Goat Newsletter

Cooperative Extension Program
Langston University

The Newsletter of the E (Kika) de la Garza American Institute for Goat Research *Fall 2017*

From the Director's Desk

As late summer turns into early fall, we usually continue with research projects and extension activities that are appropriate for this time of the year. However, there are always new developments. In the last newsletter, we announced the retirement of Dr. **Marvin Burns**, who had served as Dean for nearly twenty years. I am happy to announce that in August, Dr. **Wesley L. Whittaker** became Dean of the School of Agriculture and Applied Sciences at Langston University. Dr. **Whittaker** comes to Langston University after an illustrious career at Alcorn State University and has already injected vitality into our programs. You can read more about Dr. **Whittaker** on page 2 of this newsletter.

Another new item for us is the addition of a hair sheep research flock. Three years ago, Dr. **Art Goetsch** was awarded funding for his research project entitled "Genomics of Resilience in Sheep to Climatic Stressors" and we embarked upon hair sheep research. We assembled a flock of Dorper, Katahdin, and St. Croix ewes from four distinct geographical regions of the United States: Pacific Northwest, South/Central Texas, Upper Midwest, and Southeast. Those ewes are now being used for Dr. **Goetsch**'s research project entitled "Sustainable Control of Greenhouse Gas Emission by Ruminant Livestock." In September, Drs. **Goetsch** and **Terry Gipson** contacted breeders in Oklahoma, Kansas, and Missouri and purchased unrelated rams. The addition of hair sheep into our research program will allow us to make species comparisons in our research trials, reach out to new collaborators, and serve a wider clientele. We know that the addition of hair sheep will present some logistic hurdles in the short-term but will be an advantage in the long-term.

Other new activities are the seminars conducted by Drs. **Steve Hart** and **Raquel Lourencon** as their research/extension project entitled "Comparison of Biological Control of Redcedar with Goats to Conventional Methods of Control" comes to an end. In this project, Drs. **Hart** and **Lourencon** compared burning, goats, herbicide, and mechanical methods for controlling redcedar at four different sites: Langston, OK, Mannford, OK, Neosho, MO, and Oklahoma City, OK. You can read more on page 3.

Recently, we welcomed a new trainee, Ms. **Sanae Ishii**, from Japan. Ms. **Ishii** spent a month with us learning about goat production. Please read more about Ms. **Ishii's** experiences on page 4.

One last new item is the addition of 80 acres to the program. A few years ago, Langston University purchased this tract of land that is located just north of the South Barn area. We have recently been clearing the perimeter so that fencing can be installed. After fencing, we will be able to open it for grazing and housing animals. This new addition will increase the South Barn area by 50%, a significant and much needed increase.

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Langston University Welcomes New Dean

Dr. Wesley Whittaker

Dr. Wesley L. Whittaker was born and raised in Jamaica. After primary and secondary education, he left Jamaica and enrolled at North Carolina Agricultural and Technical State University (NCA&T), Greensboro, N.C., where he earned his B.S. in Agricultural Economics with a minor in Economics (Summa cum Laude-Highest Honors). He continued his academic career by earning a M.S. in Agricultural Economics and Ph.D. in Agricultural and Consumer Economics from the University of Illinois, Urbana-Champaign. He recently completed the LEAD21 Leadership training program, sponsored by the Association of Public Land-Grant Universities (APLU).

Immediately after completing his Ph.D., Dr. Whittaker returned to Jamaica where he accepted a faculty position at the University of the West Indies, Mona. He served as Lecturer/Assistant Professor of Economics in the Department of Economics and later as Assistant Dean in the faculty of Social Sciences. In 1996, Dr. Whittaker joined Alcorn State University in Lorman, Mississippi. First, he served as a Professor and Program Leader for Agricultural Economics/ International Agriculture in the Department of Agriculture. He was later appointed Assistant Dean for Research and most recently as Assistant Dean for Academics in the School of Agriculture and Applied Sciences.

Dr. Whittaker is an accomplished scholar, researcher and leader. Some of his distinctions and awards while at Alcorn State University include: President's Award for Distinguished Teaching, Outstanding Faculty Honoree in the State of Mississippi, Certificate of Award for Outstanding Participation in Sponsored Program activities, and Outstanding Faculty/ Teaching Award for Distinguished Service to the Department of Agriculture.

