Summer 2010

Volume 7, Number 2 (Spring/Summer 2010)

UT Institute of Agriculture

Follow this and additional works at: https://trace.tennessee.edu/tnlandlifescience

Part of the Agricultural Science Commons, Agriculture Commons, Food Science Commons, and the Veterinary Medicine Commons

Recommended Citation

The publications in this collection represent the historical publishing record of the UT Agricultural Experiment Station and do not necessarily reflect current scientific knowledge or recommendations. Current information about UT Ag Research can be found at the UT Ag Research website. This Magazine is brought to you for free and open access by the University of Tennessee Institute of Agriculture Publications at TRACE: Tennessee Research and Creative Exchange. It has been accepted for inclusion in Tennessee Land, Life and Science Magazine by an authorized administrator of TRACE: Tennessee Research and Creative Exchange. For more information, please contact trace@utk.edu.
Celebrating Extension's Centennial

UT EXTENSION AND ITS 4-H YOUTH DEVELOPMENT PROGRAM HAVE BEEN TRANSFORMING TENNESSEE FOR 100 YEARS
Impacting Lives. Transforming Tennessee. For 100 years UT Extension and its 4-H Youth Development program have done just that. They’ve served the state’s citizens when times were good and when they were not. Their work during two World Wars, a pandemic, and in forming boys’ corn clubs and girls’ canning clubs to preserve food for winter months are only a few examples of their mission and accomplishments in their first 100 years.

This year we honor all that they’ve achieved. UT Extension is the university’s direct link to Tennesseans in fulfilling our land-grant mission. Extension is the community-based organization that is the “front door” to the university across the state to serve and solve local needs. Its foundation is a statewide network of agents and specialists and research-based information generated by Extension specialists and scientists with AgResearch.

During 4-H Congress, friends and supporters of Extension and 4-H gathered for a reception and celebration of Extension’s impact on the state over 100 years. It is reassuring to know that Extension and UTIA have such broad support from across the state.

A Centennial commemorative book is online. You can view it at http://tinyurl.com/29cb4oz. I think you’ll agree that it is an excellent publication that tells Extension’s journey in a very special way.

Extension’s educational programs met the real needs of the past, are as relevant today, and will meet critical societal needs of the future.

Whether helping obese children and adults exercise more and make better food choices, working with families in financial crisis to allocate their resources more effectively, or helping farmers and community leaders make more sustainable economic and environmental choices, UT Extension continues to respond to the needs of Tennesseans.

All the best,

Joseph A. DiPietro
6 UT Extension and 4-H Youth Development Celebrate a Century of Transforming Tennessee

10 Tennessee 4-H’ers Accept the Challenge to Perform 100 Hours of Service

12 UT Extension Director Inducted into Gelbvieh Hall of Fame

14 Institute Coordinates Workshops and Tours for Producers Interested in Direct Farm Marketing

15 A Challenge for a Community to Become More Healthy

16 Veterinarian Alum Blogs About His Life and Practice in Florida

18 FRED—A Veterinarian’s Best Friend

19 Campaign at the Arboretum is on the Move

20 Liberian Market Specialist Targets Better Cocoa for World Markets

21 CASNR Students Find Promising Career Opportunities at Poultry Expo

22 Amigo, One Inspiring Horse, with a Fan Base of 9,500 on Facebook

24 Nano-scale Fillers Offer Solutions to Industry and Sustainability

26 Field Days Offer Everything from Domestic Gardening to Cotton Industry and More

27 In Profile: Dr. J. Mark Fly

28 National Movement to Reconnect Youth to Nature in Outdoor Experiences

29 Outdoor Know-How: Paris Landing Project Brings Families into Nature

30 Alum Dream Jobs—Read About Theirs, Tell Us About Yours
NEW ALLIANCE FORMED TO PROBE PLANT BIOLOGY

The Tennessee Plant Research Center, co-directed by Dr. Neal Stewart, UTIA Department of Plant Sciences, and Dr. Andreas Nebenfuhr, UTK Department of Biochemistry and Cellular and Molecular Biology, was recently formed by researchers at UTIA, UTK, and ORNL who have a common interest in understanding and applying plant biology. Their goal is to enhance collaboration and cooperation among the participants in order to create new research opportunities. You can learn more about the new center and its work at http://prc.utk.edu/.

EIGHT COMMUNITIES SELECTED FOR ECONOMIC DEVELOPMENT PILOT PROGRAM

The University of Tennessee Extension, the UT Institute for Public Service and the Tennessee Department of Economic and Community Development have announced the names of eight test communities for a statewide pilot program—Creating a Rural Entrepreneurial System in Tennessee (CREST). The CREST program will assist rural communities in Tennessee in transforming their local economies through the development of key components required for entrepreneurship and small business development.

While the U.S. continues to battle high unemployment rates and a recession, many community leaders are looking for innovative ways to create jobs and economic activity. To do so, leaders are now embracing a growing trend in the economic development world: entrepreneurship and small business development. According to a 2008 University of Tennessee report, Tennessee entrepreneurs generated more than $23 billion of the state’s total personal income and represented 84 percent of all Tennessee employer firms in 2006, demonstrating strong economic potential. Counties involved in the new CREST program are Crossville/Cumberland Co.; McMinn Co.; Hohenwald/Lewis Co.; Perry Co.; Pulaski/Giles Co.; Dyersburg/Dyer Co.; Paris/Henry Co.; and Weakley Co.

FARMLAND LEGACY PARTNERSHIP AIMS TO PRESERVE AND VITALIZE STATE’S FARMS

The Institute of Agriculture partnered with state agencies and non-profits to help preserve the state’s farmland by forming the Tennessee Farmland Legacy Partnership. The partnership will serve as an authoritative resource for both farm level and community planning that promotes the preservation and viability of working farms in Tennessee.

The Tennessee Farmland Legacy Partnership seeks to raise awareness of the needs and opportunities for farmland preservation among farmers and other landowners, government officials including community planning and zoning officials, developers, business and civic leaders, media and citizens. The partnership will also direct farmers and community officials to the technical and financial programs offered by organizations and agencies related to farmland protection.

In addition to the Institute, other partners include the Tennessee Department of Agriculture, Cumberland Region Tomorrow, MTSU Center for Historic Preservation, Tennessee Department of Economic and Community Development, Tennessee Department of Environment and Conservation, Tennessee Department of Tourist Development, Tennessee Wildlife Resources Agency, Tennessee Farm Bureau Federation, The Land Trust for Tennessee and USDA Natural Resources Conservation Service and USDA Rural Development.
NEW BIOREFINERY LAUNCHED AND IN OPERATION

Early this year, leaders from DuPont Danisco Cellulosic Ethanol (DDCE), the University of Tennessee and Genera Energy cut the ribbon on one of the world’s first cellulosic ethanol demonstration facilities, located in Vonore, Tenn. The 74,000-square-foot plant has started producing ethanol and will deliver low-cost, fully integrated technology for commercial production of ethanol from agricultural residue and bioenergy crops, including corn cobs and switchgrass.

“The world should be watching Tennessee,” said DDCE President and CEO Joe Skurla. “Here in Vonore, DDCE and Genera Energy are well ahead of the curve as we develop the entire value chain, from feedstock to production.

Many of the UTIA scientists involved also met with some 40 colleagues from across the region for an update on bioenergy science advances. The mini-conference was sponsored by the UT AgResearch Southeastern Sun Grant Center.

SUE HAMILTON APPOINTED DIRECTOR OF THE UT GARDENS

Dr. Sue Hamilton has been named Director of the University of Tennessee Gardens. Hamilton has worked for the Department of Plant Sciences within the UT Institute of Agriculture since 1983 and served as interim director of the Gardens from July 2008 until the November 2009 appointment. She specializes in herbaceous ornamental plants and people-plant relationships.

During Hamilton’s tenure as interim, the Gardens celebrated its 25th anniversary, dedicated the Beall Family Rose Garden, launched the Holiday Express at the UT Gardens and instituted a monthly e-newsletter and a bi-annual magazine to better communicate with the Gardens’ clientele.

Dr. Joseph DiPietro, UT vice president for agriculture, said that he is confident that Hamilton “will continue to advance the UT Gardens, its programs, and outreach efforts.”

INSTITUTE’S LEADER AND AGRESEARCH DEAN APPOINTED TO NATIONAL BOARDS

Vice President for Agriculture Joseph DiPietro has been elected vice president of the Southern Region Administrative Heads Section (SRAH) of APLU, formerly NASALGC. SRAH is an affiliate member of the Southern Association of Agricultural Scientists (SAAS). His one-year term started in February.

With a legacy stretching back to 1887, the Association of Public and Land-Grant Universities (APLU) is the oldest higher education association in the nation. The voice of America’s leading public and land-grant universities, APLU encompasses: 186 public research universities, including 74 land-grant institutions, and 27 state university systems serving 3.5 million undergraduate students, 1.1 million graduate students, and 645,000 faculty and professional staff.

AgResearch Dean Bill Brown has been named to the USDA Plan of Work Expert Panel. This panel advises the U.S. Secretary of Agriculture on matters associated with extension and research to review and identify measures to streamline the submission, reporting under, and implementation of plan of work requirements. The group will report its findings to the National Institute of Food and Agriculture (NIFA) and the National Agricultural Experiment Station Directors group.

SHOWING THEIR HUNTING, AND COOKING, ABILITIES, WILDLIFE AND FISHERIES STUDENTS HOST BANQUET

More than 150 students, alumni, and friends, including President Emeritus Joe Johnson and his wife Pat turned out for the 40th annual Wild Game Dinner hosted by the UT Student Chapter of the Wildlife and Fisheries Society. The event offered camaraderie, an opportunity for students to network with alumni out in the field, and to savor a wide variety of game. Proceeds from the dinner and associated auction help to offset some of the costs the students face in attending conclaves and conferences.
UT Extension and 4-H Launch Year-long Centennial Celebration

Calendar Year 2010 marks a century of University of Tennessee Extension and its 4-H Youth Development program in Tennessee. That’s 100 years of educational outreach and service to the state’s farmers, families, and youth to enhance their quality of life.

UT Extension and 4-H in Tennessee predate the passage of the 1914 Smith-Lever Act through which Congress established a national network of professional agricultural agents and family and consumer scientists to help in the education and economic development of rural America.
In the early years to present, agents from UT were there to help citizens through good times and bad. During World War I, they helped women learn to can foods and produce garden crops to feed the hungry. After the war, they helped nurse residents to battle the Spanish fly pandemic.

In 1910, two individuals were employed as part-time agents to help with cotton production and home canning, and in early 1911 the movement to help rural Tennesseans on the farm and in the home spread to six West Tennessee counties. On July 1, 1914, some 20 county agents, 22 home demonstration agents, and eight additional staff and faculty were organized under the Smith-Lever Act as part of the University of Tennessee Division of Extension.

Today, as the outreach unit of the UT Institute of Agriculture, UT Extension operates an office in every Tennessee county and delivers educational programs using research-based information to farmers, families, youth, and communities in both rural and urban settings. Educational programs range from gardening and landscaping to nutrition, animal health and family money management. The programs are available to all county residents often at no charge.

“For 100 years Extension agents have represented a two-way link between Tennesseans and University specialists, scientists, and researchers,” says Dr. Tim Cross, dean of UT Extension. “That special relationship and the education and economic development that it fosters are the hallmarks of Extension,” he said.

Cross hopes Extension’s Centennial will serve to increase awareness of UT Extension programs and therefore expand their outreach to new audiences, including youth. With the help of local adult volunteers, Extension’s 4-H Youth Development program helps young people from nine to 19 years of age develop self-esteem, leadership, and citizenship skills, and gain knowledge in a wide range of subjects. From health to public speaking or photography or GPS tracking, 4-H programs supplement traditional learning with directed projects that encourage advanced education. With more than 300,000 members statewide, Tennessee 4-H has one of the largest 4-H memberships in the nation.

In addition to school-based and local activities, three 4-H camps across the state offer youth summer camping experiences and school-based outdoor science educational programs.

Throughout 2010 UT Extension and 4-H will celebrate the organizations’ first century of accomplishments. What might those include? Just one example from the agronomic perspective is how Extension education and better farming practices have helped increase yields of corn in Tennessee from 25 bushels per acre during the early part of last century to an average of 139 bushels per acre in 2009. USDA statistics record that total corn production in the state was the same in 2009 as it was in 1910 (80.6 million bushels versus 82 million bushels). However, in 2009 only about one-fifth of the land was needed to produce a similar harvest (about 3.3 million acres in 1910 versus about 590,000 acres in 2009).

Cross says each county will conduct local activities that will offer individuals a chance to join the celebration. “We will be integrating our celebration into our ongoing programs at the club, county, and state levels all year long,” he said. “Everyone’s invited!”

More information about the UT Extension Centennial can be found online at http://utextension.tennessee.edu/100years –Patricia McDaniels

**LOOKING AHEAD**

As UT Extension enters its second century of outreach, it will continue to help Tennesseans apply innovations for improved homes, workplaces and communities. Extension programs will address contemporary and emerging issues such as health literacy, childhood obesity prevention, new and sustainable forms of energy, and the development and marketing of local foods and food-to-market supply chains. Yet Extension’s commitment to high-quality programs that address local needs and issues will remain.

“Extension’s strength has always been in how our agents and specialists assist people in the 95 counties they serve,” says Dr. Tim Cross, dean of Extension. “That face-to-face communication will continue even as we use new social media for quick delivery of information, as well as around-the-clock access to online Extension publications and materials.” In 2009, 1.9 million visitors accessed UT Extension’s website, and Extension personnel reported 4.5 million contacts with the people they serve.

Since its beginning in 1910, UT Extension has unquestionably transformed Tennessee in virtually every aspect of life. It is with excitement about the value and importance of transformational education that UT Extension programs in Agriculture and Natural Resources, Family and Consumer Sciences, Resource Development and 4-H Youth Development are positioned for the next 100 years of service to Tennessee citizens. –Joseph Donaldson
Although Extension in Tennessee began in 1910, it was really a fledgling start. The nation would not formally adopt the Smith-Lever Act establishing Extension’s link to land-grant universities until 1914. As early as 1912, University of Tennessee President Dr. Brown Ayres made public plans for a formal Extension structure associated with the University. His thinking was that if each county in the state could employ an agricultural expert who would cooperate with county farmers, practically every interested farmer could be reached and could benefit from farm demonstrations. “If the plans which we have in mind for the future development of the University of Tennessee College of Agriculture are carried out, we shall be able to reach thousands of farmers where we now reach hundreds,” Ayres said in a newspaper interview that year. In 2009, UT Extension responded to 510,060 direct contacts with producers.

Early in the 20th century, W.W. Campbell organized boys’ corn clubs, and Virginia P. Moore developed tomato clubs and canning clubs for girls in Tennessee. The first clubs were in West Tennessee, but the concept spread east across the state. Soon homemakers joined the “Tomato Clubs,” as they were called by 1911. Their projects included much more than tomatoes. Homemakers learned to can and use laborsaving devices like the fireless cooker and the portable outdoor canner.

Out of the homemakers clubs came the motto “Equal Training of the Head, the Heart, the Hand, and the Health.” The girls’ club motto was “To Make the Best Better.” These words are well known by every 4-H member in the state to this day. Even the four-leaf clover symbol for the 4-H movement can be traced to the first pin associated with the girls’ tomato clubs. By the beginning of the new millennium, 4-H was touching the lives of 300,000 youngsters across Tennessee, and as many as 15,000 volunteers were working with the program to help coordinate activities and assist 4-H’ers with project learning.

During the First World War Extension agents rose up in support of the food-for-war effort. The federal government assumed broad powers over the production, distribution and preservation of food through the Federal Food Administration, and the war’s demands on farm families prompted an increase in Extension activities. Extension workers, particularly home demonstration agents, were active in the field, helping farm families both to produce and conserve resources. Their patriotism earned them special regard. No longer viewed as farmers and homemakers working part-time to help out other families, agents were regarded as trained professionals. Emergency agents were hired. They traveled by horse and buggy, by rail and by horseback to carry the patriotic message that “Food Will Win the War.”
The 1918 “Spanish flu” epidemic seemed to arrive with troops returning from World War I. It put a war-weary nation to the test. The illness preyed on young adults and killed more people in a few months than any other illness in history. In most communities, one out of every three people was stricken. Young adults died, and children were orphaned. And once again Tennessee home demonstration agents pitched in to help their neighbors. They took charge of emergency hospitals and organized kitchens to prepare hot broths and volunteers to deliver broth to the sick. They marshaled farm women and girls to nurse and feed ailing families.

In the decades after WWI, Extension played a major role in promoting rural electrification. Thousands of farm families lived throughout the state on less than $100 a year without running water or electricity.

When the federal government established the Tennessee Valley Authority in May 1933 as part of the massive nation-strengthening legislative efforts to end the Great Depression, Tennessee Extension was called upon to make the project a success. Many Tennessee farmers had to vacate their lands to make way for dam and reservoir construction. Extension was uniquely qualified to explain to farmers how TVA plans would improve the quality of the economic and social life of the valley. Extension helped with the resettlement of some 15,000 families and carried the message of the benefits TVA would bring to the 63 Tennessee counties in the valley.

Dr. Cloide Everett Brehm, then acting director of the Tennessee Agricultural Extension Service, described Extension’s work for TVA regarding the construction of Norris Dam in his 1933 fiscal report: “For construction to begin, approximately 3,000 families, including landlords and tenants, had to relocate. Extension agents informed families who would have to move and organized committees to represent them and develop suitable relocation programs. Agents recognized that farm women and home factors were key to the family’s frame of mind and included them in the process. Agents worked to find suitable land for sale.” As the power poles went up across the state, Extension was there to demonstrate how electricity could be used to improve farm and home life. Extension agents taught farm families about wiring and showed them labor-saving electrical equipment, from washing machines to electrically powered feed grinders and pumps to bring running water into the house and barn.

After 100 years of service—service that has transformed the people and the economy of the state—UT Extension is still going strong. As the educational outreach branch of the UT Institute of Agriculture, UT Extension extends the knowledge and expertise of the University to the people of Tennessee through agents and specialists in all 95 counties of the state. Educational programs in 4-H youth development, agriculture and natural resources, family and consumer sciences, and resource development produce substantial returns. Using research, questionnaires, observations and sales records, the total economic impact of Extension’s educational efforts in 2009 was $386 million. For every $1 in public funds invested in UT Extension programs, an estimated $6.92 is returned to the people of Tennessee. Says Dean Tim Cross, “UT Extension was born out of a thirst for knowledge and a need for new and different ways to present information vital to the success of the state’s farms and rural communities. Today, the need for knowledge in both rural and urban settings has not changed, and while the future is not known, the need for continuing education is a certainty. A century from now UT Extension’s mission of providing research-based education to the citizens of Tennessee will remain just as relevant as it was yesterday and is today.”
Tennessee 4-H’ers pledge “their hands to larger service.”

Boy, do they really mean it. And then some. Literally hundreds of hours’ worth.

To mark the Centennial of Tennessee 4-H, members are performing 100 hours of volunteer service in towns and counties statewide. That includes planting trees, visiting the elderly in assisted living facilities, and collecting for food banks and clothing centers. It also involves work in a worldwide humanitarian effort.

4-H leaders say service comes second nature to many youth involved in the program, and is a way to stay connected to the needs of others. “Last year 4-H’ers statewide performed more than 100,000 hours of service at an estimated value of 1.8 million dollars to the state’s economy,” says Steve Sutton, director of Tennessee 4-H Youth Development. “Service opportunities are an important component of the 4-H program.”

“In 4-H, we want to instill in our young people a sense of civic engagement,” says Justin Crowe of Tennessee 4-H Youth Development. “We want to give them an opportunity to give back to their communities—communities that have been awfully good to them.”

Jaclyn Torrento is a senior at Greenbrier High School in Robertson County and has been involved with a number of service projects in her years with 4-H. “For me, it’s really taught me to appreciate the people of my community and to appreciate all I have in life,” she says.

One of the Centennial projects Jaclyn and Robertson County 4-H’ers will work on is collecting items for victims of the earthquake in Haiti. In fact, they’ve already done quite a bit of work. The Robertson County 4-H Goat Club recently collected items and money at a table stationed at the J.R. Food Mart in Springfield. The group sorted and boxed all donations over a two-week period, and the items were then shipped as part of the “Hope 4 Haiti” campaign.

“They collected over $400 in cash and they also collected almost $1,500 in goods—products that children could use like clothing, baby formula, diapers, and all kinds of things that could be sent to Haiti,” says Kathy Finley, 4-H agent in Robertson County.

4-H’ers who attended 4-H Congress in Nashville in March were also urged to collect money for Haiti—with each county having a goal of raising at least $100.

They also collected items for Vanderbilt Children’s Hospital to benefit families requiring an overnight stay at the facility. Many families arrive in such a rush that they do not bring basic toiletries. Tennessee 4-H’ers brought soap, shampoo, toothpaste, lip balm and other items to Congress. As part of the Centennial, each county has a goal of collecting 100 items.

At Congress, 4-H’ers have the opportunity to debate and vote on youth-oriented bills in the Senate and House chambers, to compete in contests such as public speaking and essay writing, and to tour the area and learn more about state government The theme for 4-H Congress was “Tennessee 4-H: A Century of Believing ... A Future of Achieving.”

As part of the Centennial, the state 4-H office is looking to re-connect with past 4-H’ers.

If your heart bleeds green and you are a former Tennessee 4-H’er, please call 865-974-7434 and let us know your postal and email addresses and phone number. You can also email jcrowe3@utk.edu.—Chuck Denney
Gayle Turrentine, George Bolling and Alice Johnson (left to right) make news as newly elected officers of the 1958 Tennessee Club 4-H Congress. The trio was featured in a 1957 edition of Nashville’s long-running newspaper, the Tennessean.

4-H’ers Sencola McDowell, Jaclyn Torrento and Jesse Brewer tour Thomas Jefferson’s home, Monticello, as part of Citizenship Washington Focus, a national 4-H citizenship conference based in the nation’s capital. Monticello, located in nearby Charlottesville, Virginia, means “little mountain” in Italian.
A veteran University of Tennessee Extension agent and longtime cattle expert is receiving national recognition for his work with a unique bovine breed.

John Bartee Sr. of Clarksville was inducted into the American Gelbvieh Association Hall of Fame at its recent conference in Denver, Colorado. Bartee has been a member of the AGA since 1985. He was the AGA’s president for 2000 and has also served on numerous committees for the organization.

Bartee is UT Extension Director for Montgomery County, a post he has held more than 20 years. He is now in his thirtieth year with Extension, with 27 of those years served in Clarksville. The cattle business is a family affair. His grandchildren are the fifth generation to show cattle.

“I was just overwhelmed that the AGA would elect me to the Hall of Fame,” Bartee says. “What an honor to be placed in a group of primarily western ranchers and breed organizers.”

“I can’t say enough about Mr. Bartee and his commitment to the breed,” says Dana Stewart, AGA Director of Member Services. “He works tirelessly to help commercial beef producers incorporate Gelbvieh into their herds.”

Gelbvieh (pronounced “gelp-fee”) are a beautiful, reddish breed of cattle known for their strong skin pigmentation, solid body mass, and shapely horns. The breed came to the U.S. from Bavaria in southern Germany and was the result of an artificial insemination program. While the cattle are red, the German word “Gelbvieh” actually means “yellow cattle.” Like most European breeds, the Gelbvieh was originally selected for meat, milk and work. The AGA formed in 1971, soon after the cattle were first introduced in the states. Tennessee ranks ninth nationally in the number of Gelbvieh cattle.

“Gelbvieh breed brings increased milk production, maternal ability and docility that improve the hybrid vigor in crossbred commercial cows,” Bartee says.

Bartee organized the first meeting of the Tennessee Gelbvieh Association and is still actively involved with the group. He also is a leader in the Tennessee Junior Gelbvieh Association and has worked for decades with Tennessee 4-H’ers in livestock projects. Bartee also recently led a group of two dozen UT Extension professionals for a week-long research seminar at the U.S. Department of Agriculture’s Roman L. Hruska Meat Animal Research Center in Clay Center, Nebraska.

“John’s induction into the Gelbvieh Hall of Fame is a reflection of his commitment and service to beef producers,” says Dr. Tim Cross, dean of UT Extension. “As an agent, John teaches farmers and 4-H youth to enhance beef production, improve quality and increase profitability. His knowledge of genetics, technology and markets makes him an excellent resource not just for the Gelbvieh breed, but for all aspects of the beef industry.”

–Chuck Denney
FOR WORK WITH GELBVIEH CATTLE
Farmers planning direct marketing businesses or hoping to expand their operations may have a lot to learn about marketing directly to consumers. The Center for Profitable Agriculture, in cooperation with the Tennessee Farm Fresh program, offered workshops and tours last winter in multiple locations across the state for farmers interested in direct marketing.

The workshops, called Direct Farm Marketing for Success III, featured sessions on marketing fundamentals, direct marketing channels, developing effective marketing materials and more. Two tours, called “Farmer to Farmer: 2010 Direct Farm Marketing Tours,” were held in Middle Tennessee and one in the Sweetwater Valley region of East Tennessee. Each tour visited several farms that directly market products to consumers. Participants saw the operation and heard from the operator firsthand.

“These workshops and tours are designed to address issues and challenges faced by farmers to help them develop or grow a direct marketing operation,” says Megan Bruch, CPA marketing specialist.

Andrew Dixon of Grandaddy’s Farm in Franklin County said his motivation was to learn. “By attending the farm tour I wanted to learn how other farmers are operating their businesses so I can improve my operation, says Dixon. “Even the smallest details can drastically improve or hurt your business, so I try to stay educated.”

The farm he operates direct markets more than 35 varieties of mums, 50-plus varieties of pumpkins, winter squash and gourds, along with Indian corn, cornstalk bundles, and more from their on-farm retail market. They also offer school tours and family fun activities. It is a fall business. Their website is www.grandaddysfarm.com.

Dixon has just been elected Treasurer of the Tennessee Agritourism Association, which has a website at www.visittnfarms.com.

Additional information is available online at the Center for Profitable Agriculture’s website http://cpa.utk.edu or by calling 931-486-2777.

Tennessee Farm Fresh is a joint effort of the Tennessee Farm Bureau Federation and the Tennessee Department of Agriculture to promote the sale of Tennessee farm products directly from the farm to the consumer. Learn more about the program or where to find fresh and local products at www.TnFarmFresh.com. –Patricia McDaniels
In Rural Middle Tennessee, A Community is Challenged to Become MORE HEALTHY

Energized cheerleaders bounce and yell, waving pom-poms and firing up the crowd.

In unison, they shout “Get fit, Trousdale. Get fit!”

It’s a pep rally—not for a big game—but for a whole town.

The cheerleaders for the Trousdale County High Yellow Jackets are part of the kickoff for the UT Extension Family and Consumer Sciences program called “Get Healthy Hartsville.” It’s an effort to motivate everyone who lives in this small Middle Tennessee town to get moving and eat a better diet.

“We want to make them start thinking about whether or not they should drink that soda or eat that bag of chips,” says Trousdale County UT Extension Agent Janae Cook.

About 8,000 people live in Trousdale County, and Cook is attempting to reach every single citizen through a media blitz, including billboards and direct mail.

The Trousdale County schools are also involved in “Get Healthy Hartsville.” The hope is a new generation will develop good habits. At the kickoff, young people had the opportunity to wear a 30-pound vest to see what added weight feels like.

“Overindulgence in anything is bad,” says Director of Schools Clint Satterfield. “We just want to try to help our children make better choices that will stay with them a lifetime.”

However, it can be a challenge to live a healthy life in rural Tennessee. It’s documented that people who live in rural areas are more likely to be obese or overweight than urban residents. Rural areas have fewer places for people to exercise such as parks or health clubs, and the eating out choices can be limited.

“Our community doesn’t have a lot of fitness opportunities,” says Satterfield. “But we have plenty of fast food opportunities. We didn’t miss the boat on that one.”

But no matter where you live, you can be healthier. Sondra Woodmore is proof of that. She’s enrolled in one of UT Extension’s Tai Chi classes, and her group put on an exhibition at the kickoff. Sondra has lost nearly 40 pounds, and she’s not done yet. “I’m working on walking and doing the Tai Chi and other things like changing my diet and my family’s diet,” she says.

Cook applauds Sondra for her willingness to make lifestyle changes, and says others should do the same. “A lot of people are overwhelmed and don’t know where to start or how to start,” she says. “Just by walking them through baby steps, they’ll start to make changes and feel more confident to develop healthier habits.”

Dr. Betty Greer with UT Extension says diabetes, high blood pressure and other chronic diseases related to obesity are increasing dramatically across Tennessee—the fourth fattest state in the nation. That led Dr. Greer to work with Cook to apply for a federal stimulus grant for “Get Healthy Hartsville.”

“We want to create county-wide awareness in lifestyle behaviors that lead to a healthy weight,” Dr. Greer says. “This project incorporates social marketing strategies, use of the Internet, and face-to-face instruction to promote eating fruits and vegetables and being physically active at least 30 minutes a day.”

The kickoff served as a reminder that healthy foods can be tasty and exercise can be fun. Hartsville may be small, but it’s big on pride. And if the whole town gets healthier, that’s worth a cheer. –Chuck Denney
It wasn’t until Dr. Norm Griggs (UTCVM ’80) and his wife, Melody, a registered animal health technician, sold their small animal practice in Bartlett, Tenn., and moved to Wakulla County, Fl., that things got interesting. Their plans for a quiet, back-to-nature life changed, however, as the couple saw the need for a local veterinary practice.

Griggs blogs about the extraordinary animals—tame and otherwise—that cross his path in the Shepherd Spring Animal Hospital. Here, in Griggs’ own words, is the ‘tail’ of one remarkable patient:

“I would like to introduce my readers to Dusty the cat. A fighter in every sense of the word, Dusty is an example of the incredible resilience and downright tenacity of a common cat.

This young kitty resides down the coast, in a quaint seaside town called Carabelle. He is more than familiar with life on the streets and throughout his relatively short life of three years he has had to fend for himself, undoubtedly, on many occasions.

In one of his more recent brushes with the law of natural selection, Dusty found it necessary to mix it up with an equally savvy creature of the street that, unfortunately, bested his own weight by about 40 pounds. Indeed, Dusty made a miscalculation in allowing his mouth to write a check that his scrawny little butt could never cover. He called out a street-wise dog over some silly territorial issue that both should have left alone.

In a reciprocal move toward reconciliation, Dusty kindly resheathed his 10 sabers. No doubt this act was encouraged by the fact that breathing was becoming increasingly difficult with his windpipe firmly ensconced in the jaws of an angry dog.

That was all there was to it. Both sides claimed victory (don’t they always?) and retired to lick their wounds. The dog undoubtedly developed multiple facial abscesses, and Dusty’s fate was to meet a veterinarian down the coast named Norm about two weeks later.

Several days after the incident Dusty made an appearance at one of his food stops along his route and a kind soul named Mary noticed that he wasn’t himself. She loaded Dusty in a kitty carrier to transport him to our clinic.

As we sized one another up, I pretty much pegged Dusty as a good kitty with a respiratory infection. The wounds on his neck from the bite were not evident and I really didn’t have cause to believe that this was not just another street cat with an upper respiratory infection. There was, however, a strange “rattle” to his respirations. I decided to start him on a round of antibiotics and see if that didn’t help before we spent any more money than necessary. Mary quickly agreed with the plan.

About a week later Mary called and said that Dusty had taken a sudden turn for the worst. I was again
visiting with this battle torn kitty. Dusty wasn’t just critical, he had three of his fuzzy paws in the grave and the other paw on a banana peel. We carefully and quietly carried him back for x-rays.

It was obvious to me that Dusty had obstructive airway problems. It is very strange for this to occur in a cat. I was scratching my head to make sense of what I was seeing and hearing.

As soon as the radiograph popped up on the computer screen my jaw dropped. There was an obvious obstruction in his trachea near the base of his neck. It was clear that Dusty was barely clinging to life.

As I briefed his caregivers on just how critical this situation was, I wondered how in the world I could ever hope to anesthetize Dusty in order to surgically explore his tracheal obstruction.

I had other appointments scheduled for that afternoon. While examining my next patient, my tech and I made eye contact across the exam table as we both heard a loud thump coming from the cages where Dusty had been placed. We quickly darted to the back to see what we had heard.

Dusty lay prostrate in the bottom of his cage. There was not so much as a twitch anywhere on his body. He had valiantly hung on as long as he could and with one final muscle spasm Dusty leaped into the "light." I stroked his motionless body and silently thought that his suffering was finally over.

As I cradled his lifeless body in my arms, I felt his heart muscle was still trying to function with the last remnants of oxygen in his bloodstream. It had not yet given up.

Kathy, my vet tech, and I had exactly two minutes to get oxygen to this heart, and we had already wasted 30 seconds.

An emergency tracheotomy is the stuff of E.R. shows on television. In the real world of veterinary medicine, it is an extremely rare procedure. Today was apparently my day to get to run where few are ever afforded the chance to step.

In about 15 seconds, performing like a well-rehearsed dance team, we had Dusty on the surgery table. I wet his neck down with alcohol, grabbed a scalpel blade, and a pair of operating scissors. I still had at least 45 seconds I figured.

I made an incision down his neck and split the muscles overlying the trachea. Some of the cartilage rings of his trachea had been crushed, and the wounded tissue contracted as it healed, slowly collapsing that area of his airway. With one big snip of the scissors, I severed his trachea about three-fourths of the way around its circumference.

What happened next makes me smile, even now, weeks later as I write these words. With my fingers, I elevated the partially severed windpipe thereby spreading the opening that I had just created. As the incision widened, I heard the life-giving rush of air being sucked into Dusty’s lungs. He immediately exhaled, then inhaled again and I knew we had just saved his bacon. I got downright giddy.

Dusty and his adoptive angel Mary Thrash on the day that Dusty’s sutures were removed.

As I reflect, it seems plausible that there just might be something to that whole “nine lives” thing. No doubt Dusty is tough, tough as a nickel steak. His resilience made us look good and made a bad day into a great day. Thanks Dusty, I am glad we met. May your life be long and your friends be many. Come see us some time!”

Editor’s note: You can read a longer, more detailed essay about Dusty’s surgery and explore other stories at Griggs’ blog at http://shepherdsspringanimalhospital.com. Griggs is one of 72 College of Veterinary Medicine graduates who work in Florida. To date the college has graduated 1,783 veterinarians.

At the time this article was prepared, Griggs and his hospital were in the middle of preparing to be a triage center for wildlife that are injured by the impending oil slick across the Gulf of Mexico. “We expect the marsh may be destroyed, although with community help, we’re acting now to mitigate conditions as best we can. It is indeed a sad time here and we are working hard to prepare for the worst,” Griggs says.
FRED—A Vet’s Best Friend

FRED sits. FRED stays, Fred rolls over with help, but the fluffy blonde’s biggest trick is the ability to teach veterinary medicine. Okay, maybe not actually teach it, but to help in the process. FRED stands for Flexible and Rigid Endoscopy training Device and is the “braindog” of Dr. Jacqui Whittemore and her former student Dr. Katy Kottkamp in the Department of Small Animal Clinical Sciences in the Institute’s College of Veterinary Medicine.

Endoscopy and other minimally invasive procedures (MIP) are becoming more common in veterinary medicine. Some clinicians say working the controls of an endoscope are akin to patting your head and rubbing your belly at the same time. It can be done, but it takes training and practice to become proficient and efficient. Current endoscopy training devices (simulators) on the market run in the six-figure range, making them cost prohibitive for veterinary colleges and private practitioners. For many years, Whittemore, an assistant professor at UTCVM, believed an affordable endoscopy simulator was possible. The idea of FRED was born.

The outside of FRED is Whittemore’s thrift-store find; a stuffed dog with a huggable, goofy expression that claims not a care in the world. (While working on FRED in her garage, Whittemore had to assure her neighbors she wasn’t working on a real dog.) His innards are household materials that are eerily transformed into a dog’s esophagus and stomach when an endoscope passes through them. The images projected on a computer monitor are realistic enough to capture the interest of clinicians passing by the endoscopy room to pause and ask, “Who’s the patient?”

Whittemore envisions her prototype, which currently sports a complete intestinal tract, will eventually have additional removable modules. If a private practitioner is going to be scoping a bladder on Monday, she can insert the urinary tract module and practice the procedure over the weekend. Going to scope lungs? Insert the respiratory module. Just like the intestinal module, all the parts and pieces will be flexible and removable for cleaning.

Whittemore is working with the UT Research Foundation (UTRF) to breathe life into FRED. UTRF has filed a provisional patent application on FRED and is searching for a company with the resources to help bring FRED to market and make him available to human and veterinary medical colleges and practicing veterinarians across the country. —Sandra Harbison

Top left: Dr. Jacqui Whittemore and College graduate Katy Kottkamp scope Fred, in a practice run that shows how effective the device can be in assisting veterinary students and vets alike in performing complex procedures. Bottom left: FRED, Dr. Whittemore’s thrift-store find, proves that one person’s trash is another person’s treasure. His creator has high hopes that FRED will help train veterinary students how to perform safe endoscopies.
The University of Tennessee Arboretum is a living museum, an outdoor laboratory and classroom, and a nature sanctuary. It is a place where people and nature interact. Located on the University of Tennessee Forest Research and Education Center in Oak Ridge, the Arboretum offers more than 250 acres for the public’s enjoyment. Over five miles of walking trails wind through the center, which also serves as a refuge for birds and animals and has earned the distinction as a part of the National Watchable Wildlife Program.

In 2006, the Institute of Agriculture began a multi-year campaign to raise more than $3 million to permanently secure the Arboretum and add to the existing programs and facilities. More than $4 million in needs were identified during the campaign planning. Since then, two priorities are being realized as a result of the significant support of Oak Ridge businesses and the surrounding community.

1. New Environmental Learning Priorities—Arboretum Enhancement Endowment

A $3 million endowment will improve current Arboretum activities and invest in new environmental learning priorities that provide adults and children of all ages the opportunity to experience the mystery of nature’s evolving cycles, the magic of all living things, and the beauty of a place to celebrate all seasons. The endowment would enhance Arboretum activities by creating a program coordinator to organize youth and outdoor activities. Over 30,000 people visit the Arboretum every year, and new programs and facilities will improve the visibility of the Arboretum in Oak Ridge and the surrounding area. The Rogers Group, located next door to the Arboretum in Oak Ridge has been a wonderful neighbor for over 40 years and generously agreed three years ago to kick-off the Arboretum endowment with a pledge of $500,000. Arboretum Society members and other supporters of the Arboretum are considering gifts to the endowment as well.

2. Capital Improvements—Multi-use Auditorium Addition

Building a new multi-use auditorium will provide much needed new classroom and meeting space necessary for current Arboretum activities and expand the capabilities for the center. Over 300 meetings were held last year at the Arboretum. The new facility will greatly increase the capacity for larger groups and serve as an inclement weather location for outdoor activities. The auditorium will also serve as an ideal space for educational initiatives in Oak Ridge and East Tennessee to benefit youth and environmental programs. UT-Battelle, B&W Corporation, Oak Ridge Associated Universities (ORAU), and Energy Solutions have made commitments totaling $500,000. Monies raised thus far are slated to support the construction of the auditorium addition, which is expected to cost around $600,000. Other capital funding priorities include road improvements, restroom facilities, displays and signage. Funding would also involve plant collection expansion, an electric transportation vehicle, video teaching aids, and an endowment for continual improvements.

As other businesses and organizations in Oak Ridge consider supporting pledges to the project it is evident that the local community understands the value of having the UT Arboretum and the UT Forestry Research and Education Center located in their backyard. The generosity and leadership of the Oak Ridge business community is making the campaign goal a reality.

Over $1 million has been raised thus far in the Arboretum Campaign. Members of the UT Arboretum Society—one of the oldest volunteer and support organizations affiliated with the University of Tennessee—have been helping with the campaign. Some are considering generous lifetime commitments, which will help put the campaign over the top. If you are considering a gift to the Arboretum please contact Rhodes Logan at 865-974-1928 or Tom Looney at 865-974-8622.
An important export for the African nation of Liberia is cocoa beans. However, Liberia lacks an established reputation for quality on world markets due to problems growers face at harvest and getting their beans to market.

With the goal of assisting her nation in making improvements in both those areas, Liberian native Demanie Musu Flomo traveled to the Institute of Agriculture for 10 weeks of intensive study.

The trip was made possible by a fellowship awarded to Flomo by the Norman E. Borlaug International Agricultural Science and Technology Fellowship program. The program aims to promote food security and economic growth by increasing scientific knowledge and collaborative research to improve agricultural productivity, and by training international agricultural research scientists, faculty, and policymakers. The Borlaug Fellowship Program’s Global Cocoa Initiative is administered by the United States Department of Agriculture (USDA) Foreign Agricultural Service (FAS) in cooperation with the World Cocoa Foundation (WCF). Flomo is the first African woman to receive a Cocoa Borlaug Fellowship and first Borlaug Fellow to engage in an exchange with the Institute of Agriculture.

Flomo is researching options for a Liberian agricultural marketing information system to assist farmers and implement a cocoa quality protocol necessary for Liberian cocoa to meet international standards.

“During my course of training,” Flomo said, “I visited WCF member companies including Camden International Commodities Terminal in New Jersey, where I saw how the ship is off loaded, as well as weighing, and warehousing. In Pennsylvania, I toured the Hershey Company and Mars Inc. and saw how cocoa is processed from bean to bar.

“Learning about the entire chocolate manufacturing process firsthand helped me better understand the expectations and needs of the industry.

“In addition, my experience with UT’s Department of Agricultural and Resource Economics and making my own chocolate using cocoa beans from Liberia and around the world with the Department of Food Science and Technology, showed me that fully understanding the characteristics of your beans provides a more solid foundation from which to market your product.”

Assistant Professor Michael Wilcox of the Department of Agricultural and Resource Economics coordinated Flomo’s visit. “The resources at UT gave her a chance to expand her knowledge and approach her research questions in a much more rigorous way. She was also able to share her life experience with faculty, staff, and students in the Institute. This interaction, along with her homestay experience with a Knoxville family, enabled a cross-cultural exchange that continues to resonate.”

Wilcox said he has learned a great deal from Flomo and looks forward to working through the World Cocoa Foundation to help strengthen the programs that WCF currently sponsors. “With all of our in-country partners and the farmer associations, we will work closely with Flomo and help her to share the cocoa quality and market training that she has received in the U.S. Liberia’s goal is to meet the top grade of international standards, and I am certain that they will. I hope to see chocolate makers and chocolatiers in Tennessee using Liberian cocoa in the future.”
While job prospects for many Americans remain tough, UT’s College of Agricultural Sciences and Natural Resources (CASNR) is finding ways to connect its students to valuable internships and careers.

Each year, the College sponsors a Career Fair. There are many familiar faces there, including CASNR alumni who represent their companies and recruiters who come year after year because they know the quality of the College’s students.

Another, much bigger career fair is the International Poultry Expo held in late January at the Georgia World Congress Center in Atlanta. Students who arrange interviews in advance with recruiters in the Expo’s College Student Career Program have their hotel cost paid for by the U.S. Poultry and Egg Association. Eight UT students attended this year—seven of them Animal Science majors, and one representing the Department of Food Science and Technology.

“About three or four years ago, he said to me, you should be involved in this,” Gray said. “It’s related to careers, the students go down and do interviews.” Smith continues to attend technical sessions focused on new technologies and practices that help to advance the poultry industry—information that Smith shares with his students.

Gray, who grew up on a farm, said she was overwhelmed by the large-scale machinery and the size of the exhibit floor, as well as the international companies that were present.

Students who wish to take part next year should contact Gray. The companies that participate in the College Student Career Program submit information about their companies in advance, and students submit résumés to an online system specific to this program. Companies review these resumes and contact students to schedule an interview.

Students who attend the Poultry Expo are the best source of evaluating it. One participant said that the company interviewing her seemed competitive and cutting edge. Another said she enjoyed the diversity of people, companies, and opportunities, as well as the products that are available in the poultry industry. All indicated they’d go again.

With Gray’s assistance in publicizing the event and the U.S. Poultry and Egg Association underwriting expenses for the students, the Expo will definitely be included in the CASNR career planning program for next year and probably for years to come.

–Margot Emery

Left: UT Career Services Director Mary Mahoney visits with Colonel and Mrs. Sanders at the KFC booth.

Right: CASNR students gather during a break with Mary Mahoney, Dr. Michael Smith, and Emily Gray.
“He had the smell of death on him.” That’s how Gary Sanderson described Amigo, his 9 year-old Arabian horse, the evening of January 17. During a routine daily check of his three horses on a 110-acre farm in Luttrell, Tenn., Sanderson noticed Amigo was at the barn. “That in itself was unusual, so I asked him ‘What are you doing up here by yourself?’ He answered me but still didn’t come to the gate when I opened it, which was even more unusual.” Then Sanderson saw it—the 3 foot tree branch that was 2 inches in diameter impaled in Amigo’s chest...the tree branch that changed his life. “What have you done to yourself?” At that moment, Sanderson began a ritual that would continue for months: hope for the best but prepare for the worst.

Calling him his “kid,” Amigo joined Sanderson’s family in 2005 and the two began competing in 50-mile endurance races. Together, they’ve logged more than 700 miles, earning a spot in the American Endurance Ride Conference (AERC) National Championships. Even with all that experience behind him, Amigo’s injury had him facing an endurance race for his life.

Sanderson wanted to give Amigo every chance to survive. His veterinarian, Dr. Eric Martin (UTCVM ‘95), knew for the horse to have any chance at survival they had to get him to UT’s Equine Hospital. Medicine section chief Dr. Nicholas Frank took the emergency call. “Dr. Martin described the situation and said it was serious. When they arrived, it was worse than I had expected. The branch had penetrated the chest at such an angle it had damaged the lung. It was grim, life threatening, and Amigo was in shock.”

Dr. Jim Schumacher and his surgery team immediately began to work to stabilize Amigo and remove the branch. Air had penetrated his chest, creating unbalanced pressure...
problems. His lungs collapsed and Amigo suffered the first of four acutely life-threatening episodes. In addition to broken ribs, Amigo suffered an onslaught of bacterial infections, the threat of laminitis and an extremely low platelet count of 16,000 (>100,000 is normal), necessitating four liters of platelet-rich plasma from a donor horse. His critical status during the first month forced his medical team to think outside the box and work beyond conventional medicine.

More than a month after the initial injury and during another surgery to create access into the chest cavity to enable doctors to flush a pocket of infection that refused to heal, Amigo collapsed again, forcing Sanderson to face the possibility of euthanasia if the horse didn’t regain his “legs.” “I began to second guess myself,” he says.

As it turns out, thousands of people wanted to be Amigo’s buddy, too. Originally started as a way to keep 30 or so local friends up-to-date on his constantly changing medical condition, a fan page was created for Amigo on the popular social media site Facebook. In less than three months, Amigo became a Facebook phenom with over 9,600 friends who “liked” his page called “Amigo–One Amazing Horse.” Sanderson jokes that Amigo has more friends than he does, and recalls well-wishers and donations from as far away as Singapore, Germany, Taiwan, and New Zealand. Readers have followed the saga through blogs, news stories, and equine magazines. “He has always shown me his heart, but during this battle, Amigo has shown everyone else his heart, too.”

To help pay his bill, Sanderson maxed his credit and took on a second job. Although he never asked members of the Amigo fan club for help beyond thoughts and prayers, donations started pouring in to help cover the $30,000 bill. Horse clubs, 4-H groups, and students in Lincoln Memorial University’s veterinary technician program held various fundraisers. An anonymous donor graciously paid more than half the bill. Cards and pictures poured into the Large Animal Hospital. It seemed everyone wanted to do something for the amazing horse. The outpouring of support stunned Sanderson who still gets emotional talking about it. “How do you repay people for prayer? Every person on that fan page sends love, thoughts and prayers to Amigo.”

In a “pay it forward” fashion, Sanderson, along with friends Kara Disbrow, Lisa Fontanarosa, and Patricia Ray, have created “Amigo’s Legacy of Hope Fund” at UT to show compassion and to assist and relieve equine owners of the large financial burden and related emotional issues following a catastrophic injury to their beloved sport or competition horse. “I don’t want finances to dictate other people’s decisions,” says Sanderson.

Frank says while Amigo’s excellent physical condition prior to the accident played a role in this case, other intangibles factored into each step along the sometimes treacherous trail. “This is the perfect combination of an incredible horse sharing his extraordinary will to live and an extremely dedicated owner who never underestimated him. Amigo has been our partner in healing, meeting us more than halfway.” And for Sanderson? “I’ve been dealing with horses since 1990, and I’ve never seen one come back again and again like this one. He is one amazing horse!”

Originally given a chance of survival in the single digits, Amigo has defied the odds against him and gone the distance in the endurance ride of his life. –Sandra Harbison
Nano-scale Fillers Offer Solutions to Industry and Sustainability
As the Institute’s researchers, extension specialists, and partners lead the way in transforming cellulose matter into energy and valuable co-products, Dr. Siqun Wang has found a way to use cellulose at the molecular level that is of great promise to wood panel manufacturers, adhesive companies, and homeowners alike.

Wang, an associate professor with the Tennessee Forest Products Center, works in nanotechnology—the science of controlling matter the size of 100 nanometers or smaller. What’s a nanometer? One nanometer spans three to five atoms lined up in a row. By comparison, the diameter of a human hair is about five orders of magnitude larger than a nanoscale particle, which is small enough to pass through a surgical mask.

Wang’s work is part of a worldwide exploration of how nano-materials can be developed and used. This hotly researched field is not without controversy, though, because some nano-materials are dangerous to handle and work with, in part because they are smaller than the pores of people’s skin. Wang’s application, though, is from naturally occurring cellulose, a substance that people touch, consume, and are exposed to on a daily basis.

A chief application that Wang sees is to add nano-materials into adhesives used in producing oriented strand board (OSB), a key product used in constructing new houses. While other institutions have tried—and failed—to significantly improve OSB using nano-additives, Wang has found a novel way of producing low-cost, naturally derived nano-fillers. His process, which has been submitted for a patent, has proven that adding the fillers into adhesives significantly improves OSB, increasing its strength by 30 percent. The technology is also capable of using hardwoods that previously were not practical to use because of their strength and weight. With Wang’s approach, mills can use a lesser amount of wood in manufacturing OSB while yielding a lighter and stronger product that could save millions of dollars for a mill.

The benefit for homeowners is that their subflooring will be stronger and less prone to deformation in supporting the heavy weight of furniture and appliances. The benefit for landowners is that new demand for harvested hardwoods may increase.

“The idea is that if we can decrease the amount of resin used in OSB or make it stronger through insertion of adhesives containing nano-fillers, the panel becomes stronger,” Wang says.

“Additionally you just need a few percent of the nano-fillers to have a significant improvement in quality. Overall, a mill could save money via using less raw materials. That’s the selling point for nano-materials.”

At present, several industries are considering licensing Wang’s discovery. The process, if patented, will mark the ninth patent that Wang will have received for his work in areas of biocomposites and nano-materials.

At the University of Tennessee’s Forest Products Center, scientists and extension specialists are in the business of developing solutions that yield information and technology that advance the efficient and effective use of forest resources. You can learn more about their work at http://wood.tennessee.edu. —Margot Emery
Outreach programs continue to be a major emphasis of the University of Tennessee AgResearch efforts, with 13 field days and three special events planned for 2010. The schedule is as diverse as the producers of this state, with events that offer growers and consumers alike a chance to learn about the latest information in agriculture and gardening.

The Field Day schedule began in April and runs through October. It is at these events that AgResearch specialists present new information on how to increase agricultural production, improve the sustainability of Tennessee farms, and raise awareness of the importance of agriculture to our state’s consumers.

Held at UT AgResearch and Education Centers across the state, field day visitors can see new demonstrations, examine research trial results, and speak one-on-one with UT experts. Plus, most field days feature a trade show where vendors display new equipment, products or crafts.

A new addition to the 2010 Field Day Schedule is the Cotton Tour, which takes place at the West Tennessee Research and Education Center on September 8. This year also marks the return of the bi-annual Milan No-Till Field Day at the Research and Education Center at Milan on July 22.

This year includes Blooms Days, a two-day garden festival and market place, on June 26 and 27 at the UT Gardens on the agriculture campus in Knoxville. The new Fall Gardeners’ Festival is a chance for garden lovers to see unique horticultural exhibits and purchase great performing plants. It will take place at the Plateau Research and Education Center in Crossville on August 31. Meanwhile the Heritage Festival at Ames Plantation and the Fall Folklore Jamboree at the Research and Education Center at Milan will continue to celebrate the cultural legacy of early West Tennessee settlers. Those events take place on October 9 and October 16, respectively.

All field days and special events are open to the public and most are free of charge. A complete listing of times and locations is available at the UT Institute of Agriculture website, http://agriculture.tennessee.edu/news/FieldDays.

Additional information for each event will be posted online as it becomes available. –Ginger Trice Rowsey and Patricia McDaniels
WHAT DOES WILDLAND RECREATION OFFER STUDENTS AS A CAREER?

Their paths are as varied as our uses of land and water. Alumni have worked at Yellowstone, Glacier, Black Hills National Forest, Percy Priest Lake, Big Ridge State Park, and Ijams Nature Center. Scot Samples actually used a dog team to patrol Denali in Alaska. We have graduates working with outfitters and outdoor retail companies, in urban forestry, and on military bases to provide nature-based opportunities for service men and women and their families.

YOU FOUNDED ONE OF THE NATION’S FEW FULL-SERVICE HUMAN DIMENSIONS RESEARCH LABS IN NATURAL RESOURCES. TELL ME ABOUT IT.

We conduct all types of surveys concerning agriculture, natural resources and the environment. My philosophy is really based in participatory democracy. When we randomly call a sample of people in a target area, they have the unique opportunity to represent thousands of people who have the same knowledge, attitudes and behavior as they do. It gives them the opportunity to influence how our natural resources are managed and valued. For instance, we found that every tax dollar spent on Tennessee State Parks resulted in $17 of direct expenditures by park visitors and $37 of total impact.

WHAT’S YOUR FAVORITE PARK? WHAT MIGHT PEOPLE BE SURPRISED TO KNOW ABOUT YOU?

Bryce Canyon National Park in Utah. In fact, my oldest son is named Bryce. I coached a Jr. College women’s tennis team to fifth in the nation and once made 136 free throws in a row. I also enjoy poetry and nature photography. Visit web.utk.edu/~markfly for samples of my work.

I UNDERSTAND YOUR ROOTS RUN DEEP IN TENNESSEE?

Pioneer John Fly, a farmer and faith healer, settled in northwest Maury County near the Natchez Trace in 1795 in what is now Fly, Tenn. I’m a direct descendant of him. We’ve farmed in Maury County for 215 years spanning nine generations.
A generation or so ago, it wasn’t uncommon for a school-aged child to play outside for hours at a time on a warm summer day. Hiking, flying kites or just exploring the woods behind the house filled the hours between dawn and dusk.

No more.

Research indicates the average American child spends more time indoors with electronics than outdoors with nature. The Human Dimensions Research lab, a survey research center in the Institute of Agriculture’s Department of Forestry, Wildlife, Fisheries directed by Dr. Mark Fly, reports 70 percent of Tennessee parents say the reason their child does not spend more time outdoors is that they are more interested in video games, the Internet, texting, watching TV, talking on the phone, and listening to music. Electronic devices compete for kids’ time and, for the moment, they are winning in Tennessee.

But not without a fight.

Researchers and educators at UT have joined a nationwide movement to get kids outdoors, back into nature and on farms. Tennessee’s initiative, Every Child Outdoors (ECO), is designed to encourage families and communities to make outdoor activities a priority in the lives of children. Part of their work involves place-based education, which uses the social, cultural and natural world in the community where children live as a lab for hands-on learning through an integrated curriculum. Children use their local habitat to learn math, science, reading and social sciences in a way that would pique their interest and, according to research, increase their test scores.

That works, a UT expert says, because children learn better when they’re fully engaged.

“How do we teach our kids? We put them inside buildings with few windows, artificial light, a controlled climate, and ask them to sit at a desk for long periods of time studying about far away places,” said Mark Fly, an environmental psychologist who studies the relationship between people and nature. “Children need to be up and about engaged in active learning. Places that have implemented this integrated approach have seen behavioral problems decrease, attendance increase, and test scores improve.” Tennessee offers an especially great place to do that sort of learning, Fly said. With nine eco-regions, Tennessee’s aquatic, amphibian, and plant diversity is the highest of all inland states and has some of the greatest biological diversity in the world in places like the Great Smoky Mountains National Park and the 289-mile-long Duck River (the latter highlighted for its diversity in the February 2010 issue of National Geographic).

An emphasis on watersheds would be especially appropriate, Fly said, because water ecology is a part of all our lives. “Water runs off the schools and goes somewhere,” he explained. “Where does it go? What’s the quality of that water? What kind of life does it nurture? Does it contain the species you would expect or has it been degraded? If it has been degraded, how? And what can we, as a community, do to bring the water quality back?” The process of answering questions like these would pique children’s curiosity, get them outdoors and require specific learning in various subjects—an approach Fly describes as “authentic, inquiry-based learning.” Place-based education literally connects the child to the community and builds community support for schools.

Fly is a member of the executive committee of Tennessee’s Every Child Outdoors coalition and co-chair of the committee developing Tennessee’s Environmental Literacy Plan for K-12 education.
which will emphasize conservation education, Fly said. The coalition was instrumental in getting the Children’s Outdoors Bill of Rights Resolution passed by the legislature this spring in preparation for the Governor’s ECO Summit this past May. Fly, along with UT’s Howard Baker Jr. Center for Public Policy, helped to organize the Summit that involved working groups developing action plans for healthy children, formal education, non-formal education, media promotion, and infrastructure planning and development. Workgroups included state officials and cabinet-level offices from Agriculture, Education, Environment and Conservation, Public Health, Tourism and Wildlife.

The need is urgent. Tennessee children are more likely than ever to be obese and to suffer from afflictions such as diabetes, vitamin D deficiencies and attention deficit hyperactivity disorder. The book that inspired the ECO movement, Last Child in the Woods: Saving Our Children From Nature-Deficit Disorder by Richard Louv, says these are problems that can be addressed with more free time spent in green spaces.

According to Fly, learning about their streams, watersheds and eco-regions can increase students’ sense of place, self-identity, regional pride, and conservation ethic. “My goal is that all kids understand why Tennessee is special,” Fly said. “Then they can feel, ‘I’m special because I live in a special place.’”

-Lisa Byerley Gary

Outdoor Know-How:

PARIS LANDING PROJECT WOULD BRING FAMILIES INTO NATURE

Even families that may live near parks and other natural areas often spend very little time outdoors. The reasons range from a lack of know-how to fear of ticks, stinging insects and wildlife.

All those issues can be addressed through space and time set aside for learning about nature, said Dr. Mark Fly, professor of forestry wildlife and fisheries. Outdoor education is part of the Every Child Outdoors movement (ECO), which he is helping to direct for the state.

Through a service learning project, a form of place-based education, Fly and students in landscape architecture and wildland recreation are developing a master plan for the nation’s first ECO Center at Paris Landing State Park. The site, a former Girl Scout camp, will be specifically dedicated to teaching children, parents, and volunteer trainers outdoor recreation skills and knowledge. The premise is simple, Fly said. “If children and parents learn skills and the enjoyment of outdoor recreation, they are more likely to spend more time outdoors and connect with nature.”

Volunteers and outdoors specialists would use existing facilities, along with lake and forest recreation space, to teach families a variety of outdoor skills. Creating good memories of outdoor fun with friends and families would, in turn, persuade children to spend more time connecting with the natural world—the ultimate goal of ECO. –Lisa Byerley Gary
KIMBERLY GEARY, ENVIRONMENTAL ENGINEER WITH JOHN DEERE HARVESTER WORKS

Geary (’08 Biosystems Engineering) works at Deere’s East Moline, Ill., factory. She shares responsibility for environmental management programs at the plant. Geary focuses on the development, implementation, and maintenance of programs, policies, and procedures that assure the facility is in compliance with all applicable laws and regulations. In that regard, she monitors air, water, waste, and chemical management issues for the plant. “My job is to monitor conditions at the plant so that production can continue.” Her favorite part of the work? “I enjoy communicating with employees from the plant assembly floor on up to the plant manager.”

STEVE BENNETT, GENERAL MANAGER OF RIVERBEND NURSERIES

Bennett (‘84, Agricultural Business) oversees Riverbend operations at two locations in Middle Tennessee—Franklin and Thompson’s Station. “We’re a very diverse nursery growing vegetables, herbs, annual color, perennials, containerized ornamental trees and shrubs and also field grown (balled and burlapped) material up to 4-inch caliper. We also carry a full line of hardline items ranging from mulches, stone and patio pavers to commercial grade landscape tools and decorative pots. We try to be a one-stop shop for landscapers and garden centers to fill all of their needs.” Bennett says he enjoys the multi-faceted nature of the nursery industry. His position allows him to work inside and outdoors, doing anything from weeding and pruning to traveling abroad trying to sell and look for new varieties of plants as well as find new innovative machines and ideas for doing things more effectively.
Dr. Joanna Ellington helps grow families. Many couples who are trying to conceive a child (6 to 9 million couples in the U.S. at any given time) have stress around intimacy. However, personal lubricants kill sperm. In 2002 Ellington developed Pre-Seed, a patented “fertility-friendly” lubricant to meet this unmet market demand.

Pre-Seed has grown into an international consumer and medical product. It was the first lubricant ever cleared by FDA for specific use during fertility interventions and as “safe for use while trying to conceive.” She says she originally learned about the dangers of lubricants to sperm during equine reproduction lectures by Dr. John Henton of UT’s College of Veterinary Medicine (‘84), and carried this knowledge with her as she received her Ph.D. from Cornell (‘90) and completed numerous National Institutes of Health-funded studies in human reproduction.

When we caught up with Ellington, she was writing a research paper for a human reproduction journal and came across the original study showing that lubricants killed stallion sperm that Dr. Henton referenced to his students when it was published in 1983. “Because of his state-of-the-art knowledge, he made me aware of a problem that many physicians still don’t know about. My training at the College of Veterinary Medicine allowed me to go forward and succeed in a novel area that has benefited many couples in their journey to conceive.”

Pre-Seed was developed under Dr. Ellington’s portfolio of eight patents, using the bioactive plant sugar arabinogalactan (from the tamarack tree). "Arabinogalactan is a naturally occurring antioxidant. It protects sperm from oxidative stress in the vagina and cervix, which can harm them and interfere with fertility. This is especially true for infertile men who are known to have lower levels of antioxidants in their semen, making their sperm more susceptible to damage on its way to the egg,” says Ellington. You can learn more about Pre-Seed at www.preseed.com.