



AUBURN

UNIVERSITY



FOOD SYSTEMS INITIATIVE

Facilities & Related Resources





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FOOD SYSTEMS INITIATIVE

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Auburn University/AUFSI

Facilities & Resources



As a land-grant institution, Auburn University has a long history of doing practical research and communicating results to the public. The university has particular strengths in every aspect of the “food system,” the complicated, interrelated system necessary to feed a population—including growing, harvesting, processing, packaging, transporting, marketing, consumption and disposal of food and food-related items. Because this system is interrelated, interdisciplinary cooperation is vital. Auburn University boasts a wide array of facilities and resources that can be utilized by researchers seeking this kind of cooperation.

FACILITIES. Research activities are carried out in facilities located across campus, from fishponds and research labs on the north side of Auburn to the National Center for Asphalt Technology track on the south. Auburn University also staffs the Alabama Agricultural Experiment Stations and Extension offices around the state. Auburn has a meat processing facility as well as USDA labs and a partnership in a pilot produce processing facility in Chilton County, AL. Auburn even has its own hotel and restaurant, where students learn about the hospitality business thanks to an innovative partnership with the West Paces Hotel Group.

RESOURCES. Sometime, researchers need access to a particular audience or a particular area

of expertise to write a grant proposal or carry out research, and they don't know where to turn. Auburn University faculty members have nurtured contacts with various constituencies, and researchers also offer a wealth of specialized expertise in various areas. The Auburn University Food System Initiative exists to provide linkage, connecting researchers with those in other disciplines who need their help.

There's more, much more, and the Auburn University Food Systems Initiative (AUFSI) strives to bring all the pieces together. To find out more, keep reading.

Center for Advanced Science,
Innovation and Commerce

Facilities

Researching

Of course, research activities take place in nearly every building on the Auburn University campus. All labs on campus are dedicated to research, but several are multidisciplinary or involved with doing research for the U.S. government.

Center For Advanced Science, Innovation and Commerce

Auburn's commitment to advancing research is best exemplified by the Center for Advanced Science, Innovation and Commerce (CASIC) now under construction in the university's new research park. The \$28.8 million facility, with 84,000 square feet of space and 21 labs, will contain five multidisciplinary "research clusters" bringing scientists together from a variety of disciplines across campus. CASIC research clusters will be devoted to food safety, aquaculture quality, water quality, ecosystems health, genomics and informatics, and bioenergy technologies. The food safety cluster will include:

- A Level 2 processing facility that will allow Auburn scientists to research pathogen interventions and work to develop new prevention technologies. The lab will be built according to USDA and FDA processing facility specifications. FDA- and USDA-approved testing methodologies will be used, in addition to new and innovative rapid detection methodologies. The lab will be unique in its flexibility, because researchers will be able to roll equipment in and out of the processing area. Researchers will be able to work with meat one day and eggs the next. The lab will be utilized by meat, poultry and food scientists with expertise in red meat, poultry, eggs, fruits, vegetables, food safety and microbiology.

- A second lab will be used for testing and detecting foodborne pathogens and analyzing food products. The lab will perform standard culturing and analyses of foodborne pathogens, using the same subtyping procedures used by the Centers for Disease Control to track index strains. Biosensors developed by researchers with the AU Detection & Food Safety Center will be used to detect pathogens, allergens and other contaminants.

- The third lab meets both the engineering and microbial requirements needed to support Auburn's research into food traceability—the ability to trace the history, application or location of a food product.

USDA Laboratories

Alabama is home to two USDA Agricultural Research Service units, the Aquatic Animal Health Research Laboratory and the National Soil Dynamics Research Laboratory.

The Aquatic Animal Health Research Laboratory conducts veterinary bacteriological, parasitological, nutritional and immunological research to solve problems in aquaculture that diminish productivity, quality of catfish products and profit. The Soil Dynamics Research Unit is involved in developing the soil dynamics technology needed for managing the soil as a productive plant growth medium. This includes research on the use of effective and efficient tillage, traction and crop production systems that maximize profitability while minimizing the effects of soil compaction and conserving soil, water, and energy resources.

Alabama Fish Farming Center

This center in Greensboro provides statewide educational and technical assistance in all aspects of fish farming, from analyzing water samples to diagnosing disease and surveying pond sites. The center is supported by the Department of Fisheries and Allied Aquacultures, the Alabama Soil and Conservation District, the Alabama Cooperative Extension Service, and Alabama Agricultural Experiment Stations and the USDA's Wildlife Services Agency.

Alabama State Veterinary Diagnostic Laboratory

This system provides diagnostic services for Alabama livestock and poultry producers, veterinarians, animal owners and apiary owners. The central laboratory is in Auburn, with regional labs in Boaz, Hanceville and Elba. The diagnostic labs provide diagnostic consultation, testing and assistance for diseases in livestock and poultry, companion animals, honey bees and wildlife as well as conducting disease surveillance testing and providing educational outreach. The laboratories work in collaboration with USDA and the National Poultry Improvement Plan. The Auburn lab also is a member of the USDA National Animal Health Laboratory Network.

