunities for waste stream reduction and generation of beneficial-use products.



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



Art Contest **CELEBRATES** LOUISIANA AGRICULTURE

■ TYNE BANKESTER AND JACEY WESLEY

EVERY OCTOBER, schools across the nation celebrate National Farm to School Month, a time to highlight the importance of locally grown food and the agriculture industry that produces it. These celebrations can take many forms, from farm field trips to harvest festivals and even carrot crunches and essay contests. In Louisiana, one event stands out as a creative and impactful way to engage students with the state's rich agricultural history: The Louisiana Farm to School Art Contest.

In 2022, the LSU AgCenter's Seeds to Success: The Louisiana Farm to School Program began hosting its annual Louisiana Farm to School Art Contest as a way for students to celebrate Louisiana's unique agricultural traditions and food culture. Over the past three years, Seeds to Success has seen this contest grow in popularity and participation. Every year, more teachers encourage their students to participate. Among the many educators who have supported the contest is Chan-

telle Hataway, a third-grade teacher at Lafargue Elementary School in Avoyelles Parish and the 2024 Louisiana Ag in the Classroom Teacher of the Year, a program of the Louisiana Farm Bureau Federation.

Hataway has had students participate in the art contest every year since it began, consistently encouraging their involvement and recognizing the profound impact it has on their development.

When asked why it is important for her students to participate in the art contest each year, Hataway said, "I have found that each time I have my third graders enter an art contest, it enhances their focus, and I learn so much about them as a person. It brings out skills that are not noticed teaching math and science while sparking their curiosity to learn more about plants and animals. In most schools, art is nonexistent, and any little chance I get to encourage art, I do, and the students love it so much."

Determining finalists and placements for the LSU AgCenter's 2024 Louisiana Farm to School Art Contest presented difficult choices for the judges. After a thorough judging process, 13 winners and six honorable mentions were selected. Photo provided by Jacey Wesley

Judges pick the best of the best pieces of art at the LSU AgCenter's 2024 Louisiana Farm to School Art Contest. Photo provided by Jacey Wesley



October 2024 marked the contest's biggest year to date, with more than 250 students across 20 parishes submitting their artwork. This impressive number of entries made it the largest turnout since the contest's inception.

The panel of judges for the 2024 contest included representatives from Louisiana Public Broadcasting (LPB) and the Knock Knock Children's Museum. Kathy Scherer of LPB has served as a judge for two years and says she's seen a notable increase in the diversity of artwork as the contest continues.

"My favorite aspect of judging the Louisiana Farm to School Art Contest over the years is getting to see the children's creativity, and how, through the contest, more and more students from all around the state are developing and showcasing an appreciation for Louisiana crops," she said.

After a thorough judging process, 13 winners and six honorable mentions were selected. Their artwork is featured in the 2025 Louisiana Farm to School Calendar. The overall winner and cover artist was Arden Foshee, a sixth grader from Cornerstone Christian Academy in Beauregard Parish. Each of the 12 other winning artists' works illustrates a different month within the calendar, while the honorable mention winners' artwork appears on the back cover.

The Louisiana Farm to School Art Contest is becoming a highlight for students and teachers across the state as they celebrate Farm to School Month each year. The contest not only gives children a chance to express their love for Louisiana agriculture through their artwork but also serves as an educational tool — inviting Louisianians of all ages to appreciate and learn about local agriculture year-round through the printed calendar.

The 2025 Louisiana Farm to School Art Contest will open to young artists across the state in early fall 2025.

Arden Foshee, a sixth grader from Cornerstone Christian Academy in Beauregard Parish, was chosen overall winner and cover artist at the LSU AgCenter's 2024 Louisiana Farm to School Art Contest.

Photo provided by Jacey Wesley



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



THE ADVENTURESOME EATING CLUB: *CULTIVATING CURIOSITY AND HEALTHY HABITS FOR THE NEXT GENERATION*

■ JACEY WESLEY AND TYNE BANKESTER

IN 2024, the Knock Knock Children's Museum in Baton Rouge teamed up with LSU AgCenter's Seeds to Success: The Louisiana Farm to School Program to establish the Adventuresome Eating Club. The club is designed to make healthy eating fun, engaging and educational for young children by introducing them to local, seasonal fruits and vegetables in a way that sparks curiosity and excitement about food.

The Adventuresome Eating Club takes place quarterly at the Knock Knock Children's Museum, where each event turns healthy eating into an exciting adventure. Rather than traditional cooking classes, the club is enhanced by sensory exploration, helping children discover local, fresh produce through fun activities as well as interactive taste tests. The goal is to make healthy foods approachable, encouraging children to explore new flavors while discov-

ering the benefits of seasonal fruits and vegetables.

Studies have shown that the more kids are exposed to a variety of textures and flavors early in life, the more open they tend to be to trying new things as they grow. For example, a study published in the *Journal of Nutrition Education and Behavior* found that children who are introduced to healthy fruits and vegetables at an early age were more willing to try those foods again and more likely to request them at home. These early positive experiences with new foods play a key role in helping to develop long-term healthy eating habits.

A standout feature of the quarterly events are the taste tests, which highlight a variety of seasonal, locally grown fruits and vegetables. The Adventuresome Eating Club is a seamless partnership, with the Seeds to Success team preparing Louisiana Harvest of

the Month recipes, such as cabbage and apple slaw, while the Knock Knock team provides fresh, raw produce, like strawberries, for kids to explore.

