

Oklahoma Farm-to-School Initiative Wins State and National Honors

—Maura McDermott

Inside This Issue:

Horticulture Industries Show	3
Pineywoods Cattle	4
Oklahoma Producer Grants	8
Biofuels Conference	10
Calendar	16

PHOTO CREDITS

Pgs. 1, 10, 11 (top), 14: Oklahoma Dept. of Agriculture, Food and Forestry
Pgs. 4, 6: Maura McDermott
Pg. 7: Wylie Harris

The Farm-to-School Initiative of the Kerr Center and the Oklahoma Food Policy Council received the 2007 “Champion of Children’s Health” award Oct. 8 at an awards banquet in Oklahoma City.



Kerr Center staff who worked long hours on farm-to-school. I-r: Doug Walton, Maura McDermott (with Champion of Children’s Health Award), Dr. Jim Horne and Anita Poole.

The center and the council were honored for their five year effort to establish a statewide farm-to-school program that would positively impact children’s health.

The popular program has brought Oklahoma-grown watermelons and honeydew melons into 35 school districts and almost 400 schools across the state. The goal of farm-to-school is to “grow healthy kids and a healthy rural economy.”

The Oklahoma Food Policy Council is a joint project of the Oklahoma Department of Agriculture, Food and Forestry (ODAFF) and the Kerr Center. The twenty seven council members and ad hoc members represent a cross section of Oklahomans.

Kerr Center president and council chairman Dr. Jim Horne and ODAFF secretary Terry Peach accepted the award.

Dr. Horne thanked the council’s members

and supporters for their work and pointed out the potential benefits of the program for Oklahoma farmers. Secretary Peach voiced the hope that the program can be established in every Oklahoma school.

“We’re just getting started,” he said.

Farm-to-school programs get kids excited about eating healthy foods by serving high quality fresh fruits and vegetables in lunchrooms. Educational activities that teach kids about food, nutrition, and farming are coordinated with deliveries of the locally grown produce.

The children’s health award is one of eleven “Champions of Health” Awards given annually in various categories to individuals or groups “working to make a difference in the health of their

continued on page two



The Kerr Center for Sustainable Agriculture offers progressive leadership and educational programs to all those interested in making farming and ranching environmentally friendly, socially equitable, and economically viable over the long term.

The Kerr Center is a non-profit foundation located on 4,000 acres near the south-eastern Oklahoma town of Poteau. It was established in 1985.

For further information contact us at:
P.O. Box 588, Poteau, OK 74953
918/647-9123 phone,
918/647-8712 fax
mailbox@kerrcenter.com
www.kerrcenter.com

Overstreet-Kerr Historical Farm
918/966-3396
okhfarm@crosstel.net

PROGRAMS INCLUDE:

- Oklahoma Producer Grants
- The Stewardship Farm
- Rural Development and Public Policy
- Communications/Education
- Overstreet-Kerr Historical Farm

STAFF:

James E. Horne, PhD.,
President and CEO

Simon Billy, Stewardship Ranch Technician

Jessica Castillo, Office Coordinator

Barbara Chester, Corporate Secretary

Jim Combs, Development Manager,
Overstreet-Kerr Historical Farm

Wylie Harris, Contract Communications
Specialist

George Kuepper,
Sustainable Agriculture Specialist

Maura McDermott,
Communications Director

Lena Moore, Administrative Assistant

Mary Penick, Research Assistant

Anita Poole, Assistant to the President/
Legal Counsel

David Redhage, Director, Southern SARE
PDP Program Natural Resources Economist

Liz Speake, Business Manager

Doug Walton, Community Foods
Coordinator

Alan Ware, Director, Producer Grants
Program/Stewardship Farm

Melanie Zoeller, Corporate Secretary

Field Notes is published quarterly and is sent free to subscribers. Address correspondence to: Maura McDermott, editor.

Copyright 2007 by the Kerr Center for Sustainable Agriculture. Newsletter articles may be reprinted if credit is given and a copy is sent to the newsletter editor.

Design by Argus Designworks

Printed by Calvert-McBride, Ft. Smith, AR

continued from page one

communities.”

Blue Cross and Blue Shield of Oklahoma, the Oklahoma State Department of Health, the Oklahoma Hospital Association, the Oklahoma Osteopathic Association and the Oklahoma State Medical Association sponsor the awards.

In May, the Oklahoma Food Policy Council was named a “Partner in Advancing Public Health” by the National Centers for Disease Control and Prevention (CDC).

The award recognizes “substantial contributions by a state or local partner” to the state’s efforts to prevent obesity and other chronic diseases.

The CDC cited the council’s “dedication to public health” and its “creative energy” in developing the farm-to-school program.

When the food policy council began to meet in 2001, no one really knew whether schools in Oklahoma were even interested in buying locally. The council surveyed food service directors and found substantial interest. The results were published in the *Oklahoma Farm-to-School Report* in 2003.

Next the council sponsored a series of meetings during which the nuts and bolts of a farm-to-school pilot were worked out. The pilot projects in four, then six, school districts in 2004 and 2005 went off without a hitch and were extremely popular.

The Kerr Center continued educational outreach with workshops, small farm tours, farm-to-school web pages, articles, brochures and resource guides for both food service and farmers. *The Oklahoma Food Connection*, containing information about farms wanting to sell to schools and a list of schools interested in buying locally grown, was published in 2003 and updated in 2006.

Five years of effort by the Kerr Center and the Oklahoma Food Policy Council paid off when Governor Brad Henry signed a bill in 2006 establishing a statewide farm-to-school program.

Chris Kirby coordinates Oklahoma’s farm-to-school program at ODAFF. She says that research shows that students choose significantly more servings of fruits and vegetables when given the choice of high quality, farm fresh produce.

Research in Oklahoma has shown that children who participate in school gardens eat more vegetables and less junk food. School gardens and cooking classes are often included in comprehensive farm-to-school programs.

Kirby travels the state promoting such activities as well as connecting farmers with schools. To find out more, call her at 405.522.2106.

For complete information on the Oklahoma Food Policy Council and farm-to-school, visit www.kerrcenter.com. For curriculum focused on food, nutrition and agriculture visit the Oklahoma Ag in the Classroom program, online at www.agclassroom.org/ok. To learn about all of this year’s Champions of Health, go to www.championsofhealth.org.

Kerr Center to Lead Regional Farm-to-School Effort

Because of its success in establishing a farm-to-school program in Oklahoma, the Kerr Center has been chosen to be the lead agency for the Midwest (Oklahoma, Kansas, Missouri, Iowa, Nebraska, North and South Dakota) in the new National Farm-to-School Network. Currently Oklahoma and Iowa are the only two states in the region with farm-to-school programs.

