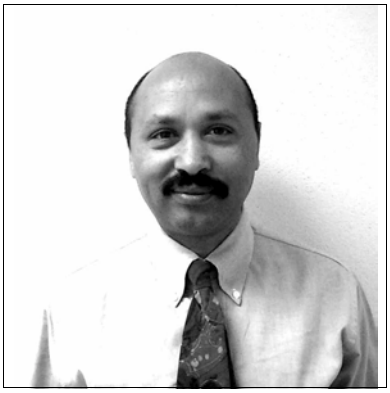
E. (Kika) de la Garza Institute for Goat Research • Oklahoma •

# Goat Newsletter

Cooperative Extension Program
Langston University

*The Newsletter of the E (Kika) de la Garza Institute for Goat Research* *Summer 2002*

## From the Director's Desk



***Dr. Tilahun Sahlu***

To begin, I hope you were able to make it to our annual Goat Field Day on April 27. It was a big success. We had more than 200 participants from Oklahoma and the surrounding states. In addition to the knowledge that was gained from the excellent presentations and workshops, we hope that lasting friendships and acquaintances were also made, especially between you and the institute.

Because it has been such a short time since my 'Welcome' at the field day, it is difficult not to be redundant about current activities at the Institute, but I'll try. First, the Meat Goat Buck Performance Test just began and we have a record number of 51 bucks enrolled in the performance test. This year, Ms. **Hong Guo** will be assisting Dr. **Terry Gipson** with the buck performance test. In the next newsletter, Dr. Gipson will give a full report on the buck performance test. Dr. **Dan Miller**, a parasitologist from the Automous University of Nuevo Leon in Mexico, recently joined us for a 6-month period to continue our internal parasite/grazing management project, with help from Dr. **Steve Hart**. Dr. Miller will also assist Drs. Gipson and Hart in extension activities, such as the controlling internal parasites workshops. Please see page 7 for details about the controlling internal parasites workshops as well as details on the artificial insemination and dairy products workshops.

Relatedly, Drs. **B. R. Min** and Steve Hart have underway an experiment with Alpines and Angoras looking at potential anthelmintic activities of forage containing condensed tannins. Drs. **Ignacio Tovar Luna**, **Chuntian Zeng**, and **Ryszard Puchala** are keeping our respiration calorimetry system quite busy, recently finishing a growth experiment with meat goats and now with a lactating Alpine study underway.

Mr. **Getachew Animut** has started his diet selection/performance experiment dealing with different stocking rates and co-grazing of goats and sheep in the West Pasture area.

Dr. **Grant Tomita** is collecting milk from local farms for testing various mastitis detection methods. Drs. **Steve Zeng** and **Kamal Soryal** have their goat cheese yield and properties project in full swing.

Lastly, we have completed fencing and initial vegetation measures and placed animals at the six research-demonstration sites of the goat-vegetation management project. Our international activities continue to grow. Recently, Dr. **Roger Merkel**, Mr. **Jerry Hayes**, and I traveled to Armenia to provide training and consultation on the USDA Marketing Assistance project. Please see page 3 for a report on this trip. Drs. Steve Zeng, Kamal Soryal, and **Art Goetsch** are preparing to host a 2-week milk technology training for participants on the MERC project.

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

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# Meet the Faculty & Staff

***Mr. Kesete Tesfai***

Mr. Kesete Tesfai was born in Dekemhare, Eritrea. After completing his secondary education in 1971 in Eritrea, he came to the United States to further his education.