Auburn University Soil Test Laboratory

The Auburn University Soil Testing Laboratory was established is a cooperative effort of the Alabama Agricultural Experiment Station and the Alabama Cooperative Extension Service. The lab's central mission is to provide an unbiased and economical fertilizer and lime recommendation service to Alabama growers. Services include soil testing, pecan analysis and analysis of such things as micronutrients and organic matter in soil.



Researchers in the Auburn University Fisheries & Allied Aquaculture program conduct research into everything from oysters to catfish.

Producing

FISHERIES & ALLIED AQUACULTURE

Center for Aquatic Resource Management

Because Auburn is a land-grant university, our mission includes research and teaching involving “practical agriculture.” For that reason, Auburn has a large number of programs focusing on the “producing” end of the food systems chain, with an impressive array of facilities to support the programs. All College of Agriculture animal facilities are accredited by the Association for Assessment & Accreditation of Laboratory Animal Care International.

This new \$9 million center offers leading-edge aquatic research facilities and enhanced classroom environments. Funded primarily by the National Oceanographic and Atmospheric Administration, the center is located at the E.W. Shell Fisheries Research Center five miles north of campus and consists of an administration building with more than 20,000 square feet and a 17,000-plus-square-foot laboratory building.

The administrative building includes office space for Shell center staff as well as a teaching lab, a hatchery, a meeting

MAPPING THE CATFISH GENOME WILL YIELD DIVIDENDS

As fisheries collapse, aquaculture must grow to provide an alternative seafood source. And aquaculture production has drastically increased in the last 20 years, currently accounting for more than 40 percent of fish consumption.

In the United States, the catfish industry accounts for more than 60 percent of aquaculture production, but the broodstock must be improved to make the catfish industry profitable in the face of stiff global competition. Growth rate, feed conversion efficiency, disease resistance, body conformation and fillet yield all must be improved.

That's where Auburn scientists come in. Like detectives,

researchers in Auburn's Fish Molecular Genetics and Biotech Lab are piecing together the estimated 25,000-30,000 genes that make up the catfish genome.

To do this, they are developing DNA markers and mapping them to the genome, using the DNA markers to make gene associations as a way of locating genes controlling important performance traits.

Performance traits are controlled by many genes, so understanding exactly which genes are contributing to a single

trait such as disease resistance is difficult. Through the development of genome technologies, the lab hopes to provide the catfish industry with tools to identify broodstocks based on genetics and make breeding decisions using genome selection. Such information would allow selection of fish with the combination of “good” genomic regions.



room available to campus and civic groups, a 6,354-square-foot holding area for sorting, weighing and counting fish as needed for research projects and a new market for sales to the public. It also features classrooms—the first ever at the Shell complex—and a reception area that is home to educational kiosks and displays ranging from virtual tours of the research station to aquariums filled with live fish to historic information about Auburn’s world-class fisheries and allied aquacultures program.

The adjacent laboratory building houses fish tanks and state-of-the-art labs, including several wet labs with complete climate control allowing year-round research. The building also offers flex space in which researchers can set up a wide range of multidisciplinary studies in ecology, physiology, fish health, genetics and water quality.

E. W. Shell Fisheries Center

The Department of Fisheries and Allied Aquaculture’s field facilities are located north and south of the main Auburn campus. The North Auburn Unit includes 235 earthen ponds, with water collected from rainfall on watersheds surrounding the ponds. The site includes a fish processing/technology laboratory, the Ireland Center for the study of fishery sciences; a laboratory for research on biochemical genetics; a fish nutrition laboratory and a hatchery lab. Several of the ponds are managed as a commercial fish farm.

Facilities dedicated to the genetic improvement of fish include 70 earthen ponds containing the only government-approved outdoor confinement installation for the study of transgenic fish in the U.S. A hatchery contains aquaria, fiberglass tanks and incubators. Biochemical genetics is studied in a lab containing equipment for classifying fish strains by protein electrophoresis and DNA analysis, as well as for cloning of recombinant genes for introduction into fish eggs.

The south Auburn field station includes 36 earthen ponds and a teaching laboratory with indoor and outdoor facilities for housing live fishes.

Fish Biodiversity Laboratory

This multi-purpose facility houses offices, research labs, the ichthyology teaching collection, teaching labs and office and lab space for a representative of the Alabama Department of Conservation and Natural Resources. Research labs include wet lab space and a variety of tank sizes, from a large stream tank to arrays of 10-, 20- and 40-gallon tanks.

An acoustics lab is used for work with sound production and hearing in fishes.