The center’s Anita Poole will work with partners in the various states. Priorities include initiating food policy councils, evaluating barriers to farm to school, providing survey materials, joint media and marketing efforts, and training/networking. For more information go to www.farmtoschool.org.

Celebrating Horticulture – Four Seasons of Success: 2008 Horticulture Industries Show

The 27th Annual Horticulture Industries Show will take place on Tulsa Community College's Northeast Campus on January 4-5.

The public and growers from Oklahoma, Arkansas, and surrounding states are welcome at this grower meeting and trade show. It consistently provides the latest information on vegetables, fruit, herbs, Christmas trees, farmer's market crops, sustainable agriculture and public gardening issues.

This year's HIS keynote speaker is Eliot Coleman, who has nearly 40 years of experience in all aspects of organic farming, including field vegetables, greenhouse vegetables, rotational grazing of cattle and sheep, and range poultry. His books include *The New Organic Grower* and *Four Season Harvest*.

Coleman served for two years as the Executive Director of the International Federation of Organic Agriculture Movements (IFOAM). He also advised the USDA on its landmark 1979-80 study, *Report and Recommendations on Organic Farming*, which formed the basis for the current National Organic Program (NOP) standards.

Coleman is widely recognized within the organic growing community for his development of season-extension techniques. He and his wife Barbara Damrosch operate a year-round market garden using unheated and minimally heated greenhouses on their Four Season Farm, in Harborside, Maine.



The farm is also the site of various horticultural research projects. Coleman has melded European ideas with his own to develop and popularize a complete system of tools and equipment for organic vegetable growers.

Coleman's custom designed tools include things like the pinpoint seeder, Get-A-Grip handle, broad-fork, three-tine cultivator, grading

rake, and European style scythe. He has served as a tool consultant to a number of companies, and presently consults and designs tools for Johnny's Selected Seeds.

Coleman will be the keynote speaker on both days of the HIS, discussing tool use on the first day, and production methods on the second. He will also present two sessions during the regular programming tracks, and will be available for a book signing after Friday afternoon's sessions.

Lunches on both days will feature locally produced, seasonal foods. Attendees are encouraged to register early as lunchtime seating is limited.

The Kerr Center sponsors the Horticulture Industries Show, along with the University of Arkansas, Oklahoma State University, Tulsa Community College, and the Samuel Roberts Noble Foundation.

Attendees will receive a CD-ROM containing all of this year's HIS presentations. Programs and registration forms are available on the Horticulture Industries Show website at www.hortla.okstate.edu/his.htm. For more information, contact Donna Dollins at donna.dollins@okstate.edu or 405.744.6460.

PAST MEETS FUTURE:

Pineywoods Cattle at the Kerr Center

by Wylie Harris

Defining a Breed

Pineywoods cattle are a landrace breed, which means that the breed formed under local conditions for local purposes – usually with a great deal of isolation. The result of the isolation of different groups of these cattle makes the cattle within the breed reasonably variable, and that can make defining the breed difficult. One starting point for a definition is that the Pineywoods cattle have an origin in Spanish cattle, and a long history of selection and adaptation in the Gulf Coast region of the USA. The important key here is the adaptation and environmental resistance of Pineywoods cattle as major definers of the breed. It is appropriate to include within the breed any cattle of long-term residence in the region, reasonably free of recent incursions of outside breeding (last 100 years, ideally), humpless (no Brahman influence), and well adapted. This is a “short” definition of this important landrace breed. Longer definitions are possible, but this definition includes the core of the breed and its heritage.

from Sponenberg, D.P.
Pineywoods Cattle Strains.
www.pcrba.org/id27.html

Pineywoods Cattle Registry &
Breeders Association (PCRBA)
www.pcrba.org

Visitors to the Overstreet-Kerr
Historical Farm and the Kerr Center

Stewardship Ranch may note the herds
of red or speckled cattle with longish
horns grazing in the sun.

Folks sometimes take these cattle for Texas Longhorns, and it's true that the two breeds are related. But these are actually Pineywoods cattle – a breed with a history all its own, and a rich promise for the future of sustainable agriculture in Oklahoma.

When the Spanish first arrived in North America, they brought with them a few cattle that they turned loose into the forests of what would become the southeastern United States, to be rounded up whenever the need for meat required.

As the animals spread throughout the Gulf Coast region, natural circumstances and human needs shaped the adaptations of populations in different areas.

“You've got one breed in three localities that has evolved over hundreds of years into three separate breeds,” explains Jim Combs, Development Manager at the Overstreet-Kerr Historical Farm.

In the western extent of their range, the cattle were bred for longer horns, for ease of roping. These became the Texas Longhorns.

In the swampier east, shorter horns that wouldn't snare in vines and branches fared better, and dogs replaced lariats as the roundup tool of choice, giving rise to the Florida Cracker breed.



Ms. Muriel, named after Mrs. Muriel
Dunn, who sold the Kerr Center its polled
Pineywoods stock.

In between, in the more open pine forests of Alabama and Mississippi, a breed emerged that would become known as Pineywoods cattle.

A Breed Apart

Pineywoods cattle are generally red, brown, or occasionally black and white, spotted, or speckled. Their horns are small to medium in length and tend to curve inward or upward. Mature weight ranges from 600-1000 pounds, occasionally larger, depending on the environment (see sidebar).

The smaller structure and horn size are a legacy of breeding to meet the needs of farmers and loggers in the deep South. At different times and places in its history, Pineywoods cattle have been called upon to provide draft power as well as meat and milk – a true multi-purpose breed.

Historically, the Pineywoods breed flourished because of its adaptations to the

forests of the South. The cattle can survive and reproduce despite internal and external parasites, high temperatures and humidity, and poor forage.

The breed is noteworthy for its reproductive vigor and longevity. Its varied foraging habits, low birth weights, and hardiness make the cattle highly self-sufficient.

