AAES **Impact**

RESEARCH NEWS FROM THE ALABAMA AGRICULTURAL EXPERIMENT STATION

Winter 2010 *vol. 8, no. 4*

Auburn researchers to determine Heifer's carbon hoofprint

An international nonprofit organization that strives to end global hunger and poverty by giving farm animals to the poorest of the poor in countries around the world wants to know how the program is affecting the environment and has called on a team of Auburn University researchers to determine that.

The organization is Heifer International, and the multiyear research project that Auburn soil scientist and veteran Alabama Agricultural Experiment Station researcher Wes Wood is leading is called Heifer Healthy Hoofprint.

Since Heifer's founding in 1944, it has provided gifts of livestock, seeds and trees and training in sustainable farming practices to millions of families worldwide. Wood says the Hoofprint project is primarily about carbon sequestration: whether farms that have received gifts from Heifer are building carbon reservoirs in the soil, or depleting them.

In the study, the Auburn team will collect and analyze in depth hundreds of soil samples from dozens of Heifer-assisted farms in Estonia, Latvia, Lithuania, Indonesia, Ecuador, Tanzania, Kenya and the U.S. In 2014-15, they will return to the exact same sites on those same farms and collect another round of samples for testing. They will compare the data from the two collection periods to determine whether carbon levels are increasing or decreasing.

DIGGING DEEP—Auburn environmental soil science lab supervisor Brenda Wood collects a soil sample from a farm in Lithuania in September. She and Alabama Water Watch technician Jayme Oates from fisheries repeated the process dozens of times at other farms in the Baltics.

Between the sampling years, Wood and Auburn water-monitoring expert Bill Deutsch will train farmers in communities where Heifer has a presence in how to collect soil samples according to the Hoofprint protocol and in how to monitor, harvest and manage their water resources.

Heifer International actually launched the Healthy Hoofprint project in-house in 2008 but then decided the research should be in the hands of experienced university researchers. Previous work with Deutsch led the organization to Auburn. Heifer is funding the current year of research and is working to secure sponsors for Hoofprint's final three years. ◆

Study: Measurements, math best way to estimate horse's heft

Horse owners and veterinarians are well aware that a horse's weight is crucial to calculating the animal's feed and nutrition needs and the correct dosages of medications.

The only sure-fire way to determine the exact heft of a horse is to weigh the animal, but since equine weigh scales usually aren't available, owners and vets must estimate it using one of two methods.

In the first, an equine "weight tape" is used to measure around the horse's girth, or rib cage. In the second, a regular plastic tape measure is used to determine the horse's girth and its length from the point of the shoulder to the point of the buttock, and those numbers are plugged into a mathmatical weight-estimation formula.

Which is the most accurate?

The latter, says Auburn University equine scientist Betsy Wagner, and she has the research to back that up.

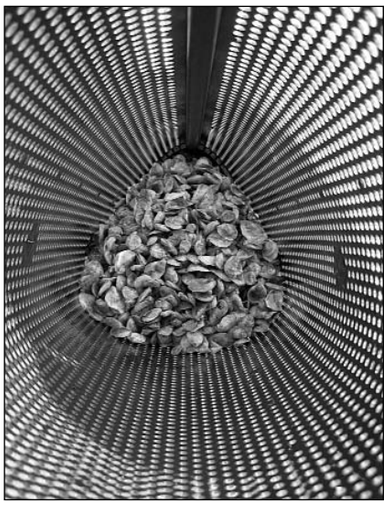
She just completed a study in which she traveled to six farms around the state and used both of the estimation methods on 145 horses representing 20 different breeds.

Analyses of the data show that estimates calculated using the formula—which, for the record, is girth squared times length divided by 330—came to within 42 pounds of the horses' true weights; the weight-tape measurements were off by an average of 145 pounds.

Estimates that far off the mark can jeopardize the health and well-being of horses if they are fed too much or too little or given medications or sedatives at dosages that are too high or too low, Wagner says. ◆

WEIGHTY ISSUES—Equine science grad student Ashley Bruce coaxes a horse to step onto an equine weigh scale.

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.



IN THE BAG—Nursery-stage oysters fill the bottom of a mesh bag that will be suspended in the Gulf as part of a new oyster-farming system that is generating attention in Alabama's seafood industry.

Bag-grown oysters could help economy

In Australia, oystermen successfully grow oysters using what they call the adjustable longline oyster-farming system, and in a joint research project on the Gulf Coast, Auburn and LSU scientists have determined that the system, in which oysters grow suspended in mesh bags strung between posts in the ocean, can help oyster farmers boost their harvests and, in turn, stimulate the region's economy.

Auburn aquaculture and fisheries specialist and AAES researcher Bill Walton at Auburn's shellfish lab on Dauphin Island calls the bag-grown-oyster system a "clean, green and energy-efficient" approach to oyster farming and says researchers' goal in the project is industry-wide adoption of the off-bottom oyster culture.

Currently, Walton is testing different types of gear to determine what will work best at any given site or for any given oyster farmer. He's also making sure the bag-grown technique is profitable on a commercial scale. ◆

Precision ag pays off big-time for farmers

When AAES scientists at Auburn began developing and evaluating precision agriculture technologies 15 years ago, a key question was at the heart of the research: Would investing in the technologies be cost-effective for Alabama farmers?

Thus far, the researchers say, the answer is a resounding yes. And in addition to cutting their production costs and boosting their yields, they're farming in a more environmentally sustainable way, says Auburn biosystems engineer and precision ag specialist John Fulton.

Fulton says farmers across the state who have adopted precision ag technologies and management strategies saved an estimated $10 million in crop inputs in 2009. That includes the $2 to $8 per acre they saved because the technologies helped them plant, fertilize and spray their crops more accurately.

On the environmental front, the farmers who have entered the age of precision farming have reduced their use of nutrients and pesticides by an average of 10 percent. In addition, the precise placement of crop inputs helps prevent overlap, which can mean fewer trips across fields, less soil compaction and risk of erosion and, for the farmers, savings on fuel and time. ◆

TO BE PRECISE—Lawrence County farmer Don Glenn, a precision ag pioneer, checks the high-tech equipment in his tractor cab.

Low-growing AU Pixie a versatile cultivar

The Alabama Ag Experiment Station has just released a hardy new sericea lespedeza cultivar that could prove an excellent choice as a ground cover for rights of way, golf courses and embankments.

'AU Pixie'

The cultivar, AU Pixie, has an attractive cascading appearance and is tolerant of both drought conditions and soils with low acidity and fertility levels, says Jorge Mosjidis, the Auburn University agronomy and soils professor who developed the cultivar.

AU Pixie is so named because, while other sericea lespedeza cultivars reach 40 to 45 inches high at maturity, its maximum height is only about 20 inches. As it grows, its outer stems bend downward and spread in a loose, low-growing ground cover.

The cultivar, a perennial warm-season legume, can be grown throughout Alabama and in other regions where sericea lespedeza is commonly cultivated and adapts to a wide range of soil types.

AU Pixie provides erosion control, adds nitrogen to the soil and has value as living mulch, Mosjidis says, citing trials in east-central Alabama which showed that pumpkin fields in which AU Pixie had been planted between rows yielded 34 percent more total pounds and 30 percent more pumpkins plot than did conventionally planted fields. ◆

Office of Agricultural Communications and Marketing
Alabama Agricultural Experiment Station
3 Comer Hall
Auburn, AL 36849