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# AAES Impact

RESEARCH NEWS FROM THE ALABAMA AGRICULTURAL EXPERIMENT STATION

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## Auburn scientists pursue solution to bird-plane collisions

The amazing crash landing of that US Airways jet in the Hudson River in mid-January dramatically illustrated what can happen every time a bird strike occurs. In 2007, the Federal Aviation Administration fielded 7,439 strike reports.

Rising bird-strike incidents correlate directly with an ever-growing number of birds—large birds like geese and turkey vultures—populating stormwater retention ponds at airports. The ponds, built to collect and purify runoff from runways and parking lots, offer birds an abundance of food, with plenty of shelter right next door.

In search of solutions to drastically reduce airport bird populations and the serious safety risks the birds pose, the FAA has turned to a team of Alabama Ag Experiment Station scientists at Auburn for help.

In a broad, FAA-funded research project, the team will design a model pond that cleans stormwater runoff to meet water-quality standards and, at the same time, eliminates the typical pond characteristics that birds find so attractive.

Project collaborators are Auburn wildlife sciences professor Jim Armstrong, biosystems engineering professor Kyung Yoo, fisheries professor and water-quality specialist Claude Boyd, forestry associate pro-



**BIG BIRDS**—US Airways Flight 1549 sinks into the frigid Hudson River Jan. 15. The highly skilled veteran pilot successfully ditched the plane in the river after a flock of geese knocked out both engines. (Photo courtesy of FAA)

fessor Latif Kalin and federal wildlife scientist Brad Blackwell.

The project's first phase, collecting data on pond characteristics and bird sitings, began in August 2007. When a graduate research assistant of Armstrong's wraps that up this August, he will have amassed a staggering amount of detailed data from 40 Lee County ponds that he will have visited and observed a total of 10,400 times.

Based on analyses of that data, Boyd will find the most effective methods for cleaning airport ponds of polluted stormwater runoff from runways and parking lots in airport ponds; Kalin will evaluate water-

quality changes using different filtering methods on ponds with varying characteristics such as shape, area, depth, slope and plant life; and Yoo will design a model pond that encompasses the extensive data the researchers collect.

The researchers will build the pond at a site in Auburn, put it through stringent testing, tweak the design as needed and present it to the FAA as a scientifically proven, highly effective bird-detering stormwater-retention-pond model that airport managers can consult and incorporate into their bird-management programs. The end result: safer flying. ♦

## Coming soon: final map of whole-genome sequence of catfish

As recently as five years ago, Auburn alumni professor of fisheries John Liu was convinced it would be 20 to 30 years before the Catfish Genome Project he launched in 1997 would be completed. "When we have the whole genome sequence of catfish," he'd say, "I will be old enough to retire."

But major advances in sequencing and computing technology since then have so accelerated research at the Molecular Genetics and Biotechnology Lab in Auburn

that Liu, one of the world's top fish geneticists, now says the finished version of the catfish genome sequence will be unveiled within the next two years.

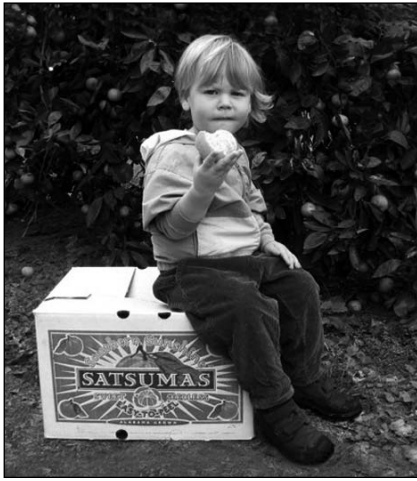
That means Liu and his research team, using the premium hybrid catfish that fellow Auburn fisheries scientists developed, will have determined the sequence of chemical base pairs that make up catfish DNA and will have discovered and identified all 28,000 catfish genes—not only where they are

but, ultimately, what they do.

