

Research Awards Invest in the Future

Each year, MSU's Office of Research presents Research Initiation Program Awards to help scientists campuswide begin new research projects. This year, five of the awards were presented to scientists in the Division of Agriculture, Forestry and Veterinary Medicine (DAFVM).

"The program helps stimulate new research, particularly among new faculty," said MSU Vice President for Research Colin Scanes. "It's an excellent investment in research that can have long-term benefits for Mississippi."

Each award is for \$10,000 or less and helps the scientists begin projects that have the potential to attract external funding.

"The application process also lets us know the research interests of some of our new faculty members," Scanes said.

DAFVM recipients of 2005 Research Initiation Program Awards are Matt K. Ross, Rubin Shmulsky, Sam Riffell, David Held and Sead Sabanadzovic.

Exploring safer pesticides

Pyrethroids are a class of pesticides widely used in agriculture for control of insect pests.

Matt K. Ross of the College of Veterinary Medicine's Center for Environmental Health Sciences is examining how specific proteins, carboxylesterases, are regulated in liver cells when confronted with pyrethroids.

"Because of their wide use, human exposure to pyrethroids can occur," he said. "Since carboxylesterases are the primary defense enzyme in humans that detoxify pyrethroids, identifying the factors that regulate these proteins will help us understand how humans detoxify specific pyrethroid compounds."

The understanding gained at the molecular level with carboxylesterases, Ross added, may also help in the development of insecticides that are selectively toxic to pests and not humans.

Producing straighter lumber

New technology under development by MSU associate professor of forest products Rubin Shmulsky may take the warp out of wood.

Warp causes significant loss in both grade and value of pine dimension lumber. For many reasons, two-by-fours are the most susceptible to warp and subsequent value loss. In Mississippi alone, it is estimated that warp costs the 14 largest sawmills more than \$20 million a year.

Shmulsky's research focuses on a restraint-based drying procedure. The procedure has shown initial success with respect to reducing warp in pine two-by-fours, four-by-fours, and thick dimension stock in MSU's pilot-scale kiln.

"Warp is not only a cause for value loss, but it also is an obstacle to market acceptance," Shmulsky said. "To bolster the markets for Mississippi and regional producers, there is a critical need for improving the straightness characteristics of local yellow pine lumber."

Imports have increased throughout the country with many builders selecting Canadian lumber over southern yellow pine due to its dimensional stability and straightness characteristics. The development of a device that can produce straighter lumber will be of significant value to sawmills, forest landowners and consumers, Shmulsky added.

It is anticipated that commercially viable technology can be developed relatively quickly from this new restraint system.



Tom Thompson

Matt K. Ross



Russ Houston

Rubin Shmulsky

Restoring prairie diversity

Sam Riffell, a new faculty member in the Department of Wildlife and Fisheries, is working with private landowners to monitor prairie restoration throughout Mississippi's Blackland Prairie. The restoration areas will be planted in native grasses this spring.

"Our objective is to increase the probability that grassland restorations succeed," Riffell said. "One of the monitoring techniques is the development of a butterfly-based indicator of restoration success."

Butterflies are used as indicators because they are herbivores and their presence depends on a sufficiently developed plant community. Also, butterflies are easy to identify in the field, are widely distributed geographically, and often respond to human activities in the same fashion as other organisms like birds.

"Knowledge on how to accommodate both biodiversity (butterfly communities) and agricultural production (grazing cattle) on grassland tracts is important to conserving natural resources on privately owned land," Riffell said.

Extracting natural insect control

The zonal geranium is one of the most frequently grown container plants in the U.S. It also has the potential to provide a natural control for insect pests.

Entomologist David Held of the Coastal Research and Extension Center in Biloxi is working to develop extract from geraniums into a botanical insecticide.

"In laboratory experiments, extracts of flower petals fed to or injected into insect pests were insecticidal," he said. "I'm using liquid chromatography to chemically separate the flower extract into fractions so the components can be identified."

In addition to testing the extract as insecticide, Held hopes to provide insight into how flowers can attract insects that provide pollination while defending themselves against those that feed on floral reproductive organs. Held is testing the various components of the geranium extract for toxicity on American cockroaches, but he also has shown their effectiveness against a range of other insects.

"The symptoms an insect shows when exposed to geranium extract suggests the toxin acts on nerve impulses at the muscle," he said. "Most insecticides interfere with nerve to nerve communication."

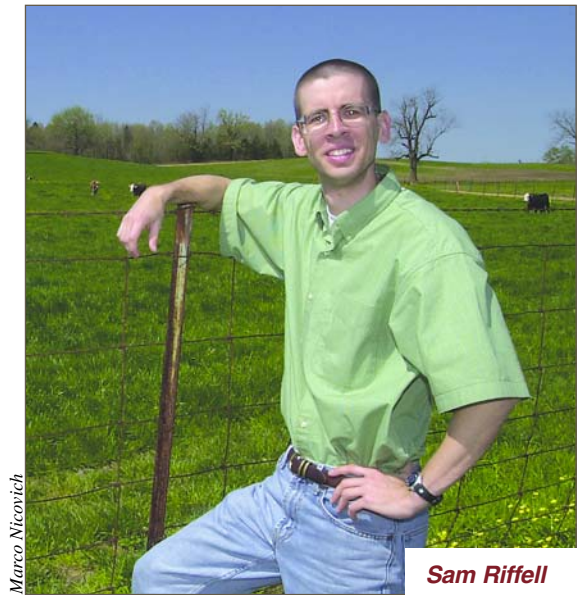
Taking the first step in virus protection

As a new faculty member in the Department of Entomology and Plant Pathology, Sead Sabanadzovic quickly noticed that there has been very little research conducted recently on the viruses infecting many of Mississippi's crops.

