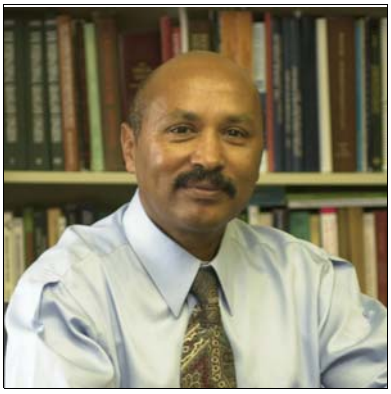
Goat Newsletter

Cooperative Extension Program
Langston University

The Newsletter of the E (Kika) de la Garza American Institute for Goat Research *Fall 2004*

From the Director's Desk



Dr. Tilahun Sahlu

We have had a nice summer at the time of writing this update in terms of rainfall, which has helped our forages grow but that also has kept us on our toes regarding management of internal parasites.

For research, it is fitting to start by mentioning the efforts of Dr. **Ignacio Tovar-Luna**, who is completing a 3-year period of research with us, to return to the University of Chapingo in Torreon, Mexico, where he will again teach and conduct research. Ignacio, in collaboration with Drs. **Ryszard Puchala** and **Art Goetsch**, completed seven respiration calorimetry experiments as part of a project to characterize influences of factors such as productive function, stage of production, and dietary properties on energy requirements of goats. Dr. **Puchala** is maintaining our attention to Angora goats, now initiating an experiment to investigate partitioning of nutrients between mohair fiber and non-fiber tissue. Dr. **Thomas Ngwa** recently completed an experiment to characterize the composition of tissue being lost and gained by mature goats, and has just initiated another to study addressing the composition of tissue gain by growing meat goats. Dr. **Asefa Asmare** most recently completed a study of the pattern of change in the maintenance energy requirement of meat goats in response to different levels of nutrient intake restriction. And, as another example of the coordinated and complementary research and extension components of the program, Asefa is working with Dr. **Terry Gipson** and the 2004 meat buck performance test data in trying to identify possible blood constituents measures with potential to predict test performance.

Dr. **Maria Yiakoulaki** initiated a six-month sabbatical in July. Maria conducts research and teaches at Aristotle University of Thessaloniki in Greece. Maria is carrying out an experiment looking at effects of different stocking rates with mixed grass/forb pastures on performance of different genotypes of meat goat does and their twin-kid litters, as well as viewing effects of creep grazing of the tree legume mimosa.

Our major extension activities during the summer were our annual controlling internal parasites workshops and our annual meat buck performance test. You can read more about the buck test on page 6.

Lastly, I would like to mention that Langston University was well-represented at the 8th International Conference on Goats, which was held in Pretoria, South Africa this summer. You can read about the highlights of the conference on page 3.

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Dr. Terry A. Gipson

Meet the Faculty & Staff

Dr. Tera Auchtung

Dr. Tera Auchtung was born in Fond du Lac, Wisconsin and grew up on a dairy farm. She received her B.S. degree from the University of Wisconsin-River Falls in 1996, with an emphasis in equine science and chemistry. Dr. Auchtung was very active in 4-H throughout high school and college and hopes to continue to support 4-H activities.

