IMPACT

RESEARCH NEWS FROM THE ALABAMA AGRICULTURAL EXPERIMENT STATION

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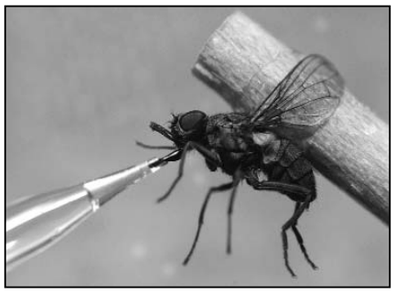
Flying in the face of blood-sucking bovine biters

Tiny horn flies that feed by the thousands on cattle and drain $1 billion a year from the U.S. beef industry soon could meet their match in the form of a novel livestock vaccine an AAES husband-wife research team has developed.

The vaccine that AU entomologists Ed and Mary Cupp are in the final stages of testing will immunize cattle against a salivary factor that biting horn flies inject into their prey to keep the victim's blood from clotting. The flies feed around the clock on cattle, causing anemia and weight loss, damaging hides and transmitting a bacterial agent that causes udder infections.

Currently, most livestock producers use insecticides to fight horn flies, but the pests quickly build up resistance to each new pesticide, making that a never-ending battle.



2,499 TO GO—AAES scientists collected saliva from 2,500 horn flies and analyzed its DNA in their quest for a vaccine to protect cattle from the pests.

Once the final round of vaccine testing has been completed, Novartis Animal Health—a major funding source for the Cupps' project—will make the product available commercially.

Eventually, the Cupps' patented research could have **major implications for human health,** in that the anti-clotting agent could serve as a blood-thinner for patients prone to strokes. ♦

Making the switch to the organic nitch

A team of AU scientists including plant pathologists, horticulturists, ag economists and soil scientists will break new ground this spring when they launch the AAES's first research project devoted solely to organic vegetable production.

Escalating demand for organic produce and increasing interest among financially strapped small-scale Alabama vegetable growers to enter the organic niche market sparked the project, which will be conducted on a three-acre plot of land at the AAES's North Alabama Horticulture Research Unit in Cullman.

AU plant pathologist Joe Kloepper, project coordinator, says the aim of the long-term project will be to provide growers solid data on transitioning to organic, becoming federally certified, maximizing their production and marketing their organic crops.

Noting that the AAES mission is to improve the quality of life for all Alabamians, Kloepper says this research is vital because for many small family farmers, organic could be the key to survival. ♦

Getting the most BANG for the ag research BUCK

The charge that AAES Interim Director John Jensen gave to the hundreds of Alabamians who attended six regional public meetings in the past two weeks was this: Tell us what research the AAES isn't doing that it should be doing, what it is doing that it shouldn't be doing and what it's doing now that it should continue doing.

And the people gave him an earful. Now those comments, suggestions and innovative ideas are being tabulated, ranked and incorporated into a solid, doable strategic plan that will ensure AAES research is on target and is as relevant as possible to its stakeholders.

Under the plan, the AAES will deliver a major research focus through each of six of its regional research and extension centers (RECs). Preliminary drafts call for the Wiregrass REC in Headland to focus on adapting Wiregrass agriculture to the realities of a new peanut program; the Gulf Coast REC in Fairhope on emerging agricultural enterprises in the rural-urban interface; the Tennessee Valley REC in Belle Mina on precision agriculture and other new technologies; the Sand Mountain REC in Crossville on environmental and nutrient management systems; the Chilton REC in Clanton on sustainable production and marketing of family farm foods; and the Black Belt REC in Marion Junction on boosting economic growth in west Alabama through agriculture. ♦

Taking animal research to the human level

A scientist who, in her doctoral research at Auburn, pinpointed biological processes that are essential to normal uterine development in pigs is now applying those findings to a study of human reproductive health and female fertility at Yale University's School of Medicine.