The combination of raw and prepared options helps kids see the versatility of fresh foods while giving them the chance to try new things they may not otherwise encounter at home or school. Through this experience, children can taste the sweetness of a Louisiana strawberry or enjoy the crunch of slaw made from fresh, local ingredients. The club encourages children to explore food in a fun, approachable way by tasting, observing and learning about seasonal produce.

"Through the Adventuresome Eating Club, we're not just encouraging kids to make healthier choices," said Crystal Besse, program director for the Seeds to Success Program. "We're getting them excited about local, seasonal fruits and vegetables straight from Louisiana farms.



One of the goals of the Adventuresome Eating Club is to engage kids through hands-on activities, helping them to feel more comfortable and connected to what they are eating. Photos by Kyle Peveto



The Knock Knock Children's Museum in Baton Rouge teamed up with LSU AgCenter's Seeds to Success: The Louisiana Farm to School Program to establish the Adventuresome Eating Club. The club is designed to make healthy eating fun by introducing children to local, seasonal fruits and vegetables in a way that sparks excitement and curiosity. Seeds to Success team members working at the event in early 2025 included, from left: Carl Motsenbocker, executive director of Seeds to Success; Isabella Frank, program manager for horticulture for the program; and Crystal Besse, program director for the program. Photo by Kyle Peveto

This program helps connect children early on to the farm to school movement, supporting the community and fostering lifelong healthy eating habits.”

Taste tests play a vital role in helping build positive relationships with food. For many kids (and even adults), trying new foods can be intimidating. However, research shows that repeated exposure, sometimes as many as 12 times or more, helps to overcome hesitation and develop a preference for previously unfamiliar foods. Just as young kids might be hesitant to try cabbage at first, providing regular opportunities for them to try it in various forms can help them start to like it, and over time, they might even come to love it.

Engaging kids through hands-on activities — touching, smelling, seeing and tasting — helps them feel more comfortable and connected to what they are eating. Taste tests such as those

being done through the Adventuresome Eating Club offer valuable sensory experiences for participants. These sensory explorations build familiarity, which can lead to more adventurous eating habits over time. By creating a playful, low-pressure environment, the Adventuresome Eating Club encourages curiosity and exploration, making healthy eating feel like an exciting adventure that extends far beyond the museum.

“Knock Knock Children's Museum is an enthusiastic partner of LSU AgCenter in helping provide children and families with experiences and resources that encourage a healthy diet comprised of Louisiana-grown seasonal produce,” said Christina Melton, executive director of Knock Knock Children's Museum. “Teaching children where their food comes from, from seed to fork, helps kids and parents make connections about what fuels their growing bodies.

Exposing children early to healthy and delicious fruits and vegetables through our Adventuresome Eating Club in conjunction with LSU AgCenter's Harvest of the Month programming can help set parents and children up for success in healthier living for life.”

Through the Adventuresome Eating Club, Knock Knock Children's Museum and Seeds to Success: Louisiana Farm to School Program are helping families build foundations for lifelong wellness. The club shows that healthy eating can be an adventure by creating an environment that encourages exploration, discovery and family involvement. One bite today can inspire a lifetime of healthy eating habits.

Jacey Wesley is the communications director for the LSU AgCenter's Seeds to Success: The Louisiana Farm to School Program. Tyne Bankester is the program manager for curriculum integration for the program and MarketMaker.



THE BUG BIZ PUBLICATION SERIES:

AN EDUCATION AND INFORMATION TOOL FOR LOUISIANA

■ T. EUGENE REAGAN, CHRIS CARLTON AND AARON ASHBROOK

LOUISIANANS ENCOUNTER INSECTS and related arthropods almost daily during warm seasons of the year. These encounters provoke feelings ranging from fear of being bitten to appreciation of the natural beauty of more charismatic species such as the Louisiana state butterfly, the Gulf fritillary (*Dione vanillae*). The LSU AgCenter's Bug Biz publications are Louisiana-focused online articles that feature taxonomic, biological and management information relevant to the interests and needs of Louisiana agricultural practitioners, gardeners and residents who are curious or concerned about the various bugs they encounter.

Homeowners and gardeners must deal with occasional invaders and biting insects, as well as pests that feed on plants and threaten structures and stored products. These interactions incite curiosity about what the organisms are, what they do and whether they pose a threat to people, pets, plants and more. In large-scale agriculture, integrated pest management (IPM) programs rely on taxonomic precision and detailed knowledge of species biology to develop and implement management methods that are effective and maximize biocontrol agents by allowing native predators and parasitoids to survive by minimizing the use of broad-spectrum pesticides, as shown in scholarly papers written by T. Eugene Reagan and Megan Mulcahy in 2019 and M.J. Way in 1977. Identification provides a starting point for understanding their life histories and roles in the regional ecological landscapes of Louisiana and the broader southern U.S. Correct identifications are critical to assessing potential threats to agriculture, structures and health. Afterward, if warranted, an IPM program can be developed that is both locally and regionally effective and minimizes off-target effects.

The Bug Biz publication series originated around the year 2000 as short, concise articles dealing with specific insects within the authors' areas of expertise. Articles were published occasionally until 2018, when the series was refreshed thanks to funding provided by a U.S. Department of Agriculture Crop Protection and Pest Management Extension Implementation Grant awarded to Reagan, who was the principal investigator for the grant at the time. Reagan was an internationally recognized expert on IPM and a chief supporter of this project.

