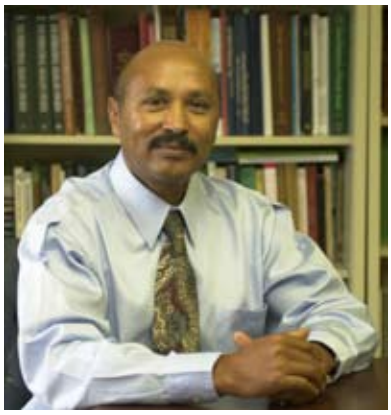
Goat Newsletter

Cooperative Extension Program
Langston University

The Newsletter of the E (Kika) de la Garza American Institute for Goat Research *Summer 2006*

From the Director's Desk



Dr. Tilahun Sahlu

All times of the year are busy for us in terms of research and extension activities. However, if one time had to be identified as perhaps being the busiest, I might have to say it is the summer, particularly for research. This is primarily because of the increasing number of grazing experiments that we have been conducting over the last several years. By far, the great majority of goats in the world graze pastures or rangelands rather than are confined in barns or feedlots. Thus, it is natural that we should give considerable attention to research in these appropriate settings, even though studies with goats on pasture are in many ways more challenging than when they are confined in barns. However, numerous trials include both 'inside' and 'outside' components.

A notable example of this is the use of the indirect respiration calorimetry system situated in the North Barn. This equipment is used to establish the relationship between heat production or energy expenditure and heart rate for individual animals. Once this is achieved, then these animals can be put in free-moving group settings such as on pasture where heart rate can be measured. The equipment for monitoring heart rate is fairly minimal, without impacting animals' behavior. Heart rate determined while grazing is multiplied by heat production per heart beat to determine total daily heat production. This is an important measure because animals lose a considerable amount of energy as heat for maintenance of their body weight and through inefficiencies of nutrient metabolism. Such research may hopefully lead to management practices to minimize energy lost as heat. The calorimetry system in the North Barn is used for other experiments in which animals are confined for a few weeks at a time as well, such as current ones involving effects of condensed tannins in forage on methane emission.

In fact, we have difficulty in scheduling time for all of the experiments that require use of the North Barn facilities. I do not want to give the impression that this is the only valuable Research Farm facility we have. We have many other and we are very proud of all of our research facilities.

We enjoy giving tours of our research facilities and an excellent opportunity to tour the facilities is during our Annual Goat Field Day. At the end of the day, a tour is organized to give participants the opportunity to see the places where we conduct research.

Concerning this years's Goat Field Day, attendance keeps going up year after year, which makes us happy indeed. Even though attendance is important, the objectives of our Goat Field Day are to provide education and training in areas of interest and importance to goat producers and to provide a setting for communication among producers and between producers and Langston University.

Goat Newsletter is published quarterly by the Cooperative Extension Service of the E (Kika) de la Garza American Institute for Goat Research, Langston University, Langston, Oklahoma.

Dr. Marvin Burns,
Dean,
School of Agriculture and Applied Sciences

Dr. Vernon Jones,
Associate Dean,
School of Agriculture and Applied Sciences

Dr. Tilahun Sahlu,
Director,
E (Kika) de la Garza American Institute for Goat Research

E (Kika) de la Garza American Institute for Goat Research
Langston University
P.O. Box 730
Langston, OK 73050
Phone: (405) 466-3836
FAX: (405) 466-3138
http://www2.luresext.edu

Newsletter Editor
Dr. Terry A. Gipson

This year's theme was Organic Goat production and our featured speakers were Rev. Dr. Lisa Waltz, who spoke on organic meat goat production, and Ms. Nancy Coonridge, who spoke on organic dairy goat production. Mr. Bryan Buchwald of the Oklahoma Department of Agriculture also spoke on rules and regulations for organic certification and production. For more details, please see page 6.

Don't be too disappointed if you were unable to make it to the Goat Field Day this year, the proceedings are available on our website (http://www2.luresext.edu).