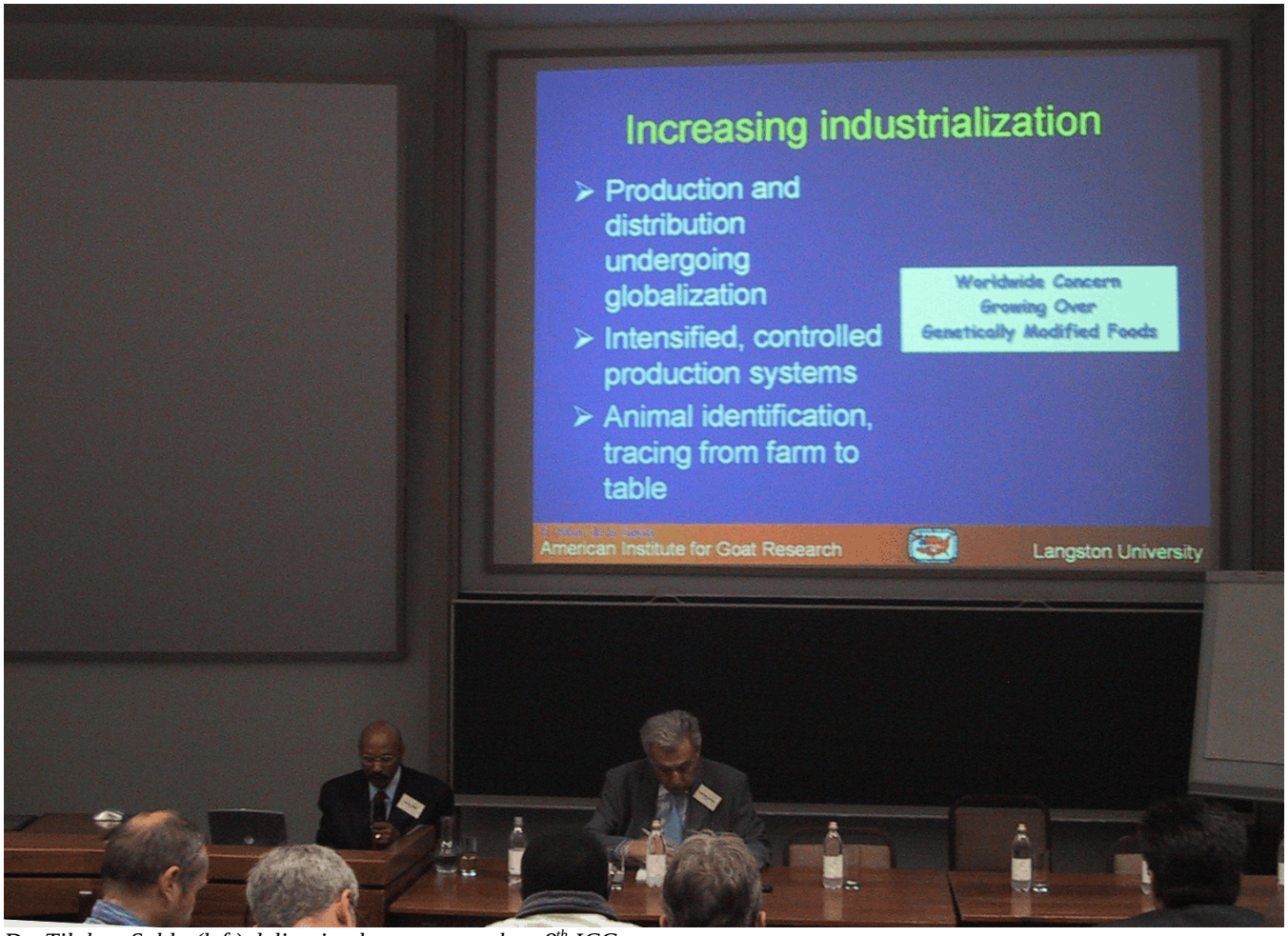
Before starting graduate school, she worked for two years as an account services representative at National Exchange Bank in Fond du Lac. In 2000 she received her Master's degree from the University of Maryland at College Park in Animal Science with an emphasis on beef cow physiology, looking specifically at the correlation between growth hormone response to growth hormone-releasing hormone and milk production in heifers. Dr. Auchtung received her Ph.D. from the University of Illinois at Urbana-Champaign in December of 2003. Her dissertation studies revolved around the use of photoperiod management to affect changes in milk production and immune function in dairy cattle. Research with the hormone prolactin and its receptor suggest that prolactin is a critical component to how photoperiod management increases milk production and improves health status. Dr. Auchtung has presented her research findings to producers, extension agents, and research scientists across the United States, Canada, and Europe and the application of photoperiod management on commercial dairies is gaining popularity.

Dr. Auchtung joined the American Institute for Goat Research at Langston University in June 2004 as an Assistant Professor/Lactation Physiologist. She will be working to apply photoperiod management principles to improve goat milk production and immune function, impact out-of-season breeding, and improve the field of goat mastitis research.

Dr. Tera Auchtung may be contacted at (405)466-3836 or at tauchtung@luresesext.edu.

8th International Conference on Goats

The 8th International Conference on Goats (ICG) was held in Pretoria, South Africa from July 4 through July 9, 2004. This conference provided the opportunity for goat specialists and enthusiasts to interact and exchange knowledge about modern goat production. Langston University was well represented with Drs. Terry Gipson, Arthur Goetsch, Roger Merkel, Ryszard Puchala, Tilahun Sahlu, and Steve Zeng attending the 8th ICG and presenting research findings of the university.