From 2018 to the present, more than 150 two- to three-page fact sheets about insects and related arthropods (spiders, millipedes and terrestrial crustaceans) have been published on the LSU AgCenter and LSU Department of Entomology websites. These

BUG BIZ

Pest Management and Insect Identification Series

LSU AgCenter

Latrodectus geometricus, Brown Widow Spider (Araneae: Theridiidae)

Chris Carlton, Forest Hovell and Gene Reagan

Description
Adult females are medium to large (0.3-0.5 inches (8-12 mm) in body length), tan to dark brown spiders with globular abdomens that are flat or slightly steep in surface later and covered with fine white hairs. The abdominal color is highly variable, and some unusually pale spiders may appear pale tan or nearly white in color. The top of the body (epigynum) is often darker in color than the abdomen and may appear almost black. The abdomen of females possess an orange or yellowish orange marking (ventral aspect). The orange marking may be distinctly hourglass shaped or may be irregular. The upper part of the abdomen (dorsal aspect) typically possesses wavy dark or pale gray yellow or orange markings on the brown background, sometimes including a row of pale bordered ovals along the midline. Males are tiny brown spiders, 0.1 to 0.2 of an inch (2 to 5 mm) in body length, variable in color and markings but typically lacking the bold patterns present on females.

Females and sometimes build tangled webs. Egg sacs of the spider are pale yellow and distinct and are round, for diameter, about 1/8 inch in shape of

green widow spider, dorsal view. Photo: Chris Carlton, Louisiana State Art Museum

Visit our website: www.LSUAgCenter.com

BUG BIZ

Pest Management and Insect Identification Series

LSU AgCenter

Pectinophora gossypiella, Pink Bollworm (Lepidoptera: Gelechiidae)

Mohamed S. Shukri, Forest Hovell, Chris Carlton, Thomas Reagan

Description
The pink bollworm (*Pectinophora gossypiella*) has been introduced to the United States in other cotton growing regions of the world. Adults moth moths range from 1/2 to 4/5 inch (12 to 20 mm). The bodies are dark brown and the forewings are narrow and light brown in color with the margins and base with long, gray hairs (setae). The hind wings are elongated into a finger-like shape (the "accident finger") which is similar to other moths in the family Gelechiidae. Eggs are minute, 1/50 of an inch (0.5 mm) in diameter, and white or cream-colored. Larvae are plump, pale cream colored with orange or pink bands, which are slightly less than 1 inch (25 mm) in length. Pupae are

Life Cycle
A generation of pink bollworms can be completed in around one month or slightly less under optimal conditions (approximately 82 F/28 C), longer in cooler weather. Eggs are deposited in the vicinity of cotton bolls and the pupae larvae immediately burrow into the bolls and feed internally. Larvae mature in 10 to 14 days.

Pink bollworm, adult Mississippi State University, Mississippi State University, Bugwood.org, Creative Commons 3.0

Pink bollworm, larvae (Peggy Grogg, USDA Agricultural Research Service, Bugwood.org, Creative Commons 3.0)

region. Ashburn conditions on pupae long periods of diapause (dormancy), which may result in emergence of infestations the following year and up to several years later. Diapause of adult moths can result in infestations in more northern parts of the affected region.

www.LSUAgCenter.com

BUG BIZ

Pest Management and Insect Identification Series

LSU AgCenter

Oncopeltus fasciatus, Large Milkweed Bug (Hemiptera: Lygaeidae)

Steven Richardson, Forest Hovell, Chris Carlton

Description
Large milkweed bugs (*Oncopeltus fasciatus*) are orange-red hemipterans or true bugs. Adults are 1/2 of an inch (12 to 18 mm) in length. When at rest, the abdomen is partially flattened (hemiptera) cover the abdomen. They possess three distinct patches of black along the forewings. The front black patch covers the dorsal patches, are equally spread on the forewings (hemiptera). This creates the appearance of an orange or red X when viewed from above. There is no white coloration on them, which distinguishes them from the small milkweed bug (*Lygaeus kalmii*). The lower surface of the legs (coxae) are black with the basal segments of the legs (coxae) are black. The abdomen and head are mostly orange with all black compound eyes prominent and black (hemiptera). Nymphs are smaller and have black and black brownish-red two small dark spots located at the midline of the thorax. Eggs are yellow in coloration when first deposited, then change to a dark orange-red before the nymphs hatch.

Life Cycle and Biology
The large milkweed bug has a hemipterous life cycle characterized by nymphal stages that resemble adults. The nymphs undergo five molts during their typical 30-day development period, the duration of which may vary according to weather conditions. About a week after their first molt to the adult stage, they are able to mate. Eggs are laid in clusters of 20 to 30 during warm months conditions in some tropical regions (e.g., southern Florida). In Louisiana the species can complete one to three generations annually depending on seasonal weather. Populations can be migratory or sedentary. Individuals may travel long distances to overwintering sites from

An adult large milkweed bug (*Oncopeltus fasciatus*) adult feeding on a milkweed plant (per Forest Hovell, Bugwood.org, Creative Commons 3.0)

northern populations or higher altitudes or remain local in more tropical zones. Migration is also related to feeding on milkweed host plants (*Durham* egg). Large milkweed bugs are herbivorous. Adults feed exclusively on milkweed adults. Adults can feed on other plant seeds.

Larvae is the most common stage of the insect. The portion of the leg that extends from beneath the abdomen. This is considered diagnostic for members of the genus *Lygaeus*. The immature nymphs resemble the adults but are smaller and lighter in color.

