INTERNATIONAL ACTIVITIES OF THE E (KIKI) DE LA GARZA INSTITUTE FOR
GOAT RESEARCH WITH TWO ETHIOPIAN UNIVERSITIES

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**Why Become Involved in International Activities?**

Of the 715 million goats in the world, less than 0.2% reside in the United States while over 90% can be found in countries in Asia and Africa (estimated from FAO on-line database). The E (Kika) de la Garza Institute for Goat Research (GIGR) has as its mission to develop and transfer enhanced goat production technologies at local, state, national and international levels. GIGR has many strong ties with research and academic institutions around the world and has hosted visiting scientists from over 20 foreign countries for the purpose of conducting research and demonstrations. More recently, GIGR has expanded its international activities with foreign institutions to include more aspects of training and agricultural development. These activities give GIGR unique opportunities to not only increase knowledge of foreign production systems and constraints, but also to positively impact agricultural development in foreign countries and help alleviate poverty and hunger. The objectives of GIGR’s international program are to: 1) Increase our knowledge of goat production systems worldwide and current constraints to increased production; 2) Build human capacity through training foreign scientists and agricultural workers in goat production thereby allowing them to more effectively carry out their missions of teaching, research and extension; 3) Increase Langston University and GIGR’s involvement in agricultural development and impact on human welfare; and 4) Enhance GIGR’s knowledge of development and development issues.

**A Role for Goats in Development**

The Food and Agricultural Organization of the United Nations estimates that there are over 790 million people in the world who are not receiving enough food to lead normal, healthy lives (FAO, 2000). Those suffering the most from chronic food shortages and malnutrition are children. The International Food Policy Research Institute estimates that in 2010 there will be over 150 million malnourished children in the world and more than 70% of those will live in South Asia and Sub-Saharan Africa (Pinstrup-Andersen et al., 1997). Malnourishment is defined as an abnormal physical condition resulting from deficiencies or imbalances in intakes of energy, protein and other nutrients and can lead to wasting (low weight for height), stunting (low height for age) and underweight (low weight for age). Anemia, poor growth, and poor motor and mental skills are conditions that can result from inadequate dietary intake of energy and protein. Of particular importance are deficiencies in micronutrients, i.e. vitamins and minerals, that play essential roles in the growth and development of children.
In many cases, low dietary micronutrient content is related to a low intake of animal products that contain high amounts of available vitamins and minerals. Currently, the Global Livestock Collaborative Research Support Program is sponsoring a Child Nutrition Project in Kenya that is assessing the role of animal foods on the improvement of diet quality and on the growth and development of Kenyan children (http://glcrsp.ucdavis.edu/project_subpages/CNP_folder/). Results from that project indicate that the intake of animal products, and particularly meat, is positively related to growth, physical activity, mental development and school performance. Additionally, the Human Nutritional Collaborative Research Support Program, in a three-country study, found that the intake of animal products positively predicted physical and development growth of children (Neumann and Harris, 1999).

The findings cited above illustrating the overwhelming benefits of animal products in the diet and the need for families in developing countries to have a source of animal products for their own consumption, typically through the ownership of livestock and family use of meat and milk. While cattle are still the preferred livestock for many farmers, goats are becoming increasingly more important for many families. Indeed, many of the women participating in the Child Nutrition Project in Kenya have expressed a desire to own goats. Goats require less feed and labor, have lower housing requirements, are less drought sensitive, have a shorter generation interval, have a lower initial investment cost and represent less economic risk per animal than cattle while still providing desired milk and meat. Additionally, due to their small size and lower feed requirements, goats are an animal within the capability of many poor smallholder farmers to provide care and feed. As the population in many developing countries increases and more land is used for crop production, the advantages of goat ownership become even more pronounced. Furthermore, for many people in the world goats fulfill social and cultural functions and are a way of amassing and storing wealth. However, of all the functions that goats fulfill none is more important than the meat and milk that they can provide their owners.