In addition to conducting cutting-edge research and disseminating producer-oriented information, the Goat Program is heavily involved in the international goat arena. These past twelve months have been busy travel months for our scientists and staff and I would like to share with you some of those international projects and the experiences of our personnel.

For long-time readers of the newsletter, you will be familiar with various reports on our past collaborative projects with two Ethiopian universities, Alemaya University and Debub University. These initial projects with these two universities began with research grants awarded in the 1990's and then expanded to include more aspects of training, research, and development through university partnerships and other grants that have been awarded in the last five to seven years. These grants were designed to enhance household food security, income generating potential, and family health status through increased productivity, which was accomplished via the provision of goats and appropriate technology to women's groups in villages near both universities.

Most recently, in late 2005 the American Institute for Goat Research of Langston University and Prairie View A&M University, Prairie View, TX were awarded a $7 million grant from the USAID Mission in Ethiopia for a project entitled "Ethiopia Sheep and Goat Productivity Improvement Program." The official launching workshop for this five-year project was recent held in Addis Ababa, Ethiopia and you can read more about it on page 3.

Also in 2005, the American Institute for Goat Research of Langston University was awarded an USDA International Science and Education Competitive Grants Program project to collaborate with universities in Arabic-, Chinese-, French-, and Spanish-speaking countries to translate and adapt two web-based goat production and research decision-support tools developed at Langston University. You can read more about this international project on page 5.

I hope that you and your animals are able to keep cool during this hot and dry summer.

Ethiopia Sheep and Goat Productivity Improvement Program

On June 23, 2006, the Ethiopia Sheep and Goat Productivity Improvement Program (ESGPIP), a joint project among Langston University (LU), Prairie View A&M University (PVAMU), the United States Agency for International Development (USAID), and the Ministry of Agriculture and Rural Development of Ethiopia (MoARD), held its official launching workshop. The event was held at the International Livestock Research Institute in Addis Ababa, Ethiopia and was attended by over 85 people representing Ethiopian government ministries, central and regional agricultural research organizations and institutes, universities, non-governmental organizations, and other organizations providing developmental assistance in Ethiopia.

The workshop opening address was provided by H. E. Dr. Abera Deresa, State Minister of the Ministry of Agriculture and Rural Development. Dr. Deresa spoke of the importance of sheep and goats in Ethiopia and the need for successful completion of the project activities. He was followed by Mr. John McMahon of USAID who outlined his organization's assistance in Ethiopia and the importance of livestock in Ethiopia and the programs USAID supports. That was followed by brief statements by Drs. Freddie Richards of PVAMU and Roger Merkel of LU describing both universities. Also in attendance was Dr. Tilahun Sahlu of LU and Noel Estwick of PVAMU.

The main objective of the workshop was to introduce the goals and objectives of the program to the conference attendees and to solicit ideas and feedback from all stakeholders in the stated activities. Drs. Merkel and Richards along with Mr. Teffera Gebremeskel of the ESGPIP introduced the three objectives and associated activities during the remainder of the morning session. The afternoon sessions consisted of small group discussion on program objectives and presentation of group findings and suggestions.

The overall goal of the ESGPIP is to increase sheep and goat productivity in Ethiopia to improve food and economic securities. The three main program objectives are: 1) Improve small ruminant production and marketing practices; 2) Conserve and evaluate indigenous genotypes of sheep and goats in Ethiopia and introduce the Boer goat and Dorper sheep into the country; and 3) Enhance communication capacity of small ruminant facilities via improved internet connections. The

H. E. Dr. Abera Deresa
State Minister of the Ministry of Agriculture and Rural Development.

program is working in six regions of Ethiopia, namely Afar, Amhara, Oromia, Tigray, Southern States, and Somali.