The genus *Lygaeus* includes over 120 species worldwide. *Lygaeus* is a common pest of small vegetables and the most widely distributed species, but identification of species within the genus is difficult and requires examination under high magnification of this species are entirely female. Many populations of this species are entirely female and reproduce without mating (parthenogenesis). During her lifetime, a female may deposit up to 200 eggs. *Oncopeltus* females have been found in some populations every year apart, to sexual reproduction does occur in isolated cases.

Life Cycle
Immature book lice called nymphs undergo gradual metamorphosis, meaning they resemble small versions of the adults and do not have larval or pupal stages. After hatching from eggs, the nymphs undergo four growth stages (instars), with the fourth molting into the adult. Many populations of this species are entirely female and reproduce without mating (parthenogenesis). During her lifetime, a female may deposit up to 200 eggs. *Oncopeltus* females have been found in some populations every year apart, to sexual reproduction does occur in isolated cases.

Book lice in a dining room (Diane Young, Bugwood.net, Creative Commons license)

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short articles focus on physical descriptions of organisms with images, life cycles, ecological significance, pest status and management guidelines when appropriate. References from both primary and secondary literature sources are included, along with details specifically relevant to Louisiana and the surrounding mid-southern U.S. Organisms that are agricultural pests, commonly encountered by the public or are otherwise relevant to Louisianans are prioritized.

A graduate student training component was added in 2018 through a special problems course (ENTM 7008) in the Entomology Department curriculum. This course, dedicated to the preparation of Bug Biz manuscripts, serves as a formal mechanism for graduate students to research and prepare Bug Biz articles as primary authors. Objectives include improvement of writing skills by preparing articles that transfer technical information to the public, experience in subject editing and proofing of contributions prepared by colleagues in the class, and the chance to provide contributions to students' professional portfolios by publishing as lead authors. Six articles are prepared by each student during the semester, with subsequent editing, preparation of final versions and submission to AgCenter Communications by the instructor. These articles are then processed for publication and made available online.

As the demand for Bug Biz articles and other entomological content has grown, the long-term potential of this body of information has become apparent. Project leaders see this as the foundation for "Common Insects and Arthropods of Louisiana," a forthcoming book which will cover up to 1,000 insects and arthropods occurring within the state, with brief descriptions, life histories and historical significance to Louisiana culture.

While a number of general guides about insect and arthropod identification are available, regional guides provide better targeted coverage and can be fine-tuned to local interests or concerns. Members of the LSU AgCenter Department of Entomology recognize the need for a Louisiana guide to insects and related arthropods. A large percentage of arthropod

species in North America do not occur in or near Louisiana and do not need to be included, making for a more concise, easy-to-use resource. By contrast, species such as the rice billbug (*Sphenophorus pertinax*) and Formosan subterranean termite (*Coptotermes formosanus*) are pests of increasing importance to Louisiana agricultural interests and homeowners.

Other unique facts can be shared in the book about the state's entomology fauna. For example, the honeybee (*Apis mellifera*) is the Louisiana state insect even though it is not native to Louisiana, the Argentine ant (*Linepithema humile*) was once called the New Orleans ant and "New Orleans tea," which was brewed with American cockroaches (*Periplaneta americana*), was thought to have medicinal properties.

Preparation of the book is underway, and many of the organisms covered are the subjects of Bug Biz articles. Given the book's focus on Louisiana insects and history, Reagan's legacy will continue with its completion.

T. Eugene "Gene" Reagan, a professor of entomology with the LSU AgCenter, died in December 2023. Chris Carlton is an emeritus professor in the Department of Entomology and assistant curator of the Louisiana State Arthropod Museum. Aaron Ashbrook is an assistant professor and extension entomologist for the LSU AgCenter.

ACKNOWLEDGMENT

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TO LEARN MORE
about the Bug Biz series, visit
www.LSUAgCenter.com/bugbiz
or scan the QR code.



THOMAS EUGENE "GENE" REAGAN — 1947-2023 —

This article is dedicated to Reagan's memory in honor of his support of the Bug Biz project, integrated pest management and Louisiana agriculture in general. Reagan was an expert on IPM and an authority on the sustainable management of insect pests of sugarcane. Among the many highlights of his career was his service to the Environmental Protection Agency, LSU AgCenter Office of Pesticide Programs and the Entomological Society of America. Reagan was posthumously inducted into the Southern IPM Center Hall of Fame. He was an avid fan of LSU athletics, a student of regional history and was a regular at Tiger Stadium.



Using a hydraulic tree spade, plants were removed after one and a half years in the landscape. The hydraulic tree spade allowed consistent excavation practices for each tree and treatment.

Photos by Damon Abdi

ROOT OF THE ISSUE:

APPLIED RESEARCH FOR BEST TREE INSTALLATION PRACTICES IN THE LOUISIANA LANDSCAPE

■ DAMON EDWARD ABDI

AT THE LSU AGCENTER, issues echoed at extension events guide research programming to meet the needs of the community. From parish agents to professional horticulturists to the general public, supporting tree establishment in the landscape is a commonly cited concern. After all, poor installation methods can lead to long-term loss of our invaluable urban canopy and the cooling effect it provides for our communities.

Planting sites throughout Louisiana pose a plethora of challenges. Compacted soils in urban environments and new construction sites can limit root growth while remote roadside plant-

ings relegated to limited attention may languish if left unmonitored. The range of unique, site-specific challenges are only exceeded by the spectrum of solutions suggested to support tree establishment.

