AAES **Impact**

RESEARCH NEWS FROM THE ALABAMA AGRICULTURAL EXPERIMENT STATION

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DIVVYING UP THE RESEARCH DOLLARS

"Bad" carbohydrates, insecticide-resistant mosquitoes, global warming, invasive species and costly livestock and catfish diseases are among the subjects targeted for study in 14 Auburn University research projects that have been awarded a total of $496,000 in funding through an AAES competitive grants initiative.

The one- to three-year projects approved for funding were selected from among 21 research proposals that AAES researchers in five AU colleges and schools submitted to the AAES Foundation Grant Program.

Basically, the funds awarded are "seed grants" that will allow AAES scientists to conduct pilot studies and generate preliminary data they then can use to go after larger grants from sources outside of AU.

In fact, the review committee gave priority to proposals that showed the strongest potential for leading to extramural funding from government agencies, private companies, foundations or individuals.

Launched in 2003, the grant program is an effort to help the financially strapped AAES contend with serious funding shortfalls that have been steadily mounting since the mid-1980s. That's when federal support for agricultural research programs began to decline even as the AAES faced rising salaries and increasing operation and maintenance costs.

Funding for the program was made a permanent part of AU's annual appropriation from the Legislature in 2003.

The AAES Foundation Grant awards are capped at $40,000 annually for projects involving more than one researcher and $20,000 for single-investigator projects.

The grants are awarded for up to three years, but second- and third-year funding are contingent on research progress. Researchers in the multi-year projects are required each year to document their accomplishments and the progress they have made toward obtaining extramural funding.

The funded projects involve AAES researchers in the colleges of Agriculture, Sciences and Mathematics, Human Sciences and Veterinary Medicine and the School of Forestry and Wildlife Sciences. ◆

Turning the lights down low

In poultry farming, lighting a chicken house isn't as simple as turning on a switch.

With productivity the bottom line, growers need to know what light conditions create an environment in which broilers perform most efficiently.

Several recent studies by AAES poultry scientists at Auburn University suggest that shorter day lengths and dimmer lights yield birds that grow as fast, use feed more efficiently, are healthier and may be less stressed than chickens raised in almost-round-the-clock bright-light conditions.

In the most recent study, Roger Lien and other poultry researchers compared groups of chickens in light-tight rooms which were exposed to either the standard 23 hours or 18 hours of light in a 24-hour period and either the standard bright lights or dimmer lights. They found that shorter, dim-light conditions seem to result in the best overall performance.

THE DIMMER SWITCH— Chickens descended from fowl that dwell in the understory of dense Southeast Asian jungles, which may in part explain why they perform better in dim-lights conditions.

Lien says bright light encourages broilers to be more active and aggressive, which translates into them burning off their feed faster.

In addition to better-performing chickens, the shorter day lengths and dimmer lights also offer the benefit of reducing power bills, Lien says.

Poultry is an $8.5 billion-a-year industry in Alabama. ◆

Targeting bird flu

A highly sensitive diagnostic test that will detect the presence of many avian influenza virus strains in as little as two hours is in the works in an Auburn University poultry research lab.

AAES researcher and AU poultry scientist Joe Giambrone says his test could replace current diagnostic methods, which can take several days to confirm the potentially deadly virus's presence. A quick, reliable detection test is crucial in fighting outbreaks of the disease, a new strain of which has proved deadly to humans.

Also on the bird-flu front, Giambrone and fellow AAES researcher Gary Hepp, an AU wildlife scientist, are conducting surveillance of Alabama's migratory duck population for presence of the virus. Wild, free-flying ducks are an important vector of the avian influenza virus worldwide.

Both projects are funded by the U.S. Department of Agriculture. ◆

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.

CATCHING CATFISH UNAWARES

An innovative harvesting technique that AAES fisheries specialists are working to refine could make it more feasible for farmers who have watershed ponds to get into the catfish business.

Harvesting is a problem in watershed ponds because, given the ponds' irregular shapes and rugged bottoms, seining—the method used in the uniform catfish ponds of the state's Black Belt—won't work.

The procedure that AU's Randell Goodman is investigating at a north Auburn research pond hinges on a catch pen that's submerged along the edge of the pond. Catfish in the pond are fed at the same time each day, from a feed wagon pulled by a loud tractor. Over time, they become conditioned to flock to the catch pen area at the mere sound of the tractor.

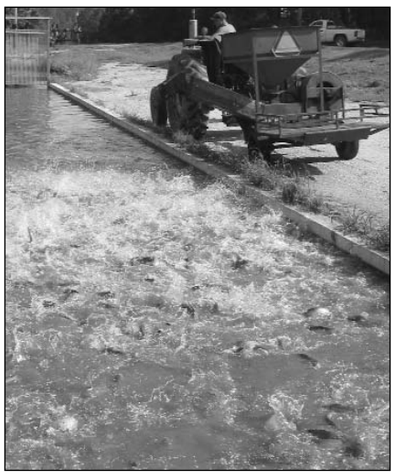
On harvest day, the tractor lures the fish to the catch pen, the gates are dropped, and the fish are trapped, making for relatively easy harvest with a minimal amount of labor. Fish too small to market can escape through a bar grader that is used to crowd the fish to one end for loading.

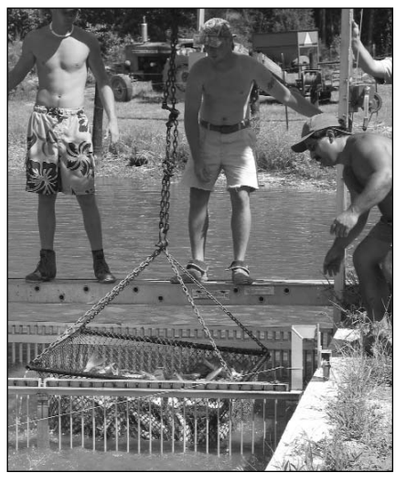
The technique minimizes labor while resulting in the harvesting of catfish of uniform size.

Roughly 17,000 acres of watershed ponds are located in the state's Piedmont region. Converting these ponds to catfish operations would give financially struggling farmers a profitable alternative to soybeans and other row crops.

The primary markets for east Alabama–raised catfish likely would be fish-for-fee pond owners and small-scale processors.

Research continues into refining and economically analyzing the catch-pen harvesting method. ◆





BOUNTIFUL HARVEST—Left photo, catfish in an Auburn research pond swarm to the catch pen area as soon as they hear the loud tractor that pulls the feed wagon. Right, on harvest day, that trip to the trough is their last.

Seeing the forests *and* the trees

High-tech yield-monitoring systems let row-crop farmers identify low- and high-yielding areas in their fields, so they can alter their inputs and seeding rates to boost production in the future.

Now, an AAES biosystems engineer has developed a similar instrument to be used in the harvesting of trees.

The prototype device AU's Tim McDonald has designed is a diameter sensor which, when mounted on harvesting equipment, measures the size and also the position of trees as they are cut. That data will allow forest landowners to pinpoint low-producing areas and adapt their management strategies.

And in another significant development, McDonald has designed, built and filed a provisional patent for an instrument that should prove invaluable in documenting hand-planting of pine tree seedlings, thus helping address several social/political/cultural issues regarding migrant workers and labor disputes.

The small device will attach to the dibbles that laborers, most of them migrant workers, use to make holes in the ground to plant the trees.

Utilizing the wonders of space-age precision technology, the device will track not just when and where each tree is planted, but who planted it. That data will benefit landowners by providing a geospatial database that documents their new stands of trees. It also will benefit migrant workers, whose pay is based on number of trees planted, and their employers. ◆

Mulching out weeds

Large container-grown nursery crops are among the most valuable crops produced in the Southeast, but pesky weeds pose big problems, hurting not only plant health but plants' salability.

Nemesis: weeds.

While preemergent herbicides work, they're impractical because the spacing between large containers means more than half of the herbicide falls outside the containers.

A study under way at Auburn indicates nursery growers could remedy the weed problem by mulching their container-grown crops with layers of pine-bark mulch. Combined with granular herbicides, the mulch provides complete weed control. ◆

Office of Agricultural Communications
Alabama Agricultural Experiment Station
2 Comer Hall
Auburn University AL 36849