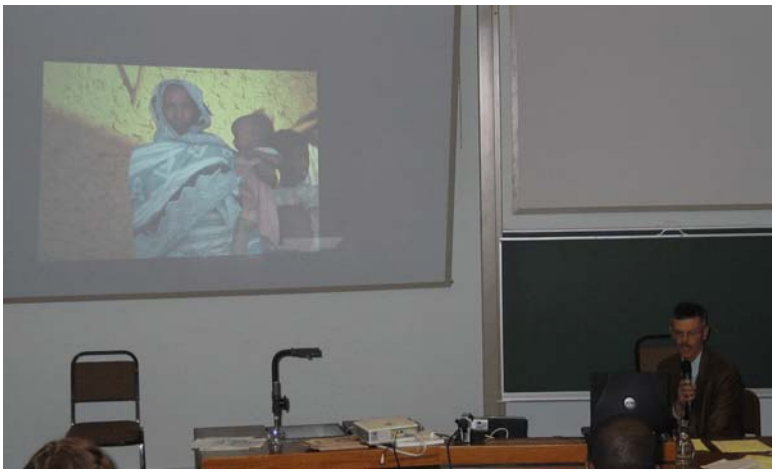
Dr. Tilahun Sahlu (left) delivering keynote speech at 8th ICG.

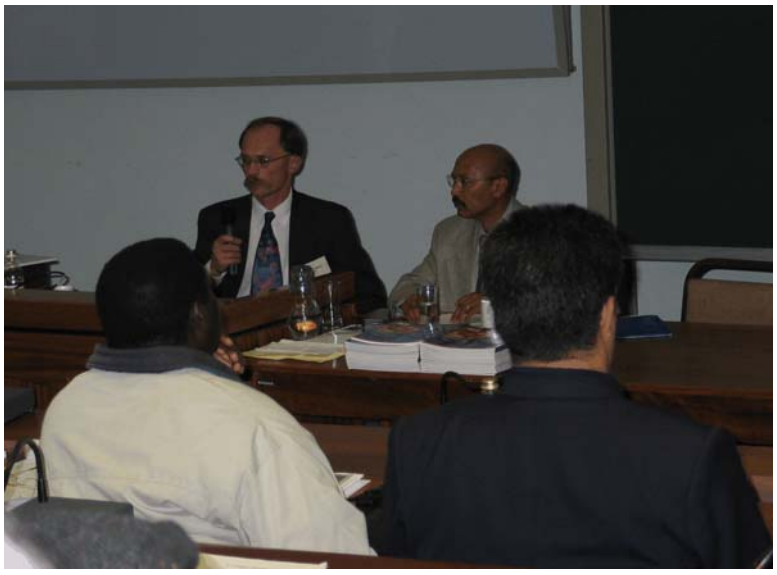
The five-day scientific program of the 8th ICG was stimulating, and encompassed all facets of research, education and production. On day one of the scientific program, Dr. Tilahun Sahlu delivered the keynote speech for the conference. In his presentation entitled "Foresight on Goat Research", Dr. Sahlu touched upon several important issues facing the scientific community. Dr. Sahlu noted that research is always evolving and ever-changing and that research is affected by economics and funding levels but also by political decisions and current events. Dr. Sahlu also stated that livestock production and distribution of products are going through both horizontal and vertical integration as well as increased globalization. In summary, Dr. Sahlu stated that "Therefore, as goat researchers our priority or goal should be to have a positive impact on the quality of life that includes the social, economic, and biological well-being of the world population that we serve".

Photo Memories of the 8th ICG

Terry Gipson, Veneta Banskalieva, Roger Merkel, Steve Zeng, Khalil Erafej, and Ryszard Puchala (l to r) enjoy a refreshment break during the conference.

Roger Merkel delivers a presentation on international collaboration.





Arthur Goetsch (left) and Tilahun Sahlu present research findings on newly revised nutrient requirements for goats.

Research Spotlight

Abstracted by A. Goetsch

Grazing Wheat Pastures.

