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AG DAY 2007 AG DAY 2007 AG DAY 2007

Join in the fun Saturday, Sept. 22, when Ag Day returns to the agricultural campus in Knoxville. Festivities start at 3 p.m. Live music,

UT's mascot Smokey, antique tractor display and free refreshments are on tap, along with meals available from the Student Cattlemen's Association. Greet friends, alumni, and former professors. Fun activities for all. For more info, call (865) 974-7439.

RESEARCHER FINDS GROWING COMMERCIAL SUCCESS

UT Animal Science Professor Neal Schrick doesn't hide his enthusiasm for his work or for its growing commercial success.



Neal Schrick

In fact, Schrick has become somewhat of an advocate for researchers taking solid science from the laboratory and applying it in the field to the benefit of industry and society.

"When I went through my graduate training during the '80s, no one talked about **patents or intellectual property rights**," said Schrick, who joined the Institute of Agriculture in 1994. His unique line of research, however, has given him a new perspective on the implications his work can have for cattle producers across the country.

Schrick is an expert in the reproductive process, and a portion of his work has centered on a process known as embryo transfer, in which a bovine embryo is created in a laboratory setting or collected from genetically

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DAIRY JOURNAL RANKS NUMBER ONE

The *Journal of Dairy Science* is the top-ranked research journal in the world in the category of agriculture, dairy, and animal sciences. JDS ranks first among 44 journals in that category. Gary Rogers, UT professor of animal science, is editor-in-chief. The Institute for Scientific Information's impact factor has ranked JDS one of the top three in its category for six straight years and awarded it the number one ranking in 2007.



Gary Rogers

Eigenfactor.org ranked it first in cost-effectiveness in agriculture, dairy and science and second out of 89 for food science and technology. Recent volumes of JDS have grown to include more than 500 manuscripts and 5,000 pages per year from authors worldwide.

Rogers' recognitions extend beyond the journal. Last year he accepted an invitation to join the newly established **Expert Network formed by the National Dairy Council**. The network is comprised of 10 experts on dairy production and dairy foods across North America. Members serve as resources for industry expertise and for key local, regional and national media interviews as well as national public speaking engagements on behalf of the U.S. dairy industry.

In February, he was invited to become a member of a new **USDA Extension Dairy Executive Council** by Basil Eastwood, program leader for USDA-CSREES.

Teaching and Learning Workshop Sept. 28 details on p.3

third thursday

LEGISLATORS VOICE SUPPORT FOR BIOFUELS INITIATIVE

East Tennessee is going to become the center for alternative energy in the nation. At least Congressman Zach Wamp of Tennessee's Third Congressional District thinks it could.

Wamp, along with two other U.S. congressman, UT researchers, and representatives from the **Tennessee Farm Bureau Federation** and the **Natural Resources Conservation Service** participated in a public forum in Morristown on August 29 to discuss biofuels production. More than 150 people came to hear the panel speak about the UT Biofuels Initiative and switchgrass production in Tennessee.

Congressman Wamp, sits on the House Appropriations committee and has been an advocate for alternative forms of energy.

Kelly Tiller, an agricultural economist and director of external operations for the UT Office of Bioenergy Programs, addressed the timeline for building a demonstration-scale biorefinery. "We expect to break ground on the facility in early 2008 and have the first gallon of Grassoline™ produced by 2010."

Representing his home district in Morristown, Congressman **David Davis** said he supports the initiative because it will strengthen national security, since it would lesson our dependence on foreign sources of oil from unstable parts of the world.

Congressman **Bob Goodlatte** of Virginia, the ranking minority member of the House Agriculture Committee, said that the farm bill approved by the House in July contains \$3 billion to promote biomass energy programs.

