
AAES Impact

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Pigging out: Producing pork in the great outdoors

Just north of Auburn, in a pasture a couple of turns off of U.S. Highway 280, live 32 happy pigs.

Instead of spending their days on the concrete floor of a swine barn, they're outside sunning and running and rooting and wallowing. They are key players in a research project to evaluate an alternative way of raising pigs that could potentially boost Alabama's rural economy and protect the environment.

In the study, Auburn University animal sciences professor Daryl Kuhlers and research fellow Nada Nadarajah are comparing growth rate, feed efficiency, herd health and meat quality of pigs raised on pasture versus those raised in the confined facilities common on large pork operations today.

The pasture-raised pigs are actually divided into two groups—one being rotated every two weeks among four smaller pastures and the other kept in one large pen—to also determine the environmental



Student worker Tiffany Meyers lets pasture-raised pigs cool off under a hose.

impact of outdoor pig production systems.

Final data from the study won't be in until 2008, but so far, the pastured and confined pigs rate equally health-wise. The confined weigh slightly more at finishing, but the

pastureds win hands down when it comes to quality of life.

With the pasture method, rural landowners could start up small swine operations, as an added source of income, with minimal acreage and little up-front cost. ♦

Flounder gigging in the Black Belt

You already can buy saltwater shrimp raised in low-salinity ponds of west Alabama. Now, saltwater fish may not be far behind.

In a couple of projects funded by the Legislature through the Black Belt aquaculture research initiative, AU fisheries associate professors Ron Phelps and Bill Daniels are studying whether two food fish—flounder and pompano—as well as bull minnows, which are sold as live bait to saltwater anglers, can be produced utilizing saline groundwater available in some areas of the Black Belt.

The salinity of normal sea water is 35 parts per thousand, or 35 pounds of salt per 1,000 pounds of water. In the Black Belt, groundwater with a salinity of 2 to 10 parts per thousand can be found. Phelps and Daniels are looking not only at

the salinity level but also the mineral content of this groundwater to determine how well the three fish species grow and survive in it.

Thus far, flounder have proved to be more tolerant of the low levels of salinity than pompano, but the most promising of the three is the bull minnow, which retails at more than \$15 per pound.

The research is needed because Black Belt catfish producers are suffering economically due to increased costs and foreign competition. While imports could also eventually threaten flounder and pompano growers, that wouldn't be the case with bull minnows, since they are sold as a live product.

In the next phase of the projects, the scientists will evaluate costs of production and will conduct market surveys. ♦

At what cost war?

Parents who regularly wage bitter battles against each other in front of the kids are negatively impacting much more than the mental health of their offspring.

AAES researcher and AU alumni professor of human development and family studies Mona El-Sheikh has found that children whose parents have frequent, aggressive and even violent confrontations that remain unresolved have weaker immune systems than children in homes in which the parents peacefully resolve conflicts with compromise. The children in that first group also score lower on Stanford Achievement Tests.

Next up, El-Sheikh will investigate whether there's a link between intense marital conflict and children's obesity. ♦

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.

Cool-water wash means safer eggs

A simple change in the way producers wash their eggs during processing could significantly reduce the presence of three bacteria that cause serious foodborne illnesses, researchers have found.

AU poultry scientist Pat Curtis, an AAES researcher and world authority on egg processing, worked with U.S. Department of Agriculture scientists in a study which showed egg producers can lower the levels of *Salmonella*, *Campylobacter* and *Listeria* on eggs by using cool water instead of warm during a second wash.

The researchers tested three water-temperature schemes in dual-washing commercial systems: one using water at 120 degrees for both washes (the method currently used by most processors); one using water at 120 degrees for the first wash and 75 degrees for the second; and the third using water at 75 degrees for both washes.

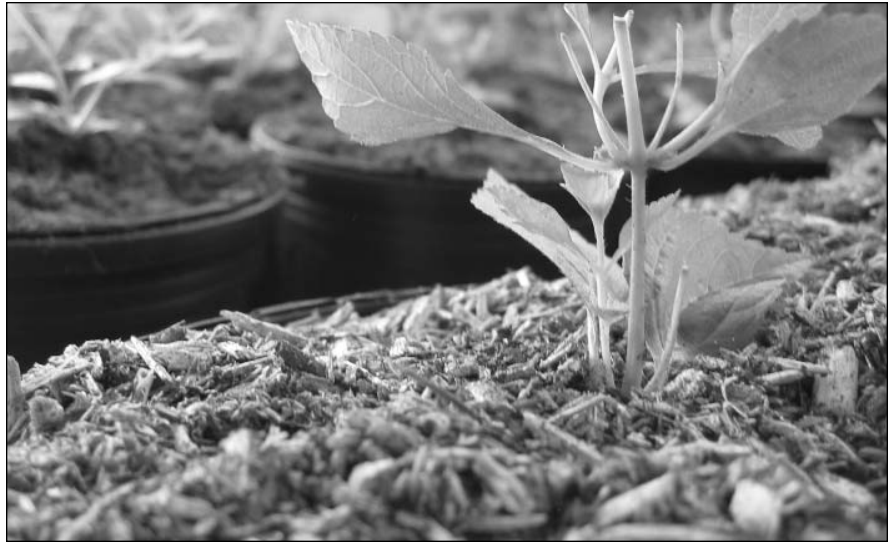
The warm/cool method helped the eggs cool down more quickly, reducing the risk of pathogen growth both inside and outside the shell.

A USDA regulatory agency is currently evaluating the findings and could approve the warm/cool technique as an alternative egg-wash procedure. ♦

Making Satsumas safer the environmentally friendly way

A pest-management research project launched in 2004 and aimed at reducing the use of toxic chemicals in Alabama's emerging Satsuma industry already has some producers significantly cutting their pesticide applications.

In the first phase of the project, Henry Fadamiro, AAES entomologist at Auburn, and Monte Nesbitt, research associate at the Gulf Coast Research and Extension Center in Fairhope, identified the major insect pests that attack Alabama



A nursery plant grows in a container filled with clean chip residual.

In the works: a new use for forest residue

An AAES study evaluating a potential new planting medium for container-grown nursery plants could lead to big savings for nursery and greenhouse owners and extra income for forest landowners.

The material at the heart of the study is called clean chip residual; it's the scraps—wood, bark and needles—left behind in pine forests after trees are harvested with mobile in-field harvesting equipment. Right now, timber owners either sell the residue for \$3 or \$4 per cubic yard for boiler fuel or, more often, simply spread it back across the harvested area.

Cheryl Boyer, horticulture doctoral candidate at AU, is investigat-

ing whether nursery plants grown in containers will perform as well in the residual product as they do in the typical planting medium of pine bark.

Nursery owners currently pay \$12-20 per cubic yard for pine bark. Boyer predicts a cubic yard of the clean chip residual would run them \$6 to \$10, cutting their cost in half while at least doubling the income forest landowners get for the residual.

In Boyer's trials thus far, clean chip residual has proved as effective a growing medium as pine bark. Tests are now being conducted to find how nitrogen levels function during decomposition. ♦

Satsumas and then trained growers to scout for those pests and apply pesticides only when pests are present instead of spraying regularly merely as a preventive measure.

The researchers also are focusing on identifying beneficial insects common in Alabama groves and how to increase their populations as a means of natural pest control.

And on still another front, the scientists have evaluated several reduced-risk pesticides, such as petroleum-based horticultural oils,

and have found them effective in controlling the pests while having limited effects on beneficials. They're now seeking to get these products registered for use on citrus crops in Alabama.

Since 2005, about half of the state's Satsumas have gone to Alabama youngsters through the Farm-to-School lunch program. Fadamiro's project will make the fruit safer for consumers while reducing pesticides in the environment and saving growers money. ♦

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