Proper installation practices are imperative to the long-term success of a tree. While certain aspects of tree planting are widely recognized as best practices, such as digging a planting hole at least twice the width and slightly shallower than the root ball, root modifications made prior to planting are subject to far more debate.

The root system of container-grown plants is confined to a limited volume and can cause circling roots if left for

too long. This garners the attention of concerned gardeners, and opinions abound as to the best way to rectify this issue before installation. While some may dismiss concerns about this potential problem, simply placing the plant into the hole without worry, many people profess that some form of preplanting root modification is necessary to support successful establishment. Modification practices include simple solutions such as scoring the root ball with a knife or severing the base of the root ball with a spade, whereas more intensive methods may include manually manipulating the roots. Conversations with stakeholders and hobby horticulturists



Manipulating the roots of larger nursery plants may require more advanced tools, such as a reciprocating saw, in order to quickly and efficiently shave the outer root ball. Photo by Jonathan Ford



Using a knife to score the edge of the root ball is one of the more common preplanting methods to address circling roots for smaller plants. Photo by Damon Abdi



at extension events yield no consensus on which practice is preferred; however, this inspired programming to turn anecdotal evidence into applied research to benefit our community.

At the Hammond Research Station, a variety of projects and methods surrounding sustainable tree installation practices are shedding light on ways to protect the urban canopy. The first project began with selecting a popular landscape tree, the Natchez crape myrtle (*Lagerstroemia indica*), as the model plant. Plants were grown for two seasons in a too-small-for-comfort container to develop circling roots before planting. The installation site was uniformly prepared by excavating holes exactly twice the width and slightly less than the depth of the root ball, arranged in parallel rows in the Cahawba fine sandy loam soils on-site. In April 2023, crape myrtles were installed with no root modification as the control while three manipulation practices of increasing intensity were also investigated:

- A “four-cut” method of vertically scoring the root ball, a practice most homeowners and hobbyists use
- A “chop” method where the bottom 2 inches of the root ball are sliced off with a shovel, a practice relayed by local stakeholders
- A “butterfly” practice where roots are hand-splayed, a practice performed by the most meticulous of gardeners

Adhering to best management practices, the native soil was used as a back-fill. All fertilizer, pesticide and irrigation practices were uniformly administered for all treatments as the crape myrtles endured what felt like a never-ending drought that summer and several spells of bitter cold during winter months. Over the ensuing year and a half, growth index (the average of the height and perpendicular widths of the plant) and stem caliper (diameter of the largest single trunk in this often multistemmed species) were measured. Growth index

was uniform across all treatments, indicating no differences in the size of the plant. Stem caliper was also the same between treatments, save for one sample date in the middle of the study.

While the sizes were visually and quantitatively the same, digging deeper was literally necessary to identify the effects of the preplant root modifications. Plants were excavated in October of 2024, preserving the exact same volume of soil for each replicate by using a hydraulic tree spade. Root masses were carefully cleaned, first with water and followed with an air compressor, before visual inspection and biomass assessments. While it was observed that unmanipulated roots exhibited continued circling, manifesting in a vortexlike appearance of the root mass, this was far less prominent in any of the preplanting modified root systems. While qualitatively noticeable, there were no

quantitative differences in the dry weight of the root systems or the dry weight of the aboveground biomass (trunk and stems of the trees).

So, does this mean we should do nothing to the roots before planting? One study investigating one species over one and a half years on one site — with a relatively forgiving soil type — is certainly not enough to make grandiose claims; however, it serves to start a larger conversation. That dialogue continues with active research investigating preplant root modifications of swamp maples (*Acer rubrum* L. var. *drummondii*) grown in either larger, 30-gallon containers or balled-and-burlapped production methods. It will also include new preplanting treatments, such as shaving root systems with a reciprocating saw for container plants and removing the wire basket from balled-and-burlapped plants.

Projects investigating *Abelia* establishment through a partnered program with local high school students expand the scope of this work to new species — and to the next generation of Louisiana horticulturists.

Finally, integrating the insights of our industry members toward real-world scenarios provides new practices to implement. One such method is elevated planting in particularly compacted soils, where plants are installed almost completely above grade and soil is built-up around it. Through harvesting insights from the community and developing research to put practices to the test, the LSU AgCenter harmonizes extension and research to solve the pressing problems people face.

Damon Abdi is an assistant professor of landscape horticulture at the LSU AgCenter Hammond Research Station.



After excavation, root balls were cleaned first by hose, and second by using an air compressor to remove remaining soil particles. Roots of trees that were not manipulated exhibited a vortexlike circling at times.

Photos by Damon Abdi

Judy Myhand poses with the materials she has helped create for LSU and the AgCenter to help teach healthful eating habits. Photo by Randy LaBauve



JUDY MYHAND'S MISSION:

BUILDING AN ARMY FOR GOOD NUTRITION

■ RANDY LABAUVE

JUDY MYHAND has been a popular nutrition instructor in the LSU College of Agriculture's School of Nutrition and Food Science for more than a quarter of a century. She refers to her students as "my little army" and has trained them with the science of good nutrition to combat enemies of good health like poor diets and health fads, which she calls "quackery."

Her interconnected work experiences culminated into her dream job — teaching and mentoring college students in good nutrition so they could, in turn, lead others to good health.

"She's absolutely my mentor," said former student Katie Moses, a consultant for school food services with the Louisiana Department of Education. "My work now is helping the helpers, which is what Ms. Myhand does."