—Patterson Wilson

RESEARCH AND EDUCATION CENTERS MARK IMPORTANT MILESTONES

by *C. Roland Mote, associate dean
Tennessee Agricultural Experiment Station*

It is a common practice to take special notice and celebrate the passage of time in quarter century increments. In keeping with that practice, this is a year to celebrate the long continuing service of some of our Research and Education Centers. The year 2007 marks a complete century for the West Tennessee Research and Education Center (WTREC), which was established near Jackson, Tennessee in 1907. WTREC was the first field-scale agricultural research laboratory the Experiment Station established outside of Knoxville. Another center celebrating a significant quarter century anniversary this year is the Research and Education Center at Greeneville. This year marks three quarters of a century that the center at Greeneville has served the efforts of scientists in their quest to develop solutions to problems that enable enhancement of life for rural people and the communities in which they live.

And, although I have heard no one make any mention of it, the East Tennessee Research and Education Center as well as the Tennessee Agricultural Experiment Station are a century and a quarter old this year. They came into existence at the same time in 1882. In fact all of the Research and Education Centers have been around for a long time—the youngest being the Research and Education Center at Milan, which in just five years will celebrate its own half century anniversary.

Much has changed at the centers and in our entire food and fiber system

during the time the centers have been serving agricultural scientists, and I am confident that, in a relative sense, we haven't seen anything yet. The understanding of the fundamental workings of life that our scientists are gaining today is going to lead to wonderful enhancements to civilization that we cannot imagine, and our Research and Education Centers are going to play a key role in realization of the potential of the knowledge being developed.

A scientist who discovers a gene in an organism that controls a very beneficial trait and transfers it into a plant cell makes a significant accomplishment. However this success cannot help people until the cell with the beneficial gene is incorporated into a plant and the plant into a crop that can be efficiently produced. Research and Education Centers are where the cropping systems that allow people to benefit from basic scientific advancements will be developed.

So, while some of our Research and Education Centers are a hundred or more years old, they continue to play a vital role. We are fortunate to have predecessors across 125 years who had the wisdom to establish and maintain a system of field-scale laboratories that continue to be critical for continued enhancement of the agriculture that enables all human endeavors.



Roland Mote

FINANCIAL TIPS FOR FARMERS

In a tough year, what can Tennessee farmers do to help alleviate the financial stress?

- 1) Keep close tabs on disaster programs through local Farm Service Agency offices—some disaster provisions may be forthcoming.
- 2) If they have crop insurance, make sure to talk with the insurance carrier before harvesting anything.
- 3) Contact lenders as soon as possible if they need to expand credit or if they are not able to make a full loan payment.
- 4) Consider postponing nonessential farm expenses to help increase cash flow this year.
- 5) Nonfarm expenses also matter. Consider postponing optional or nonessential nonfarm expenses to help increase cash flow.
- 6) Ask a tax professional if there are ways to reduce future tax burdens through some tax management techniques this year.
- 7) Keep accurate records that illustrate long-term plans so a lender can help in financing some of these decisions in a year of limited cash flow.
- 8) Seek help. Resources are available to help in making financial decisions. Farm financial management specialists are only a phone call away through **county UT Extension offices**. These specialists can assist farmers in decision making that can help weather this year's revenue challenges.

—Delton Gerloff

WHAT'S NEWS:

After a 25-year career with UT Extension, **Animal Science Professor Warren Gill** has accepted the position of director of the School of Agribusiness and Agriscience at Middle Tennessee State University. His new email address is wgill@mtsu.edu.

COFFEE CO. SECOND IN NAT'L 4-H EVENT

The Coffee County 4-H forestry judging team placed second at the 28th annual National 4-H Forestry Invitational, July 22-26. Tennessee was among 17 states competing in the invitational held at West Virginia University's Jackson's Mill State 4-H Camp and Conference Center near Weston, West Virginia. International Paper Foundation, the Association of Natural Resources Extension Professionals and the Cooperative Extension Service sponsored the event.

Tennessee was represented by Coffee County team members **Nathan Jones, Miranda Hunt, Jonathan Mills** and **Andrew Russell**. **Dean Northcutt**, Coffee County Extension leader, coached the team, assisted by volunteer leaders **Barry Rhoads** and **Lori Jones**.

