AAES **Impact**

RESEARCH NEWS FROM THE ALABAMA AGRICULTURAL EXPERIMENT STATION

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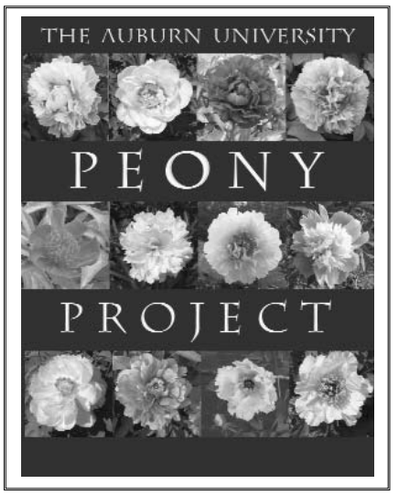


## IN SEARCH OF SOUTHERN PEONIES

Within three years, Alabama nurseries should have a slate of hot new products to offer the state's gardeners: peonies that can take the heat of the South.

Peonies are extremely popular in northern gardens, but Alabama's mild winters and extreme summers have stymied generations of gardeners' attempts to grow them here. In the AU Peony Project, though, 50 Asian cultivars direct from China and Japan are showing big potential for this region.

In addition to identifying the heat-tolerant cultivars, AAES scientist Ken Tilt and others are working to define the ideal growing conditions for successfully establishing peonies in Southern gardens. ◆

# FISHY BUSINESS

## *Making a splash with a hybrid*

A hybrid catfish that AAES researcher Rex Dunham and others worked nearly three decades to develop and move to commercial production should be available to Alabama catfish producers this fall and is expected to boost the state's $500 million catfish industry by as much as 20 percent.

The AU Hybrid, a cross between a female channel catfish and amale blue catfish, grows faster, converts feed more efficiently, is more disease-resistant, is hardier, is easier to harvest and has a higher carcass yield than the channel catfish state producers grow now. The hybrid, Dunham says, has superior performance compared to both parent species.

Channel and blue catfish don't mate naturally, so a major hurdle in the research was to develop artificial fertilization techniques to hatch enough hybrid fingerlings for production on a commercial scale.

Although some catfish farmers have been producing the hybrid for several years for their own operations, a new Montgomery-based private company founded to market the AU Hybrid exclusively will have fingerlings ready for cultivation on fish farms this fall. ◆

## *Mapping out the catfish genome*

Teams of scientists around the world are working on a massive catfish genome project, seeking to identify all of the estimated 20,000 to 30,000 genes in catfish DNA.

But the epicenter of that project is a nondescript white block laboratory in north Auburn, where AAES researcher and internationally recognized catfish geneticist John Liu, along with a team of research associates, most recently has begun the actual construction of a physical map of the complete genetic structure of catfish.

The ultimate goal of the project, Liu says, is to discover DNA markers that pinpoint the genes that control economically important traits so catfish brood stocks can be improved in terms of growth rate, feed conversion efficiency, disease resistance and carcass quality. Work is focusing on the superior traits of both channel catfish and blue catfish, which will help improve the AU Hybrid catfish (see above). ◆

# Finding new ways to quench crops' thirst

Alabama cotton farmers could see their yields jump by nearly a bale per acre with an alternative irrigation system known as subsurface drip irrigation (SDI). So shows a multiyear study at the AAES's Tennessee Valley Research and Extension Center in Belle Mina.

Center-pivot irrigation is the most common system used now on field crops, but it's for large, uniformly shaped fields—not long and narrow or otherwise irregularly shaped fields, which are common in Alabama. In their seven-year study, AU biosystems engineer Larry Curtis and other AAES scientists have found that burying drip tapes 15 inches below the soil surface between every other row is highly effective in increasing yields.

**BENEATH THE SURFACE—Drip tape is buried between every two rows in an SDI system.**

The catch is that installing SDI is costly, averaging more than $1,000 per acre. Future research will include economic analyses to determine if SDI is cost-effective. ◆

**IMPACT** is a bimonthly newsletter the Alabama Agricultural Experiment Station (AAES) publishes to inform state and federal legislators, public policy makers 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.

**THE DEFINITE EDGE—The Syrup Mill pecan, right, and a traditional variety called Desirable, both planted 12 years ago, show that scab-resistant Syrup Mill is the top performer for Alabama pecan growers.**

## PECAN UPDATE . . . IN A NUTSHELL

Years of research by AAES scientists into finding disease- and pest-resistant pecan varieties for Alabama growers is helping pecan growers recover from devastation by Hurricane Ivan.

Ivan stormed through the state last September and wreaked havoc on decades-old pecan orchards statewide. But federal disaster relief funds are helping growers clean up and replant, and the majority of them are looking to replace the traditional varieties, many of which long have performed poorly in Alabama, with some of the new resistant ones researchers have identified.

The major advantage of the new varieties is their resistance to pecan scab, the most economically damaging disease to pecan production in the southeastern U.S.

New varieties—such as Gafford, Syrup Mill, McMillan and Jenkins—that AU pecan specialist Bill Goff has evaluated don't require as much spraying as older varieties. That translates into lower production costs, less risk, and comparable yields and quality.

Growers also are heeding research data that show spacing trees farther apart increases productivity, Goff says. ◆

## *Battling a pernicious virus*

AU plant pathologist John F. Murphy, entomologist Micky Eubanks and plant geneticist Jorge Mosjidis have teamed up to help Alabama tomato producers outsmart a devastating virus that has plagued the fresh-market tomato industry here for 13 years now.

It was in the summer of ’92 that, virtually overnight, a mysterious disease swept through Alabama’s tomato-producing Blount and St. Clair counties, all but wiping out the normally robust tomato crop.

AAES scientists soon determined the culprit: *Cucumber mosaic virus* (CMV), a disease that is spread by aphids and is most damaging to new transplants, stunting their growth and rendering them barren.

The research team is narrowing in on which of the 80-plus species of aphids in Alabama transmit the virus, which weeds harbor the virus and which mulches and cover crops reduce the presence of aphids and, thus, of CMV. Such information will help growers make wise management decisions as to which weeds to selectively target for removal and as to the timing and target of early-season aphid sprays.

**VIRUS VICTIM—Malformed leaves, stunted growth and lack of fruit are the destructive signs of CMV infection in tomato fields.**

CMV already has forced many veteran tomato growers out of business. Tomato acreage in Alabama dropped from 4,100 acres in 1992 to 1,200 in 2003. ◆

## WEIGHING IN ON THE ISSUES

Finding value-added products and alternative crops that Alabama farmers can produce sustainably and market successfully should be a major thrust of agricultural research and extension at Auburn, according to the 250 farmers and other stakeholders who attended listening sessions the AAES and the Alabama Cooperative Extension System sponsored around the state earlier this year.

At the same time, however, they said research must continue on traditional row crops, including searching for new varieties of cotton and peanuts and for ways growers can lower production costs.

Stakeholders also endorsed continued work on the two regional agricultural research initiatives established last year—one at the Black Belt Research and Extension Center (REC) focused on developing new aquaculture and business opportunities in west Alabama, and the other, at the Sand Mountain REC in Crossville, which aims to find ways to convert poultry waste into new products and more jobs. ◆


**OFFERING INPUT—AAES and Extension stakeholders, at a series of regional listening sessions held around the state recently, used wireless keypads that simultaneously and anonymously captured feedback to a number of position statements regarding the direction of research and Extension at Auburn.**



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