Myhand's mission for good nutrition started at a young age. A Hungarian equestrian soldier taught her to ride horses but also gave her advice about improving her diet to become a better rider.

"He said you need to make sure you eat fresh fruits and vegetables because people in the United States don't eat well," Myhand remembered.

Her aunt in Michigan had shown her how to cook healthy, delicious meals using whole grains. Aunt Gaga also introduced her to a popular nutrition book that fascinated and motivated Myhand.

"Then I found out half of it (the book) was quackery," Myhand said. "I trusted it because Aunt Gaga said it was good."

Myhand began studying journalism at LSU but left the program to work as a lab technician for the U.S. Department of Agriculture, where she learned about the importance of research-based information. She returned to LSU and earned undergraduate and master's degrees in nutrition.

The first nutrition class she took met in a vintage 1959 kitchen lab in the LSU Home Economics Building (now named the Human Ecology Building). She wrote in a paper for that class: "Nutrition attracts quackery in the form of miracle diets





The vintage kitchen where Myhand teaches has helped generations of students learn to cook nutritious meals.

Photo by Randy LaBauve

and cures. I can combat the misinformation by providing reliable research.”

Myhand held various jobs after graduation — first, as a salesperson for diabetes equipment and diabetes educator, then as a junior high science and social studies teacher. She also did work with pharmaceutical sales and with an eating disorders treatment program.

But none of these was the dream job she mentioned in a college essay: “I would like to teach on the college level, but I’m also interested in community educational work.”

She saw a newspaper ad from LSU for a nutrition instructor and was confident the job was meant for her. Myhand told a search committee member, “I’m here. You don’t have to look any further.”

Now, she has been teaching for almost three decades — in the same food lab where she took her first food science class. Nutrition students take three courses from Myhand: Food Theory and Skills, Life Cycle Nutrition, and Food and Culture. She mingles her research-based nutrition education with the same passion she honed as a pom-pom girl for the LSU basketball team when the iconic Pete Maravich starred on the court.

“I’m serious about getting the information across, but I saw myself as an entertainer,” she said. “I wanted to get them to engage with the information so they could apply what they learned to their own lives.”

Students cook meals, but Myhand also teaches them the scientific reactions occurring in the ingredients and why that was important to the recipe. The classes are challenging, but students are motivated to do the work, according to Moses.

“She is just so passionate about sharing not only nutrition education, but her passion for food, making meals, having meals together and the fellowship around it,” said former student Shelby Vince about Myhand’s most popular class, Food Theory and Skills. “It just radiates from her.”

Vince saved recipes from the class and still makes some of them today.

“What I tell them from the beginning is, ‘You will leave this class knowing how to cook just about anything,’” Myhand said. “I reassured them, ‘I’m not going to grade you on whether it tastes good or not, but you have to work together.’”

Myhand’s students are now in successful careers at schools, hospitals, government agencies and sports teams. Many of them have acquired her nutritional zeal while sharing some of her interests. Vince recently began her career and works with diabetes patients at Our Lady of the Lake Children’s Hospital in Baton Rouge.

“Her classes gave me a good foundation, and I said, ‘I’ll stay with this,’” Vince said.

Myhand’s Food and Culture class expanded to a study abroad program that developed into a trip to Greece. Myhand has led her students to this epicenter of what many believe to be the best diet in the world — the Mediterranean diet. According to Myhand, “they almost drink the olive oil.”

The Bible describes Saul being struck down off his horse, sparking him to become an evangelist for Christianity. After a name change to Paul, he crisscrossed the Mediterranean to spread the message. In many ways, Myhand is retracing that journey as an evangelist for good nutrition. Many of her

students renamed her the “fruit and vegetable lady” and “Momma Myhand.”

“I joke that I think I was put on this earth to get people to eat more vegetables,” said Myhand, who also grows a home vegetable garden.

The kitchen workstations at the Human Ecology Building, much the same as in the '60s, continue to serve as a focal point for multiple activities.

“This is my home away from home,” Myhand said. “This food lab is like a hub for connecting with students and the wider community.”

Besides coursework, her kitchen has attracted community events like training and cooking competitions for 4-H and cooking classes for Big Buddy, a youth mentoring program.

“We thought the kitchen was kitschy and cute,” reflected Moses, who graduated from LSU in 2014. “It felt like you were going into a home rather than an industrial kitchen, and it was something you can apply in your own life. I think that’s part of the magic of the kitchen.”

Early on, Myhand had expanded her teaching position to include community outreach, effectively creating the dream job she had visualized as a student. She has also been helping fulfill the cooperative extension mandate of the LSU AgCenter by teaching youth and adults how to cook healthy meals.

Additionally, Myhand has participated in programs with the Baton Rouge Food Bank, trained AgCenter nutrition agents, developed healthy cookbooks with her students, like the popular Women, Infants and Children (WIC) cookbook, “A Lovin’ Spoonful from Us to You,” and regularly appeared on TV programs like “Harvest of the Month,” a production featuring AgCenter faculty from Seeds to Success: The Louisiana Farm to School Program that airs statewide on Louisiana Public Broadcasting.

“I’m back to being a salesperson — trying to sell people on eating fresh, locally grown produce to improve their health and strengthen the community,” Myhand said. “Part of our role as a land-grant university is also to go out into the community and spread the word.”

She gets her students involved in that effort as well. As a freshman, Moses began volunteering for Myhand’s community nutrition work with Big Buddy and with youth at the YMCA. After working as a clinical nutritionist at hospitals in New York City and Lafayette, Moses landed her dream job — working with the Louisiana Department of Education to help school food services personnel provide students with healthy meals.