Within each objective there are one or more activities that will be conducted. Four activities will be implemented in support of objective 1 - Improving small ruminant production and marketing practices. The first activity is to establish a small ruminant production and marketing training program for village development agents. This activity will be done at the development agent training colleges in collaboration with ministry personnel with a final goal of enhancing the transfer and use of improved technologies by farmers. This activity also encompasses the development and publication of a small ruminant production handbook to be used in training and extension activities.

The second activity in Objective 1 is to generate new production practices that will be of benefit to sheep and goat farmers and to transfer those technologies to them. Applied research will be conducted on a variety of issues with farmer participation. On-farm demonstrations, field days, and fact sheets will be used to transfer knowledge. These technologies will also be used in the development agent training program and handbook.

Mr. John McMahon of USAID address conference participants.

Along with activity 2, activity 3 calls for specific research into known production constraints to solve critical issues limiting increased productivity or marketing of small ruminants. This research will be conducted with farmers and businesses with results transferred as mentioned previously.

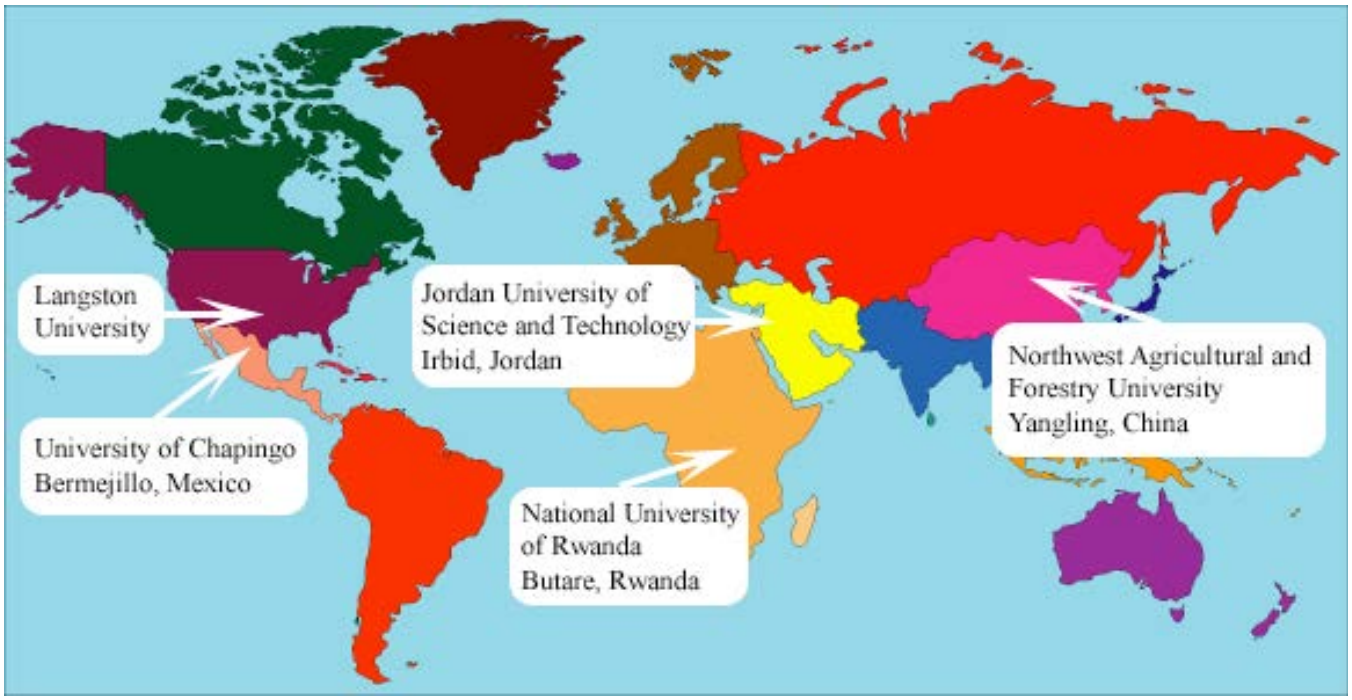
The fourth activity in Objective 1 is to establish methods of controlling external parasites to enhance the quality of sheep and goat skins for the leather industry. Hides and skins are the second largest earner of foreign income for Ethiopia and are an important agricultural product. Currently, infestation with lice, keds, and mange reduce the quality of skins to the leather industry. Mobile dipping vats and other technologies will be used to combat this problem. The impact of this intervention will be evaluated in conjunction with the Agribusiness and Trade Expansion Activity, another USAID-funded project.