The Situation in Ethiopia

Ethiopia is the oldest independent country in Africa and is located in the Horn of Africa. The country’s economy is highly dependent upon agriculture which accounts for one-half of the Ethiopia’s gross domestic product, 90% of its exports and employs 80% of the population. Ethiopia’s main export items are coffee, hides and skins for the leather industry, live animals and chat the immature leaves of *Catha edulis* that are chewed for a stimulatory effect. Over the past decades, Ethiopia and other countries in the Horn of Africa have suffered severely from frequent periods of drought that have devastated both crop and livestock production. During the droughts of the 1980's and 90's an estimated 37 to 42% of all cattle were lost in the Borana region of southern Ethiopia (Desta and Coppock, 2000). These drought periods coupled with an increasing population and a depressed economy have led to an increased number of people suffering from food insecurity in Ethiopia. From 1996 to 1998 it was estimated that over 45% of Ethiopia’s population was undernourished (FAO, 2000). As discussed above malnourishment can be especially damaging to young children of school age and 47% of Ethiopia’s 65 million inhabitants are under the age of 15 (CIA, 2000). A study of 1,338 children under the age of five in the Hararghe region of eastern Ethiopia found that 36, 45 and 14% were underweight,
stunted and wasting, respectively (Kassa, 2000).

Ethiopia covers a land area roughly twice the size of Texas and has the third largest number of goats in Africa with an estimated 17 million head. Ethiopia also possesses 35 million cattle and 22 million sheep. In addition to meat and milk from these animals, other livestock products such as hides and offal are very important culturally and economically. Milk is an important source of nutrients for families, especially children, and often a family’s goats are its only milk source. Demand for goat’s milk is so high that in some areas it is diluted with water for distribution to a larger number of children. Ethiopia’s dense population has led to a scarcity of land for cropping and livestock activities. This land pressure has affected the livestock holdings per family and the feeding, management and production practices employed. Increasing deforestation, overgrazing, soil erosion and desertification have also led to a decreased quality and quantity of natural grazinglands. As a result, smallholder farmers are increasingly turning away from larger ruminants, typically cattle, in favor of smaller animals, such as goats.

The main feed sources for Ethiopian livestock are grasses and browse obtained from natural rangelands. In addition, crop thinnings and crop residues such as straw and stover are important feed sources. These crop residues are a locally available, inexpensive feed source for livestock farmers. However, crop residues are usually highly fibrous feeds of low digestibility that, while able to supply the basal portion of a ruminant animal’s diet, require supplementation for optimum productivity. Crop residues are traditionally low to deficient in many vitamins, particularly vitamins D, E and the B complex vitamins, and in many minerals. However, feeding crop residues, along with appropriate supplements, to ruminants results in the production of milk and meat, which are very good sources of many of the same nutrients, and in particular, vitamin B_{12}, which is not present in plant tissues. The use of crop residues is also important in nutrient recycling and restoring soil fertility through the use of animal manures. Finally, using crop residues for goat feed may reduce the reliance on other harvested forage, thereby, conserving scarce natural resources and enhancing system sustainability.

Ethiopian scientists have identified several constraints to increased growth rate, milk production and reproduction of goats. These include: 1) inadequate knowledge and inefficient utilization of available feed resources, including knowledge of seasonal fluctuations in both the quantity and quality of feedstuffs, and identification of suitable and appropriate supplementation strategies; 2) lack of nutrient requirement tables applicable to local goats; 3) poor understanding of the genetic potential of indigenous goat breeds for growth and milk production and of selection strategies to realize potential; and 4) the present low state of development of extension services and capabilities.

**Institutional Partnerships with Ethiopian Universities**

Debub University located in Awassa, southern Ethiopia and Alemaya University in Dire Dawa, eastern Ethiopia are two of the main agricultural universities in Ethiopia. Both universities have teaching, research and extension mandates in their regions. In 1998, a partnership was begun between Langston University and Debub University under the Institutional Partnerships in Higher Education for International Development program of the Association Liaison Office for University Cooperation in
Development with funding from the United States Agency for International Development (USAID). The Institutional Partnership program was designed to support American institutions of higher learning in forming partnerships with academic institutions in developing countries to address social and development issues, strengthen the capacity of participating institutions in fulfilling their educational missions, contribute to the training of students able to work in an international marketplace and raise the level of awareness and understanding of education and development issues among institution staff.