Auburn University Shellfish Lab

The Auburn University Shellfish Laboratory is located on Dauphin Island on land leased from the Dauphin Island Sea Lab. The Auburn lab was established with industry input to conduct practical research to foster high quality shellfish production and protect shellfish resources in the Gulf of Mexico. The facility’s hatchery includes experimental and production tanks with seawater supplied by two pipelines extending into the Gulf. Laboratory space includes a microbiology lab, a water quality lab and a self-contained algae laboratory.

KEEPING GULF OYSTERS SAFE FOR CONSUMERS

AUFSI assisted Core Faculty researcher Cova Arias in establishing an FDA-approved oyster-testing lab to verify and validate postharvest processing methods used

*by oyster processors to eliminate the human pathogen *Vibrio vulnificus*.*

Although there are four FDA-approved methods (high pressure, pasteurization, freezing and irradiation) the lab is currently focusing on running verification and validation tests for quick freezing protocols.

When a processor starts using one of the methods, validation is required by an FDA-evaluated lab. After the process has been validated, processors send monthly samples for testing in order to maintain their status.



BEEF CATTLE EVALUATION UNIT

The Beef Cattle Evaluation Unit is currently being used for residual feed intake research and lipid metabolism trials in beef cattle. The unit is one of only three universities in the Southeast with the ability to measure individual feed intake. This is possible because the barn is subdivided into eight pens with 12 Calan Gates® per pen, for a capacity of 96 head. During a three-week training period, cattle learn which gate to go to for feed, and then a transducer is placed around the animal's neck. Using radio frequencies, the transducer to open the gate when the animal stands in front of it.

BEEF TEACHING CENTER

The Stanley P. Wilson Beef Teaching Center has two animal metabolism rooms and a prep lab for beef cattle research projects, two working chutes (manual and hydraulic), a modern classroom and a conference room for smaller group meetings. The facility serves as a teaching laboratory for several Animal Sciences courses, and the modern working facilities provide students with opportunity to gain hands-on experience. The beef production class, for example, participates in calving out the cowherd as well as maintaining health programs for the cowherd.

One of the beef center pastures has been subdivided into six plots to measure water quality in runoff from grazed pastures. Each plot has sampling instrumentation to sample water and soil runoff and to measure ambient temperature, wind speed and direction, solar radiation and soil temperature. This may be the only facility of its kind in the U.S. located on a university campus and permanently dedicated to pastures for grazing cattle.

The herd consists of some 40 registered Angus and 20 registered Beefmaster cows maintained on 100 acres of pasture on campus and 90 acres north of Auburn. The pastures consist primarily of bermudagrass, bahiagrass and fescue and are seeded with clover and either ryegrass or a small grain for winter forage. The pastures vary in size from five to 30 acres and are grazed on a rotational basis.

Fall is the calving season for purebred cattle, and a small spring calving group is maintained for crossbreeding purposes. Artificial insemination is used in purebreds for 40



days, and the bulls are turned out for 35 days to maintain a 75-day calving season. For the spring calving group a bull is turned out for 60 days to produce crossbred calves.

POULTRY & ANIMAL NUTRITION CENTER

Though high-quality, nutritious feed is key to the success of any poultry, livestock or aquaculture farming operation, few universities have focused attention on this subject. With its strong programs in the animal sciences, Auburn recognized the need several years ago and began formulating plans for a cutting-edge animal nutrition center.

A \$6.3 million feed mill, projected for completion in December, will offer technology and equipment to meet research needs and expand Auburn's outreach efforts via industry short courses for the feed and poultry industries. The facility will also provide Auburn students with hands-on training in feed manufacturing and science and provide



the building's Poultry Products Safety and Quality Food Microbiology Lab and a media preparation lab. Some 5,000 square feet of primary lab space is available, with an additional 2,000 square feet of support lab space available. Capabilities include cultural identification and detection of foodborne pathogens; phenotypic and genotypic characterization of foodborne bacteria; enumeration of bacteria, etc. One laboratory is dedicated to anaerobic bacteriology.

SWINE RESEARCH & EDUCATION CENTER

This is one of four animal facilities operated by Auburn's Animal Sciences Department. Outside a biosecure perimeter, the Swine Research and Education Center contains a feed mill; waste handling, treatment and storage facilities; a test feed barn; and equipment storage.

Inside the perimeter are the office and lab building as well as a complete surgery suite, a nursery and facilities for breeding and gestation, farrowing and finishing. The Swine Research & Education Center is subject to USDA inspection, and annual animal care assessment is conducted by a third-party veterinarian.

RESEARCH & EXTENSION CENTERS

E.V. Smith Research Center

The nearly 4,000-acre E.V. Smith Research Center, located on I-85 between Auburn and Montgomery, is the largest and most comprehensive of the Alabama Agricultural Experiment Stations, with research units in dairy cattle, beef cattle, horticulture, plant breeding, field crops and biosystems engineering.

The center's dairy unit has been named a Gold Standard Dairy Farm by the Dairy Farmers of America as recognition that the farm exemplifies the highest standards in milk production. Gold Standard Dairy status is granted only after a dairy has been inspected by DFA field staff and evaluated for milk safety and quality, quality of animal care, environmental stewardship, personnel development and pathogen management.

feed for Auburn's research and teaching animals, as well as enhancing outreach and proprietary research programs through contracting and leasing arrangements between Auburn and private companies

A technical advisory committee consisting of poultry nutritionists and feed-milling personnel provided input on technical specifications to ensure design and equipment will meet the industry's needs.

POULTRY SCIENCE

As one of only six remaining in the U.S., Auburn's poultry science department works for the commercial poultry industry, poultry growers, backyard/specialty flock owners and the public. The 85,000-square-foot Poultry Science Building, completed in 2005, is an example of the partnership between the university and the poultry industry.

Because poultry is particularly vulnerable to infection by pathogens, research is an important part of the department's mission. Microbial analyses are conducted in

Small, sweet and nearly seedless Satsuma oranges are gaining favor with consumers thanks in part to the efforts of Auburn researchers working for the Extension Service.



The dairy, in operation since 1978, currently has a 260-cow herd of Holsteins and Jerseys, 109 of which are actually producing milk at the moment. Average annual production at the dairy is 2,500 gallons per Holstein and 1,721 gallons per Jersey. This past year, the dairy sold 288,574 gallons of milk from the herd.

Black Belt Research & Extension Center

Rolling prairie land and unique soil formations make this an excellent site for research on beef cattle and forages. The center's primary focus is grazing and animal breeding; in the 1970s, center researchers were the first to associate poor cattle performance with endophyte fungus in fescue. That discovery resulted in new management strategies that allowed producers to dramatically increase weight gain in their herds and, subsequently, boost their profits.

Chilton Research & Extension Center

Located in the shadow of Clanton's famous peach water tower, the focus here is on identifying superior peach varieties and developing new management techniques to help peach producers maximize their profits. Today, the center also researches other small fruits such as the delicious egg-sized kiwifruit. The research center is home to the Chilton Food Innovation Center, an FDA-approved processing facility. The center is a joint venture between the local school system, the Alabama Cooperative Extension Service and the Alabama Agricultural Experiment Stations.

Gulf Coast Research & Extension Center

This center in Fairhope, near the Gulf of Mexico, enjoys an ideal climate for a diversified research program. The long growing seasons and mostly mild winters allow for research on all of Alabama's major row crops as well as on turfgrass, vegetable and fruit crops, pecans, beef cattle and forage.

Marine Research & Extension Center

The Auburn Marine Extension and Research Center located on the shores of Mobile Bay and a short distance from the Gulf of Mexico, combines research programs of the Alabama Agricultural Experiment Station and extension programs of the Alabama Cooperative Extension System and the Mississippi-Alabama Sea Grant Consortium to help ensure that Alabama's marine resources remain renewable. The center is involved with local governments, agencies, schools and organizations, providing unbiased information to assist in making choices about the future of coastal resources. AUMERC staff operates and the Auburn University Shellfish Laboratory located on Dauphin Island (see Fisheries & Allied Aquaculture).

North Alabama Horticulture Research Center

This 159-acre horticultural research center east of Cullman conducts scientific studies and generates research data that benefits large- and small-scale commercial fruit and vegetable producers in the state's northern counties. The center is one of only two Alabama Ag Experiment Station outlying units with certified organic research plots (the other one is at the E.V. Smith Research Center), and the center uses those plots almost exclusively for studies on organic production of the area's top three vegetable crops—fresh-market tomatoes, peppers and sweet potatoes.

Sand Mountain Research & Extension Center

For eight decades now, this center has played a role in strengthening northeast Alabama's farm sector. The center's goal is to develop farm management practices to help the region's livestock, poultry, row crop and commercial vegetable producers—particularly small-scale farmers—to operate more efficiently, sustainably and profitably.

Wiregrass Research & Extension Center

A variety of soil types and land characteristics typical of the Coastal Plain allow this center to address problems that challenge farmers in the region. The center is known for its focus on peanuts, but current research areas include cotton, corn and beef cattle.



WHY IS FOOD SAFETY AN IMPORTANT FOCUS?

Food safety is a national priority that affects every man, woman and child. Foodborne pathogens and toxins sicken as many as 76 million Americans, and an estimated 5,200 of them die. Some additional 325,000 people are hospitalized every year.

The U.S. Department of Agriculture estimates the cost of foodborne illness to be up to \$30 billion in direct medical expenses, lost productivity and health expenses annually. Of that amount, Salmonella

and Campylobacter account for \$1 billion in direct and indirect medical expenses.

In addition to these costs to the public and the nation, the costs to industry of settling civil litigation as a result of foodborne disease can be immense.

For example, the 1993 Jack-in-the-Box hamburger incident involving beef contaminated by E.coli 0157:H7 (which infected more than 600 individuals and killed four children) resulted in lawsuit settlements of \$126 million.

Processing

Of course, produce, beef and dairy cattle, seafood and poultry don't just magically appear on our tables. They have to be processed, and as a land-grant university Auburn looks for quicker, safer and cheaper ways to process foods. Several facilities are used for this research.

CHILTON FOOD INNOVATION CENTER

Chilton County is renowned for its copious output of peaches and other produce, but as much as 50 percent of the county's produce was once discarded because of over-ripeness or inadequate size. Now, produce can be processed into jams, jellies and salsa and other value-added products at the Chilton Food Innovation Center, managed by a professional food scientist.

The state-inspected community kitchen is a cooperative effort among local growers, the Alabama Cooperative Extension Center, the Alabama Agricultural Experiment Station, the City of Clanton, the Clanton Board of Education, a local bank, the Alabama Farmers Federation and others.

Any grower with an acidified food trying to move a product into retail sales is eligible to use the nonprofit food processing center. The center for small fruit and vegetable producers and small food businesses is approved by the Food & Drug Administration and the Alabama Department of Public Health.

LAMBERT-POWELL MEAT LABORATORY

This state-of-the-art teaching, research and extension facility supports a variety of activities in the Department of Animal Sciences. Faculty and graduate students conduct research in the areas of meat quality, meat processing and

The Chilton Food Innovation Center



food safety in a fully functioning Alabama Department of Agriculture and Industries-inspected facility, which also provides training for USDA personnel.

The William Jones Demonstration Kitchen seats up to 40 people comfortably in a stadium-style classroom with video-conferencing capabilities. There are multiple processing rooms, as well as another stadium-style classroom—seating up to 120 people—where the temperature can be lowered to keep meat safe as students learn. Meat products are sold to the public in a retail sales room.

POULTRY PROCESSING

Research facilities at Auburn University include a poultry research farm with a state-inspected pilot processing and further processing facility that allows faculty and graduate research on poultry processing and food safety. The pilot further processing plant allows researchers to accurately simulate commercial processes, ensuring relevance to the

industry, and includes an experimental kitchen, smoking facilities, walk-in coolers and freezers. The facility also has multiple packaging areas to further simulate commercial production. In addition, the Poultry Science Building is equipped with modern poultry meat quality research laboratories, including a sensory testing area connected to a preparatory kitchen.

SENSORY LABS

The Poultry Science building includes a state-of-the-art prep kitchen adjacent to a sensory lab, where scientists use equipment such as a texture analyzer to ponder questions-like, “How chewy is this angel food cake?” The lab also is equipped to handle two kinds of sensory panels. For a descriptive panel, participants gather around a table and write descriptions of a food product on a whiteboard, not

stopping until everyone agrees on the descriptions. Participation on this panel requires some training and sometimes background tests for panelists, because “supertasters” detect flavors with heightened sensitivity. These panelists can be far more discriminating than any lab equipment in describing a “hint of lemon” or a “nutty” flavor note.

For more routine consumer taste testing, 50 participants or more are brought in eight at a time and asked to taste different foods. They are seated in separate carels so they can’t compare notes, and food is pushed through a small metal door from the kitchen. Participants give their feedback by completing paper forms. The area is equipped with red, blue and yellow lighting to disguise differences in food colors. This method might be used when a manufacturer wants to switch an expensive ingredient for a less costly ingredient but doesn’t want to affect the flavor.



Transporting

National Center for Asphalt Technology

Auburn University offers the only facility in the country where factors involved in the transportation of food can be studied without taking to the public highways. The 309-acre National Center for Asphalt Technology’s site includes a 1.7-mile off-road track that contains a variety of features that can be used in conjunction with the paved track, skid pad and connecting infrastructure to design virtually any duty cycle needed to properly simulate real-world conditions. The track allows accelerated, constant, real-world testing without having to disrupt drivers on a public highway. Researchers can get critical data in a much shorter time, because a fleet of trucks travels the track five days a week, 16 hours a day.

Detecting Hazards

Foodborne hazards caused by tiny organisms such as salmonella and listeria are a far more significant risk than many people realize. An important part of AUFSI's mission involves promoting food safety, which includes developing new and better ways to detect foodborne pathogens.

DETECTION & FOOD SAFETY CENTER

The food industry now relies on end-product testing for bacterial measurements, with samples taken from the production line and sent to the lab. Analyses require at least

six hours to identify tainted food, and up to 48 hours to determine whether a food product is safe. In that time, large integrated plants will have processed six million pounds of ground beef, with some of it distributed, sold and eaten before a problem is even known.

The Auburn Detection and Food Safety Center (AUDFS) was established with the premise that a systems engineering approach could lead to quicker, better identification of foodborne hazards. At the core are researchers from five Auburn colleges: Agriculture, Engineering, Human Sciences, Sciences and Mathematics and Veterinary Medicine. They work together to address the need for next-generation sensors and information systems for the detection of food contamination, and for rapid inventory and traceability of food products.

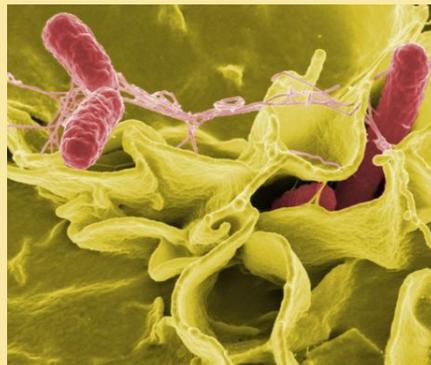
AUDFS combines advances in the identification of foodborne illnesses and contaminants with the latest in biosensor technology. These efforts will ultimately lead to a system that monitors food products from production to consumption, eliminating or significantly reducing the threat of foodborne bacteria, pathogens and toxins reaching the dinner table.

AUDFS EXCELS IN COMMERCIALIZING TECHNOLOGY

You've heard of bovine spongiform encephalopathy, better known as Mad Cow Disease? The only known source of transmission to cattle is through their feed. Cattle are normally herbivores, but sometimes their feed includes the remains of other cattle in meat and bone meal.

Scientists in Auburn's Detection and Food Safety Center have made a big contribution to protecting the U.S. public from this dread disease. They have commercialized a test kit for detecting the presence of ruminants—such as cattle, sheep and goats—in livestock feed.

That's just one of six products the center has commercialized. Center scientists also created a test kit to identify different meat species, capable of detecting horsemeat mixed into ground beef. They've also developed a test kit for meat and bone meal.



Center scientists also have brought to market an ultra-high-resolution microscope that bridges the gap between traditional light microscopes, allowing researchers to view live bacteria in action. And they've developed a fluorescent attachment for the microscope to identify tagged bacteria.

As if all that were not enough, scientists in the multidisciplinary center have created technology for sampling air contaminants. AUDFS has spun off an additional Center of Excellence, the FAA Center for Airliner Cabin Environmental Research.



*Ariccia
Restaurant*

HOTEL & RESTAURANT

Atlanta-based West Paces manages the 247-room Hotel at Auburn, with the hotel management team acting as instructors and the hotel and restaurant providing a laboratory where students learn from the best.

The West Paces Hotel Group was formed in 2002 when hospitality icon Horst Schulze, co-founder of Ritz-Carlton Hotels, brought together a group of former Ritz-Carlton executives with the aim of managing world-class hotels and also being involved in the training of future hospitality professionals. The Hotel at Auburn University was West Paces' first site; since then, the company has expanded worldwide.

June Henton, dean of the College of Human Sciences, recognized that for Auburn's academic program to stay up-to-speed with the hospitality industry, a dynamic new academic model driven by the industry's top quality standards and practices was in order. As a result, West Paces has integrated its approach to customer-focused service excellence into the college curriculum. Now, Auburn students learn wine-making techniques from top California vintners, apprentice in some of the finest hotels in the world and train to be the next generation of leaders in the hospitality industry.

The West Paces Hotel Group's association with the college creates an unusual learning experience for hospitality management students, who enjoy access to some of the hospitality industry's leading figures and benchmark practices. The West Paces Hotel Group offers hotel-as-classroom

Consuming

On one end of the food system is producing; on the other end is consuming. Most land-grant universities have facilities to research production and processing of food. Auburn has something most universities don't have—a world-class hotel and restaurant to serve as a laboratory for hospitality management students. Over the past decade, the College of Human Sciences has collaborated with the West Paces Hotel Group in a unique public/private partnership to educate students in hospitality management.



*The Hotel at
Auburn University*

instruction, with practicum classes designed to provide hands-on experience in all facets of hotel and restaurant operations. Students get insight into best practices from company executives and guest lecturers in the classroom, the hotel and off-campus venues, including purveyors, wineries, restaurants, service companies and providers. With the launch of Capella Hotels and Resorts and Solis Hotels & Resorts, the West Paces Hotel Group also offers Auburn students a leadership development program in both domestic and international settings.

FARMER'S MARKET

The Market at Ag Heritage Park is an open-air farmers' market held once a week during the spring and summer

growing season at Ag Heritage Park on the Auburn University campus. The market offers locally produced fruits, vegetables, honey, ornamental plants, herbs, cut flowers, stone-ground grains, eggs, goat cheeses, goat milk soaps, baked and canned goods and Alabama-roasted coffee. In addition, it often features the work of local artisans, educational booths, and musical entertainment.

The market is hosted by the College of Agriculture in partnership with the Alabama Agricultural Experiment Stations and the Alabama Cooperative Extension Service. Ariccia, the restaurant at the Hotel at Auburn University, has hosted a series of dinners featuring local products purchased at the market. The market, first opened in 2005, is open to the public and welcomes everyone from Auburn employees and students to local residents and tourists.

RESTAURANT, HORTICULTURE CREATE HERB GARDEN

Parsley, sage, rosemary and thyme— they're all there. So are basil, mint, oregano, chives and a bit of lavender, too. Most every morning from late spring through fall, the executive chef at Ariccia Italian Trattoria visits the gardens, scissors in his hand, and starts snipping, not stopping until his large wicker gathering basket is full.

Ariccia operates inside The Hotel at Auburn University, and the hotel's managing director, Hans van der Reijden, thought the restaurant should have an on-site container herb garden. Because of the restaurant's emphasis on freshness, his chefs should be able to walk out to the luxury hotel's pool area to gather herbs one minute and have them in the kitchen the next. There was just one problem. The hotel didn't have gardeners on staff.

That's where the university's Col-

lege of Agriculture enters the scene. The restaurant and hotel already worked closely with the College of Human Sciences, so van der Reijden was primed to seek opportunities for involvement with other colleges and schools across campus.

He met with a group of horticulture department faculty and staff to talk over the feasibility of establishing

a completely student-managed vegetable garden to grow seasonal produce for Ariccia. They agreed, and plants are now started in a greenhouse that is part of the College of Agriculture's Plant Science Research Center.

Van der Reijden brought in a landscape architect who designed garden space running the length of the brick wall parallel to the hotel's pool, filled with raised beds and enclosed by a knee-high wooden fence. A plaque, displayed by the wrought-iron gate to the pool area, notes that the herb garden is a collaborative project of the hotel and conference center, the College of Ag, the horticulture department and the plant research center.

The herbs grow against a backdrop of trellises covered with muscadine and scuppernong vines. Whether muscadine pie and scuppernong wine will appear on Ariccia's menu remains to be seen.





Resources

Business

Food producing, processing and consuming provide a significant number of jobs in the U.S., so building business is important. Auburn has several centers to help, and researchers throughout the university are involved in a variety of activities leading to new businesses.

CENTER FOR FOOD ENTREPRENEURS

AUFSI is working with the Alabama Cooperative Extension Service and the Colleges of Agriculture and Business to develop a Food Entrepreneur Center to help individuals who have developed a food product—perhaps a better barbecue sauce or a more delectable cinnamon roll—and desire to market their products. In cooperation with the Extension Service, the center will provide necessary testing and certification to show products meet necessary regulations. Then, the Small Business Development Center in the College of Business will help the up-and-coming entrepreneur

BOUTIQUE OYSTERS

Oysters destined for the premium niche markets are growing by the thousands in Steve Crockett's backyard in Bayou La Batre, near the Pointe aux Pins peninsula on the Gulf of Mexico's Grand Bay.

Crockett's 7-acre Alabama oyster farm also serves as a demonstration and research site. Working with Auburn researcher Bill Walton, Crockett is evaluating off-bottom oyster-growing methods and determining the feasibility of oyster farms in the region.

Similar research is taking place in Louisiana. The shared goal is

the introduction of economically sustainable off-bottom oyster farming in the Gulf of Mexico. Oyster aquaculture is already an established industry in East Coast states and could become an industry in the Gulf to supplement wild-caught oysters.

Boutique oysters typically are cleaner, have a more appealing

shape, are saltier and are known for the taste of the specific waters where they are grown. Crockett's are no exception. Pointe aux Pins waters are pristine with no agricultural or industrial run-off and do not have issues with septic tanks. Because consumers like to know where their food comes from, those pristine waters can be a powerful marketing tool.



to develop a professional business plan. SBDC provides a business plan workbook, cash flow projection worksheets, loan checklists and many other resources. The center also serves as a technical assistance provider on small business loans. SBDC is funded in part through an agreement with the Small Business Administration. **For more information:** AUFISI, (334) 844-7465.

GOVERNMENTAL SERVICES CENTER

The Center for Governmental Services represents Auburn's commitment to excellence in state and local government and nonprofit organizations. The center provides technical assistance, training and survey and policy research to meet the changing needs of Alabama governments and public officials. The center's mission is to improve and transform governance through innovation, research, technical assistance and training. **For more information:** Don Terry Veal, (334) 844-1919.

OFFICE OF TECHNOLOGY TRANSFER

Located in the new Auburn Research Park, the Office of Technology Transfer serves as a link between Auburn faculty and the commercial marketplace. The office offers guidance about the protection of intellectual property, including patents and copyrights, as well as help in seeking licensing agreements with commercial entities to take Auburn research into the marketplace. Services include valuation of invention disclosures, management of the patent process, marketing and working with start-up companies. **For more information:** John Weete, (334) 844-4977.

Health & Nutrition

Dietary habits are the sixth leading cause of death for Alabamians. According to the Centers for Disease Control, 70 percent of all adults over the age of 20 are overweight, and Alabama is the seventh fattest state in the country. Twenty five percent of Americans with diabetes do not know they have the disease.

HUMAN NUTRITION

Having a safe, nutritious food supply that promotes health is the ultimate goal of a "food system." Researchers in the Human Nutrition program investigate consumer issues

ranging from diabetes-preventing components in food to the health benefits of novel fats. Studies range from the applied to the theoretical. For example, some investigators are studying food and beverage habits of older adults, while others are conducting research on the biochemical basis of obesity and diabetes. Nutrition scientists in the Alabama Cooperative Extension System are focusing on consumer education to prevent childhood obesity. **For more information:** Margaret Craig-Smith, (334) 844-3263.

TIGERFIT HEALTH AND FITNESS

As part of a service learning effort in the College of Education's Health and Human Performance program, students work with local physicians and faculty to provide exercise programming and fitness education for Auburn students, faculty, staff and alumni as well as community members. One of the goals is to foster collaborative efforts between Auburn University and the local medical community as a way to promote healthy living and reduce cardiovascular disease, the top cause of death and disability in the U.S. Obesity is one of several risk factors for cardiovascular disease. **For more information:** James McDonald (334) 844-1482.

BOSHELL DIABETES AND METABOLIC DISEASE RESEARCH PROGRAM

The Boshell Diabetes and Metabolic Research Program is an interdisciplinary research group sponsored by the College of Veterinary Medicine, with more than 30 researchers from disciplines as disparate as chemistry, nursing and kinesiology. The program's goal is to facilitate cross-disciplinary research into both type 1 and type 2 diabetes, with particular focus on the cardiac, neurological and metabolic aspects of the disease. **For more information:** Robert Judd, (334) 844-5416

Hunger Relief

Fighting hunger could be a core value at universities around the globe, and Auburn University seeks to be the catalyst in making this happen. With its global agricultural initiatives and leading-edge nutrition and food safety research, the university already plays a major role in feeding the world.

INTERNATIONAL HUNGER INSTITUTE

Auburn's new International Hunger Institute leverages the College of Human Sciences' relationship with the World Food Programme, providing another tool to use in the fight against domestic and global hunger. The college's dean, June Henton and the college's director of external relations, Harriet Giles, spearheaded a partnership with the WFP and established the War on Hunger campaign on campus. As the effort grew and various hunger and sustainability initiatives began throughout campus, Henton and Giles led another charge between Auburn and WFP to develop a global movement, Universities Fighting World Hunger. There are now more than 200 colleges and universities worldwide following Auburn's model in the fight against hunger and malnutrition at home and abroad. **For more information: Harriet Giles, (334) 844-3241.**



WEST ALABAMA LEARNING COALITION

This network of partnerships among schools, colleges, social service agencies and business and civic leaders focuses on connecting educational excellence with economic and community development in rural Alabama. Developed by the AU College of Education's Truman Pierce Institute and endowed by the Jessie Ball duPont Fund, the coalition includes Auburn University, Tuskegee University, the University of South Alabama, the University of West Alabama, Beville State Community College, Reid State Technical College and Concordia. Initiatives include internship programs, on-site college classes, field-based experiences for pre-interns, teaching strategy diversification, research linked to school-based problems and increasing student performance. **For more information: Cindy Reed, (334) 844-4488.**

WAR ON HUNGER STUDENT CAMPAIGN

Auburn University and the College of Human Sciences have partnered with the United Nations' World Food Programme to create an academic "hunger model" suitable for replication or adaptation by universities in the U.S. and abroad. The student-led Committee of 19 focuses on creating awareness about hunger and hunger issues, and the College of Human Sciences has developed a special curriculum covering hunger issues. **For more information: College of Human Sciences, (334) 844-3790.**

TRUMAN PIERCE INSTITUTE

The Truman Pierce Institute, a research and outreach unit in Auburn University's College of Education, is devoted to the study and improvement of teaching, learning and leadership. The institute's work focuses on ways to improve schools and communities by creating partnerships, conducting research and providing programs to meet the needs of schools and communities. **For more information: Cindy Reed, (334) 844-4488.**

Pharmaceutical

Schools

Some interdisciplinary grant proposals require access to a population of students. Access to such populations is available in several ways, through both the College of Education and the College of Human Sciences.

CUSTOM DRUG FORMULATIONS

The Large Animal Clinic's veterinary pharmacy in the College of Veterinary Medicine is licensed to compound formulations to dispense as equine and food animal medications under the direction of a license veterinarian. This includes sterile parenteral products and novel dosage formulations adhering to federal, state and USDA requirements. Pharmacy director Sue Duran researches new products for treating diseases in food animals. She also works with veterinarians to study proper dosages and withdrawal times to ensure meat and milk safety. **For more information: Sue Duran, (334) 844-6722.**



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