The main activity in Objective 2 - Conserve and evaluate indigenous genotypes of sheep and goats in Ethiopia and introduce the Boer goat and Dorper sheep into the country concerns breed improvement and evaluation. Boer goats and Dorper sheep will be imported into Ethiopia from South Africa in 2006. These will be crossed with indigenous breeds and comparisons made between indigenous and crossbred animals. Ethiopia's rich natural resource of a variety of sheep and goat breeds will be maintained and conserved and studies conducted to evaluate the most appropriate breed or breed cross for different production conditions. Both crossbred and indigenous animals will be multiplied and distributed for farmer use. Crossbred animals will also undergo research on the quality of their skin so as not to compromise this important industry.

Objective 3 will enhance the computer and communication abilities of research stations and institutes involved in small ruminant research. This will be accomplished through improved internet connectivity. Not only will this allow for better communication among researchers and other stakeholders, it will allow them access to the large number of on-line resources on small ruminant research and production. This is essential for a successful completion of project activities.

For information regarding ESGPIP, contact Dr. Roger Merkel at (405) 466-6134 or rmerkel@luresext.edu.

LU+China+Jordan+Mexico+Rwanda = Web



This past year, Langston was awarded an USDA International Science and Education Competitive Grants Program project entitled International Collaboration in Goat Research and Production Web-Based Decision Support Aids.

The goal of the project is to facilitate future collaborative research between the American Institute for Goat Research (AIGR) of Langston University and institutions in Arabic-, Chinese-, French-, and Spanish-speaking countries, as well as to gain knowledge of goat research and production practices in other areas of the world. Objectives are to translate and adapt two web-based goat production and research decision-support tools developed at the AIGR (goat nutrient requirements and feed intake; goat production system simulation model) for use and future collaborative research in the Middle East, China, French-speaking countries, and Central and South America. Collaborating institutions are Northwest Science-Technology University in China, Jordan University of Science and Technology, University of Chapingo in Mexico, and the National University of Rwanda.

In Phase 1, Langston University faculty will provide training in use of the systems and become acquainted with goat production practices and research and people conducting them in the different countries.

In Phase 2, principal international collaborators will translate the text of the systems and mirror websites will be constructed.

In Phase 3, adaptations of the systems for use at each site will be made, and the systems will be introduced to other institutions in each country.

In Phase 4, an international internet Caprine Working Group of researchers, teachers, and extension personnel using the systems will be initiated, and principal foreign collaborators will travel to LU to participate in the annual Goat Field Day of the AIGR, present seminars, and provide instruction in an undergraduate animal science class.

Phase 1 of this project has been completed and the Langston University participants (Drs. Arthur Goetsch and Terry Gipson) in this project have traveled to the collaborating universities in China, Jordan, Mexico, and Rwanda. In future issues of the newsletter, they will provide some information about the state of goat production in the four collaborating countries and their impression of some of the goat production practices, and of the countries in general they encountered.

For information regarding this ISECGP grant, contact Dr. Arthur Goetsch at (405) 466-6164 or goetsch@luresext.edu.

Goat Field Day 2006

Our annual Goat Field Day was held on Saturday, April 29, 2006 at the Langston University Goat Farm. This year's theme was Organic Goat production.

Our featured speakers were Rev. Dr. Lisa Waltz, who spoke on organic meat goat production, and Ms. Nancy Coonridge, who spoke on organic dairy goat production.