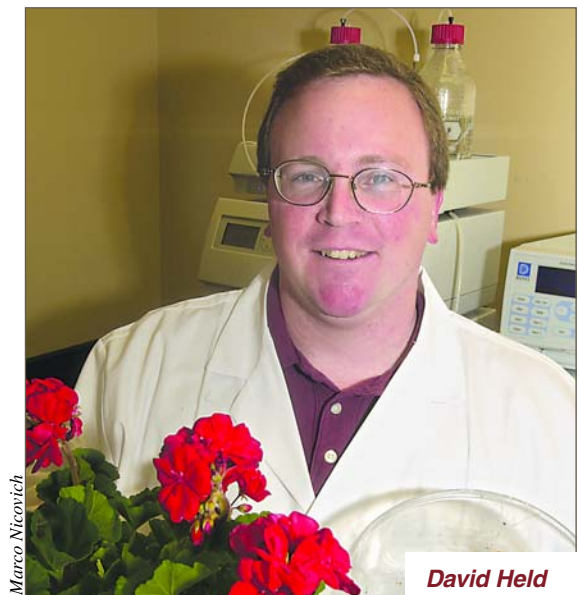
To fill this void, Sabanadzovic is generating data on the viruses that attack soybeans and sweet potatoes, as well as many of the vegetable crops grown in the state. The project consists of field surveys and identification of viruses by laboratory methods.

"The collection of information about the viruses in these crops will provide the basis for more detailed research later on," he said. "Once we have a clear idea of what's present, then we will know which specific problems need more study."

The current study, he added, will also aim at development of molecular diagnostic tools for early and reliable detection of plant viruses, and will provide information that may be used to give producers better guidelines for protecting their crops from viruses.



Sam Riffell



David Held



Sead Sabanadzovic

Jim Newsome:

Leading the World's Largest Physical Commodities Exchange

By Bob Ratliff

Bidding is furious as Jim Newsome walks onto the trading floor and pauses to watch the action. He's greeted by one of the participants with a reference to the day's prices, "Hey Jim, what do ya think about it?"

Newsome smiles, nods and moves to a better vantage point.

Just a few years ago, Newsome could have been in any one of dozens of small Mississippi towns where cattlemen and traders gather each week to buy and sell livestock at auction. At that time, he was executive vice president of the Mississippi Cattlemen's Association, a job he seemed born into, having grown up on a family farm, been a member of his high school FFA livestock judging team, and educated at Mississippi State to manage a modern livestock operation.

On this particular blustery day in March 2005, however, the market is the New York Mercantile Exchange, or NYMEX, and the buyers and sellers are trading crude oil futures at record high prices. The traders easily recognize Newsome because he is the president of the exchange, ironically, another job for which he seemed destined.

The road to the heart of New York's financial district began for Newsome on his family's farm near Plant City, Fla. Strawberries were the primary crop on the family farm, but it was livestock that held the most interest for young Newsome.

Following high school graduation in 1977, he began to prepare for a career in livestock production.

"After two years at Abraham Baldwin College in Tifton, Ga., I went to the University of Florida as a food and resource economics major, which is basically agricultural economics," he said. "I intended to come back to the family farm. My interest was in beef cattle, but I also wanted a business background."

While at Florida, Newsome excelled on the livestock judging team, a pursuit that began when he was a member of Future Farmers of America during high school.

"The semester I was due to graduate, my livestock judging team coach, who was good friends with Dr. Howard Miller in the Department of Animal and Dairy Sciences at Mississippi State, told me that Dr. Miller was interested in slowing down as the judging team coach and was looking for a graduate student to help with the program," Newsome said. "I hadn't even con-



NYMEX PR Department

sidered graduate school, so I told him thanks, but I intended going back home. He then called my father, and they teamed up on me and sent me to Mississippi State, which was the best thing that ever happened to me." The success of his MSU livestock judging teams, which during a six-year period won more than a dozen regional and national contests, remain a favorite accomplishment.

At MSU, Newsome worked on his master's in animal science under the direction of professor Mike Boyd. He stayed on to work on a doctorate, in part because of his love of working with the livestock judging team.

"Jim was a self-starter," said Boyd. "He had been in leadership roles, including serving as Florida FFA president, before coming here, and he soon became a leader among the graduate students."

The next career move for Newsome came in 1989 as he was nearing completion of his doctorate. The Mississippi Cattlemen's Association called with an offer.

"They offered me a job as their executive vice president, and I thought that would be a good fit for me," he said. "It was, and I spent almost 10 years with the association, thinking I would retire from there."

A former colleague at Mississippi State, however, had different plans. Mark Keenum had left MSU's Department of Agricultural Economics for a position on the staff of Senator Thad Cochran (R-Miss.) and by 1998 was serving as the senator's chief of staff. A Republican seat on the U.S. Commodity Futures Trading Commission was open, and as a senior member of the Senate Agriculture Committee, Senator Cochran would be instrumental in recommending a candidate.