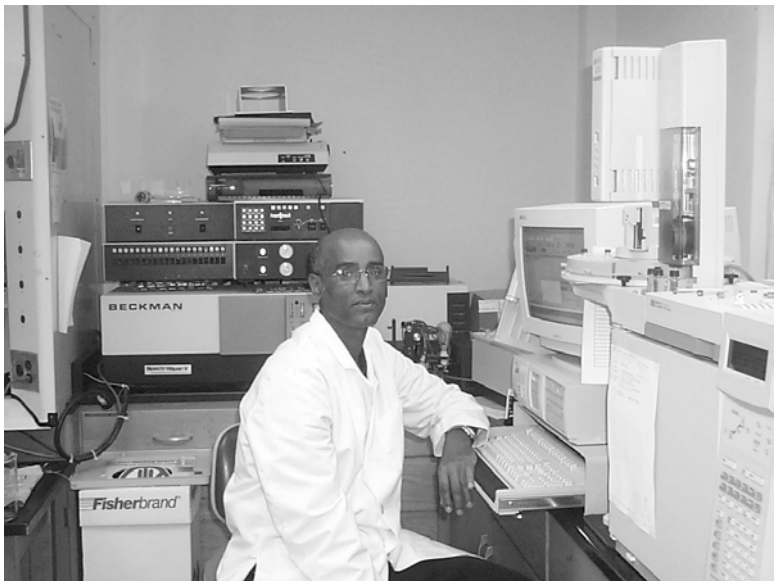
In 1975, Mr. Tesfai graduated from Panhandle State University in Goodwell, OK with a degree in Agronomy.

He then enrolled in graduate school in Oklahoma State University and received his M.S. in soil science in 1977. Before receiving his M.S., Mr. Tesfai started his career at Langston University as a graduate research assistant in 1976 working on the formation of carcinogenic nitrosamines. From 1978 through 1990, Mr. Tesfai served as a research associate studying biological nitrogen fixation . His work was concerned with herbicidal and allelopathic effects on germination, growth and nodulation in soybeans.

In 1991, he was appointed laboratory coordinator for the E (Kika) de la Garza Institute for Goat Research.

He is married to Tzighe Tesfai and they have three boys.

*Mr. Kesete Tesfai can be reached at (405) 466-3836.*




*Mr. Tesfai operating one of the many instruments in his laboratory at Langston University.*

# Expanded Goat Activities in Armenia

*by Roger Merkel*

In March, Drs. Tilahun Sahlu and Roger Merkel and Assistant Farm Manager Jerry Hayes traveled to Armenia as part of collaborative activities with the USDA Marketing Assistance Project (MAP). This trip marked the end of an initial grant awarded to Langston University from the USDA and the beginning of expanded activities with the USDA MAP-sponsored Armenian Improved Dairy Goat (ARID) Project. The USDA ARID Project will assist Armenian goat producers in the genetic improvement of their livestock in order to increase milk production, and in marketing goat milk in order to increase incomes.

Upon their arrival, Drs. Sahlu and Merkel and Mr. Hayes attended a meeting of the Advisory Board for the ARID Center and heard reports on the previous year's activities and plans for the coming year. Dr. Merkel also gave a short presentation on the collaborative activities to be conducted between Langston University and USDA MAP in the area of dairy goat production. The Langston team spent time at the ARID Center observing the animals, milking procedures and speaking with staff on management and other issues. The team visited many Armenian farmers who collaborate with the USDA and saw their animals. Cheese is an important commodity made from goat milk and the team also visited several cheese plants and one cheese cooperative. Finally, the team held a meeting with the ARID Center's Director, Armen Harutunian, to discuss the breeding program and management of the ARID Center.

The Langston team was impressed by the ARID Center personnel and with the USDA's effort to have a real impact on the dairy goat industry in Armenia. The team was also impressed by the excellent communication seen among ARID center employees and the farmers. Every farmer visited was enthusiastic about his farm and the possibility of upgrading the genetic potential of his animals via AI and/or use of an imported buck. During farm visits the Langston team noticed areas where improvements could be made and gave recommendations on management, housing, disease, internal parasites and nutrition as well as suggesting a number of workshops that should be held to provide information to goat producers. Recommendations were also made on computerizing existing data for ease of analysis and on proper pasteurization of milk. Mr. Jerry Hayes assisted with some animal management activities at the ARID Center and performed a goat management workshop in a village that was well-attended.

***Training of new Liaison***

Also as part of collaborative activities, in early March GIGR conducted a 10-day training program for Mr. Justen Smith, the new USDA ARID Center Liaison. Mr. Smith's training covered aspects of breeding, nutrition, dairy production, disease and internal parasite control, record keeping and general management issues. Following the training, Mr. Smith traveled to Armenia where he will serve as liaison for six months.

GIGR looks forward to expanding collaboration with the ARID Center and the USDA MAP. Activities will include provision of technical support to the ARID Center and training of additional Armenian personnel at GIGR.

*New ARID Center Liaison, Mr. Justen Smith, undergoing training in the milking parlor at Langston's dairy.*

# On-farm Cashmere Research

In 1999, Dr. Claud Evans, a veterinarian from Okemah, OK initiated an USDA Sustainable Agriculture Research and Education Producer Grant project. One of the objectives of Dr. Evans' project was to investigate cashmere harvesting methods. Traditionally in the United States, cashmere is harvested by shearing in late winter or early spring. Often there can be complications associated with advanced pregnancy or inclement weather. In China, the traditional method of harvesting cashmere is combing the goats. This method is laborious. In order to investigate these harvesting methods, Dr. Evans turned to Langston University and their state-of-the-art fiber laboratory for assistance. Cooperating with Dr. Evans on this project was Dr. Terry Gipson.

*Dr. Claud Evans demonstrates harvesting cashmere by combing.*

In the early spring of 1999, 2000 and 2001, Dr. Evans combed one half of the goat and Dr. Gipson sheared the other half. The combed half was recombed once or twice again depending upon the cashmere cover. Fleece samples were transported to the fiber laboratory of the E (Kika) de la Garza Institute for Goat Research at Langston University. Fiber samples were analyzed for length, diameter, fleece weight, yield, and cashmere weight. Fiber length was calculated by averaging randomly chosen individual cashmere fibers and measuring using a ruler and blackcloth. Diameter and yield were determined using an Optical Fiber Diameter Analyzer. Fleeces were subsampled using a mini-corer and dry prepared for analysis. Fleece weight was determined using a top-loading analytical balance and cashmere weight was calculated by multiplying fleece weight by yield.

Data were analyzed as repeated measures over time using a split-plot design. Each animal represented the whole plot and harvesting method the split-plot.

The cashmere production traits are presented in Table 1. Cashmere length is missing for 1999 because samples were inadvertently destroyed before length calculations could be taken. The length of cashmere fibers was significantly ($p>.05$) longer for shorn fleeces than for combed

Table 1. Parameters of clipped versus combed cashmere fleeces.

| | Clipped | | | Combed | | |
|---|---|---|---|---|---|---|
| | 1999 | 2000 | 2001 | 1999 | 2000 | 2001 |
| Length (cm) | - | $4.7^{a}$ | $4.6^{a}$ | - | $4.3^{b}$ | $4.2^{b}$ |
| Diameter (micron) | $19.5^{a}$ | $18.2^{a}$ | $28.9^{b}$ | $18.5^{a}$ | $17.4^{c}$ | $17.3^{c}$ |
| Harvest Fleece Weight (g) | $98.7^{a}$ | $108.2^{b}$ | $79.5^{c}$ | $20.5^{d}$ | $18.3^{d}$ | $14.5^{e}$ |
| Yield (%) | $15.6^{a}$ | $17.2^{a}$ | $21.4^{b}$ | $73.6^{c}$ | $80.9^{c}$ | $93.2^{d}$ |
| Cashmere Weight (g) | $15.4^{a}$ | $18.6^{a}$ | $17.0^{a}$ | $15.1^{a}$ | $14.8^{a}$ | $13.5^{a}$ |

fleeces, although the difference was less than one-half centimeter. This would imply that the process of combing did not break the cashmere fiber close to the follicle but further away from the follicle than the distance of the clipper blade. Average diameter of the combed fleeces was significantly ($p>.05$) finer than the clipped fleeces. This would imply that the coarser cashmere resisted breakage and remained on the animal, while all cashmere fiber was harvested by shearing. As expected, the clipped fleeces were significantly ($p>.05$) heavier than the combed fleeces. However, the amount of cashmere fiber in the combed fleeces was significantly ($p>.05$) greater than that of the clipped fleeces. The total amount (weight) to cashmere harvested was not affected by harvesting method.

The harvesting method of combing yielded a finer fleece that had fewer impurities than did shearing. Even though combing resulted in shorter cashmere fibers, the difference in length was negligible. Harvesting cashmere by combing is a viable alternative to shearing.

Dr. Evans will be presenting these findings as part of a national panel at a national sustainable agriculture conference. Please see the sidebar on this page for more details of this upcoming national conference.

*For more information concerning cashmere harvesting, please contact Dr. Claud Evans at 918-623-1166 or cde4@earthlink.net or you can view the cashmere comb at http://www.cevanse.com.*

*Comb that Dr. Evans developed for harvesting cashmere.*

## Oklahoma Goat Producer Featured on National Panel

Most people around the small town of Okemah, Oklahoma, know Dr. Claud Evans as the veterinarian who patches up their pets or vaccinates their beef cattle. But he is also an inventor, entrepreneur and a researcher using his own herd of cashmere goats as subjects. For this combination of interests, Evans was asked to be part of a national panel of five innovative farmers to kick off the national conference, On the Road to Sustainable Agriculture, the evening of October 23, in North Carolina. The conference, which will be based at the Sheraton Imperial Conference Center in Research Triangle Park, **October 23-26**, is being sponsored by the USDA's Sustainable Agriculture Research and Education (SARE) program.

Evans, who received a SARE grant to research the possibility of managing parasites by rotating the grazing pastures of his goat herd, also invented a comb to remove the precious cashmere. By combing rather than shearing, he obtains a higher quality fiber and also spares his herd the trauma of being sheared.

# Research Spotlight

*Abstracted by A. Goetsch*

**Meat Goat Slaughter Characteristics.**

Goats in the U.S. are not marketed for meat at a standard age or weight. Presently, the number of crossbred Boer goats is increasing rapidly. Growth rate and mature size are greater for Boer goats and their crosses compared with Spanish goats and Angoras. There has been little experimentation concerning factors influencing growth performance and harvest traits of meat goats. Thus, an experiment was conducted to determine influences of gender and age on growth performance and harvest traits of Boer crossbred meat goats. Wether, female, and male Boer × Spanish goats (17, 16, and 17 kg initial body weight, respectively) consumed a high concentrate diet from 116 to 340 days of age, with harvest at 56-day intervals. Average dry matter intake for the entire experiment was lowest among genders for females (674, 534, and 682 g/day), and average daily gain was greater for males and wethers than for females (119, 89, and 138 g/day for wethers, females, and males, respectively). Dressing percentage was similar among genders and lowest among ages at 116 days (42, 49, 50, 51, and 51% for 116, 172, 228, 284, and 340 days, respectively). Internal fat mass was lower for males versus wethers and females (6.9, 7.0, and 5.1% of empty body weight for wethers, females, and males, respectively) and increased with increasing age (2.3, 5.4, 6.3, 7.7, and 9.9% of empty body weight; 0.32, 1.08, 1.60, 2.77, and 4.08 kg at 116, 172, 228, and 340 days of age, respectively). Carcass scores and grades were similar among genders. Among genders, males had the greatest carcass percentages of separable bone (27, 27, and 29%) and lean (50, 50, and 54%) and were lowest in fat (18, 20, and 13% for wethers, females, and males, respectively). Carcasses were 39, 30, 27, 23, and 21% bone; 7, 18, 15, 21, and 22% fat; and 49, 49, 51, 54, and 54% lean at 116, 172, 228, 284, and 340 d, respectively. In summary, with moderate rates of growth, differences among genders of Boer × Spanish goats in performance and harvest traits were not affected by age from approximately 4 to 11 months.

*Cameron, M. R., S. P. Hart, T. Sahlu, C. Gilchrist, S. W. Coleman, and A. L. Goetsch. 2001. Effects of gender and age on performance and slaughter and carcass characteristics of Boer × Spanish goats. Journal of Applied Animal Research 20:141-155.*

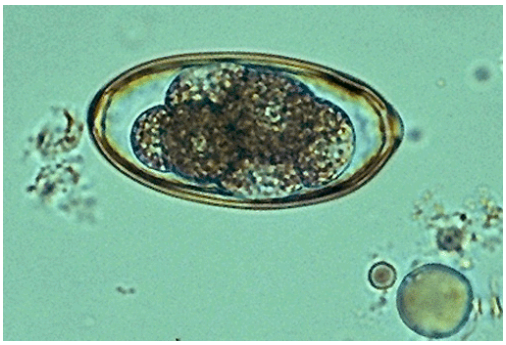
**Dairy Goat Slaughter Characteristics.**

Compared with beef, lamb, and pork, chevon, particularly from young dairy kids, is quite lean, with little subcutaneous or intramuscular fat. Prior to the introduction of Boer goats, male kids from dairy goats harvested at a very young age provided much of the goat meat consumed in the U.S. In addition to feeding for early age slaughter, effective and economical feeding systems for dairy kids are needed for development of replacement doelings and with slaughter for meat at heavier weights and greater ages. Therefore, objectives of this experiment were to compare effects of ad libitum milk intake and limited milk consumption, with or without supplemental concentrate, on growth and carcass traits of Alpine kids at two harvest ages (10 and 13 weeks). Thirty wether kids (2 weeks of age) were given *ad libitum* (A) or limited (1 kg/day) access to milk, with (LC) or without (L) ad libitum supplemental concentrate. Average daily gain was lowest among dietary treatments for L and similar between A and LC at 10 weeks but greater for LC at 13 weeks (151, 55, and 149 g at 10 weeks and 110, 49, and 144 g at 13 weeks for A, L, and LC, respectively). Similar differences were observed in carcass weight (7.0, 3.7, and 6.1 kg at 10 weeks, and 6.8, 4.4, and 7.9 kg at 13 weeks for A, L, and LC, respectively). The ratio of kidney and pelvic fat to bone-free muscle was lowest among dietary treatments for L, similar between A and LC at 10 wk, and lower for LC versus A at 13 weeks (2.1, 0.5, and 2.0 at 10 wk and 2.7, 0.5, and 1.8 at 13 wk for A, L and LC, respectively). In summary, up to 10 weeks of age, either ad libitum consumption of milk or restricted milk intake with supplemental concentrate can be used to raise Alpine kids. However, with slaughter at ages greater than 10 weeks, body weight and carcass weight may be greater when concentrate is supplemented compared with *ad libitum* milk intake alone. Likewise, internal fat deposition can be elevated with extended ad libitum milk intake without supplemental concentrate.

*Genandoy, H., T. Sahlu, J. Davis, R. J. Wang, S. P. Hart, R. Puchala, and A. L. Goetsch. 2002. Effects of different feeding methods on growth and harvest traits of young Alpine kids. Small Ruminant Research. 44:81-87.*

# Controlling Internal Parasite Workshops

The Goat Extension Program will be conducting two full and two partial controlling internal parasite workshops this summer and fall.



*What egg is this? Attend the controlling internal parasite workshops and find out.*

Because of a special grant from the USDA Risk Management Education program, these controlling internal parasite workshops will be offered **free** to the public. However, workshops will be limited to 20 participants. **Register now to reserve your place in these *free* controlling internal parasite workshops.**

The first full summer workshop will be held at Langston University on Saturday, June 15 and the second full summer workshop will be held at Atoka, OK on Saturday, June 29. The partial workshops will be held in conjunction with the artificial insemination workshops. See the article below for dates and other details of the artificial insemination workshops.

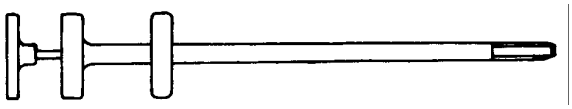
Participants at the full workshops will learn about parasite life cycles, dewormers, alternative treatments and will experience a hands-on training session on how to conduct fecal egg counts. Participants at the partial workshops will learn about dewormers and will experience a hands-on training session on how to conduct a fecal egg counts.

*For information regarding the controlling internal parasite workshops or to register, contact Dr. Terry Gipson at (405)466-3836 or tgipson@luresext.edu.*

# Artificial Insemination Workshops

The Goat Extension Program will be conducting two artificial insemination workshops this fall.

The first will be at Langston University on Saturday, September 14, 2002 and the second will be at the Cherokee County Fairgrounds in Tahlequah, OK on Saturday, October 12, 2002. Both workshops will present basic anatomy and physiology of goats, estrus detection and synchronization in goats, and semen handling. Participants will have opportunity to practice with fresh reproductive tracts and with live animals. Registration fee for the artificial insemination workshop is $30.



*Are you proficient with one of these? If not, you will want to attend our artificial insemination workshops.*

*For information regarding the AI workshops, contact Dr. - Terry Gipson at (405)466-3836 or tgipson@luresext.edu.*

# Dairy Products Workshop

Since there has been a tremendous interest in goat milk cheesemaking, we have planned another cheese and yogurt workshop at Langston University on Saturday, September 14, 2002. Those who pre-registered for the April workshop, but were not able to attend, will only need to confirm their registration. There is a registration fee of $15.00, which includes a free lunch consisting of goat meat sausages, goat milk ice cream and cheeses.

*For information regarding the dairy products workshop, contact Dr. Steve Zeng at (405)466-3836 or at szeng@luresesext.edu .*

# Noteworthy News

Dr. **Desta Hamito**, president of Alamaya University in Ethiopia, visited Langston University and conferred with staff concerning the Ethiopia project.

Drs. **Tilahun Sahlu**, **Roger Merkel**, and Mr. **Jerry Hayes** traveled to Armenia to provide training and consultation on the USDA Marketing Assistance project.

Dr. **Roger Merkel** traveled to Lima, Peru to give a progress report on the Ethiopia project.

Dr. **Tilahun Sahlu** traveled to Alamaya University and Awassa University to coordinate activities of the Ethiopia project.

Mr. **Justen Smith**, new ARID Center Liaison, received intensive training in dairy goat production before assuming his post in Armenia.

Dr. **Terry Gipson** presented at producer goat conferences in Tahlequah, OK, Nashville, TN, Frankfort, KY, Springfield, MO, and Beatrice, NE.

Dr. **Steve Hart** presented at producer goat conferences in AR.

Drs. **Steve Hart** and **Terry Gipson** presented a goat management workshop in Stillwell, OK.

Dr. **Daniel Miller** recently joined us to work on parasitology research projects. Dr. Miller is from the Automous University of Nuevo Leon in Monterrey, Mexico.

Dr. **Mario Villaquiran** recently joined us and will working with Dr. Terry Gipson on the Enhanced Goat Production Systems for the Southern United States project. The goal of this project is to develop a simulation program for goat management decision support in the SE United States..

This Spring, Dr. **Terry Gipson** judged Oklahoma youth goat shows in Wagoner, Mulhall, Haskell, Muskogee, Luther, Oklahoma County, and Poteau.

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