Dr. Whittaker is highly regarded by his students and colleagues who applaud his ability to create a dynamic, engaging learning and work environment. He is dedicated to constantly expanding opportunities for all. As he transitions into his role at Langston University, "he sees a positive future for the School of Agriculture and Applied Sciences." He embraces the years ahead with optimism, teamwork and vigor. "He firmly believes that with collaboration and collegiality, we will create the collective outcomes and impacts in academics, research, outreach and community engagement that we earnestly seek."

Weed & Brush Control

Redcedar is the chief invader of grasslands in the eastern United States and destroys biodiversity and creates an extreme fire hazard. Conventional methods of redcedar control are often expensive and have various undesired consequences such as killing desirable species, potential for pollution, and fire hazards when burning.

Goat standing near a redcedar with a browse score of Severe at the Oklahoma City site.

In the project entitled "Comparison of Biological Control of Redcedar with Goats to Conventional Methods of Control," Drs. Steve Hart and Raquel Lourencon compared various methods of redcedar control for efficacy, environmental impact and costs. This information will allow property managers and policy makers to make informed decisions for redcedar control. For the last three years, Drs. Hart and Lourencon have collected data on four treatment options: burn, goats, herbicide, and cutting. They explored these treatment options at four different research sites: Langston, OK, Mannford, OK, Neosho, MO, and Oklahoma City, OK. Each site had different vegetation characteristics; however, all sites had a problem with redcedar encroachment. In October, Drs. Hart and Lourencon held seminars at the sites to disseminate the findings of the study. The morning session for each seminar included PowerPoint presentations on considerations for using goats to control brush and weeds and specific results for the associated research site. After lunch, seminar participants toured the research site to observe the effect of goats on the forested area in contrast to areas across the fence.

Goats at the Mannford site watching the seminar participants.

The efficacy of the goats depended upon the research site (Table 1). At Neosho, where the redcedar was lowest in density, goats decimated the redcedar. At Mannford and Oklahoma City, where redcedar was numerous, goats attacked approximately the same absolute number of trees but resulted in a significantly lower percentage. Goats tended to prefer taller rather than shorter redcedar trees.

Table 1. Browsing Score by Size and Location

	Mannford			Neosho			Oklahoma City		
	None	Medium	Severe	None	Medium	Severe	None	Medium	Severe
less than 6 feet	621	34	28	0	0	1	714	40	71
greater than 6 feet	966	29	51	0	0	94	504	20	91
Total	**1587**	**63**	**79**	**0**	**0**	**95**	**1218**	**60**	**162**

Training Visit of Ms. Sanae Ishii

The American Institute for Goat Research (AIGR) had the opportunity to host Ms. Sanae Ishii, a graduate student from Nihon University in Kanagawa, Japan during the month of August. Sanae is completing a Master's degree studying goat management conditions in Japan. She wished to come to the Institute to learn advanced management procedures and other production techniques.

Sanae's training began by working with Mr. Jerry Hayes at the Institute's South Barn facility. Sanae practiced hands-on techniques with meat goats such as identification, hoof trimming, handling, banding, ageing, and sample collection. She also learned about kidding management on pasture.

Dr. Erick Loetz led a discussion on dairy goat management and Sanae spent time working with the dairy does both in the pasture and during routine milking. Sanae learned about feeding methods of kids, kid management during the first month of life, and linear appraisal from Ms. Amanda Manley. Sanae spent time in the milking parlor learning how to take a sterile milk sample with one of the Institute's post-doctoral research scientists, Dr. Shirron LeShure. Dr. LeShure then taught Sanae how to plate milk samples for microbial determination and how to evaluate agar plates and perform microbial colony counts.

The research trial in which Sanae participated evaluated rumination and lying/standing behavior of Alpine does in the barn versus on pasture. Sanae worked with Drs. Luana Ribeiro, Terry Gipson, and Roger Merkel on this project. The project also entailed collecting milk samples for evaluation of somatic cell count by machine in the Institute Dairy Herd Improvement Laboratory and by California Mastitis Test (CMT). After collecting milk samples, Sanae performed the CMT and also plated samples of animals with suspected high somatic cell counts. To further Sanae's understanding of the Institute's research program, Dr. Art Goetsch discussed experimental protocols, animal care concerns, and other research aspects.

One of Sanae's main interests is dairy animals and milk production and products. Dr. Steve Zeng taught Sanae to make cheese, which she enjoyed very much. Sanae had the opportunity to conduct several different types of milk tests to determine somatic cell counts or udder infection with Drs. Roger Merkel and Terry Gipson. Ms. Eva Vasquez showed Sanae the workings of the Dairy Herd Improvement Lab and how milk is processed and the records sent to producers.

Dr. Lionel Dawson taught Sanae how to do a necropsy and presented information on herd health and diseases. Sanae composted mortality with Dr. Roger Merkel and learned about different euthanasia techniques. Dr. Terry Gipson, along with Miguel Rojas and Abiel Haile, demonstrated fresh semen collection. Sanae learned estrus synchronization techniques and received training in artificial insemination.

Sanae is also interested in leather and she learned how to skin an animal then she tanned goat- and sheepskins by hand and using commercial processes with Dr. Roger Merkel. Dr. Steve Hart covered nutritional aspects of goat production and led a discussion on internal parasite control. Dr. Zaisen Wang taught Sanae how to take fecal samples, conduct a fecal egg count, and how to incubate worm eggs to produce larvae.

In addition to training activities at the Institute, Sanae had the opportunity to visit several goat farms in Oklahoma including Middle Mountain Dairy in Clayton and Black Oak Farm and Good as Gold Kikos in Guthrie. Sanae tasted milk and cheeses at the dairies that she found very delicious. Sanae visited the Oklahoma Animal Disease and Diagnostic Laboratory and College of Veterinary Medicine at Oklahoma State University. Sanae also visited Reproduction Enterprises, Inc. in Stillwater, OK where she saw semen collected from an Akaushi bull, a Japanese breed.

Sanae's time at the Institute was very busy and productive. After spending time at the Institute, she quickly realized how busy the staff was and it made her feel even more gratitude towards them for dedicating the time to teach her during her stay.

When reflecting on her month at the Institute, Sanae wants everyone to know that all of the things taught to her will not be forgotten and that she is truly thankful for what she has gained. She plans to utilize the concepts she learned not only in her research but also towards her own personal aspiration of opening a small dairy farm in Japan. Sanae is confident that her experiences at the Institute will prove to be very helpful in her future. We all enjoyed her presence and we wish her well.

Sanae's Photo Album

Lost in my goats.

Learning about animal identification.

Successful cheese packaging.

Milking parlor moment.

Tannery time.

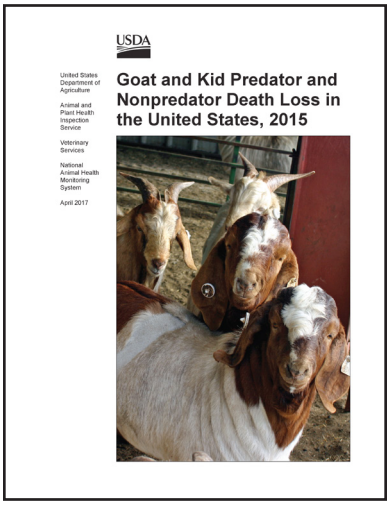
Soft cheese in creamery.

Certificate!!!

FAMACHA Update

FAMACHA© is a weapon in the battle against worms, specifically the Barberpole worm. FAMACHA© uses a card for evaluating eyelid mucous membrane color to determine if an animal need to be dewormed. It not only reduces the number of animals getting dewormer, but more importantly slows the development of dewormer resistance in the worms. This is extremely important when using combination dewormers to kill worms that are resistant to certain dewormers. To get a FAMACHA© card, you must be trained at our Langston Parasite workshop, other parasite workshop or by a vet, or more recently, complete an online training for FAMACHA©. We have trained several hundred goat producers in FAMACHA© over the years. The card that is used for FAMACHA© does fade over time meaning that anemic animals that need to be dewormed may not because the colors on the card have faded. The new cards produced in the last year have a UV resistant coating that resists fading for two years. Cards older than one year old need to be replaced. The University of Georgia Vet school, which handles the card, has observed that producers are behind on replacing their cards which can result in the needless death of animals. Therefore, they are offering discounted cards for those who have already been trained on FAMACHA©. Instead of the regular price of $13.00, the discounted replacement cards are only $9.00 and can be obtained from famacha@uga.edu. Also, there is a great deal of information on FAMACHA as well as other worm control topics at http://www.wormx.info.

USDA Releases Loss Study



USDA just released a study from the National Animal Health Monitoring System (NAHMS) on predator and non-predator death loss in the US. Data was collected from 16,000 producers throughout the US in January 2016. There were a total of 2.62 million total goats in the US as compared to 2.65 million a year earlier, a loss of 30,000 head. Kidding rate was 1.05 kids per breeding doe for the year. Meat goat operations account for 80% of the goat operations and dairy operations about 24% (some operations had both). Eighty one percent of the operations had 20 or fewer goats and only 2.2% had a hundred or more goats. Oklahoma was estimated to have 69,400 goats and had the fifth highest state goat population exceeded by Texas, California, Arizona, and Tennessee.

In brief, a half million adult and kid goats were lost to disease and predators in the U.S., accounting for 10% of the adult goats in the US and 19% of the kids born in 2015. For meat goats alone, death losses of adults was 11% while 21% of the kids were lost to death. Only 34% of the operations reported kid losses and 28% reported adult losses. The value of the goat and kid losses in the US was $70 million. Nonpredator losses accounted for about three-fourths of all adult goat and kid losses in the US in 2015. Oklahoma lost 10,772 goats to nonpredator causes ($2.6 million estimated value) and 1,437 to predators ($178,000 estimated value). The biggest category of losses were cases where the cause of loss was not determined. Internal parasites was the next leading cause of goat and kid deaths accounting for death of 2% of total animals on inventory. Weather related causes and kidding problems were also important causes of animal loss. Coyotes and dogs accounted for 65% of all predator losses of goats. The report can be downloaded from https://www.aphis.usda.gov/animal_health/nahms/general/downloads/goat_kid_deathloss_2015.pdf

Research Spotlight

Resistance to Internal Parasites in Hair Sheep.

Katahdin, Dorper, and St. Croix male lambs from farms (2 Katahdin, farms A and B; 1 Dorper; and 1 St. Croix) in the south-central United States were categorized as resistant (RS), moderately resistant (MR), and susceptible (SS) to *Haemonchus contortus* based on artificial larvae challenge in a central performance test at Langston University over 3 consecutive years. Animal groups consisted of 17, 15, and 15 Katahdin-A (initial age 3.9 months and 86 lbs); 18, 7, and 8 Katahdin-B (3.7 months and 42 lbs); 20, 15, and 16 Dorper (5.5 months and 75 lbs); and 13, 14, and 19 St. Croix (4.2 months and 42 lbs) in year 1, 2, and 3, respectively. Males were randomly selected in year 1, whereas progeny of RS and MR sires were evaluated in year 2 and 3. The test entailed 2 week of adjustment and 8 week of data collection, with free access to a 15% CP and 50% concentrate diet in automated feeders. During adaptation, anthelmintic treatment resulted in low fecal egg count (FEC; <600 eggs/g), after which 10,000 infective larvae were orally administered. Body weight and packed cell volume (PCV) were measured weekly, and FEC was determined 4 to 5 times in week 6 to 8. Cubic clustering criterion resulted in 49, 35, and 37 RS; 38, 33, and 39 MR; and 28, 17, and 36 SS in year 1, 2, and 3, respectively. There were interactions in mean FEC between animal group and resistance classification (473, 928, 1,089, and 297 eggs/g for RS; 1,793, 3,058, 2,199, and 1,084 eggs/g for MR; and 4,198, 5,073, 3,164, and 2,176 eggs/g for SS). The PCV ranked RS > MR > SS (29.9, 28.0, and 26.9%). Intake of DM, ADG, and the ADG:DMI ratio were similar among resistance classifications and were not correlated with FEC or PCV. In conclusion, hair sheep can be selected for resistance to internal parasites without adversely affecting growth performance, and selection progress appeared greatest for the Dorper flock, although FEC were relatively low for the St. Croix farm.

Tsukahara, Y., T. A. Gipson, S. P. Hart, L. J. Dawson, Z. Wang, R. Puchala and A. L. Goetsch. 2017. Effects of selecting growing male hair sheep of different flocks for internal parasite resistance on performance. Journal of Animal Science. 95(Suppl. 4):337. doi:10.2527/asasann.2017.691

Heat Load Resilience in Hair Sheep.

Thirty-seven Dorper, 35 Katahdin, and 31 St. Croix ewes (57, 58, and 44 kg) from 45 commercial farms in the Midwest (MW), Northwest (NW), Southeast (SE), and central Texas (TX), between 2.2 and 3.4 years of age, were used to evaluate responses to high heat load index (HLI) conditions. There were 4 sequential 2-week periods (8 week total) with target HLI during day/nighttime of 70/70, 85/70, 90/77, and 95/81, with weekly measures at 07:00 (before increased daytime HLI), 13:00, and 17:00 hour (preceding lower nighttime HLI). Rectal temperature (RT) was affected by breed × time (101.4, 102.1, and 102.3 for Dorper, 101.6, 102.1, and 102.3 for Katahdin, and 101.2, 101.6, and 101.9 for St. Croix at 07:00, 13:00, and 17:00 hour, respectively). There were interactions between week and time in respiration rate (RR) and panting score (0–4). Breed × time RR means were 57, 107, and 103 for Dorper, 55, 101, and 96 for Katahdin, and 47, 88, and 90 for St. Croix at 07:00, 13:00, and 17:00 hour, respectively; however, there was an interaction among breed, region, and time (57, 110, and 101 for MW Dorper; 59, 110, and 108 for MW Katahdin; 43, 89, and 88 for MW St. Croix; 65, 113, and 111 for NW Dorper; 54, 104, and 96 for NW Katahdin; 56, 92, and 94 for NW St. Croix; 49, 93, and 96 for SE Dorper; 52, 105, and 96 for SE Katahdin; 45, 79, and 87 for SE St. Croix; 57, 110, and 104 for TX Dorper; 54, 83, and 84 for TX Katahdin; and 46, 91, and 89 for TX St. Croix at 07:00, 13:00, and 17:00 hour, respectively). In conclusion, RT of St. Croix was low at all times compared with Dorper and Katahdin, even with lower RR. There appeared to be considerable adaptation from week 1 to 2 during the 2 highest HLI periods via evening respiration. Region effects varied with breed, such as relatively high RR by St. Croix from the NW to maintain low RT, lower RR of Dorper from the SE than other regions, and a smaller difference among times in RR of Katahdin from TX.

Tadesse, D., R. Puchala, T. A. Gipson, I. Portugal, T. Sahlu, L. J. Dawson and A. L. Goetsch. 2017. Effects of high heat load conditions on rectal temperature, panting score, and respiration rate of hair sheep breeds from different regions of the United States. Journal of Animal Science. 95(Suppl. 4):337. doi:10.2527/asasann.2017.692

Noteworthy News

► In July, Dr. **Roger Merkel** traveled to Texas Tech University (TTU) to meet with agriculture deans and representatives from seven Ethiopian universities as well as officials from the Foreign Ag Service, US Dept. of State, and administrators and faculty from TTU.

► In July, Dr. **Roger Merkel** provided a farm tour to students from Langston University's School of Physical Therapy. The students learned about farm work and machinery and they used the newly gained knowledge to complete an assignment to devise therapy strategies for farm workers.

► In August, Dr. **Steve Hart,** participated in the Oklahoma State University Lespedeza Working Group in Stillwater, OK.

► In August, Dr. **Tilahun Sahlu** and Dr. **Steve Zeng** traveled to Shijiazhuang, China to participate in the China Sheep and Goat Production and Academic Conference, and strengthen the working relationships of the Goat Institute with several Chinese research and educational institutions. Dr. **Sahlu** also attend a board meeting of the International Goat Association while at the conference.

► In September, Dr. **Steve Hart,** gave a presentation on internal parasite control at the SE Kansas and NE Oklahoma Goat Producers Association in Nowata, OK.

► In September, Dr. **Steve Hart,** presented a webinar on Goat Industry: Past, Present, and Future for the American Goat Federation.

► In September and October, Dr. **Steve Hart** provided goats for the State Fair of Oklahoma and for the Tulsa State Fair for their respective Birthing Centers and was Superintendent of the State Fair of Oklahoma Open Boer Goat Show sanctioned by ABGA.

► In October, Dr. **Steve Hart,** traveled to Appleton, WI and gave a presentation on the Future of the Goat Industry at a seminar sponsored by Altech.

► In October, Dr. **Steve Hart,** gave a presentation on internal parasite control at the Goat Boot Camp in Ada, OK.

► In October, Dr. **Steve Hart,** traveled to Virginia State University (VSU) in Petersburg and gave a presentation on nutrition at the VSU Field Day.

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