
Impact

RESEARCH NEWS FROM THE ALABAMA AGRICULTURAL EXPERIMENT STATION

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SWEET SATSUMAS—Thousands of public school students statewide will get their first taste of Alabama-grown satsumas over the next few days when 40 tons of the small, seedless oranges arrive in school cafeterias via a federal program that helps schools buy local farm produce. A decade of AAES research that has focused on both production practices and marketing issues is fueling a revival in Alabama's once-vibrant satsuma industry in Mobile and Baldwin counties. Indications are that satsumas can become an economically important speciality crop for the state.

Blazing maples

Here's a little-known fact: The world's largest sugar maple evaluation trial is taking place right here in Alabama. Now in its third year at the AAES's North Alabama Horticulture Research Center in Cullman, the project aims to identify sugar maple cultivars that will thrive and produce throughout Alabama the same spectacular fall colors normally seen only in cooler climates.

Several of the 22 different cultivars AU horticulture professor Jeff Sibley is studying are showing strong potential and could be available to Alabama homeowners and landscapers as early as next fall. ♦

IMPACT is a bimonthly newsletter the Alabama Agricultural Experiment Station (AAES) publishes to inform state and federal legislators and policy makers 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.

BEEFING UP FOOD SECURITY

“... If two different pathogens were introduced into just a handful of food processing facilities in the U.S., within 30 days, nearly 1,100 people could be dead and another 3,000 ill.”

—Testimony presented Nov. 19, 2003, in U.S. Senate hearing on agroterrorism

The events of 9/11 brought the stark realization that the nation's food supply is a prime target for biological, chemical or radiological terrorist attacks, particularly at the processing stage.

Since then, the government has strongly urged food processing companies to develop bioterrorism prevention and response plans for their facilities, but the truth is that many small and mid-sized processors don't have the resources or expertise to do that effectively. Those are the processors that stand to gain from FoodSecure, a landmark training program developed by AU poultry scientist and AAES researcher Shelly McKee.

In FoodSecure workshops she'll begin offering around the state next spring—and possibly regionally later in the year—McKee will help food processing company officials assess where their operations are most vulnerable to deliberate terrorist attacks and guide them through the steps of creating detailed, customized emergency response plans. ♦

Ground-level ozone: the nutrient-zapper

Ground-level ozone—aka smog—is caused by pollutants emitted from power plants, industries and vehicles and as such is largely a product of urban areas.

But it isn't just a big-city problem. As recent AAES research has shown, ozone drifts to rural areas and inflicts its damage on trees, plants—and grasses—in the countryside, too. Specifically, ongoing research by AU ruminant nutritionist Russ Muntifering indicates that

ground-level ozone in rural areas threatens the well-being of livestock and wildlife because it robs forage crops of nutrients and makes pasture grasses less palatable and harder to digest.

His data regarding the specific ozone levels at which this damage begins to occur will be used by the Environmental Protection Agency in revising the national air-quality standards that protect public health and welfare. ♦

The Great SMOGGY Mountains?

Those scenic mountain views just ain't what they used to be in the Great Smoky Mountains National Park, and ground-level ozone is the culprit.

Visibility isn't all that's suffering from the pollution, either. Research by AU forest biology professor Art Chappelka and others has shown that ground-level ozone is seriously damaging dozens of native plants species in the Smokies.

Now, Chappelka's team is

focusing on trees—specifically, on how ozone impacts tree growth and health and, ultimately, forest productivity over time.

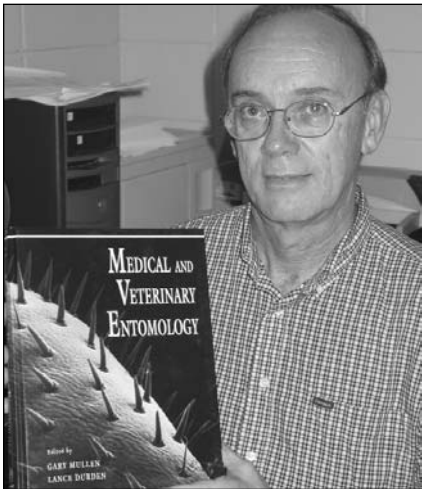
And since air pollution doesn't stop at the state lines, Chappelka's findings are and will continue to be just as applicable to Alabama forests as they are to the Smokies.