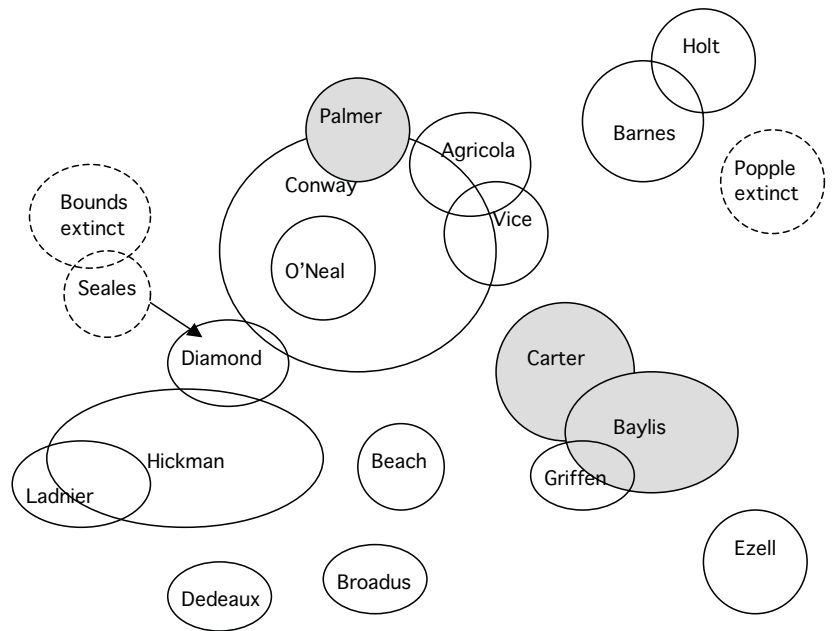
As commercial agriculture became established in the region, though, larger, faster-growing breeds gained in popularity, to the point that Pineywoods cattle became a rarity.

The American Livestock Breeds Conservancy (ALBC) now lists the status of the Pineywoods cattle as “critical,” meaning that the breed has fewer than 200 annual registrations in North America, and a global population of less than 2,000 head (see sidebar).

The ALBC has located less than 500 head of pure Pineywoods stock. Finding them can be something like looking for a needle in a haystack, with the breed scattered in tiny pockets across several states, and the owners often unaware of their animals’ unique heritage.

Some of the old families in Mississippi and Alabama maintained their own closed herds, giving rise to distinct strains within the breed, each bearing the name of the family that originated it (see figure). A few Indian tribes also brought their Pineywoods cattle west with them as well.

One such pair of westbound wanderers were Missourian Tom Overstreet and his Choctaw bride Margaret Victor, who



The relationships between the different strains of Pineywoods cattle. Shaded circles are strains represented in Kerr Center herds. *Figure courtesy PCRBA.*

came to what was then Indian Territory in 1871. The farm they homesteaded is now the Kerr-Overstreet Historical Farm, home to one of the few remaining herds of Pineywoods cattle.

Working a Little Magic

The long journey of the Pineywoods cattle took a turn toward the future when a herd arrived at the Kerr Center through a joint livestock conservation project with the American Livestock Breeds Conservancy.

The American Livestock Breeds Conservancy: Celebrating 30 Years of Protecting Livestock Genetic Diversity

Established in 1977, the American Livestock Breeds Conservancy (ALBC) is a national, non-profit, membership organization based in Pittsboro, North Carolina, dedicated to the conservation and promotion of endangered breeds of livestock and poultry.

ALBC rates each breed’s endangered status by the following categories:

- **Critical:** Fewer than 200 annual registrations in the United States and estimated global population less than 2,000.
- **Threatened:** Fewer than 1,000 annual registrations in the United States and estimated global population less than 5,000.
- **Watch:** Fewer than 2,500 annual registrations in the United States and estimated global population less than 10,000. Also included are breeds that present genetic or numerical concerns or have a limited geographic distribution.

- **Recovering:** Breeds that were once listed in another category and have exceeded Watch category numbers but are still in need of monitoring.

- **Study:** Breeds that are of genetic interest but either lack definition or lack genetic or historical documentation.

Pineywoods cattle are just one of over 150 breeds that ALBC is working to protect. A few of the others on ALBC’s Conservation Priority Watch List include Suffolk horses (critical), Choctaw hogs (critical), Myotonic or Tennessee Fainting goats (threatened), Barbados Blackbelly sheep (recovering), American Mammoth Jackstock donkeys (threatened), and Dominique Chickens (watch).

To learn more about ALBC, visit www.albc-usa.org

To Catch A Glimpse...

To reach the Kerr-Overstreet Historical Farm, go 10 miles south of Sallisaw on Highway 59, then right on Overstreet-Kerr Road.

The farm is open to the general public on Fridays and Saturdays from 10 to 4. For more information, call 918.966.3396.

The Kerr Center Stewardship Ranch is located on Kerr Road, on Highway 271, about four miles southwest of Poteau, Oklahoma. Look for the Kerr Center sign on the south side of the road.

Tours of the Stewardship Ranch are available by appointment only.



Ruby persuades Historical Farm Development Manager Jim Combs to give her a bite to eat.

Begun in 1985, the project aims to preserve the kinds of livestock used by the pioneer farmers and Native Americans in the area during the late 1800s and early 1900s.

The Kerr Center's first Pineywoods cattle arrived at the Historical Farm in 1995. As of 2007, the Overstreet Pineywoods herd numbered 51 head.

The animals are of the Carter-Baylis strain, purebred descendants of the Spanish cattle of the 1500s that were preserved by

because the families milked the animals up through 1942.

With the Overstreet herd of Pineywoods cattle, Combs seeks to identify and foster certain traits – height, length, good udders – while preserving the Carter-Baylis strain's unique genetics.

"I'm trying to bring them up off the ground, stretch them out," he explains. "If a person can use the genetics properly, you can work a little magic over 3 to 5 years."

Polled Rescue

Combs' strategy for preserving the Carter-Baylis strain has a twist. He's also breeding in the polled, or hornless, trait from a separate strain, called Palmer-Dunn.

Overstreet's 75 grazeable acres, Combs says, don't support enough cattle to keep more than a single strain going, forcing him to pick and choose the strain and traits that will be the focus of his work with the Overstreet herd.

"I'm interested in polled because it's only in the one strain, and there is some demand for them," says Combs. "I'm shooting for all polled eventually."

Combs bought Overstreet's first four polled cattle, sight unseen, from Mrs. Muriel Dunn, the 84-year old widow of Earl Dunn. Mrs. Dunn's maiden name was Palmer, and the cattle were of the Palmer-Dunn strain.



Rascal, a rare polled Pineywoods bull from the Palmer-Dunn strain.

the Carter/Baylis family of Mississippi since 1850. According to Combs, the Carter-Baylis strain is known for its traits of a strong mammary system and good disposition,

After a year, Dunn was pleased enough with Combs' work that she offered to sell her entire herd to the Kerr Center.

Kerr Center President Jim Horne gave the go-ahead, and pushed for an immediate purchase, though it was already late December. "If these are the only polled ones," he said, "I want to make sure we get them."

So Combs and a Kerr Center crew spent one day driving to Dunn's Mississippi farm, another day setting up pens, and loaded the animals early on the third day and made the trip back to Oklahoma. Bad weather set in right after Christmas, proving the wisdom of the rushed trip.

Preserving to Produce

"There's beginning to be more and more interest in Pineywoods," Combs says, "especially among small farmers with about 50 acres who want a smaller cow with a gentle disposition."

