
AAES Impact

RESEARCH NEWS FROM THE ALABAMA AGRICULTURAL EXPERIMENT STATION

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Alabama will have 350,000 acres of soybeans this year, close to a record and nearly double last year's acreage.

New soybean would bring flexibility

AAES agronomist David Weaver at Auburn is working with scientists at Clemson to develop a soybean that would give growers more planting-date flexibility and higher yields.

The optimal time to plant soybeans is early May to mid-June, but many producers double-crop beans with wheat and can't plant their soybeans till they've harvested their wheat—often after that planting window has closed.

Soybean plants start flowering based, not on planting date, but on length of day. Thus, the late-planted beans begin to flower before they're fully developed, and yields suffer—to the tune of half a bushel for every day after June 15 that they're planted. Some varieties do mature later than others, but yields still drop.

Weaver's work would incorporate into current cultivars genes that would make them insensitive to day length, so that they would mature based solely on planting date, not length of day. It would give double-croppers, as well as full-season growers looking to plant early to avoid the inevitable late-summer drought, some solid options. ♦

Research to aim spotlight on whitetails

Five years ago, AU wildlife ecologist Steve Ditchkoff unveiled innovative plans to establish in rural Tallapoosa County a 430-acre outdoor laboratory dedicated to the most exhaustive study ever of North America's most abundant big-game animal: the white-tailed deer.

The lab would be located on land at the AAES's Piedmont Research Station in Camp Hill. But before the project could begin, the land had to be fenced. To raise money, Ditchkoff turned to the private sector—to individuals, landowners, organizations and businesses who derive pleasure or profit from hunting whitetails.

Support was strong, and now 3.8 miles of eight-foot, high-tensile fencing surrounds the AU Deer Lab. About 40 deer—most of which Ditchkoff has captured, tagged and released—were on the land when the fence was completed, setting the stage for groundbreaking research on whitetails "in the wild." ♦

In the long-term, AAES-supported study, Ditchkoff and team will monitor individual deer throughout their entire lives, capturing each on a regular basis and collecting data that will answer previous unknowns about whitetails' genetic makeup, reproductive success, growth, survival and susceptibility to disease and parasites.

But whitetail biology won't be the sole focus of the project. AU agronomists will be investigating growth and productivity of food plots for deer; horticulture faculty, the effectiveness of deer repellents in deterring browsing on ornamental plants; foresters, the impact of deer on forest regeneration; and veterinary medicine pathobiologists, diseases and parasites.

Ultimately, work at the AU Deer Lab should vastly enhance the scientific management of white-tailed deer.

For more on the study, go to www.sfwf.auburn.edu/ditchkoff and click on Deer Lab. ♦

Scientists put range eggs, cage-laid to test

As of 2012, conventional cages that egg producers have used for years to house laying hens will be illegal in Europe. From then on, all eggs will be laid either by hens in "enriched" cages or by "range" hens—birds with access to outdoor pasture space and freedom to roam and forage.

This Nov. 4, California voters will decide whether to follow Europe's lead and outlaw cage production methods.

One of the key assertions animal rights activist groups use to stir supporters is the claim that range eggs are better—and better for you—than eggs from caged laying hens.

That might be true. But then again, it might not. The reality is that little to no unbiased, scientific, peer-reviewed research comparing the two—nutritionally, microbially,

sensorially and in terms of performance as ingredients in food products such as angel food cake and mayonnaise—has been done. Until now.

In a two-year study that began at Auburn in November 2007, a team of AAES poultry and animal scientists along with researchers from North Carolina State and Tuskegee universities is putting range eggs and cage-laid eggs through the wringer to see how they stack up.

AU's Patricia Curtis, lead researcher in the project, says that in addition to the in-depth egg analyses, the researchers also will compare the meat from range and cage hens in terms of nutrition, texture and taste.