In 1999, a partnership with Alemaya University was established through the International Development Partnership Activity of the United Negro College Fund with funds made available from USAID. The International Development Partnership Activity was established to: strengthen the ability of institutions in developing countries to meet national economic and social development needs; assist in the achievement of USAID goals and strategic objectives of country USAID Missions; and to further the international involvement of the Historically Black Colleges and Universities of the United States.

Using the above criteria, the partnerships with Debub University and Alemaya University were formed encompassing the following goals:

1. To increase the research, teaching and extension capabilities of Debub University and Alemaya University staff in accordance with their mandates to better allow them to serve the developmental needs of Ethiopia.
2. Strengthen the capacity of all institutions involved in achieving their educational missions of teaching, research and extension.
3. Enhance the food security and income generating potential of families in Ethiopia.
4. Increase Langston University and GIGR’s involvement in international activities and impact on agricultural development.
5. Promote the internationalization of staff to increase awareness of foreign countries, cultures, gender relevance and development issues.

The above goals are being accomplished through the establishment of collaborative research at both GIGR and the Ethiopian institutions, training of staff from both Ethiopian universities at GIGR, and through a development project designed to enhance household food security, income generating potential and family health status through increased goat productivity. This increased goat production is being done via the provision of goats and appropriate technology to women’s groups for goat production in villages near both universities. The above objectives support the Special Objective of the USAID Mission in Ethiopia of enhancing food security through increased household income and improved family health status. Project objectives also support a Strategic Objective of the United States Greater Horn of Africa Initiative of strengthening African capacity to enhance regional food security, an objective also supported by the USAID Mission.
Training and Research Activities

Activities at GIGR

The training and research activities in these institutional partnerships are being carried out at both GIGR and the Ethiopian universities. To date, three faculty members from Debub University and two faculty members from Alemaya University have traveled to GIGR and spent between four and six months conducting research and receiving training. Research has focused on the use of crop residues as feedstuffs for goats and on the use of broiler litter in goat diets. While at GIGR, the visitors from Ethiopia participated in a training course on data handling and statistical analysis and performed much of their own laboratory analyses. In addition to research and training activities, seminars on Ethiopian agriculture and culture were given to Langston University students and faculty.

Activities in Ethiopia

Research is underway at both Debub and Alemaya University. Debub University scientists are conducting a trial to test the feeding value of the seed pods and leaves of a leguminous tree, *Acacia tortolisi*, found in the area. Alemaya University staff are conducting an experiment to evaluate methods of decreasing the effects of tannins in browse species identified as important village feedstuffs. These research trials are part of efforts by both universities to better characterize village feedstuffs in terms of nutritive value and seasonality. A more complete knowledge of the availability and nutritive value of feeds used by farmers and their methods of feeding will allow these university scientists to formulate better nutritional intervention strategies aimed at increasing goat productivity.

Training is also done by GIGR scientists who travel to Ethiopia and visit these institutions. Seminars have been presented to both staff and students on goat nutrition, research methodology and manuscript preparation and condensed tannins in ruminant nutrition. Additionally, GIGR staff traditionally lecture to students and discuss research and development issues with them. For most students, this is their first opportunity to meet and interact with foreign scientists. In addition to Debub University and Alemaya University, GIGR staff have toured other research facilities in Ethiopia and have met with scientists employed by the Ethiopian Agricultural Research Organization. During these tours, GIGR scientists learn of research conducted at these facilities and give suggestions for improvements.