Becky Tarleton conducted her study at AU under the supervision of AU animal sciences professor and AAES reproductive biologist Frank Bartol. In her position now as a postdoctoral fellow in obstetrics and gynecology at Yale, Tarleton's goal is to identify genes and mechanisms that regulate critical development events in the female reproductive tract and affect reproductive health. ♦

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). Reach **IMPACT** at 334-844-2783; jcreamer@auburn.edu.

White-tailed deer and *trailblazing* research

An innovative 430-acre outdoor laboratory that AAES wildlife ecologist Steve Ditchkoff is establishing in east-central Alabama will allow researchers to study white-tailed deer "in the wild" and solve heretofore unanswerable questions about the genetics and biology of North America's most abundant big-game animal.

Eight miles of eight- to 10-foot fence will enclose the AU deer lab, to be located inside the AAES's Piedmont Research Station in Camp Hill. Researchers will regularly collect tissue and blood samples for genetic analysis and gather body and antler measurements from the estimated 100 deer that will freely roam the site.

The comprehensive information gathered will answer a broad range of questions, from what traits determine reproductive success and disease susceptibility to what long-term effects free-ranging deer have on forest regeneration and plant diversity.

Public and private funds are needed to make the proposed lab a reality. Ditchkoff says the initial fund-raising goal of $500,000 will be used to cover costs of building the fence and a central deer-handling facility where animals will be corralled for data collection.

For more info, go to www.sfws.auburn.edu/ditchkoff/research.htm. ♦

IT OUGHTA BE A CRIME—The ugly "knuckles" on this tree are telltale evidence of crape murder.

Crape MURDER

Each winter, thousands of well-intentioned, shear-happy gardeners commit "crape murder," butchering countless crapemyrtles because that's what they've heard you're supposed to do to these highly popular and economically important landscape ornamentals.

But in a long-term research and demonstration project going on at various sites around the state, AAES horticulturists are amassing solid evidence that "crape murder" is a needless act that leads to disease, limb breakage and ugly, disfigured plants.

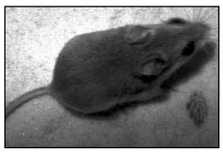
In extensive plantings in Auburn, Cullman and Fairhope, researchers are evaluating different crapemyrtle pruning approaches—from minimal trims to old-fashioned whacking—to determine how each impacts flowering, growth and disease resistance through the years. Complete results should be available in late 2005. ♦

In search of new digs for Alabama beach mice

Dune-leveling hurricanes and a major development boom that has scarfed up virtually all public beachfront property on Alabama's Gulf Coast have combined to all but wipe out the natural, frontal-dune habitat of the now federally endangered Alabama beach mouse.

But a research project under way in the Bon Secour National Wildlife Refuge on the Fort Morgan peninsula aims to identify alternative habitat for the tiny rodents. If it's successful, beach mouse populations could be rebuilt to viable levels once again.

In the project, supported in part by an AAES Foundation grant, AU biologist Michael Wooten is establishing eight research plots on interior scrub land behind the sandy white dunes on the refuge. He'll create different habitat conditions on each plot to determine what factors, such as vegetative cover and food availabililty, attract Alabama beach mice and are most favorable for development of permanent populations.



RELOCATING?—Few Alabama beach mice are found on the Gulf Coast today.

Wooten will use the study's findings to develop models for creating and managing beach mouse–friendly habitats on interior land. The result could help lead to a compromise in ongoing conflicts that pit beach mouse protection against coastal development. ♦

WHY 'PROCEED TO CHECKOUT' MAKES US BREAK OUT IN A COLD SWEAT

Most retail Web sites are easier to navigate these days, and our fears over Internet security have eased, so why do we still balk at buying online? Our perceived risk that what we see won't be what we get, a survey conducted by AAES researcher Sandra Forsythe shows.

The AU consumer affairs professor is using survey results from two national samples of online consumers to develop a model explaining consumers' expectations and buying habits and predicting consumers' likelihood of buying online. The model could suggest that retail policies such as risk-free, no-cost returns could boost online shopping. ♦

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