Knowing which genes are linked to catfish growth rate, hardiness, disease resistance and feed efficiency will allow researchers to develop improved breeds that can help growers lower their production costs while producing higher-quality and higher-yielding catfish that will lead to higher profits. Such improvements are crucial if the U.S. catfish industry is to become more competitive with foreign imports. ♦

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**IMPACT** is a quarterly newsletter the Alabama Agricultural Experiment Station (AAES) publishes to inform state and federal legislators, public policymakers and the general public about AAES research projects and how they affect all Alabamians. The AAES ([www.ag.auburn.edu/aaes/](http://www.ag.auburn.edu/aaes/)) is based at Auburn University ([www.auburn.edu](http://www.auburn.edu)). Contact **IMPACT** at 334-844-2783 or [jcreamer@auburn.edu](mailto:jcreamer@auburn.edu).



**SEEDLESS SWEETNESS**—Collin Nesbitt, 3, holds proof that seedless satsumas are a breeze to peel. His dad, Monte, has helped the industry make a comeback in Alabama.

## Alabama satsumas going mainstream

A project the AU horticulture department launched in 2002 to revitalize Alabama's satsuma industry is going like gangbusters, so much so that Monte Nesbitt, a research associate at the Gulf Coast Research and Extension Center in Fairhope who's been involved from the get-go, says the Alabama satsuma is ready to go mainstream.

In the '20s, Alabama had a booming satsuma industry, but severe back-to-back freezes wiped it out. Now, though, growers can use effective strategies the Auburn research team has developed to protect their trees in frigid weather.

Thanks to such major production advances, 13,000 prolific satsuma trees now grow in Alabama. They're mainly in Mobile and Baldwin counties, but successful trials in the Wiregrass and in high-tunnel greenhouses in Clanton indicate the state's satsuma belt will expand.

The emerging industry got its foot inside the marketplace door last year with a huge sell of Alabama satsumas to a Fortune-500 company. Next up: moving the fruit into major supermarket chains. ♦

## Study finds new clues to nematode control

For Alabama cotton, corn, peanut and soybean producers, root-knot and reniform nematodes are Bad News. The microscopic, soil-dwelling worms feed on plant roots. When nematodes infest a field, plants stop growing and yields sink. The few nematicides out there are costly, toxic and short-lived.

Research proves crop rotation can work in managing nematodes. Auburn University plant pathologist Kathy Lawrence is identifying practices, strategies and rotations that can help growers maximize crop rotation's benefits.

In a study to evaluate crop rotation's effectiveness in cotton fields infested with both root-knot and reniform nematodes, Lawrence and a team of graduate research assistants have some preliminary find-

ings and developments that could have significant impacts on nematode management and research.

First, they've found that reniform nematodes move in and infest a production field much faster than has been assumed.

Then, using soil samples from cotton fields at Alabama Ag Experiment Station research centers around the state, they have pinpointed six natural fungi that attack nematodes and could be effective as biological controls.

And finally, they are refining a process that could allow soil diagnostic labs to identify reniform nematodes in one day, as opposed to the week normally required. ♦



**NEMATODE**  
—A real yield buster

## Catfish gel could keep shrimp fresh longer

Although shrimp is the perennial seafood of choice in the U.S., the industry could be more profitable if not for a couple of technical problems in the processing stage.

The issues, which shrimp share with virtually all seafood products, are the short shelf life of fresh and frozen shrimp and the drip loss of frozen shrimp when thawed. Drip loss causes a 10- to 15-percent loss of liquid and a decline in quality.

The industry could save millions of dollars if an effective preservation technique that would keep fresh and frozen shrimp—both wild-caught and farm-raised—fresher longer and also reduce drip loss in the frozen.

Auburn biosystems engineering associate professor Yifen Wang has a study under way to evaluate catfish gelatin as a potential solution to the shrimp industry's dilemma.

Catfish gel is a new value-added product that, in fact, Wang, fellow faculty member Oladiran Fasini and scientists at Tuskegee and Alabama A&M universities developed recently. The product is an economical, high-quality gelatin that is made from catfish skins and offers the food and pharmaceutical industries an alternative to beef and pork gelatins.

In the current study, Wang and collaborators will test several catfish gel/preservatives formulations to determine their effectiveness in extending shelf life and improving quality when sprayed on shrimp or when shrimp are dipped into it during processing.

If successful, the product would be a boon not only to the shrimp industry—which includes five west Alabama farm-raised-shrimp producers—but to catfish producers and processors as well. ♦

*Information contained herein is available to all persons without regard to race, religion, gender or national origin.*