Rev. Dr. Lisa Waltz, is a Naturopathic Doctor, Certified Traditional Naturopath, Certified Nutritional Consultant, ordained minister, and holds a Doctorate of Divinity. Dr. Waltz is also the author of "The Herbal Encyclopedia - a Practical Guide to the Many Uses of Herbs" and owns and operates The Natural Wellness Center. She has been raising meat and dairy goats the natural way, free of chemical intervention, for over 15 years. The herd consists of paint, solid, and traditional Boers, colorful Nubians, and percentages of the two breeds. Performance bred American Quarter Horses are raised alongside the goats at her small all-natural ranch known as Waltz's Ark, located near Delta, Colorado.

Nancy Coonridge has been making her living from her goats "in the Wilds of New Mexico" since 1982. Her Alpine, Nubian and LaMancha does graze the dry high desert range daily. Nancy's Grade A Dairy, Coonridge Organic Goat Cheese has been certified organic by the New Mexico Organic Commodities Commission since 1998. Before moving to New Mexico Nancy produced milk for an evaporated milk co-op, and two goat cheese co-ops. She managed a Grade A Dairy in California for a short time. She also edited the "Goat Products" newsletter for two years.

Kay Garrett, instructor, discusses show-ring etiquette with a youth participant during a recent Goat Field Day.

Mr. Bryan Buchwald of the Oklahoma Department of Agriculture spoke on rules and regulations for organic certification and production.

In the afternoon session, participants broke into small-group workshops.

Ms. Sheila Stevenson hosted a full day of activities for youth ages 5-12. This allowed parents and older teens to enjoy the workshops knowing that their little ones were having fun in a safe environment. Some activities included pony rides, PYOP (pot your own plant), Oklahoma mobile educational unit, wood turning, face painting and many other activities.

Other youth and interested adults were able to participate in a full-day clipping, fitting, and showing workshop conducted by Ms. Kay Garrett of the Oklahoma Meat Goat Association. Participants had the opportunity to have hands-on practice of clipping and fitting a goat.

Attendance at the Goat Field Day increases every year. This year 527 people pre-registered; 169 by mail and 358 by the web site. Of the 527 pre-registered individuals, 422 actually attended the Goat Field Day. In addition, 104 people registered on-site. The total number of participants for the 2006 Goat Field Day was 526.

Research Spotlight

Abstracted by A. Goetsch

Lactation Curves.

A 2-year study investigated effects of different levels of concentrate supplementation on milk production, composition, and lactation curves in pastured dairy goats. In both years 44 Alpine goats were randomly allocated to four groups. Animals were supplemented with 1.5 (treatments A and B), 0.75 (treatment C), or 0 lbs. of concentrate (treatment D) per kg of milk over 3.3lbs/day. Mixed vegetative forages were rotationally grazed by the goats (treatments B, C, and D) except that treatment A was confined and fed alfalfa hay. Milk yield was lowest among treatments for D. The increased level of concentrate supplementation in treatment A led to 22% greater milk yield compared with treatment D. Milk production increased by 1.7 and 0.9 kg for each additional kg of concentrate fed per day during years 1 and 2, respectively. Average peak yield, time of peak yield, and persistency and milk fat concentration were lowest among treatments for D. Concentration of milk protein was greater for treatments A and B during the first year, and was higher for treatment C than for other treatments during the second year. Average milk lactose concentration was higher for treatments B and C than for other treatments. Average organic matter intake was similar among treatments during both years. Ratios of acetate and propionate in ruminal fluid for treatment A were lowest among treatments. In conclusion, supplementation increased milk yield, peak yield, time of peak yield, and persistency, with relatively smaller effects on milk composition. Dairy goats grazing fresh forages without concentrate supplementation can produce milk inexpensively (e.g., 8.4 lbs/day), and response to concentrate supplementation depends on forage quality.