In November 2000, a special training in the surgical insertion of ruminal cannulas was given by Drs. Art Goetsch and Roger Merkel. Materials needed for the cannulation procedure were taken to Ethiopia where Drs. Goetsch and Merkel performed cannulation surgeries and trained staff at both Debub University and Alemaya University. Both universities now have staff members capable of conducting these surgeries themselves. Furthermore, the goats cannulated during that visit are being used in experiments supporting grant activities.
In November 2000, Langston University and GIGR along with the Association Liaison Office for University Cooperation in Development, USAID and Awassa College of Agriculture of Debub University sponsored a conference on goat production entitled “The Opportunities and Challenges of Enhancing Goat Production in East Africa”. The conference was held on the Debub University campus, Awassa, Ethiopia. Over 50 participants attended the three day conference and represented Ethiopian livestock research organizations and universities, the Livestock Marketing Board of Ethiopia, the Ethiopian Tanners Association, FARM-Africa a non-governmental development organization, the International Livestock Research Institute, the Agricultural Research Organization Bet Dagen in Israel, the Global Livestock Collaborative Research Support Program based at the University of California-Davis and Langston University. The goals of the conference were to: 1) review the current state of small ruminant production in E. Africa; 2) identify the major production constraints and areas for research and extension; and 3) create a closer relationship among animal industry, research organizations and development/extension efforts to increase animal production. The conference proceedings containing more detailed reports on the partnerships discussed here (see Abebe et al., 2000 and Animut et al., 2000) are available on-line at the E (Kika) de la Garza Institute for Goat Research website, http://www2.luresext.edu under the “Other Activities” section.

Development Activities

Background

Enhancing household food security and income generating potential were targeted through extension efforts aimed at providing goats and needed production training to women. Women are the traditional decision makers in the purchase and preparation of food. Providing women with goats enhances their ability to provide adequate nutrition to their families in two ways: 1) via the direct use of goat products, such as meat and milk, and 2) through the use of cash derived from the sale of live animals or their products. Cash income is very important for families to purchase food, pay for education or buy other household or farm necessities. The sale of excess livestock and(or) products increases the amount of goats and goat products available in the marketplace, thereby increasing food security, raising regional health status and, ultimately, having a beneficial effect on the region’s economy.

In large parts of Ethiopian society, the economic and social decisions affecting families are mainly the domain of men. Women, through this project, will be receiving and repaying project credit (in the form of livestock), become the decision makers in the care and sale of livestock and livestock products and manage the income received. These activities, in a male-dominated aspect of society, represent progress in the empowerment of women and will pave the way for increased participation by women in future economic and community decisions.

The development activities center around the provision of “goat packets” to women cooperators in a revolving scheme. Extended goat packets consisted of two does per cooperator with bucks given
for group use, along with needed training in production and management techniques. This strategy calls for a return to the project of young breeding females equal to the number of females received, with returned animals generating new “goat packets” for additional producers. Steps involved in this development activity include: identification of women’s groups willing to participate; preparation of goats, training materials and training sessions; initial training of women; provision of goats; and, most importantly, on-going training, monitoring and evaluation.

**Development Activities at Debub University**

*Formation of Women’s Groups*

To determine potential sites for the project, Debub University staff met with Ministry of Agriculture zonal government officials and conducted an initial survey of the area. After site selection, Debub University scientists, Ministry of Agriculture officials, development agents and village elders met and developed the following criteria used as a guide in selecting women cooperators:

- Willingness to participate
- No cow ownership. It was felt that families who owned cattle may not be as attentive to their goats as families with no cattle.
- Willingness to devote some area for forage production
- Low to average farm size (depending on average landholding of the area)
- Women head of households were selected when possible
- Commitment to abide by project principles, i.e., follow project practices of cut-and-carry feeding, payment of credit, etc.
- Be innovative and willing to try new ideas

Based upon the above criteria, an initial group of twenty women was selected in the Shebedino district, approximately 20 to 30 km south of Awassa. At a later stage the project was expanded to involve another group of 20 women in the Arsi-Negele district, located approximately 40 km north of Awassa. Currently, the project has expanded to involve approximately 80 women participants. Following selection, project goals and objectives were presented to the women participants along with the responsibilities of each party. Each woman then signed an agreement to abide by project practices.