The EPA is drawing from Chappelka's data now as it works to draft court-

ordered air-quality standards for the U.S. park system. ♦



A HAZY PICTURE—The Smokies are the nation's most polluted national park, with ground-level ozone levels two times higher than the levels in Atlanta and Knoxville.



THE BOOK ON VECTORS—AU entomology professor and AAES researcher Gary Mullen holds a copy of his *Medical and Veterinary Entomology*, a book reviewers in the U.S. and abroad are calling “a must-have” and “the finest book available in English today” on insects that affect human and animal health. Edited by Mullen as a college textbook, the volume also is finding a place in libraries and on the reference shelves of physicians, veterinarians and public-health officials. The book covers 22 groups of disease-transmitting insects and spiders and includes valuable information on prevention and control. Published in 2002, the volume already is in its second printing due to strong demand.

Grassroots connections

An AAES research project to identify and open channels of communication between all citizen action groups that have formed throughout the state out of concern for natural resource and environmental issues has resulted in the development of a comprehensive online directory, the Alabama Grassroots Clearinghouse.

From Airport Neighbors United to Wiregrass Leadership Institute, the directory lists the 175 groups alphabetically, both statewide and by county, and offers numerous links. You can find the site at www.ag.auburn.edu/grassroots. ♦

GETTIN' the BUGS OUTTA the SYSTEM

Three years ago, the city of Auburn's school system was plagued by pest problems, despite regular pesticide applications.

Then AU research entomologist Fudd Graham convinced administrators to replace traditional pest control methods in the city's nine schools with an **INTEGRATED PEST MANAGEMENT (IPM)** program.

Today, pesticide use in the city school system is down 90 percent from what it was in 2000, and bug problems are minor, infrequent and easily controlled.

IPM, which Graham and other AAES researchers have studied extensively for years, is a strategy that uses physical, mechanical, cultural, biological, educational and, as a last resort, chemical tactics to keep pest numbers low.

In the Auburn system, routine

blanket pesticide sprayings were replaced by commonsense prevention strategies—such as sealing cracks, repairing leaks, trimming shrubbery and cracking down on cleanliness, for instance—to eliminate potential pest-attracting conditions and block pests' entry routes into buildings.

Pesticides are still used, but only if infestations are reported, and even then, only minimal amounts of the least hazardous products available are applied.

Auburn's success is prompting other schools to follow suit. Graham and fellow AU entomologist Xing Ping Hu helped the Mobile County School System launch IPM in its 118 schools this fall, and they are consulting with at least three other systems interested in making the switch. ♦

Moth wind tunnels & toad treadmills

Sometimes, AAES scientists need the darnedest things for their research projects—items that you just can't find on the marketplace.

That's when they call AAES's electronic support technicians, a team legendary for using all manner of components to build unusual pieces of equipment for special research projects, and all while operating on a shoestring budget.

The electronics technicians' long list of innovative research equipment solutions through the years includes such customized contraptions as a high-tech bat surveillance device, a fire-ant shocker, an instrument that measures ammonia vapor from animal waste, a computerized cockroach monitoring station and a treadmill designed exclusively for toads.

Most recently, for one AAES



INGENUOUS—AAES electronics technician Ray DeLamar shows off the toad treadmill he created using a plastic storage cannister and the wheels from an old office chair. The device is the key piece of equipment in a study evaluating the effects of toxic wastes in ponds.

researcher studying nonchemical means of controlling crop pests, the electronics gurus fashioned 10,000 plastic drinking straws into a flight tunnel for moths. ♦

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