Pineywoods Cattle Manager Mary Penick agrees, noting that the cattle are gentle both as a breed characteristic and as a result of daily handling in the ranches' rotational grazing systems.

"The niche might be people who like Longhorns but get tired of dealing with them," she observes.

Penick manages a separate Pineywoods herd, at the Kerr Center Stewardship Ranch in Poteau, that was split off from the Overstreet herd at the beginning of 2006.

The Stewardship Ranch herd now counts a total of 73 animals.

But while the Overstreet herd is devoted to the conservation and preservation of a particular Pineywoods strain and traits, work with the Stewardship Ranch herd is aimed more at developing animals that perform well on grass from a mixture of strains, as well as markets for those animals and their meat.

D.P. Sponenberg, a veterinarian who works closely with the ALBC and has consulted with the Kerr Center on its Pineywoods program, confirms this approach. "If conservation is successful and the numbers of the various strains stabilize," he writes, "then it is possible and also wise to use cattle in

breeding herds that are tailored as much for production as for conservation."

"Composites should be developed and production characterized. This is important for the entire breed, because the breed has a secure future to the extent that production-minded breeders take it seriously and use it for its main strengths."

A Taste of the Future

Penick summarizes the rationale for her efforts with the Stewardship ranch Pineywoods herd in plainer terms: "You're never going to save a breed if they're just hobby cattle."

With Combs working at Overstreet to preserve the Carter-Baylis genetics and introduce the polled trait into that strain, Penick is free to use combinations of both Carter-Baylis and other strains at the Stewardship Ranch to find a mix that produces optimally on grass.



The Stewardship Ranch Pineywoods herd grazing contentedly in the heat of a July afternoon.

The Stewardship Ranch herd birthed its third crop of calves in 2007. Penick anticipates marketing the meat from the herd within the next five years or so. During the same timeframe, there are plans to set up satellite production herds of Pineywoods cattle in southeastern Oklahoma as well as southeast Texas.

"The ultimate goal of this project is to find uses for Pineywoods cattle

that will entice others to raise these cattle," she says. "This will spread the genetics of these cattle and reduce the risk of losing the breed." There is already a list of people waiting to buy and show Pineywoods cattle, she adds.

A recent lecture by Jim Horne carried the title, "Honoring the Past - Anticipating New Futures in Agriculture." That phrase captures in a nutshell the key elements of the Kerr Center's mission that are embodied in the Pineywoods project.

Preserving the genetic diversity of crops and livestock is a critical safeguard against increasing genetic uniformity. It's a line cast to the past not out of nostalgia, but rather from a keenly pragmatic assessment of the future needs of sustainable agriculture.

2008 Grants Available to Sustainably Innovating Producers

The Kerr Center for Sustainable Agriculture is again soliciting grant proposals from producers across Oklahoma who are interested in conducting research or demonstration projects. Grants can be funded for up to \$3,500 for a two-year project and up to \$7,500 for a three-year project. This is the tenth year of the successful and popular program.

To streamline the application for producers, the grant process is divided into two sections: preproposal and full proposal. Selected preproposals will be asked to complete a full proposal application by the second due date to compete for grant funds. This allows producers to write down an idea for consideration without spending long hours completing a full proposal.

The deadline for preproposals is 5:00 PM on October 31, 2007. Confirmation of receipt of application will be mailed, emailed or faxed within two working days.

If selected to complete the full proposal, the preproposal will be further developed into a full application and returned to the Kerr Center by 5:00 PM on December 14, 2007. Award notification will be made by January 16, 2008.

The goal of the program is to advance the use of sustainable farming/ranching practices by Oklahoma producers. Educational programs should be a key component of any proposal submitted. All research and demonstration projects should have measurable outcomes.

"Agriculture has changed and will continue to change," said Alan Ware, program director. "Producers will need

to think 'outside the box' of current conventional production and marketing systems in order to develop successful and innovative strategies for the future."

To apply for this grant, a farmer/rancher can request an information packet to use with this set of guidelines for completing the preproposal from the Kerr Center for Sustainable Agriculture, or download it from www.kerrcenter.com/HTML/opg.html.

The project must fit into one of eight priority areas (listed below). A qualified independent technical committee reviews all preproposals. Farmers are encouraged to link up with extension personnel, other state and federal agencies, nonprofit organizations, and/or other farmers or specialists to assist with executing and analyzing their projects.

Priority Areas

All projects must fit in the priority areas listed below. It is important to clearly show how your project fits the area you have chosen. The following is a brief guideline showing in general the kinds of projects that fit. Because this program focuses on innovative methods, feel free to roam outside the examples mentioned here. Please remember that developing a program proposal to these examples does not guarantee funding.

1. Conserve and create healthy soil

Soil erosion is still a problem in agriculture – half of farmland is losing soil faster than it is formed. Conservation tillage and cover crops help reduce erosion of precious topsoil by keeping bare soil protected from wind and rain. Keeping topsoil both on the farm and healthy is essential for a sustainable agricul-

ture. Healthy soil has a large amount of organic matter, is biologically active, and fertile. Cover crops and manures add this essential organic matter to soil, while maintaining adequate fertility. For livestock, planned rotations in mixed pastures seeded with legumes can maintain soil health and fertility, and reduce erosion.

2. Conserve water and protect its quality

Agriculture affects water quality when soil washed from farmlands enters waterways. This sediment damage costs the nation four to five billion dollars annually. Farming/ranching methods that prevent soil erosion or filter pollutants before they reach waterways can dramatically improve water quality, as does fencing livestock out of ponds and streams. Water quantity, as well as quality, is also declining – in some places water is being pumped out to irrigate farmland faster than it is replaced by surface water percolating down. Raising drought tolerant crops and using irrigation methods such as drip irrigation help to conserve water.

3. Manage organic wastes and farm chemicals to avoid pollution

Organic wastes such as manures and litters can be valuable fertilizers if managed correctly. Applying them at the right time and at the right rate can prevent the water pollution that plagues areas with heavy animal concentrations. Farm chemicals can find their way into wells and streams, endangering human and animal health. Applying them at reduced concentrations or in a more precise way (as in banding) can protect water quality and wildlife.

4. Manage pests with minimal environmental impact

Pesticides are costly, can cause farmer health problems, and can pollute the environment. Heavy use of pesticides has made some target insects resistant. Using integrated pest

management can cut frequency of applications. Other approaches include enhancing habitat for beneficial insects, and using biological or mechanical controls. Multi-species grazing can control weeds without chemicals.

5. Select crops and livestock adapted to the natural environment

Crops suited to the climate and soil type, and livestock adapted to natural forages, require fewer costly inputs such as pesticides and water in order to produce well. Adapted crops and livestock often produce well under adverse conditions. One of the questions posed in this area is whether we should change the soil to grow a particular crop, or should we be selecting species that grow well under good management without the input cost of changing the soil?