Both districts are characterized by mixed crop and livestock production systems. Perennial crops such as enset (*Ensete ventricosum*) and coffee are the dominant crops in Shebedino, although other grains such as corn are also produced. Conversely, the Arsi-Negele district is dominated by a cereal crop-based agricultural system. The main crops grown in that area include wheat, a small cereal grain called teff (*Eragrostis abyssinica*), corn, Irish potatoes and onions. Livestock are important in both areas. In general, livestock management is more intensive in the Shebedino district where there is less free grazing and more practice of alternative forms of feeding, such as tethering. Much of the Arsi-Negele district has a drier climate than Shebedino and animals are allowed to roam over large areas in search of feed.
Training, Establishment of Forages and Distribution of Goats

After selection, cooperating women participated in training activities on goat husbandry led by extension agents and Debub University staff. In addition to training held in the villages, participating women were brought to the Debub University goat farm to see the farm facilities and where they had the opportunity to ask additional questions.

From the outset of the project, a need was felt to encourage backyard forage development by project women. Seedlings of tree legumes such as *Sesbania* spp. and *Calliandra* spp. and cuttings of elephant grass and Guatemala grass were distributed to participant women in the Shebedino area. The performance of these forages in the farmers' backyard was quite variable, however, the women learned the importance of growing extra feed for their animals. The plan to intensify forage production last rainy season was hampered by late rains and unavailability of vehicles for distributing seedlings from the nursery site.

An initial lot of eighty female goats was purchased in September, 1999 and distributed to participating women. Additional goats were either purchased or made available from Debub University for distribution as more women joined the project. Following distribution of goats, extension agents and Debub University scientists began monthly visits to the villages. During these visits they conducted further training, did follow-up work on backyard forage development and answered questions and provided advice on issues of concern, such as care of new-born kids and the feeding of pregnant animals.

Progress in the Shebedino Area

No deaths have been recorded among the distributed local goats so far. Thirty-two of the forty does distributed have kidded, an 80% kidding rate. Litter size, calculated on the basis of the number of does who have kidded, is 1.03. While litter size obtained was small, it was felt this was due to the fact that most goats were in their first parity. Some women have already expressed an intent to begin repaying animals to the project so as to own their animals free of debt. Abortion was a problem in one village though most does that aborted once have since kidded. Goats that prove to be infertile are replaced by the project.

Monthly weighings have shown that kids attained weights of up to 20 kg at less than one year of age. This finding was surprising in light of the severe drought that was observed in 2000. This weight gain may be evidence of the adaptability of goats to the environment but is likely due to the extreme care given them by the women farmers. During the peak of the drought, goats were fed leaves of a plant called enset (false banana) The tuber and stem of enset can be processed for human food while leaves, as well as other plant parts, can be a source of livestock feed. The fact that farmers were feeding enset leaves during the drought illustrates the importance that project farmers attached to their animals.
Progress in the Arsi-Negele Area

The rationale for extending the project to this site was simply related to the utilization of goat milk in the area as indicated in a preliminary survey of farmers. Of the initial 40 goats distributed 8 goats have died. The causes of such high adult mortality rate (20%) are unknown. Twenty-six does have given birth to 35 kids, resulting in a 1.34 litter size. Kid mortality was 14.3%. Mortality of kids may be linked to a copper deficiency prevalent in the area. The most obvious clinical sign of copper deficiency in ruminants are ataxia or swayback. According to farmers in the area, a delayed type of ataxia is observed at about one to two months of age and is manifested as a swaying gait which develops into a motor incoordination of the hind-quarters and even the fore-quarters. This problem has been indicated as a major constraint of small ruminant production in the area. Mineral licks that contain copper have been distributed to model farmers. It is hoped to increase the distribution of this mineral lick.

Lessons Learned

Most women farmers are pleased with the project even though they have yet to generate income from their goats. They consider the goats to be valuable assets to their family and a source of ready cash should need arise. The work on backyard forage development was encouraging. Even though the scale of production was small, the idea of growing forage for use during critical periods has been appreciated by farmers. Farmers were also very creative in finding areas for planting of the supplied forage trees and grasses around their homes and along fence rows. The demand for goat milk for family consumption is great. One woman whose goat had kidded milked one half of the udder for her infant son while leaving the other for the goat’s kid. However, this woman felt the kid was not gaining enough weight and stopped the practice. Because of events such as this, it was decided to try and upgrade the milk production potential of goats given to farmers was seen. Crossbred bucks have been given to two project areas to evaluate the effect of crossbreeding on village milk production and the ability of the farmers to provide enough feed and care so that crossbred animals show an advantage over local animals.