“Once I decided to take the job, she was the first person I called because it is exactly the work that Ms. Myhand inspired me to do,” Moses said. “It’s just kind of everything Judy valued and instilled in me.”

Amid the variety of Myhand’s work, her students remain the primary focus. She and her students seem to feed off each other’s success.

“I’m hoping that I turn the light on,” she said. “My students are doing amazing things and it’s such a thrill!”

Myhand has continued to accomplish her goals while helping build an army of nutrition experts, and it all started in the vintage kitchen nestled in the Human Ecology Building.

“She’s absolutely an expert but she always wants to learn,” Moses said. “I think it’s her approach as a forever student that brings a different dynamic to how she relates to her students.”

Even now, Myhand expresses the same effusive joy she’s always had about her work. The well-used and fondly remembered kitchen is a simile of her success and the focal point for a career that has impacted the lives of students and community members for decades.

She continues to cheer her students on as they build upon her legacy of making people’s lives healthier through good nutrition.

“They are going on and doing what I hoped they would,” Myhand said. “I love what I do.”

Randy LaBauve is a videographer, writer and photographer in AgCenter Communications.



A study abroad class Myhand teaches in Greece focuses on the healthful eating habits embedded in the Mediterranean diet. Provided photo



SEE MYHAND IN ACTION
in a video at
www.LSUAgCenter.com
or scan the QR code.

MISSISSIPPI RIVER

A BOTTLENECK FOR U.S. AGRICULTURAL TRADE

■ RAGHAV GOYAL

AS AN ECONOMIST with the LSU AgCenter, I focus on how climate-driven disruptions affect agricultural markets. The recent Mississippi River droughts offer a stark example, revealing how extreme weather can affect critical trade routes and the broader farm economy.

The Mississippi River, the backbone of U.S. agricultural transportation, plays a critical role in transporting bulk commodities like corn, soybeans and wheat to global markets. In recent years, however, this backbone has faced unprecedented challenges. The droughts of 2022 and 2023 exposed the vulnerabilities of a system heavily reliant on this waterway, with significant economic consequences for the agricultural sector.

DROUGHTS AMPLIFY LOGISTICAL VULNERABILITIES

The 2022 drought was among the most severe on record for the Mississippi River. Lower water levels disrupted barge transportation, a crucial and cost-effective mode of moving bulk agricultural goods from the Midwest to Gulf ports in Louisiana. Barge traffic, on average, accounts for 46% of U.S. grain exports, underscoring its importance. Yet, the drought reduced capacity, delayed shipments and increased costs.

From July 2022 to January 2023, agricultural exports from Louisiana ports declined by 3.9%, translating into an economic loss of \$565 million. Wheat exports were particularly affected, with a sharp reduction of 350 million kilograms (771 million pounds). Other commodities, such as soybeans and corn, showed more resilience, but the disruption still highlighted systemic weaknesses.

RISING COSTS AND RIPPLE EFFECTS

As water levels dropped, barge rates surged, creating financial strain for exporters. Ports outside Louisiana were hit even harder, with trade volumes declining by 15.1%. Some suppliers sought alternative routes, shifting exports to East and West Coast ports, which saw modest increases in trade. However, these adjustments often came with higher costs and logistical complications.

The increased costs of shipping via the Mississippi River ripple through the entire supply chain. Higher transportation expenses lead to elevated prices for agricultural products in international markets, reducing their competitiveness. For perishable goods, delays can also result in spoilage, further amplifying losses.

LESSONS FOR FUTURE RESILIENCE

The Mississippi River droughts underscore the need for diversification in agricultural logistics. Relying heavily on a single route creates a significant bottleneck during extreme weather events. Investment in multimodal transport systems — combining rail, road and barges — can provide greater flexibility. Similarly, enhancing infrastructure at alternative ports, such as those on the East and West coasts, can help absorb trade volumes during disruptions. Examples include extreme weather conditions resistant canal systems and temperature-controlled storage facilities.

The agricultural sector must also consider climate-resilient strategies, such as conservation and advanced forecasting

DROUGHT:

tools. Government and industry collaboration is essential to adapt infrastructure and policies to the realities of a changing climate.

A WARNING FOR THE FUTURE

As climate change accelerates, droughts like those on the Mississippi River may become more frequent and severe. The economic losses from such disruptions highlight the fragility of current systems and the urgency of building resilience. Ensuring the steady flow of U.S. agricultural exports requires proactive measures to safeguard the sector against future shocks.

The Mississippi River is more than a trade route — it is a symbol of U.S. agricultural strength. Protecting this vital artery from the growing threats of climate change will be crucial to maintaining the nation's leadership in global agricultural markets.

Raghav Goyal is an assistant professor in the LSU AgCenter Department of Agricultural Economics and Agribusiness.

A tugboat pushes barges down the Mississippi River near Tower Rock in Missouri on Dec. 3, 2022. Usually full of water, the low water levels exposed land to the west and vast areas along the river that are not usually exposed.

Photo by Lance Cheung, U.S. Department of Agriculture



Blankets made from brown and brown/white cotton combinations hang at the LSU Hill Memorial Library as part of the installation Woven Louisiana History: Acadian Textiles. Photo by Kevin Duffy



WOVEN LOUISIANA HISTORY: ACADIAN TEXTILES

■ MICHAEL E. MAMP

WHEN AUTHOR William Faulkner Rushton published “The Cajuns: From Acadiana to Louisiana,” his book detailing the history of the Cajuns in 1979, he asserted that weaving was “the oldest, and least modified, surviving folk phenomenon of the culture.” Yet decades later, many people, even those of Cajun descent, know little about the history of the Acadians and next to nothing of their weaving practices.