Illinois earned the top team score and Georgia placed third. Team members compete for overall team and individual awards in several categories. Events included a forestry written exam, tree identification, tree measurement, compass orienteering, insect and disease identification, topographic map use, the Forestry Bowl and forest evaluation.

—Steve Sutton

UT ESTABLISHES OBESITY RESEARCH CENTER

Institute researchers in **animal science, veterinary medicine, plant sciences, and family and consumer sciences** are among a collaborative effort of more than 40 scientists supporting the work of the university's new **Obesity Research Center**.

The center, which also involves **Oak Ridge National Lab**, seeks to determine the best methods for preventing and treating obesity. **Naima Mostaid-Moussa**, professor of nutrition and a scientist affiliated with the **Tennessee Agricultural Experiment Station**, leads the effort, along with David Bassett, professor of exercise, sport, and leisure studies.

TEACHING AND LEARNING WORKSHOP SEPT. 28

The College of Agricultural Sciences and Natural Resources and UT Provost and Vice Chancellor for Academic Affairs **Robert Holub** are sponsoring a **day-long teaching and learning workshop on Friday, Sept 28, in Hollingsworth Auditorium**. The featured speaker is **Mark Taylor**, who holds a bachelor's degree in psychology and biology, a master's degree in social work and a doctorate in counseling and who has more than 25 years of experience in higher education, management, and counseling professions. Lunch is provided, and there is no charge for the event. Space is limited and registration is required. For more information or to register, call (865) 974-7303.



*Thanks to a summer program at College of Veterinary Medicine, eight high school students from across Tennessee have experienced what life is like for veterinary students. The **Veterinary Summer Experience** is an eight-week program that provides high school students with an opportunity to gain experience at a veterinary practice in their hometowns for seven weeks during the summer. Then, for the last week of their program, the students visit the college for an up-close exploration of veterinary medicine. The program emphasizes diversity and provides opportunities for students interested in veterinary medicine while simultaneously generating a pool of potential veterinary students, according to **Director of Diversity William Hill**.*

superior cows and then transferred to a recipient cow to be carried to term.

The process is used in the cattle industry as a way for farmers to increase the number of offspring from genetically superior cattle, according to Schrick. Embryo transfer, though, is an expensive endeavor that has a success rate of only about 40-60 percent. A major culprit in failed transfers is a hormone known as **prostaglandin F_{2a}** that significantly reduces the number of embryos that survive the transfer.

Keeping prostaglandin away from embryos during collection and transfer became the focus of Schrick's research with the aid of several graduate students over the years including **Ricky Seals, Mitch Hockett, Fernando Scenna, and Gustavo Schuenemann**, all now Ph.D. graduates. They sought to improve the percentage of embryos that were successfully transferred and resulted in live births, aiding producers looking for top cattle.

His search took him to a type of molecule that keeps prostaglandin from damaging the embryos by essentially wrapping them in a protective bubble. Schrick came across the molecule in an unusual place—a type of human eye solution designed to treat dry eyes. When they coated embryos that were about to be transferred in the solution, Schrick and his team found that the embryos were protected from the prostaglandin and pregnancy rates improved.

Just before Schrick was to publicize his findings in the research community, a colleague at another university pointed out the major commercial potential in the discovery. That spurred Schrick to contact **John Hopkins, director of technology transfer with the UT Research Foundation (UTRF)**, an organization that helps UT scientists

bring their ideas from the laboratory to the marketplace.

"As a researcher, you have to be careful," said Schrick, noting instances where other researchers' work has been used by industry without compensating them.

Hopkins and the UTRF staff helped Schrick secure patent protection on the use of this and other chemicals, known as receptor blockers, to protect embryos in the transfer process. Once the task of protecting Schrick's discovery was underway, it was not long before the cattle industry offered to fund additional research.