A major difference noted between the two project sites was the level of mortality. While no deaths were recorded in Shebedino, adult as well as kid mortality seemed a common occurrence in Arsi-Negele. This is perhaps due to differences in the production systems employed in the areas. More intensive management of goats is practiced in Shebedino as compared with the more extensive feeding management practiced in the Arsi-Negele area. This suggests that ‘improved goats’, or the offspring of local goats bred to exotic breeds, may do better under the more intensive management found in the Shebedino area rather than the more extensive grazing system employed in Arsi-Negele.

The differences in production systems between Shebedino and Arsi-Negele not only impact the type of goat that can be successfully raised in each area but also must be considered when formulating nutritional, reproductive and management improvement strategies. Further, research is required to formulate production strategies that take into account the environmental conditions under which the target animals will be raised. This necessitates that research be designed to target specific problems in
each area, which may put a strain on the limited resources available for such work at Debub University. This underlines the importance of collaborative projects such as the current partnership between Debub University and GIGR that can provide the resources and training needed for research to formulate appropriate intervention strategies that have a beneficial impact on agricultural development.

**Development Activities at Alemaya University**

*Site Identification, Selection of Women Participants*

Alemaya University staff consulted with local extension agents in determining the two sites to be used in the development project. The sites selected represented different cropping systems with one area dominated by chat (*Catha edulis*) cultivation while in the other area corn and sorghum are the main crops grown. In each extension site three villages were selected for participation resulting in six villages involved in the project. Spreading the project over this number of villages allowed for a wider geographical impact of the project and prevented the possibility of overgrazing and feed shortages that could occur from too many goats being put in one area.

Before selecting individual participants, all women in the selected villages were called to a meeting where the project’s goals and activities were discussed, i.e., what the women could expect from the project and what was expected from each participant. After these initial meetings, Alemaya University staff and extension agents developed the following criteria for the selection of women to receive goats:

- Interest in participating in the goat production project. Selected women were expected to voluntarily participate in every aspect of the project and to receive goats with the understanding that a number of young breeding female goats equal to the number received would be returned to the project.
- Family size and livestock ownership. Large families owning few livestock had a better chance of being selected to receive goats. This was done to better achieve the objective of enhancing household food security of resource poor households.
- Priority was given to women-headed households, provided the women had time to care for the goats and that goats would not be an additional burden to them.

Using the aforementioned criteria, fifty women households from each site or sixteen to seventeen per village were selected. This resulted in a total of one hundred women participants.

*Training and Distribution of Goats*

Training materials were prepared in the local language, Amharic, for ease of understanding and use by extension agents and villagers. The importance of goats, and aspects of feeding and forage development, health care and related management issues of goat raising were explained in the training materials. Training was provided to the women’s groups in their villages and at the Alemaya University goat farm, where women were given an opportunity to see the campus goat farm housing facilities,
management, feeding and feed base.

Goats of the Somali breed were purchased from local markets and distributed to women in June 2000. The one hundred selected women farmers were given two does each with a buck provided for a group of three to four female farmers. In total, 200 female goats and 30 male goats were distributed.

Farmer Survey

In addition to helping the rural poor in improving their livelihood by providing goats, a second objective of the development project was to collect information on the on-farm productivity of local Somali goats, and the management practices employed by villagers in goat raising. In August 2000, one-half of the women participants were interviewed to collect information on the common crops grown, management practices employed in goat raising, and future plans of product use in the project sites.

Crops, Feeding, Management and Housing

Common crops cultivated in the project areas are sorghum, corn, chat, sweet potato, potato, beans, wheat and barley. All but one respondent allowed their goats to graze/browse on either communal land or on small privately owned fallow areas, fence rows, etc. Some farmers were reluctant to graze their goats on communal grazing areas for fear of contracting diseases from contact with other animals. Time spent grazing ranged from 5 to 10 hours daily. However, owners in some villages tended to have their goats return from grazing early in the day for fear of predators, especially hyena.

