

AAES Impact

RESEARCH NEWS FROM THE ALABAMA AGRICULTURAL EXPERIMENT STATION

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On a collision course with deer

True or False: Deer-vehicle collisions are most likely to occur in rural counties, on isolated roads through wooded areas.

That would be false, a new study out of Auburn indicates.

Using county-level statistical data along with GIS technology to determine habitat parameters associated with deer-vehicle collisions, AAES researcher and AU wildlife specialist Jim Armstrong and colleagues have discovered some interesting facts.

Of the more than 3,000 such crashes that are *reported* each year in Alabama, most happen in counties in heavily populated metropolitan statistical areas where there are 31 or more deer per square mile, where there is more urban development and pasture land than wood-



A soaring white-tail deer population and increased traffic on state roadways has deer-vehicle collisions on the rise.

land and where traffic is heavy.

The state's high crash rate indicates it's high time to change from a century-old strategy of managing deer as a commodity to one that acknowledges white-tails have become an economic—not to mention an ecological—liability, Armstrong says. The study says measures such as raising deer-hunting bag limits and pushing the sale of hunting licenses would help lower the probability of deer-car crashes. ♦

In the works: a drug to stop FMD

Foot-and-mouth disease is a highly contagious viral disease that can sweep through entire herds of cattle, swine, sheep and goats, causing physical and economic devastation.

A husband-wife team of AAES molecular biologists at Auburn is working to develop an antiviral drug that will stop FMD in its tracks. In their research, Jacek and Iwona Wower are focusing on the genetic interactions that occur as the virus reproduces in infected animals.

The last reported case of FMD in the U.S. was in 1929, but its occurrence in other countries and its potential to spread rapidly mean an antiviral drug is crucial to controlling outbreaks caused by either accidental or deliberate actions. ♦



TRACKING DOWN A PATHOGEN — A new AAES-funded research project at Auburn University could help take processed, ready-to-eat (RTE) meat and poultry products such as cold cuts, deli meats and hot dogs to a new level of safety. In the study, AU poultry scientist S.F. Bilgili and AU materials engineer Jong Wook Hong aim to come up with an ultrasensitive method for the accurate and rapid detection of *Listeria monocytogenes*, a potentially fatal food-borne bacterium that can grow and reproduce even at refrigerated temperatures—hence, on RTE products. The researchers will investigate whether a novel microfluidic system they are developing can quickly and reliably detect *Listeria* down to a level as low as a single cell. If the method proves effective, it will pave the way for scientists to begin testing a variety of technologies that could be used at the processing level to greatly reduce the chances that RTE meat and poultry items are contaminated with these bacteria.

Leading the Institute

Auburn University President Ed Richardson has appointed Larry Fillmer as executive director of the new Institute of Natural Resources at Auburn.

In that role, Fillmer is to organize agriculture- and natural resource-related units at AU, including the



Fillmer

AAES, under the institute's umbrella.

Fillmer, an AU business administration alumnus and a senior executive with more than 35 years' experience in organizational management, has worked at AU since 2005 as a development director for major gifts and corporate relations.

Before that, he was president and CEO of several technology corporations and was executive director of the I-85 Corridor Alliance, a regional partnership dedicated to boosting the prosperity of communities along I-85. ♦

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.



Three unpruned camellias which were, from left, not treated with CYC, treated with CYC at a concentration of 100 parts per million and treated with CYC at a higher level of 300 ppm. Clearly, the latter is shaped as if it has been pruned and is thicker and healthier and has more blooms than either of the others.

A way to nip pruning in the bud

In the nursery industry, skilled pruning of trees and shrubs is crucial to producing quality, marketable products. But hand-pruning is also time-consuming and labor-intensive and, subsequently, adds a chunk to production costs.

Now, horticulturists at Auburn may be on the brink of discovering an alternative to pruning shrubs. It comes in the form of cyclanilide, or CYC, a chemical currently labeled for use as a cotton defoliant.

AAES scientist Gary Keever and graduate student Amanda Holland have found that CYC stimulates foliage branching and enhances quality in many species of shrubs. They're now looking at when and at what rates it's best to apply the chemical.

The possibility that CYC will lessen or eliminate the need for the pruning of many shrubs will reduce plant production costs and keep Alabama-grown plants competitive in the marketplace. ♦

Taking composting in-house

Two Auburn University poultry scientists say growers could save time and money and help protect the environment as well by adopting the relatively simple practice of composting broiler litter inside their poultry houses.

Ken Macklin and Joe Giambone have found that forming litter into windrow composting piles inside the houses between growouts and letting the litter sit undisturbed for five days effectively destroys a number of foodborne pathogens, including *Salmonella* and *Campylobacter*, and several bacteria that cause serious illnesses in birds.

Disposal of poultry litter is a serious problem in Alabama and all poultry-producing states. Typically, growers use the same litter for about a year, after which it is removed, composted and spread onto the land as fertilizer.

The new research indicates that in-house composting will extend the safe lifespan of poultry litter, thus helping poultry farmers save money and significantly decreasing the volume of litter spread in the environment. ♦

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

Aid for West Africa

A group of AAES scientists at Auburn and the director of the AAES's outlying units are participating in a new program developed by the U.S. Agency for International Development and aimed at helping five impoverished West African countries boost their cotton quality, yields, sales and income and, ultimately, their overall economies.



The three-year, \$19-million West Africa Cotton Improvement Program will see AU entomologist Bill Moar, ag economist Curtis Jolly and agronomy and soils professor Dennis Shannon providing technical assistance in the areas of transgenic cotton, cotton marketing and best management practices for cotton.

Outlying units chief Jim Bannon, meanwhile, in conjunction with the AAES's E.V. Smith Research Center superintendent Greg Pate, will lead a gin training workshop that will bring ginners from the five countries to facilities in Shorter. ♦

Impacting ecosystems

An Auburn University research team led by AAES ecosystem scientist Hanqin Tian has launched a U.S. Department of Energy-funded study to examine how changing climate, atmospheric composition and land use are impacting ecosystems in the southeastern U.S.

During the three-year regional project, the group will use satellite observations, field studies, ecosystem modeling and forest inventory data from the U.S. Forest Service to predict how natural and human pressures will alter ecosystem function, structure and services in the future. ♦