B. R. Min, S. P. Hart, T. Sahlu, and L. D. Satter. 2004. The effect of diets on milk production, composition, and on lactation curves in pastured dairy goats. Journal of Dairy Science 88:2604-2615.

Natural Parasite Control.

Anthelmintic resistance is an increasing problem in the production of small ruminants. Therefore, there is great interest in developing alternative means of managing internal parasitism. Some previous research has suggested than condensed tannins (CT) might have some type of anthelmintic activities. The objective of this study was to evaluate effects of the CT-containing forage sericea lespedeza (SL; 15.2% CT), on fecal egg count (FEC), larval development (larvae/10 g of feces), worm burden, and immune response compared with a crabgrass/Kentucky 31 tall fescue (CGTF; 0.32% CT) in grazing Angora does and their kids. Fifty worm-free mixed-age does were randomly allocated to three treatments. One treatment entailed grazing of SL forage from April 25 to July 15, with a second treatment of CGTF grazing during the same period. Does of the third treatment grazed a sward of SL for 2 weeks and then one of CGTF for 2 weeks followed by alternating between the two pastures every 2 weeks (rotational grazing; ROT). Mean FEC for SL and ROT were substantially lower than for CGTF does (145, 329, and 894 eggs/g, respectively). The FEC for kids was lower for SL than for ROT and CGTF (550, 2,757, and 3,600 eggs/g, respectively). Total fecal egg output (3.3, 6.0, and 26.9 × 105 eggs/day, respectively) and larval development (242, 263, and 792 larvae/10 g, respectively) were lower for SL and ROT than for CGTF. The packed cell volume (PCV) in does was higher for SL and ROT than for CGTF (27, 26, and 23%, respectively). In summary, grazing CT forages reduced FEC, larval development and worm burden, and also appeared to enhance immune response. The CT-containing forage SL reduced gastro-intestinal parasite infections of Angora does and kids.

Min, B.R., S.P. Hart, D. Miller, G.M. Tomita, E. Loetz, and T. Sahlu. 2005. The effect of grazing forage containing condensed tannins on gastro-intestinal parasite infection and milk composition in Angora does. Veterinary Parasitology 130:105-113.

Noteworthy News

Dr. **Steve Zeng** has been busy on the road conducting goat cheese making workshops for goat producers, goat hobbyists and cheese lovers. Dr. Zeng instructed workshops in McAlester on May 5, in Claremore on May 13, and Duncan on June 6. Because of the high demand of cheese workshops off campus, a cost-sharing policy has been installed for future activities.

In May, Dr. **Steve Hart** conducted parasite workshops in Gainesville, TX, Marble Hill, MO, Atoka, OK, Sallisaw, OK, and Anadarko, OK

In May, Dr. **Art Goetsch** traveled to Ethiopia to assist with the ESGPIP project.

In May, Drs. **Art Goetsch** and **Terry Gipson** traveled to Jordan to work on the ISECGP project.

In June, Drs. **Art Goetsch** and **Terry Gipson** traveled to Ethiopia to work on ESGPIP project and then on to Rwanda to work on the ISECGP project.

In June, Dr. **Steve Hart** spoke on nutrition at a goat conference in Santa Rosa, CA.

In June, Drs. **Tilahun Sahlu** and **Roger Merkel** traveled to Ethiopia for Launching Workshop of the ESGPIP project.

In June, Dr. **Tilahun Sahlu** traveled to South Africa to participate in a UNCF-sponsored conference.

In June, Dr. **Steve Hart** spoke on dairy goat nutrition at a conference in Menomonie and Madison Wisconsin

In July, Drs. **Sahlu**, **Goetsch**, **Gipson**, **Merkel**, **Hart**, **Patra**, **Rovai**, **Animut**, **Puchala**, and **Zeng** and Mr. **Chen** attended the national meetings of the American Society of Animal Science in Minneapolis, MN to make research presentations and attend scientific sessions.

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P.O. Box 730
Langston, OK 73050