

# AAES Impact

RESEARCH NEWS FROM THE ALABAMA AGRICULTURAL EXPERIMENT STATION

June 2006

vol. 4, no. 3



An AU Facilities employee shovels pine bark mulch on campus.

## How much mulch would a termite munch...?

Does landscape mulch attract termites, or doesn't it? That's a decades-old question that two AAES researchers at Auburn are about to attempt to answer.

In a multi-year project, AU entomologist Xing Ping Hu and horticulturist Jeff Sibley will study termites' appetite for and survival in 10 types of mulch: finely ground pine bark, composted household municipal garbage, ground fresh pine wood chips with no bark, pine wood shavings, ground pallet material, cedar shavings, cypress shavings, pine straw, rubber and a control of finely ground pine bark treated with a termiticide.

They hope to determine which mulches termites find most appealing and why, and whether some mulches actually repel the pests.

They also will termite-test the first three mulches as planting media.

The goals of the study are to either dispel or confirm the myriad of mulch myths that abound; to help homeowners know how to make wise mulch decisions that will protect their homes, trees and shrubs; and to tell nursery growers whether termites find lignin-based barks tasty or offensive. First results from the study are expected later this summer. ♦

## Grazing amongst the trees

### *Silvopasture combines timber, pasture operations*

On a small but growing number of cattle farms and forestlands in the Southeast, producers are turning to silvopasture as an important tool to improve income opportunities.

Silvopasture is the production of trees and livestock in one integrated pasture system. A silvopasture system is established either by planting trees on existing pasture or by thinning existing timber stands and managing for optimal forage. For the producer, silvopasture yields high-value timber over the long haul while at the same time providing short-term cash flow from the livestock operation.

AU grazing lands ecologist Mary Goodman has been an integral player in silvopasture research, especially as it relates to forage and soil productivity and quality.

In her current research, Goodman is collecting extensive



Steers graze in a developing silvopasture system.

weather data from silvopastures and traditional "open" pastures and using that data to focus on the changes that occur in the hydrology of an open-pasture system when trees are added to make it a silvopasture.

Most of the silvopasture research has involved cattle production, but in a separate research project in the Black Belt, Goodman and Alabama A&M scientists are working to develop silvopasture models that can be used with goats. ♦

## A NEW TWIST FOR LIME: MASTITIS PREVENTION

A 150-cow dairy could add \$7,000 a year to its bottom line and have a healthier herd in general by following the findings of a just-completed AAES study on mastitis prevention.

Mastitis, a bacterial inflammation of cows' udders, costs U.S. milk producers some \$1.4 billion a year, in terms of lost milk production, discarded milk, veterinary and medication bills and culled cows.

Numerous bacteria—which, by the nature of the business, are present in even the cleanest of dairy barns—can cause mastitis. And while the condition usually can be



Dairy cows can contract mastitis from bacteria in the stalls where they rest.

treated with antibiotics, the use of antibiotics in food animals has become a hotly debated issue.

What AU animal scientist Tom McCaskey and others have found is that treating the stalls where dairy cows lie down with hydrated lime in dry powder form significantly reduces the incidence of mastitis.

According to the study, the cost to treat one stall with lime comes to about \$4.02 a year; the economic benefit improves milk production by \$46.53 per cow per year.

Previous AU research with beef cattle had shown that lime kills bacteria in manure. ♦

## Sleep interrupted: Bickering parents disturb rest patterns

For years, researchers have known that children who grow up in homes with high levels of conflict tend to have behavior and learning problems, but they haven't known exactly why.

Now, a new AAES-funded study finds parental conflict may negatively affect children by disrupting their sleep.

AU alumni professor of human development and family studies Mona El-Sheikh and others found that children in higher-conflict homes slept less and didn't sleep as



**Parental conflict can disrupt children's sound sleep.**

well as children in homes with low parental conflict.

The data suggests that even in families with normal levels of con-

flict, parental arguments and anger can interfere with children's sleep. This is significant because even mild loss of sleep can disrupt attention, alter information processing, weaken motivation, increase irritability and diminish emotion control.

For the study, El-Sheikh and researchers at Brown University used monitors and reports from the parents and the children on parental conflict to determine when children went to sleep and woke up, how often they woke up during the night and how well they slept. ♦

## FORECAST SUNNY FOR SATSUMAS

Alabama's satsuma orange industry stands poised for rapid growth and could have a significant economic impact on the state within a decade.

So says AU horticulture associate professor Bob Ebel, an AAES scientist who has helped lead five years' worth of satsuma marketing research.

In that investigation, Ebel and others have found that demand for Alabama satsumas is extremely strong —much stronger than current supply can fill, in fact—and they have developed consumer profiles and determined what characteristics consumers are looking for in satsumas.

Now, Ebel's goal is to encourage south Alabama farmers to branch out into satsumas to meet demand, and interest appears to be growing. Ebel was swamped with calls from prospective growers after a story ran in a December farm magazine about satsumas' potential as a specialty crop, and 100-plus farmers attended two satsuma field days in the past year.



**Satsumas will grow well in south Alabama.**



**Extensive market testing by AU shows consumers want sweet, unblemished, seedless satsumas about 2.5 inches in diameter, with no green in the peel.**

Currently, Alabama has only about 25 satsuma producers and 100 acres in production. Half of each year's crop goes to schools as part of the federally funded Farm-to-School program; the majority of the rest sells to local markets. Increased production will allow for expansion into retail and export sales.

Previous production research has shown that growers can produce extremely high-quality satsumas in Alabama. The major problem historically has been freeze injury, but scientists have developed methods of protection coupled with cold-hardy varieties that grow well in Alabama. Proper freeze-protection techniques can allow producers to grow satsumas as far north as Montgomery. ♦

## Adding value to catfish skins

Finding a way to convert currently useless catfish skins into valuable gelatin products for use in the food and pharmaceutical industries is the target of research under way by AU biosystems engineers Yifen Wang and Oladiran Fasina and scientists from Tuskegee and Alabama A&M universities.

Right now, about 99 percent of all gelatin is derived from beef and pork by-products, but consumer concerns about possible disease transmission from beef products and the prohibition of pork products by various religions has created strong demand for alternative gelatin sources, such as fish.

Gelatin derived from fish sells at two to three times the price of gelatin from beef or pork. Therefore, if Wang and his cohorts can develop an economical process for producing a high-quality gelatin, it could boost the value of Alabama catfish production by millions of dollars annually.

It also would reduce catfish waste disposal problems. ♦

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