Annual wheat is a major source of nutrients for many ruminants in the south-central US, including a significant number of meat goats. However, performance of cattle and sheep in the first few weeks of wheat grazing is lower than expected based on chemical composition such as levels of crude protein and fiber. Responsible factors have not been identified, although possible ones include digestive upset associated with an abrupt transition to highly digestible forage, low herbage mass and time required for adaptation by the ruminal microflora or tissues or organs, such as the digestive tract and liver, and tissues sensing the taste and texture of wheat forage. Therefore, 3/4 Spanish x 1/4 Boer wethers, born in the previous Spring (initial age of 8.5 months) or Fall (initial age of 2.5 months) were used to determine effects of free-choice consumption of different quality diets and age on early subsequent growth while grazing wheat forage. The experiment was 14 wk long, with 9 wk in the winter consuming prairie hay supplemented with soybean meal, alfalfa pellets, or a 70% concentrate diet, and 5 wk in the spring grazing wheat forage. An obvious period of adaptation to grazing of wheat forage after consuming ad libitum different diets on pasture in the winter was not apparent. The nature of diets consumed ad libitum did not impact subsequent growth, regardless of age, when grazing wheat forage. Overall average daily gain was greater when grazing wheat forage than earlier, which contributed to greater differences in body composition, notably fat concentration, between wethers at approximately 5.5 vs 11.5 months of age than earlier at 4 vs 10 months.

Goetsch, A. L., G. Detweiler, T. Sahlu, R. Puchala, R. C. Merkel, and S. Soto-Navarro. 2004. Effects of diet quality and age of meat goat wethers on early subsequent growth while grazing wheat forage. Small Ruminant Research. 51:57-64.

Tannins for Internal Parasite Control.

Some laboratory and small scale research has indicated that plants containing tannins may reduce hatching and development of internal parasite eggs. Tannins appeared to kill one species of worm in sheep. The present investigation was a short, preliminary study of the effect of sericea lespedeza, a common forage plant in Oklahoma that contains tannin, on internal parasites in goats. Wether goats with fecal egg counts greater than 1,200 eggs/gram (wormy animals) were used in this study. Fecal egg counts were taken at the beginning of the study and at 5, 10, and 15 days of each period. One group of six wethers grazed crabgrass/ryegrass and one group grazed sericea lespedeza (height maintained at 7-9 inches). After 15 days (first period) the groups were switched to the other forage and data were collected again. The major species of worm was the barber pole worm (*Haemonchus contortus*). During both periods, fecal egg counts on lespedeza started to decrease in only 5 days and by 10 and 15 days were significantly lower than for wethers grazing the sericea lespedeza pasture. Fecal egg counts increased in both periods for animals grazing the crabgrass/ryegrass. Fecal egg counts averaged 2,500 per gram for the crabgrass/ryegrass pasture and 700 eggs/gram for sericea lespedeza. Total daily production of fecal eggs was reduced from 1,730,000 to 450,000 eggs/day (a 74% reduction) by sericea lespedeza. In addition, the percentage of eggs in feces developing to L-3 infective larvae decreased from 99 to 58%. Sericea lespedeza helped to reduce pasture contamination by eggs and larvae and has potential to help control internal parasites of goats.

Min, B. R., W. E. Pomroy, S. P. Hart, and T. Sahlu 2004. The effect of short-term consumption of a forage containing condensed tannins on gastrointestinal nematode parasite infections in grazing wether goats. Small Ruminant Research 51:279-284.

Meat Buck Performance Test

The eighth annual meat buck performance test started May 8, 2004 with 58 bucks enrolled from 17 different breeders. Fifty-six of the bucks were fullblood or high-percentage Boers and two were Kiko bucks. Forty-two bucks were from Texas, 13 from Oklahoma, 2 from Mississippi and 1 from Kansas. The test was open to purebred and crossbred bucks born between December 1, 2003 and March 31, 2004.

Entrance weight for the 58 bucks averaged 24.3 kg (58.6 lbs) with a range of 13.0 to 41.0 kg (28.6 to 90.3 lbs).

The performance-testing facility only has 53 Calan feeders but 58 bucks enrolled. To accommodate all animals, a new Feed Intake Recording Equipment (FIRE) system was used. The FIRE system is a completely automated electronic feeding system, which was developed for swine but we have adapted it to goats. Animals wear an electronic eartag, which is read by an antenna in the feeder. The FIRE system automatically records body weight and feed intake. This year, half of the bucks were on the FIRE system and half were in the Calan feeders. For producers, who enrolled more than one buck in the Buck Performance Test, the test supervisor randomly assigned half of their bucks to the FIRE system and half to the Calan feeders. The adjustment/training period was much shorter for the FIRE system than for the Calan feeders. However, the bucks on the Calan feeders mastered the Calan feeders and did quite well. With the combined FIRE system and Calan feeders, the Oklahoma Buck Performance Test Buck now has a capacity of 100 bucks.

All bucks underwent an adjustment period of two weeks immediately after check-in. During the adjustment period, bucks were acclimated to the test ration and to the Calan feeders or to the FIRE system. For the Calan feeders, each buck wears a collar with an electronic "key" encased in hard plastic. The key unlocks the door to only one Calan feeder, thus enabling the buck to eat out of his individual feeder. Each morning, the feed that remains in the Calan feeder was weighed and removed from the Calan feeder. Fresh feed was weighted and placed into the Calan feeder. The difference in weights between the fresh feed place in the Calan feeder one morning and the remaining feed the next morning is the amount consumed. Because only one goat was capable of opening the Calan door and eating, it was possible to calculate the feed intake of each individual buck. For the FIRE system, feed intake was automatically recorded every time a buck enters into the FIRE system to eat.

Nutritionists at Langston University formulated the following ration. In 1999, the amount of salt and ammonium chloride was doubled due to problems with urinary calculi the previous year. Except for the increase in salt and ammonium chloride, the ration was unchanged from that which was used in the first two meat buck performance tests. The ration was fed free-choice during the adjustment period and during the 12-week test. The crude protein content of the ration is 16% with 2.5% fat, 20.4% fiber and 60.6% TDN. In 2003, competitive bids were sought for the buck-test feed and Bluebonnet Feeds of Ardmore, OK was awarded the contract to supply feed for the buck performance test for 2003 and 2004.

The official performance test started on May 26 after the adjustment period was finished. Weights at the beginning of the test averaged 29.7 kg (65.4 lbs) with a range of 17.0 to 47.0 kg (37.4 to 103.5 lbs). Weights at mid-point averaged 42.5 kg (93.6 lbs) with a range of 28.0 to 60.0 kg (61.7 to 132.2 lbs). Weight at the end of the test averaged 54.2 kg (119.4 lbs) with a range of 32.5 to 72.5 kg (71.6 to 159.7 lbs). At mid-point, weight gain averaged 12.4 kg (27.3 lbs) with a range of 4.0 to 17.5 kg (8.8 to 38.5 lbs). Weight gain for the test averaged 24.1 kg (53.1 lbs) with a range of 12.5 to 31.0 kg (27.5 to 68.3 lbs).

The type of feeder (Calan or FIRE) had no significant effect upon gain. Bucks on the Calan system averaged 23.5 kg (51.8 lbs) gain and bucks on the FIRE system averaged 24.8 kg

(54.6 lbs) gain, which is a difference of 1.3 kg (2.9 lbs).

At mid-point, the bucks gained on averaged 295.9 grams/day (0.65 lbs/day) with a range of 95.2 to 416.7 grams/day (0.21 to 0.92 lbs/day). For the test, the bucks gained on averaged 287.3 grams/day (0.63 lbs/day) with a range of 148.8 to 369.0 grams/day (0.33 lbs/day to 0.81 lbs/day).

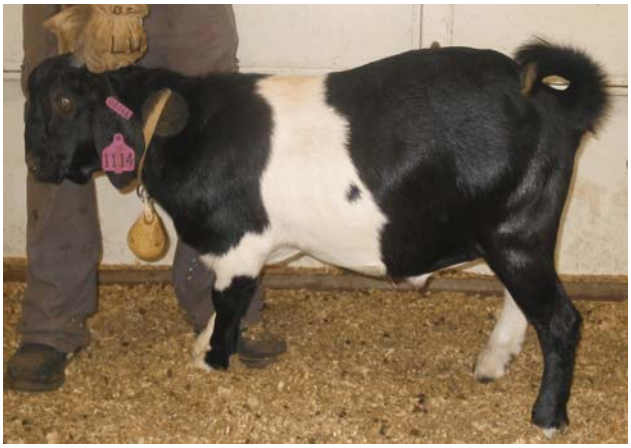
The type of feeder (Calan or FIRE) had no significant effect upon average daily gain. Bucks on the Calan system averaged 279.8 grams/day (0.62 lbs/day) and bucks on the FIRE system averaged 295.7 grams/day (0.65 lbs/day) gain, which is a difference of 15.9 grams/day (0.04 lbs/day).