The study's data will benefit consumers, producers, processors and food manufacturers. ♦

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/) is based at Auburn University (www.auburn.edu). Contact **IMPACT** at 334-844-2783 or jcreamer@auburn.edu.

Blooming lotus makes retail debut

An Auburn University research and outreach project that AAES scientists launched in 2001 moved from the lab to the marketplace in mid-April when, for the first time ever in the U.S., gardeners could buy spectacular lotuses, already in bloom.

Lotuses usually don't bloom till late May. But using data from AU research on lotus as an alternative crop for Alabama farmers, Auburn horticulture alum Bill Bancroft has manipulated the temperatures and lighting in four lotus greenhouses at his Geneva County nursery and forced 4,500 lotuses into blooming early and in time for garden centers' peak buying season.

This first year was basically a trial run, but in the select northern states where the Stevensburg, Va.-based wholesale aquatic plants nursery that ordered this debut crop chose to distribute the 4,500 lotuses, retailers sold the containerized aquatic plants as fast as they could unload them. The wholesaler has doubled its order for next year.

Ken Tilt, AU horticulturist and lotus project leader, says early-blooming lotuses could be avail-



Bill Bancroft, left, and AU lotus researcher Warner Orozco-Obando load blooming lotuses for shipping.

able in Alabama next spring on a limited basis; edible varieties are two to three years away.

Research continues on lotus production, especially as a double-cropping option for Black Belt fish farmers; on Alabamians' acceptance of lotus in their diets; on use of the lotus as a biofilter in wetlands; and on the aquatic plant's potential as a bioenergy crop.

For background on the lotus project, go to www.ag.auburn.edu. ♦

Soil features to indicate water-table depth

In a detailed study that currently is under way at 13 sites across Alabama, AU and AAES soil scientist Joey Shaw and collaborators from the U.S.

Department of Agriculture's Natural Resources Conservation Service in Auburn are focusing on soil-water relationships in Alabama's Coastal Plain soils.

Specifically, at each of the 13 sites, the team is determining the depth of the water table from the soil's surface when it is at its "seasonal high," and how long it remains at that peak level.

Then, they are meticulously

analyzing the soil at each site, recording in detail the soil's features, including color, texture, structure and consistence.

A strong knowledge of the relationship between the depth of the water table and soil features will help facilitate assessments of a soil's suitability for a particular use, even during times of the year when water tables have receded.

Results of the study will provide farmers, developers, natural resource managers and environmental consultants and agencies an improved tool to use in their land use decision-making. ♦

Study casts doubt on weight-gain theory

It's too early to say for sure, but an AAES-funded study at AU could lead to a debunking of the "freshman 15" phenomenon—that widely accepted generalization that college freshmen gain 15 pounds their first year at school.

Nutritionists Sareen Gropper and Claire Zizza launched the study in fall 2006. That first year, the 29 freshman participants averaged gaining—not 15 pounds—but 4.8.

In year two, which ran from September 2007 to May '08, the researchers compiled comprehensive weight data on 205 freshmen, 156 female and 89 male.

As in year one, the results cast doubt on the freshman-15 theory, with overall weight gain averaging just 2.6 pounds; males averaged 3.4 pounds, females 2.1.

While 66 percent of the participants did gain some weight, 34 percent maintained or lost. Only 32 percent gained five pounds or more, and just 9 percent put on 10 or more. Weight changes for the group ranged from an 18.2-pound loss to a 29-pound gain.

At each weigh-in, students' measurements were recorded using a 3-D body scanner that pinpointed where their weight changes were showing up physically. Participants also kept records of what, when, where and how they ate; their sleep and exercise patterns; and their consumption of alcohol. That information is being analyzed now.

This fall, the research team—which also includes human sciences and consumer affairs faculty Lenda Jo Connell, Margaret Keiley, Karla Simmons, Pamela Ulrich and Thulitha Wickrama—will recruit another 250 incoming freshmen to test the theory again in 2008-09. ♦

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