Present-day Cajuns are, in general, descendants of Acadians who migrated to Louisiana after their expulsion from Acadia in New France (present-day Canada) by the British in the mid-18th century. They brought a rich weaving tradition but were accustomed to working with wool. Ever adaptive, the Acadians found a new material to use for weaving, which they referred to as

coton jaune, or brown cotton, a variety plentiful in Louisiana.

The LSU College of Agriculture’s Textile and Costume Museum (TCM) houses a substantial collection of Acadian textiles that documents this unique agricultural history.

BROWN COTTON WEAVING

Brown cotton is a seedier variety that many found unsuitable for commercial purposes, but the Acadians wove domestic textiles using it. They planted, harvested, carded, spun and wove the naturally brown fiber by hand to make the distinctive brown cloth often used for their blankets. Hand-carding produced rolags, or small bundles, which were then spun into yarn and woven on hand-made, two-harness home looms of variable sizes in a plain-weave configuration.

Pieces woven on smaller looms were stitched together to create blankets large enough for a bed.

Color was used minimally. Blue from home-grown indigo and other natural or commercial dyestuffs appeared only sparingly. Acadian brown fiber blankets are now highly coveted by collectors and antique dealers. Occasionally, they wove blankets from white cotton, likely for use on sick beds, or as more elaborately woven *couverture de mariage* (wedding blankets). Another variation was white cotton mixed with brown — or *doublé* — resulting in a softer, somewhat speckled color.

Especially rare — but held by TCM — is a brown-and-white cotton striped Acadian *paillasse* (mattress cover) typically stuffed with corn husks or Spanish moss. The Acadians also wove *coton-*



Natural brown cotton harvested in Louisiana. Photo by Kevin Duffy



A rare indigo patchwork quilt and a blanket woven using white cotton were both featured in the Woven Louisiana History: Acadian Textiles installation at the LSU Hill Memorial Library. Photo by Kevin Duffy

nade, a densely woven but soft textile used for durable and comfortable clothing. White cotton dyed blue or brown and brown cotton were used to weave the cloth. TCM's collection even includes a rare piece from the early twentieth century — an Acadian quilt made from remnants of indigo-dyed *cotonnade* cut from worn-out clothing.

HEIRLOOM TROUSSEAUS

Acadian textiles were cherished family heirlooms, passed from one generation to the next. Mothers and other women in the family wove many textiles for a daughter's wedding. Tradition held that the trousseau included "12 blankets, 12 bedspreads or coverlets, 6 sheets, 12 towels, 4 mattress covers, a bolster, and two pillows ... [and] a quilt may have been included," according to reference materials from a museum exhibit shown at Musée du Nouveau Monde in La Rochelle, France, in 1983. These were enough textiles for a young woman to start a family and to concern herself with weaving the next generation's trousseaus. This tradition of weaving for daughters was known as *l'amour de maman*, or mother's love.

While Acadian or Cajun cuisine and music remain well known, the weaving legacy is, unfortunately, largely forgotten. Highlights from the TCM Acadian textile

collection were featured in a 2024 exhibition staged in partnership with the LSU Libraries' Special Collections. It featured a variety of textiles alongside archival materials that traced the history of Acadian weaving in Louisiana, especially the Acadian Handicrafts Project, which from 1942 to 1962 endeavored to preserve French language and culture in Louisiana under the leadership of Louise "LouLou" Olivier, an LSU graduate and extension employee. Through that project, Acadian women sold handicrafts, particularly handwoven textiles

and hand-sewn christening gowns, generating valuable income for their families.

Though they are not part of the permanent display, many examples of these Acadian fabric treasures can be viewed at TCM by appointment.

Michael E. Mamp is the director and curator of the LSU Textile and Costume Museum and is an associate professor of textiles, apparel design and merchandising.

To learn more about the sources referenced in this article, visit LSUAgCenter.com.

LSU TEXTILE AND COSTUME MUSEUM

The museum endeavors to preserve the unique history of Acadian weaving and other handicrafts.

LOCATION:

LSU campus, Human Ecology Building,
330 Tower Drive, Baton Rouge

ADMISSION:

Free

HOURS:

Monday to Friday, 11 a.m. to 4 p.m., and the
first Sunday of each month from 2 to 4 p.m.

CONTACT:

225-578-1087 or
email textile@lsu.edu



TO LEARN MORE about the museum, visit
www.lsu.edu/agriculture/textilemuseum
or scan the QR code.

SEE INSIDE

In 2005, hurricanes Katrina and Rita stunned Louisiana, causing more than \$100 billion in damage, killing more than 1,000 people, and damaging homes and farms. Those who worked through that difficult time look back on the storms and how the AgCenter responded.

SEE PAGE 7.

In 1993, sugarcane variety LCP 85-384 was released. It would be planted on the majority of Louisiana sugarcane fields by 2000, and many new varieties are connected to this monumental sugarcane variety. Plant breeders are studying LCP 85-384 to understand its impact.

SEE PAGE 16.

LSU AgCenter experts are studying ways to transform waste from aquaculture processing into fertilizer. They are receiving help from insects that can break down seafood shells.

SEE PAGE 20.



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