
AAES Impact

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Fish wastewater perfect for plants



AQUAPONICS—Jesse Chappell, Auburn fisheries associate professor, catches a tilapia from a tank inside a research greenhouse. Fish wastewater is piped to an adjacent greenhouse to irrigate and fertilize plants and vegetable crops.

Fish farmers in Alabama who produce tilapia in greenhouse-enclosed tanks can turn the wastewater from those tanks into a new source of income, two AAES researchers at Auburn say.

Jesse Chappell on the fisheries faculty and Jeff Sibley in horticulture have developed a system that pipes the nutrient-rich wastewater from the tank to an adjacent greenhouse, where it's used to irrigate and nourish all manner of flowers, ornamental shrubs, herbs and vegetable crops.

The organically fertilized plants flourish, thus giving growers high-value plants, cut flowers and fresh produce to market.

Already, Chappell and Sibley are working with a west Alabama producer who's installing a system to pipe his fish wastewater to an outdoor bamboo crop he'll convert to biofuel to heat his tilapia tanks.

Chappell says the how-tos and other information could be available to producers by year's end. ♦



SEEING GREEN—Alabama's 758 nursery/greenhouse operations had a \$523-million impact on the state's economy in 2007, up \$217 million from '03.

Green industry keeps on growing

Alabama's horticulture industry has widened its lead as the state's number one cash crop and now pumps \$2.89 billion into the state's economy annually, an Auburn University economic analysis shows.

That's up 52 percent from 2003, when the green industry's overall economic impact rang in at \$1.9 billion. The latest study, which is based on '07 data, also indicates that the industry accounts for 42.8 percent of Alabama's total crop sales, compared to 38 percent in '03.

Employment-wise, the number of Alabamians working in businesses directly or indirectly related to the nursery and greenhouse, landscape services, turfgrass and sod and horticultural retail sectors of the green industry soared 41.5 percent over the four-year period, from 30,860 in 2003 to 43,670 in '07.

Auburn ag economist Deacue Fields, who coordinated both studies, acknowledges the new analysis doesn't reflect the certain impact the current economic crisis has had on the green industry but says it's poised to rebound quickly as the economy recovers. ♦

College of Ag, AAES care, use program for research animals earns accreditation

Auburn University's College of Agriculture has earned international accreditation as an institution committed to the responsible use and care of its research animals.

The endorsement from the private, nonprofit Association for Assessment and Accreditation of Laboratory Animal Care Intl. covers all farm animals, aquatic animals, wildlife and traditional lab animals that are used for research and teaching, both on the Auburn campus and at seven Alabama Ag Experiment Station outlying units that conduct animal research.

Jim Bannon, outlying units director, coordinated the voluntary application process, a rigorous, detailed effort that spanned almost

three years and involved comprehensive internal reviews of every aspect of the college's animal care and use program.

Accreditation was awarded over the summer based on a 457-page program description document college and AAES administrators compiled and submitted to the AALAC and a five-day site review by a team of four agency representatives.

Bannon says the accreditation will carry weight with public and private funding sources and be an effective tool in recruiting top researchers and faculty to the college.

This was the college's first time to apply for the designation. It must apply for re-accreditation every three years. ♦

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.

Disturbed or not, fire ants take the bait

For years, Auburn entomologist Xing Ping Hu wondered why the label instructions on most commercial fire ant baits say that for maximum effectiveness, you should sprinkle the bait *around* a mound instead of *on* it and treat *undisturbed* mounds only.

Hu knew that she and countless others across the red-imported-fire ant belt more often than not ignored those instructions—putting bait right on top of newly stirred-up fire ant mounds—and yet the bait still worked like a charm. So what had prompted bait manufacturers to come up with such directions in the first place?

To satisfy her curiosity, Hu set out to find and review the original research those instructions had been based on.

But after an intense search that included a month's-worth of calls and e-mails to all current and retired university, state, federal and industry fire ant researchers in the U.S. that she knew or knew of, Hu came up empty. No one recalled

ever reading or even hearing discussions about such research.

So Hu set up her own investigation, and results of her just-completed empirical study shoot down those long-held “do-not-disturb-the-mound” application directions.

Hu found that fire ants in newly disturbed mounds consume the bait as quickly as their counterparts in undisturbed beds do, that the baits are as effective in both perturbed mounds as they are in quiet ones and that no matter the activity level, baited mounds do not simply relocate; they die.

Hu also discovered that in both disturbed and undisturbed mounds, the ants devour bait fastest—within one to three hours—when it's sprinkled right on top of the mound.

Trials were done at the AAES's E.V. Smith Research Center in Shorter in spring and summer, when foraging activity is high. Hu says the project gives fire-ant-bait manufacturers research-based data to consider when refining their labels. ♦

Grass-fed profit relies on top-quality forage

A long run of weak cattle prices and rising transportation and feed costs is prompting a number of small-scale Alabama producers to consider finishing their cattle at home on grass, instead of selling them to Midwestern feedlots, and marketing their beef locally, directly to consumers.



Finishing cattle on forage grass

But whether cutting out the middle man and using the grass-fed approach will be more profitable for these producers largely will depend on having high-quality forages that maximize both weight gain and meat quality, and in a continuous

study that started in 2002, Auburn animal scientist Chris Kerth has focused on identifying those forages.

For winter grazing, his trials indicate that rye, ryegrass and oats all result in similar weight gain in cattle and all yield beef that's comparable in quality, fatty acid content, overall nutrition and taste and texture.

In 2010, he will wrap up his evaluation of several warm-season forages—including pearl millet, cowpeas, wheat, triticale and lablab—and report his findings.

Kerth also is investigating forages from the agronomic standpoint, to find, for instance, whether, producers could no-till summer forages into ryegrass. ♦



TRAPPED—Traps baited with plum essence allow researchers to determine exactly when plum curculio populations peak.

Study aims to control peach-eating weevils

The boll weevil may be gone, but a cousin called the plum curculio is still alive and well and enemy number one for Alabama's \$12-million peach industry.

The tree-fruit-crazed weevils damage peaches inside and out by feeding on blooms and new peaches, and, worse still, by laying eggs *inside* developing peaches—eggs that hatch into larvae that then eat their way out of the fruit.

To control the pests, producers must spray their crops with a



pricey pesticide an average of 12 times from mid-March through the end of June.

Plum curculio But in a study that began in 2006 at the AAES's Chilton Research and Extension Center, Auburn entomologist Henry Fadamiro and Ph.D. candidate Clement Akotsen-Mensah are developing a program in which growers, by using traps to monitor weevil populations, can manage plum curculios with just four properly timed sprayings.

They're also testing new-generation pesticides that can be used at lower rates than existing products.

With fewer sprayings, growers will save money and environmental effects of chemicals will lessen. ♦

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