6. Encourage biodiversity

Encouraging biodiversity of wild plants and animals helps the farmer take advantage of possible natural controls of pests. Leaving strips uncultivated provides habitat for endangered grassland birds, which eat many harmful insects. Fencing cattle from ponds and waterways protects aquatic life. Rotations of hay and grain crops maintain small game populations. Planting a variety of cultivars, including non-hybrids, and raising old breeds preserve genetic diversity among domesticated plants and animals. Preserving genetic diversity reduces the likelihood that disease will wipe out whole crops or populations of animals.

7. Conserve energy resources

Cutting the direct use of fossil fuels (diesel, gasoline) and costly inputs (fertilizers, pesticides) made from fossil fuels protects producers

from price increases or fluctuations that will occur as fossil fuel supplies continue to decline. The use of solar systems for fence charging, water pumping, or any other practice reduces the cost of operating a farm. One might demonstrate the energy savings of growing one's own fence posts to save the energy of manufacturing metal fence posts.

8. Increase profitability and reduce risk

Diversifying farm enterprises provides protection against price fluctuations and crop failures. Growing new or unusual crops may bring greater profits. Reducing costly inputs (which may account for over half of operating costs) and capital expenditures on machinery also improve the bottom line. Preserving healthy soil guarantees a farm's viability into the future.

GUIDELINES FOR PREPROPOSALS

In the preproposal process, a producer will use the following guidelines to complete a two or three page preproposal depicting the proposed project activities.

Projects that are innovative, applicable to many farms, and useful beyond the length of the project have the best chance of being funded.

All projects must have a strong outreach plan for providing other producers, researchers, extension personnel, and the general public with the opportunity to learn from project results. Outreach plans may include workshops, field days, fact sheets, or brochures.

Black and white project maps highlighting important areas of the project may be submitted with the application. Maps must be capable of being photocopied for review by committee members.

For other helpful information, refer to the information packet, available at www.kerrcenter.com/HTML/opg.html or by calling 918.647.9123. The producer must answer the following questions in the following format:

FORMAT

Cover Page

Title, Name, Address, e-mail, phone, estimated grant request amount

Preproposal body

No more than three typewritten pages, using 12-point font, single spaced, 1-inch margins, addressing the following questions:

Briefly describe your farm/ranch operation.

Describe the problem you want to address. Describe your possible sustainable solution(s) and what you will do to test them.

Explain how your project relates to the selected priority area.

What are the objectives of your project and expected outcomes?

What measurements will be taken in your research or demonstration project? How will the measurements be taken?

What is your outreach plan - how will you share information from your project with other producers? Outreach plans may include workshops, field days, fact sheets, or brochures.

Give an estimate of your cost for the project. Provide a short explanation of the cost figures; this needs to be brief, but should be given some thought before just writing down numbers.

Preproposals must be received by 5:00 p.m. on October 31, 2007 to be considered for review. Send preproposals for the Oklahoma Producer Grant Program to:

Alan Ware, Director of Oklahoma Producer Grant Program
Kerr Center for Sustainable Agriculture
P.O. Box 588
Poteau, OK 74953
Phone 918.647.9123
Fax 918.647.8712
e-mail: mailbox@kerrcenter.com
Website: www.kerrcenter.com

TIMELINE

Call for Preproposals Released	September 28, 2007
Preproposals Due (Received by 5:00 p.m.)	October 31, 2007
Notification to develop full proposals	November 15, 2007
Full Proposals Due (Received by 5:00 p.m.)	December 14, 2007
Award Notification	January 16, 2008

FUELING THE FARM: Biofuels Conference Maps Agricultural Energy Strategies

Stories by Wylie Harris

Seventy people gathered at Langston University's Oklahoma City campus on August 3rd for a conference on farm-based production and use of alternative energy sources. The Kerr Center and Langston University sponsored the conference, in partnership with the USDA Risk Management Agency (RMA), an equal opportunity provider.

The day's discussions ranged far beyond the conference's theme, "Biofuels: Could They Benefit Your Farming Operation?" toward a broader range of strategies to help farms weather the next energy crisis.

NCAT's Mike Morris capped the exchange of ideas with a question: "How should we strike the right balance between energy from farms for society, and energy from farms for their own needs and the needs of their communities?"

"Will farm energy production follow the same path as food production?" he wondered aloud, pointing out that while farms' share of the retail price of food has declined for decades, the return to other sectors such as marketing and transportation has increased.

In 1980, farms received 31 cents out of every dollar spent on food; in 2000, that was down to 19 cents.

"If we treat these bioenergy crops as commodities and sell them to the same companies to market them for



Marvin Burns, Dean of the School of Agriculture and Applied Sciences at Langston University, welcomes participants to the biofuels conference. Additional welcoming remarks came from Langston University Assistant Administrator of Extension Outreach Programs Dennis Howard, Kerr Center President Jim Horne, and National Grazing Lands Association President Bob Drake.

us," Morris observed, "we'll probably see them follow the same path looking 10 to 20 years out."

"As the cost of energy and the cost of food go up – and those things work *with* each other – we may need more decentralized systems," said Morris. "We may need farms and communities to make their own food and their own energy."

Brad Venuto, a USDA-ARS researcher who studies switchgrass at El Reno, agreed. Given current production and transportation costs, he said,

switchgrass may only be economical as an energy crop at a fairly small scale of distribution.

"It may be better to think of smaller power plants and more of them, like they have in Japan," he said.

Other speakers also echoed Morris' points, focusing on ways for farms to meet their own energy needs, and emphasizing the importance of energy conservation and efficiency measures as complements to alternative means of energy production.

For example, Thad Doye turns his sunflower crop into biodiesel to run his farm equipment. But he also plants the sunflowers between wheat crops, breaking up pest and disease cycles.

Moreover, the sunflower's deep roots help to break up the subsurface soil, doing some of Doye's plowing for him and thus cutting his fuel use. From the meal left over after pressing the sunflower seeds for oil, Doye makes livestock feed.

Likewise, Alabama farmer Wayne Keith, whose main subject was the wood-powered pickup that he developed, also devoted time in his talk to his farm's other energy-wise ways.

A windmill that Keith built from scrap pipe generates nearly a third of the household's electricity. The house itself, built of thick wooden beams, uses its own mass to minimize indoor temperature swings. The plumbing detours through the attic, taking advantage of the high temperatures there to heat water at no cost.

"It just doesn't make any sense for me to pay the power company to heat my water when there's *anyplace* in my house that's 133° F," Keith explained.

The articles on the following pages summarize the different speakers' presentations, offering a range of ideas that can help farms cut their energy use and/or supply more of their own energy needs.

This event is presented in partnership with the USDA Risk Management Agency



This institution is an equal opportunity provider



From left to right: Damona Doye, Kerr Center President Jim Horne, and Thad Doye.

CRUSHING SEEDS AND CRUNCHING NUMBERS: Sunflower Biodiesel

A few years ago, Lawton-area farmer Thad Doye began experimenting with making biodiesel from his sunflower crop, and running his own farm equipment on that homemade fuel.

Doye started in 2005, with the help of an Oklahoma Producer Grant from the Kerr Center (see *Field Notes*, Summer 2006). During that time, as he reported at the biofuels conference, he's seen the extremes of raising sunflowers – from a bumper crop of 1600 lbs. per acre in the first year, to a failed harvest during 2006's droughty summer.

Following on the heels of that production update, Dr. Damona Doye, an Extension Economist and Regents Professor at OSU (and Thad Doye's sister), presented her analysis of the economic viability of his homegrown sunflower biodiesel project.

Running the Numbers

Dr. Doye used averages from the 2005-2007 period for her calculations,

assuming an at-the-pump price of \$3 for diesel. Thad Doye's actual production costs of \$82 per acre – "probably about as low as you could go," she said – went into the equation.

She allowed a credit for the meal left over from pressing the sunflower seeds, because Thad uses it as feed for his livestock.

With those assumptions, converting 30 tons of sunflower seed to biodiesel would net a loss of \$5.08 per hundred-weight. Put another way, Thad Doye's homegrown biodiesel is costing him \$4.38 a gallon, compared to the \$3 price he'd pay at a filling station.

Dr. Doye pointed out a number of potential ways to improve that figure. One would be a lower imputed cost for Thad's labor – say, \$5.75 an hour instead of \$8.50.

Additionally, Doye's biodiesel refinery is equipped to recapture the methanol required for the process, though he doesn't currently use that feature. If he did, recovering 60% of the methanol, and "paid" himself less,



Thad Doye with his biodiesel refinery.

the cost of his biodiesel would drop to \$3.62 per gallon.

The next step in making sunflower biodiesel more profitable might be to process other farmers' seed. Under a share agreement, Doye estimates that her brother could come out ahead if he received half of the output. Thad Doye has been reluctant to pursue this, due both to concerns about liability and to gray areas in the tax-credit code. (see sidebar, p.12)

Dr. Doye also pointed out that crop insurance may be available for sunflowers, providing another possible cushion against poor harvest years.

“He’s not making money. This is not a get-rich scheme,” she said in summary. However, she pointed out, “This is the worst-case scenario in terms of yield, and it’s not *costing* him a lot of money to do it.”

Getting Paid to Innovate?

Doye jokingly noted that the budgets she worked out for her brother’s sunflower biodiesel operation did not include payment for the time she spent doing the economic analysis – but pointed out that *all* Oklahoma farmers and ranchers, not just those with economists in the family, do have access to a free, confidential financial planning service known as IFMAPS. Agricultural producers can contact IFMAPS through their county Extension offices, at the IFMAPS office in Stillwater at



Giving the Tax Man His Due

Before farmers start squeezing their sunflower seeds for biodiesel, they need to take precautions to keep the IRS from squeezing back. Producers wishing to make biodiesel from their own crops are required to register with the IRS. Failure to register can result in a fine of \$10,000, plus \$1,000 per day until registration is completed.

To register, use Form 637, Application for Registration for Tax-Free Transaction Under Chapter 32 of the Internal Revenue Code, available online at www.irs.gov/businesses/mall/article/0,,id=99517,00.html.

For further information or questions, contact Julie Sellers, IRS revenue agent and excise tax specialist, at 405.297.4860 (pager 1.866.812.5809).

1.800.522.3755, or online at agecon.okstate.edu/ifmaps.

Doye also pointed to other potential funding sources for farmers interested in experimenting with biofuels: the Oklahoma Ag-Link Deposit Program, and the Oklahoma Ag Enhancement and Diversification Program (see sidebar below).

Jason Harvey, who followed the Doyes’ presentations, gave more details on the Ag Enhancement and Diversification Program. Harvey, who is Market Development Coordinator with the Oklahoma Department of Agriculture, Food, and Forestry, oversees the program.

“The program is not focused explicitly on renewable energy/biofuels projects, but has several opportunities for them,” he said.

Resources Supporting On-Farm Biofuels Projects

Oklahoma Ag-Link Deposit Program

The Oklahoma Agricultural Linked Deposit Program helps Oklahoma farmers and ranchers. Linked deposit loans are available to at-risk farm or ranch operations or to alternative agricultural products operations who are residents of the State of Oklahoma and whose business operation is located in this state.

For an at-risk farm or ranch to be eligible for an Agricultural Linked Deposit Loan, the following criteria must be met. The percent of gross income from farming must have been 60% or more in at least one out of the two previous tax years. The consolidated business/ family debt-to-asset ratio must be at least 55%. The linked deposit loan must be for the purpose of operating the business or for refinancing loans made to operate the business. An at-risk farm or ranch may request funding

of up to a maximum of \$350,000.

To be eligible to obtain a Linked Deposit Alternative Agricultural Products loan, the farm, ranch, or agribusiness must certify in the loan application that the loan will be used for expanding or starting the production, processing or marketing of a product named as an alternative agricultural product. The Department of Agriculture determines what qualifies as an alternative agricultural product. The maximum funding for an alternative agricultural products operation is \$1 million.

More information and applications are available at www.ok.gov/~sto/rblink.html.

Oklahoma Ag Enhancement and Diversification Program

The Oklahoma Agriculture Enhancement and Diversification Program provides funds in the form

of loans or grants for the purpose of expanding the state’s value added processing sector and to encourage farm diversification. Funds, provided on a cost-share basis, must be used for marketing and utilization, cooperative marketing, farm diversification and basic and applied research. All funding proposals must clearly demonstrate the ability to directly benefit Oklahoma farmers and ranchers. A ten member Advisory Board evaluates proposals and submits funding recommendations to the Oklahoma State Board of Agriculture. The four categories of available funding are Farm Diversification Grants, Marketing and Utilization Loans, Cooperative Marketing Loans, and Basic and Applied Research Loans/Grants.

More information and applications are available at www.oda.state.ok.us/mktdev-loanshome.htm.

TREES IN THE TANK: Wayne Keith's Wood-Powered Pickup

“Wouldn’t it be nice if there were some way to take all that solar energy, condense it down, and use it when we need it?”

That’s a thought Wayne Keith has heard many a time. Here’s his response: “What’s a block of wood? What’s biomass?”

By converting his pickup to run on scraps of wood from his Alabama sawmill, Keith has indeed devised a way to power his transportation with the stored solar energy of biomass.

It’s A Gas

The heart of the wood-powered pickup is a gasifier, which basically converts solid fuels into gaseous ones. Though the fuel in their tanks is liquid, gasoline and diesel engines actually run on vapor.

Thus, the wood gas produced in a gasifier (also known as ‘producer gas’ or ‘syngas’) will burn in a gasoline or diesel engine with only minor modifications to the motor itself.

When heated in the absence of oxygen, wood gives off a mixture of gases made up of about 20% hydrogen, 20% carbon monoxide, and small amounts of methane, with nitrogen accounting for the rest.

The gasifier keeps the gas from combining with oxygen until it reaches the engine, where it combusts, giving off carbon dioxide and water vapor as waste products.

This technology is not new. Wood gas has been produced for heating since at least the late 1700s, and has been used to run engines since the 1880s.

During World War II’s petroleum

shortages, wood gasification for transportation fuel became rapidly and briefly widespread, both in the U.S. and abroad.

Where the Timber Meets the Road

Keith’s converted pickup starts on gasoline. As a supercharger pulls air through the gasifier, he tosses a piece of burning newspaper into the bottom of the unit.

The burning paper ignites the charcoal, and 45 seconds later, the engine is running on wood gas alone (though it takes longer to get to full power).

With two separate accelerators, Keith says, the pickup can switch from gasoline to wood fuel “in the blink of an eye.”

The gasifier looks like a 55-gallon drum standing upright in the bed of the pickup. Keith has added five layers of insulating material around the outside of the unit, so that even with temperatures reaching 2500°F inside, he can stack bales of hay next to it without risking a fire.

Thus equipped, the pickup easily reaches cruising speeds of 60 miles per hour. A similarly modified truck pulls a trailer loaded with 17 round hay bales, weighing 1,000 pounds apiece.

Power Poles

“I’ve driven 30,000 miles in the last three years,” Keith says. “I’ve done 90% of that on wood.”

At 2 miles per pound of wood burned, it takes 20 pounds of wood to replace a gallon of gasoline. That works out to around 4,000 miles per cord of wood, says Keith, whose entire fuel supply comes from his sawmill’s leftovers.



“I’ve never cut a tree to run my truck or heat my house,” he says.

Keith says he has no plans to develop his homemade gasifier unit for commercial production, since operating it requires more skill than a standard gasoline or diesel engine.

“This whole system is kind of complicated to build and drive,” he explains. “The knowledge is a lot more important than the apparatus itself. It’s kind of like if somebody gave you an operating table and a knife and asked you to do heart surgery.”

A better use for the technology, he says, would be stationary wood gasifiers for generating electricity. Located throughout a county and staffed with trained operators, he says, such small units could be tied into the electrical grid to provide power from scrap wood, spoiled hay, and other unused biomass.

Do It Yourself?

In 1980, the Federal Emergency Management Agency published a step-by-step guide to constructing a wood-gas generator for fueling gasoline-powered vehicles.

The publication is available free at www.webpal.org/webpal/b_recovery/3_alternate_energy/woodgas/fema_wood_gas_generator.pdf.

SWITCHING AWAY FROM CORN: Switchgrass Research for Biofuel Production

Much of the biofuels furor is focused on ethanol made from corn. Lately, though, a native Oklahoma prairie plant has been drawing attention as another potential ethanol source.

Brad Venuto, a research agronomist, studies switchgrass at the USDA-ARS Grazinglands Research Lab in El Reno. He shared some of his findings at the biofuels conference.

Switchgrass' raw materials are the plant's leaves and stems, instead of a starchy seed. Breaking those tissues' tough cellulose down into something fermentable requires a more complicated procedure than that used for corn.

Such cellulosic fermentation technology is not currently available at an economic scale. "We're probably at least 4-5 years from having a plant on the ground and running," Venuto said.

From Grass, What Kind of Gas?

He pointed out that there are other ways to produce energy from switchgrass and other biomass crops, including both direct burning and gasification (the technology used by Wayne Keith's wood-powered pickup; see p. 13) to produce electricity.

"It's interesting to go to other countries and see what they're doing," Venuto observed. "Europeans can't understand why we're so focused on ethanol when they're burning biomass in gasifiers. The technology's there now."

Regardless of how switchgrass is ultimately used, there are many production issues that must be addressed to

make it a viable energy crop. Venuto's research tackles some of those, selecting and evaluating productive cultivars and integrating them into cropping systems.

Switchgrass is a widely adapted native species, though it is not necessarily productive everywhere. There are both upland and lowland types.

While no supplemental nitrogen, phosphorus, or potassium are normally needed to establish a switchgrass stand, said Venuto, rain every 7-10 days is required, and in some cases establishment may take 2 to 3 years.

Getting the N in

Once switchgrass is established, recommendations range from 50-125 pounds of nitrogen per acre to replace what is removed with the harvest. "Less nitrogen is removed in single-cut, late harvest systems," Venuto said. "One-third to one-half the nitrogen is removed in a 2-cut system."

Other experiments at El Reno are evaluating the ability of nitrogen-fixing leguminous crops, such as vetch and bundleflower, to supply nitrogen when planted with switchgrass.

He pointed out that a 2-cut system could be grazed early, rested during the middle of the growing season, and then cut for biomass after frost. "Late harvests trade lower yields (up to 20%) for higher fuel quality and reduced nutrient removal," he said.

Holding on to the Soil

In such a system, about half the total yield would be available for biofuels. Switchgrass yields in studies from various locations around the country averaged about seven tons per acre, with a maximum around ten tons.



Brad Venuto discusses switchgrass.

That's only about half the yield of sorghum, a common forage and hay crop. However, as an annual, sorghum – like corn – lacks one of switchgrass' key advantages: a deep, thick root system that holds soil in place all year long, reducing soil erosion.

Reducing soil erosion is one of the main reasons for the Conservation Reserve Program, which pays farmers to plant highly erodible fields with perennial crops. There has been a great deal of interest in using the nation's 39 million acres of CRP land to grow switchgrass for biofuels.

However, Venuto pointed out, that idea has limited potential in Oklahoma. The state has 1 million CRP acres, mostly west of I-35, where rainfall is less than the 20" annual minimum necessary for good switchgrass production.

"Most CRP acreage is in the corn belt," Venuto said. "It would be better to plant switchgrass there than corn," he said, to help reduce erosion and fertilizer runoff, "but with the price of corn now, that's not very likely."

EFFICIENCY, INGENUITY:

Conservation and Alternative Energy on the Farm

Mike Morris joked that his conference invitation had included the warning that biofuels was the theme, and that his own presentation should cover “everything else.” Within the span of an hour and a half, Morris managed to do just that.

Morris’ position as Farm Energy Team Leader with the National Center for Appropriate Technology (NCAT) requires him to be familiar with the “everything else” of alternative energy. That includes solar, wind, and geothermal energy, all areas in which Oklahoma has excellent resources, Morris said.

He noted, though, that “everything else” includes conserving energy as well as producing it.

“Before we get too excited about solar and wind energy,” he said, “it’s good to remind ourselves that there are very good savings to be had on the energy conservation side.”

Conservation First

To illustrate that principle, Morris pointed to a recent energy audit of North Carolina’s Cherry Research Farm that he coauthored.

The audit identified 21 different ways that the farm could save energy, ranging from burning waste oil for heat and improving insulation to simply changing thermostat settings.

Taken all together, these recommendations would reduce the farm’s energy usage by 22%, and cut its power bill by \$7,000.

Morris referred to such basic conservation measures as “Energy Efficiency 101.”

“Nine times out of ten,” he explained, “that’s where you get the fastest and greatest energy savings.”

Supply Side

Turning from energy conservation to energy generation, Morris began with passive solar energy, as an inexpensive way to heat both air and water.

He cited examples like passive solar grain dryers made from recycled sheet metal, solar heat collecting walls used to warm homes, and solar food dryers, greenhouses, and water heaters.

Routed through a photovoltaic (PV) panel, sunlight can also be a source of electricity. One common agricultural application of this technology, Morris said, is solar water pumping: “getting the cows to the grass on the hill.”

This is often appealing in remote areas, where the cost of extending a power line might be several times more than the \$5,000 required to set up a five gallon-per-minute solar pumping system.

With such a system, ranchers can cut costs further by avoiding batteries altogether, and investing instead in oversized tanks to store water for times when the sun isn’t shining. “It’s cheaper to store water than electricity,” Morris explained.

Small wind turbines can be another source of electricity. In fact, Morris mentioned, one of the largest manufacturers of small wind turbines, Bergey Windpower, is located right in Oklahoma (see sidebar).

However, he said, “It’s tough to make wind energy pay for itself on energy alone. It’s more site-specific than solar.”

Where to Turn

Morris pointed to several sources of more detailed information for those interested in developing energy conservation measures, as well as alternative energy sources, for their own farms (see sidebar).

One is a farm energy area added to the ATTRA website within the past year, which includes a farm energy search tool.

“Some of the best resources we have are from the period of the 1970s, in response to that energy crisis,” he said. Many of these are collected on the “Small Farm Energy Primer,” originally issued by the Center for Rural Affairs in 1980, and now available free online (see sidebar).

Morris also alerted the audience to a conference that he’ll be co-chairing early next year, with a focus on increasing energy efficiency in the agricultural sector (see sidebar).

Most importantly, Morris advised, “Become keenly aware of how you use energy. Most of the time you don’t need to hire an engineer.”

Renewable Farm Energy Resources

ATTRA Farm Energy Webpage
attra.ncat.org/energy.php

Small Farm Energy Primer
 (free from the Center for Rural Affairs)
www.cfra.org/node/680

Conference: Food and Energy from the Ground Up: The Role of Efficiency in Sustainable Agriculture
 Feb. 20-22, 2008
 Des Moines, Iowa
www.aceee.org/about/0707conf.htm

Bergey Windpower Company
 405.364.4212
sales@bergey.com
www.bergey.com

FROM THE KERR CENTER:

Greenhouses and Cold Frames for Year-Round Local Vegetable Production (Using Warm/Hot Water from Power Plants)
 by Edwin Kessler
www.kerrcenter.com/coldframe.htm

CALENDAR: FALL/WINTER EVENTS

2007 Oklahoma Meat Goat Forage Buck Performance Test Field Day & Sale **October 27, 1-6 Poteau**

The 2007 buck test will close out with a field day featuring presentations on herd health, forages, nutrition, and fencing. Learn about Oklahoma's 1st annual forage-based performance test for meat goat bucks. A private treaty sale follows the field day beginning at 4:30. Pasture walks of the test site will be available during the sale, weather permitting. For more information, visit osukerrbucktest.typepad.com.

CONFERENCE: **American Livestock Breeds Conservancy 30th Anniversary** **November 2-4 - Sanford, NC**

ALBC celebrates 30 successful years of conserving livestock genetic diversity with a conference including hands-on workshops on husbandry, management, and

selection of rare breeds at local farms, as well as seminars on rare breed production, processing, products, marketing, and breeding strategies. For more information, visit www.albc-usa.org. (See p. 5.)

CONFERENCE: **Oklahoma Agritourism and Alternative Agriculture** **November 6-7 - Ardmore**

Sponsored by the Kerr Center, the Oklahoma Department of Agriculture, Food, and Forestry, and the Noble Foundation, this conference will begin with a series of farm and agritourism tours and conclude with seminars on reducing insurance premiums and financing alternative agriculture ventures. Cost is \$125, with discounts for single-day attendance. Register at 580.224.6501 or macoble@noble.org. For more information, visit www.oklahomaagritourism.com.

FIELD DAY: Organic Fruit Production **November 9 - Fayetteville, AR**

The University of Arkansas' Horticulture Department and Cooperative Extension Service invite growers and other interested persons to this field day, designed as an introduction to the basics and challenges of organic fruit and high tunnel production. The workshop is free and includes lunch. For more info go to www.kerrcenter.com. RSVP by November 2nd to Heather Friedrich at 479.575.2798 or heatherf@uark.edu.

MEETING: **2007 Oklahoma Cucurbit Meeting** **December 13 - Chickasha**

This free meeting, with lunch provided, is for farmers and gardeners who want to learn more about squash, watermelon, specialty melons, and cucumbers. This year there will be a focus on the

Oklahoma Farm-to-School program. The information will be of interest to both small and large-scale growers and marketers. Dr. Fred Schneider, Professor Emeritus, University of North Dakota will present his work on cucurbit crops used by Native Americans and the preservation of these crops. Other speakers will present information on the 2007 Oklahoma specialty melon trials, an update on the health benefits of cucurbit crops, and an overview of cucurbit vegetable disease management research. Food safety—what growers can do to insure their produce will be safe for their customers—will be discussed, as will labor and hiring issues. For more information contact Dr. Jim Shrefler at 580.889.7343, jim.shrefler@okstate.edu or go to www.lane-ag.org. To be included in lunch count, call 405-224-2216.



The Kerr Center for Sustainable Agriculture, Inc.
P.O. Box 588
Poteau, OK 74953

Nonprofit Organization
U.S. Postage
PAID
Poteau, Ok 74953
PERMIT No. 64