Many farmers practiced supplemental feeding after their goats returned from grazing. Typical feeds given were thinnings from corn and sorghum, byproducts of chat, weeds or other harvested grass, sweet potato vines, kitchen byproducts and some leftover foods, and grain byproducts from flour production. A small number of women purchased wheat bran or peanut cake for feeding. Additionally, almost all owners provided table salt to their goats, either mixed with water or other feedstuffs. Goats were watered either once or twice daily.

In two-thirds of respondents households, tending goats was mainly the job of children whereas women took care of the goats in the remaining households. Male heads of house were the least involved in goat raising. At night goats were kept in the house with their owners as few farmers have separate housing for livestock.

Year-round mating is practiced. As several women share the use of a single buck, the women must be able to detect signs of estrus and arrange for use of the buck if it is with another cooperator. One problem mentioned by some women is the failure of bucks to respond when females came into heat. Unproductive bucks will be replaced by the project.

Use of Goat Products

Seventy percent of respondents selected milk as the most important potential product from their
goats followed by meat, manure and skin. The remaining 30% ranked goat meat over milk in importance. All respondents indicated that upon kidding they will milk goats for home use. Milk will be given to children or used to prepare a common traditional drink called hoja (boiled coffee pulp mixed with milk). While 85% of respondents indicated that priority for milk use will be given to children, the remainder gave priority for the making of hoja. There is a traditional belief that if hoja is consumed by the mother, she will produce enough breast milk for her baby. Milk will not be sold as respondents do not expect excess production.

Goat manure was a highly valued product for its use as a fertilizer for the cash crop, chat. Respondents indicated that the odor of goat manure used in chat fields deterred wild animals, specifically a small deer-like ruminant called the grey duiker (*Syivicapra grimmia*), from eating the chat leaves. Goat skins are processed and mainly used as a praying mat, common among religious Muslims. Goat skins are preferred to sheep skins or cattle hides for these mats as sheep skin is very hairy and cattle skin is not supple enough.

**Concerns and Constraints**

Even though cattle could provide more milk than goats all but three respondents preferred goats to other farm livestock. Reasons cited by villagers included: the diverse feeding habit of goats; their small size that makes them easy to manage; low feed requirement; fast reproduction rate resulting in immediate cash income and milk production; and the belief that meat and milk from goats, as compared with that from other animals, is felt to have a curative or medicinal value. As a result, goats are slaughtered and fed when a child gets sick. Most respondents felt that goats were not difficult to raise but others indicated that goats were prone to flee and run to the fields to eat chat or other crops.

The fact that goats generally share the same house with their owners is a concern. While some owners realize the problems of keeping goats in the house, security and a lack of financial resources were given as constraints to building separate animal barns. Efforts need to be made to further educate villagers on the potential health risks of living with animals and on the importance of constructing separate animal housing. Possibly, model animal houses should be constructed in several villages to illustrate the health and management benefits, e.g. easier collection of manure, of separate animal housing.

The potential for a feed shortage was not an expressed concern of farmers. This survey was conducted in the wet season when green feed was abundant and it may be possible that feed will become scarce during the dry season. However, women participants did not share this opinion.

A lack of efficient veterinary service for animals was another constraint observed. When animals became sick farmers tended to purchase medicine and treat animals themselves. This lack of timely treatment of sick animals may have been one a factor in the death of seven female goats out of those distributed to the women’s groups.
Conclusions

Participation in international activities provides GIGR with many unique opportunities. Not only do GIGR scientists learn about goat production and constraints in foreign countries, information generated through the research conducted by visiting scientists can be used to increase goat production both here and abroad. GIGR staff are able to learn about foreign cultures and customs increasing their cultural awareness and better allowing them to perform their work. Collaborating foreign institutions benefit from the training received and from the resources made available to them for research and extension. Through these partnerships and the associated development activities, GIGR also plays a role in improving the lives of people in developing countries. The knowledge that through the efforts of GIGR staff and the support of its clientele some village parents in Ethiopia are better able to provide for their children is an aspect of GIGR’s mission of which everyone who works and is associated with Langston University and GIGR can be proud.

Literature Cited


The proper citation for this article is: