AAES **Impact**

RESEARCH NEWS FROM THE ALABAMA AGRICULTURAL EXPERIMENT STATION

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New Chinese chestnut cultivars bred for wildlife debut on market this fall

A research project that began more than 75 years ago at Auburn University has yielded six new Chinese chestnut varieties and two dwarf cultivars that have been selectively bred to drop an abundance of high-quality nuts in succession from late August through November, providing a continuous high-energy food source for wildlife throughout the fall.

When the new cultivated varieties hit the market this fall, they will come as package deals. Four of them—AU Buck I, AU Buck II, AU Buck III and AU Buck IV—produce large crops of medium- to large-sized nuts and will be marketed together as the Chinese chestnut deer package. The other four—Gobbler I, Gobbler II, AU Premier and AU Encore—bear smaller chestnuts that are ideal for wild turkey and together will comprise the turkey package.

Given the staggered nut-drop dates bred into the prolific, fast-growing and blight-resistant trees, planting the four seedlings in each package should create a mecca for wildlife for four months straight.

Alabama Ag Experiment Station horticulture researcher Billy Dozier, who inherited the chestnut project in 2000, says these near-maintenance-free cultivars were developed for landowners looking to enhance the wildlife habitat on their property and increase its productivity as well.

Auburn has licensed the patented cultivars to The Wildlife Group, a Macon County nursery that plans to sell both the deer and the turkey packages later this year, but supplies will be limited.

The eight cultivars are third-generation descendents of Chinese chestnuts USDA and Auburn horticulturists collected in China's Hubei province in the early '30s and planted on a horticulture research farm on the Auburn campus for the breeding project.

DUE TO DROP—Burs containing AU Buck II chestnuts split when fruit matures.

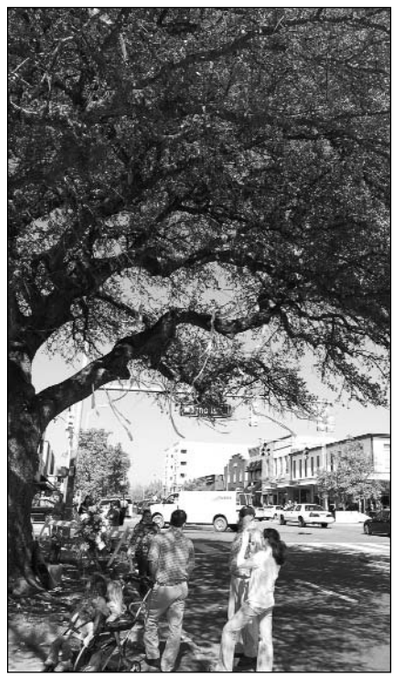
The chestnuts that the wildlife cultivars drop are excellent for human consumption, too, but Dozier says he soon will start the patent application process on a cultivar that produces exceptional chestnuts that could provide a new source of income for growers. ◆

Study will help cities prepare for drought

Public water-supply shortages resulting from drought are a major concern for municipalities in the Southeast, but in a NOAA-funded research project led by Auburn biosystems engineer Puneet Srivastava, scientists are using climate forecasts and variability to help cities prepare in advance for those inevitable long dry spells.

Srivistava and colleagues at Auburn, the universities of Florida and Georgia and NOAA's Climate Prediction Center are developing a municipal water-deficit index that water-system managers in small and mid-size cities could use to monitor the severity of droughts, forecast when they will end and adjust their water management plans—for instance, imposing mild restrictions on customers' water usage in the months leading up to a severe drought.

The research targets cities that have populations under 100,000 and that rely on surface water for their supply. The city water systems of Auburn and Griffin, Ga., are the research locations. ◆



OUTRAGE, GRIEF—Somber passersby pay homage to the oaks at Toomer's Corner. Find tree-rescue updates online at http://ocm.auburn.edu/news/ oaks.html.

AAES faculty work to save Toomer oaks

Eight Alabama Ag Experiment Station researchers are among the 15 on- and off-campus scientific experts who are calling the shots in the all-out fight to save the two famed live oaks at Auburn's Toomer's Corner.

The Toomer's Oaks Working Group was established Feb. 18, two days after the university confirmed the 130-year-old trees had been poisoned with malicious amounts of a highly potent herbicide.

The AAES scientists selected for their areas of expertise and research include, from the College of Ag, Gary Keever and Wheeler Foshee, both in the horticulture department, and Stephen Enloe, Glenn Wehtje, Navin Twarakavi and Scott McElroy, all in agronomy and soils, and, from the School of Forestry and Wildlife Sciences, Art Chappelka and Scott Enebak. ◆

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

Pathogen-killing acid effective on poultry

New USDA pathogen reduction standards for poultry processing plants take effect in July, and previous research by poultry scientist Shelly McKee at Auburn has shown processors that peracetic acid not only is highly effective in killing the pathogens targeted in the tighter standards but is environmentally safe as well.

The new federal standards aim to significantly reduce the prevalence of Salmonella and Campylobacter—two pathogens that can cause food poisoning in humans—during broiler processing.

In her AAES-funded study, McKee tested several antimicrobials that could be used to treat the water in the chilling stage of poultry processing to determine their effectiveness in killing the pathogenic bacteria. Chilling is the final step in processing, as processed birds are placed in large, 50,000-gallon chillers to quickly reduce the their temperatures.

McKee found that Salmonella and Campylobacter bacterial counts on poultry chilled in peracetic acid–treated water were significantly lower than on broilers chilled in water treated with chlorine. Peracetic acid also is safe for humans and for the environment.

SAFETY'S THE GOAL—Auburn research has alerted poultry processors to peracetic acid's effectiveness as an antimicrobial in chillers.

McKee published her findings in 2008. Surveys since show peracetic acid has replaced chlorine as the decontaminate used by a majority of poultry processing companies.

Some processors now are following their large chilling tanks with small, 400-gallon "finishing" chillers and using those for decontamination instead of the big ones. At the industry's request, McKee is evaluating whether environmentally safe peracetic acid is as effective

Food safety goal of new initiative at Auburn

Auburn's Office of the Vice President for Research and the Alabama Agricultural Experiment Station have established a campus-wide initiative that will integrate research, academics and outreach to improve the safety and quality of the nation's food supply at all levels, from producer to consumer.

The Auburn University Food Systems Initiative will maximize the university's internal strengths by encouraging and coordinating interdisciplinary research collaborations and funding pursuits aimed toward developing advanced technologies and practices for detecting, tracing and preventing foodborne hazards. It also will promote external partnerships with other universities as well as with industry, state and federal governments and consumers.

Auburn poultry science professor Pat Curtis is directing the initiative, which will encompass core food-safety areas ranging from beef and eggs to pathobiology and detection technologies.

The project will provide community- and producer-focused education and outreach and enhance the educational experiences of Auburn food-safety-related majors. ◆

Tool can help co-ops meet expectations

For farmer-owned farm-supply cooperatives across the state, the steady transition of Alabama farmland into subdivisions and shopping centers has gradually changed their customer base—from farmers buying farm inputs at cost to homeowners, hunters and others interested in a variety of nonfarm products.

In response, most co-op managers now carry the retail products and services their new customer base wants. But to build that base, they need to know their patrons' expectations regarding service quality, and now AAES researchers have found a tool to help them do that.

VARIETY—Farmers co-ops carry nonfarm products.

Auburn ag economist Norbert Wilson and fellow researchers have developed a survey farmers co-op managers can use to identify which service quality dimensions their customer base deems most important. By adjusting its management strategy to meet those expectations, a co-op likely could improve its competitive position in the marketplace.

Using a survey that proved to be highly reliable for co-ops, the researchers asked 5,000 farmers co-op customers statewide to rate which aspects of retail service quality matter most to them. Survey results indicated that, overall, co-op clientele deem customer service/personal interaction the top factor in service quality, clearly more important than a co-op's appearance or policies. ◆

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

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