For the test, the bucks consumed an average of 163.2 kg (359.5 lbs) of feed with a range of 97.4 to 216.7 kg (214.5 to 477.3 lbs).

The type of feeder (Calan or FIRE) had no significant effect upon intake. Bucks on the Calan system averaged 160.3 kg (353.1 lbs) intake and bucks on the FIRE system averaged 165.0 kg (363.4 lbs), which is a difference of 4.7 kg (10.4 lbs).

For the test, the bucks averaged a feed efficiency of 6.8 (feed efficiency is defined as the number of lbs. of feed needed for one lbs. of gain), with a range of 5.1 to 9.3.

The average loin eye area as determined by ultrasonography was 1.95 square inches with a range of 1.29 to 2.54 square inches and the average right rear leg circumference was 15.7 inches with a range of 11.0 to 19.5 inches.



Top indexing buck for the 2004 buck performance test.

Congratulations

The Oklahoma Meat Goat Association and the Agricultural Research and Extension Program at Langston University congratulate:

- Mr. Marvin Shurley of Sonora, TX for having the Top-Indexing buck in the 2004 Oklahoma Meat Buck Performance Test

Also, deserving congratulations are:

- Mr. Marvin Shurley of Sonora, TX for having the #1 Fastest-Gaining buck
- Mr. Marvin Shurley of Sonora, TX for having the #2 Fastest-Gaining buck
- Mr./Mrs. Jim and Lynn Farmer of Mullin, TX for having the #3 (tie) Fastest-Gaining buck
- Ms. Paula Lane of Shady Point, OK for having the #3 (tie) Fastest-Gaining buck
- Mr. Marvin Shurley of Sonora, TX for having the #3 (tie) Fastest-Gaining buck
- Mr./Mrs. Jim and Mary Daniel of Earlsboro, OK for having the Most-Feed-Efficient buck
- Ms. Paula Lane of Shady Point, OK for having the Most-Heavily-Muscled buck (tie)
- Ms. Tamara Hilger & Mr. Ralph Webb of Monroe, OK for having the Most-Heavily-Muscled buck (tie)
- Mr. A.L. Paul of Aubrey, TX for having the Most-Heavily-Muscled buck (tie)

For information regarding the buck performance test, contact Dr. Terry Gipson at (405)466-3836 or tgipson@luresext.edu. The final report is available online at http://www2.luresext.edu/goats/extension/extension/demonstrations.htm.

Noteworthy News

In June, Drs. **Lionel Dawson** and **Terry Gipson** traveled to Alemaya University and Debub University in Ethiopia to conduct training workshops as part of the ongoing collaborative relationships these universities have with Langston University.

In July, Drs. **Terry Gipson**, **Arthur Goetsch**, **Roger Merkel**, **Ryszard Puchala**, **Tilahun Sahlu**, and **Steve Zeng** traveled to Pretoria, South Africa to present research findings at the 8th International Conference on Goats.

Also in July, Drs. **Asefa Asmare**, **Terry Gipson**, **Arthur Goetsch**, **Roger Merkel**, **Ryszard Puchala**, **Tilahun Sahlu**, **Mario Villaquiran** and **Steve Zeng** and Mr. **Getachew Animut** traveled to Saint Louis, MO to present research findings at the annual meeting of the American Society of Animal Science and American Dairy Science Association.

In August, Drs. **Roger Merkel** and **Asefa Asmare** traveled to Washington DC to present a project update at the Association Liaison Office for University Cooperation in Development conference.

In September, Drs. **Tilahun Sahlu** and **Steve Zeng** traveled to China as part of an international cooperation project between Langston University and serval universities in China.

Also in September, Drs. **Roger Merkel** and **Tilahun Sahlu**, traveled to Cairo, Egypt to assist with the USAID MERC project, which conducted training sessions for seven Iraqi scientists. Drs. **Lionel Dawson**, **Terry Gipson**, and **Arthur Goetsch** later traveled to Cairo, Egypt to assist with the training.

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