When a company is interested in commercializing UT research, the UTRF arranges for the company to license the technology, with any resulting revenue split between the researcher and UTRF. UTRF uses its portion of the funds to protect new discoveries and support the entrepreneurial mission of the university through programs such as the new technology business incubator located on the agricultural campus.

In this case, a Texas-based company licensed Schrick's discoveries. In addition, they have provided more than \$2 million in research and development funding to further discovery-based scientific research in Schrick's and **Lannett Edwards'** laboratory.

The future holds growing opportunities for Schrick. Commercial distribution of the receptor blocker has increased worldwide, and another company is beginning to evaluate the process of applying the discovery to in vitro culture in other species including humans.

"An embryo is an embryo," said Schrick, who studied under an OB-GYN as part of his postdoctoral work. "The potential for human application

and making in vitro fertilization and culture more effective was clear to me from the beginning."

Schrick noted that as a university, UT is very well-positioned to take advantage of more discoveries by its professors in the future, especially in the field of animal science.

"We have the animals, the laboratories and the statewide **Research and Education Centers**, plus the UT Research Foundation there on the commercial end," said Schrick. "The opportunities are there, researchers just need to take advantage of them."

—Jay Mayfield

WEB SITES FOCUS ON DROUGHT, BIOBASED ECONOMY

To aid producers caught in one of Tennessee's worst droughts on record, UT Extension has launched a drought information Web site. The online resource consolidates news releases, publications and information sheets, Web links, and other resources: <http://utextension.tennessee.edu/Drought2007/>.

Culminating more than a year of work, the Southeastern Sun Grant Initiative has launched Bioweb. The Web site will provide researchers, along with the general public, with open convenient access to information that will drive new biomass science and technology out of the lab and into our garages and homes. The project is an Internet library of peer-reviewed papers and information related to bioenergy and bioproducts. The resource is a continually expanding collection of basic and applied scientific knowledge, with some information about production economics and policy thrown in for perspective: <http://bioweb.sungrant.org/>

NEW OFFICE FOCUSES ON BIOENERGY

The newly created **Office of Bioenergy Programs** at UT is actively working toward a secure and sustainable energy future for the state and nation. Housed in the Institute of Agriculture, the Office of Bioenergy Programs coordinates a variety of research, development and outreach programs involving biofuels and related bioproducts.

Serving as co-directors for the new office are Timothy Rials and Kelly Tiller. "It's an exciting time to be involved in biofuels research," says Rials, who serves as director of research and development. "Knowing that the science and technology generated from the hard work of a lot of creative and energetic researchers will ultimately have a huge impact on our nation's energy policy is especially rewarding."

Tiller, who serves as director of external relations, is an agricultural economist who helped author the business model for the UT Biofuels Initiative. "We're fortunate that UT has so many different programs, initiatives, and efforts underway that involve bioenergy. The Office of Bioenergy Programs will work to coordinate all of these efforts so that we can continue to move forward toward new energy solutions," Tiller says.

Three major programs are coordinated through the Office of Bioenergy Programs: the UT Biofuels Initiative, the Southeastern Sun Grant Center and BioSucceed.

The UT Biofuels Initiative is a research and business model that proposes the construction of a cellulosic ethanol biorefinery in East Tennessee. The facility will be supplied with 170 tons per day of locally grown biomass (switchgrass and wood chips) that will be converted into liquid fuels. The principal product of this state-



Jacki German, second from left, is UT's Send Roses recipient for September. German is a principal secretary in the UT Extension Department of Family and Consumer Sciences. Her courtesy, wrote her nominator, "has become a hallmark of our department," and when the unit was without another staff member for seven months, German graciously filled in for that position, supporting three additional staff members in addition to the seven she routinely assists. For these and many other reasons, she is known "for going above and beyond her job title on a daily basis with a smile and an encouraging word for everyone she encounters."

funded program will be Grassoline™ – ethanol derived from cellulosic plant material.

