
AAES Impact

RESEARCH NEWS FROM THE ALABAMA AGRICULTURAL EXPERIMENT STATION

December 2007

vol. 5, no. 4



More effective erosion control on slopes can greatly reduce soil loss.

Seeking to save soil on slopes

When it comes to controlling erosion on slopes created or left bare by construction, you can't beat a good stand of grass. But as contractors will tell you, getting that grass established can be a challenge.

Numerous seed-sowing techniques and commercial erosion control products exist, but there hasn't been an in-depth study to investigate which mixes of techniques and products work best in Alabama—until now.

In a three-year AAES-funded project, a multidisciplinary team of Auburn University and U.S. Forest Service researchers is evaluating 14 different combinations of planting methods and mulching materials to determine the most effective formulas for establishing vegetation on disturbed slopes and ensuring long-term soil stability.

The scientists—including AU biosystems and civil engineers, agronomists, turfgrass specialists and landscape architects—are conducting the study on 25- by 10-foot sloped experimental plots at the E.V. Smith Research Center in Shorter and at the AU Turfgrass Research Unit. Biosystems engineer Mark Dougherty says the study's findings will benefit engineers, contractors and, ultimately, the environment. ♦

Adding Milo's to the nursery mix

In an average week, Milo's Tea Company churns out 350,000 gallons of its famous brew. That's a whole lot of tea—and a whole lot of used tea leaves. About 15 tons of tea grounds a week, in fact.

Right now, the Bessemer business compacts those spent grounds and hauls them to a landfill.

"I guess you could call it 'green' garbage, because it does decompose, but it costs us thousands of dollars a year to drag it off," says Milo's VP and COO Jay Evers.

Could those spent tea grounds, Evers wondered aloud to AAES scientist and AU horticulturist Jeff Sibley, somehow be put to use, perhaps in the nursery industry?

And thus was launched a two-year study, sponsored by Milo's, to investigate the possibilities of using spent tea leaves as a non-soil planting medium for nursery production of container-grown ornamental crops.

Sibley and AU horticulture graduate student Daniel Wells went to work on the project in summer 2006. Since then, they have conducted more than 70 different experiments, using tea leaves alone and in varying combinations with pine bark to grow about 30 species of bedding plants and shrubs.



Spent tea grounds are showing promise as an ingredient in potting mixes.

Findings thus far indicate that spent tea grinds are high in nutrients essential to plant growth, have excellent water-holding capacity, are an ideal substitute for peat moss and, particularly when mixed with pine bark, are a highly effective substrate for a wide range of ornamentals.

The study could give tea brewers a regional solution to spent-grounds disposal problems while providing an additional resource for nursery growers. ♦

Coming soon: AU peanut varieties

Ernest Harvey, one of the world's leading peanut seed breeders, has moved his research program to Auburn University and says AU is on track to introduce new varieties of high-quality peanuts to the market for the 2009 growing season.

That will be a first for Auburn.

The research began back in the spring at the AAES' Wiregrass Research and Extension Center in Headland and the Gulf Coast REC in Fairhope, where test plots of 30-plus advanced peanut breeding lines were planted.

Harvey and peanut breeder and geneticist Charles Chen at USDA's National Peanut Research Lab in Georgia are evaluating the harvested peanuts to determine how they compare on key traits including yield, grade, drought tolerance and resistance to the destructive tomato spotted wilt virus.

The goal is to develop varieties that will help growers improve their bottom line.

The new breeding program at AU is strongly supported and funded in part by the Alabama Peanut Producers Association. ♦

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.

Taking *action* against diabetes

Insulin resistance is a condition which, though it doesn't cause any symptoms, significantly increases the chance you'll develop diabetes.

After a decade of research, AU nutrition scientist Suresh Mathews has determined that people who are found to be insulin resistant also have markedly higher levels of a blood protein called fetuin-A than individuals in whom insulin does its job of regulating blood glucose.

Now, an AAES grant is allowing Mathews to investigate whether insulin-resistant individuals can lower their fetuin levels, and, thus, their risks of diabetes, through exercise.

For the study, Mathews and AU exercise physiologist Pete Grandjean are recruiting 100 healthy, basically sedentary adult males who could stand to lose a few pounds and who are willing to commit a year to the project.

After completing a comprehensive health assessment on every subject, the scientists are assigning the volunteers to one of two groups: one where participants are instructed to follow a modified diet over the course of the study, and the other in which subjects start a



Researchers are studying the role of exercise in lowering the level of a blood protein that is linked to an increased risk of diabetes.

regular exercise routine, both at home and in an AU fitness lab.

The researchers will monitor all participants weekly, keeping close tabs on fetuin-A levels, especially after those in the exercise group complete a treadmill workout at the lab.

Participants are expected to lose 8-10 percent of their body weight in the study. Data collected should indicate whether weight loss in and of itself lowers fetuin-A levels or whether weight loss due to exercise is more effective at reducing the protein. ♦

Farming for the health of the soil

No-till farming, growing crops organically and capturing the radiant heat energy from the sun as a non-pesticidal means of controlling soilborne pests are alternative farming techniques that improve soil quality.

In collaboration with soil scientists at Alabama A&M and Tuskegee universities, AAES soil microbiologist Yucheng Feng at AU is studying the specific effects each of these methods has on the community of microorganisms—

bacteria, fungi, algae and protozoa—living in the soil and crucial to soil fertility.

The researchers will be using and evaluating several innovative scientific tools and tests to analyze soil samples collected from cropland across the state.

Farmers can use the findings as a factor in making their crop production decisions.

The project is supported by a grant from the Alabama Agricultural Land Grant Alliance. ♦

Getting a handle on urban coyotes

Time was when the only coyote you were apt to see in Alabama was the Wile E. one on Saturday morning cartoons.

Today, though, the yellow-eyed cousin of dog and wolf is very much amongst us, roaming, not just in rural landscapes, but in increasingly bold fashion through suburbs and cities as well.

These urban coyotes aren't merely surviving in the rural-urban interface, either; they're absolutely thriving.

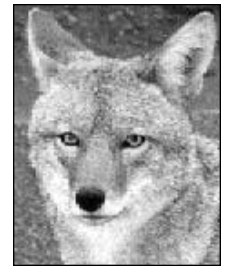
Obviously, effective strategies for managing city-dwelling coyotes are sorely needed, but

those can't be developed until wildlife experts have a better understanding of just *how* coyotes have been so successful in urban landscapes.

AAES wildlife biologist Jim Armstrong at Auburn hopes to fill in many of the gaps in that knowledge of coyote ecology in a four-year study that began this year.

He and a trio of graduate students are investigating how urban/suburban coyotes differ from their rural counterparts in terms of home ranges, survival rates, food habits, reproductive capacity and overall population dynamics.

The study should yield information that can be used to minimize human/coyote conflicts in urban and suburban areas, and that's probably the best folks can hope for, Armstrong says, because coyotes are incredibly adaptive and likely are here to stay. ♦



Alabama's coyote population is unknown, but about 30,000 are harvested annually.

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