The Sun Grant Initiative is a federally funded program that aims to solve America's energy needs and revitalize rural communities. Working in partnership with several federal agencies, the program draws on the strengths of the land-grant university system to advance research, education and extension programs on renewable, biobased energy. UT serves as the Southeastern Sun Grant center, one of five regional centers placed throughout the country.

BioSucceed is an educational curriculum that's being developed in coordination with North Carolina State University and North Carolina A & T. The goal of the program is to create the curriculum for a graduate degree program tailored to the unique issues associated with conversion of biomass to alternative fuels and products. Funded by the U.S. Department of

Agriculture, BioSucceed will provide the information needed to educate a skilled workforce on the structure, properties and behavior of biobased materials that will be vital to energy production in the future.

To learn more about the Office of Bioenergy Programs, visit their Web site at www.UTbioenergy.org.

–Patterson Wilson

Sept. 22, **Ag Day**, Institute of Agriculture, Knoxville, 3 p.m.

Sept. 24, **Know Your Copy Rights Noontime Discussion**, Vet Med Sequoyah Room

Oct. 11, **NE Tenn. Beef Expo**, Research and Education Center at Greeneville, 7:30 a.m.

Oct. 13, **Heritage Festival**, Research and Education Center at Ames Plantation, 9 a.m.

Oct. 20, **Fall Folklore Jamboree**, Research and Education Center at Milan, 9 a.m.

LEAD POISONING — SILENT, INSIDIOUS

Learning disabilities...behavioral problems...no, this isn't another back-to-school, what's wrong with our kids story. **Learning disabilities and behavioral problems are among the many unpleasant outcomes of lead poisoning.** This silent enemy of early childhood can also cause seizures, coma, and even death.

The recent recall of millions of toys made in China and contaminated with lead has sent parents digging through closets and toy chests, but according to a UT Extension health educator, they should also be on the phone to their child's pediatrician.

Courtney Niemann, the health educator for Tennessee's Childhood Lead Poisoning Prevention Program, a collaboration of the Tennessee Department of Health and UT Extension, recommends concerned parents take their children to a doctor. "While there is no immediate emergency unless your child exhibits profound symptoms, if your child has played with a recalled toy, I recommend you have your child tested as soon as feasible," she said.

Lead poisoning can affect nearly every system in the body. Because lead poisoning often occurs with no obvious symptoms, it frequently

4-H'ERS NET BLUE RIBBONS WITH 'FAIR'EST PRODUCE

Awarding the biggest, best, tastiest, and tallest is a fair tradition that dates back more than a century in many communities across Tennessee. Now contest participants and organizers will admit it's showing off a little bit, but it's also part of the fun of a county fair.



That being said, 2007 was a rough year to grow anything in Tennessee—with drought and weeks of hundred degree temperatures. It meant that some produce just didn't get to be the usual size you'd expect.

Still, every growing season offers its lessons, and 4-H leaders like the fact that these youth competitions teach responsibility and reward hard work. You can watch a video about 4-H'ers taking part in county fairs at the Institute's Web site at <http://agriculture.tennessee.edu/news/VideoReleases>. While there, also check out video news about cotton drought research, gnat control efforts, and 4-H'ers learning to cure country hams.

goes unrecognized. Lead exposure is particularly dangerous to children under six years of age because of their rapid growth and the tendency to put most things in their mouths.

"A blood lead test is the only way you can tell if your child has an elevated lead level," Niemann said. "Most children with elevated blood lead levels have no symptoms."

A child's health care provider can recommend treatment if a child has been exposed to lead.

The TCLPPP also recommends parents follow the CDC's guidelines for routinely monitoring a child's exposure to lead by having the

child's blood tested at the 12-month and 24-month checkups.

A library of information on lead poisoning is available free of charge on the UT Extension Family and Consumer Sciences Web site: <http://fcs.tennessee.edu/healthsafety/lead/pubs.htm>. Follow the link to brochures and publications.

The information targets a variety of audiences including parents and families, health care professionals, child care providers, property owners/real estate professionals, and hobbyists (like those who fish).

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