ENHANCING FOOD SECURITY AND INCOME GENERATING POTENTIAL OF FAMILIES IN SOUTHERN ETHIOPIA THROUGH IMPROVED GOAT PRODUCTION AND EXTENSION: A PROGRESS REPORT OF AN ALO-FUNDED PROJECT

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Introduction

In 1998, an institutional partnership was established between Awassa College of Agriculture (ACA), Awassa, Ethiopia and the E (Kika) de la Garza Institute for Goat Research (GIGR) of Langston University (LU), Langston, OK, USA. Funding for the partnership was received from the Association Liaison Office for University Cooperation in Development (ALO) with funds designated for this purpose by 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. Proposed projects were also to address Strategic Objectives of the USAID Mission in the country where the project would be conducted.

The Institutional Partnership established between ACA and LU has the following four objectives: 1) establish ties between LU and ACA; 2) increase the research and extension capabilities of ACA staff; 3) establish women's groups for goat production; and 4) enhance internationalization, culture diversity and gender relevance at ACA and LU. To accomplish these four objectives a program was developed that focused on increasing the capacity of both institutions to conduct research, training and extension activities required for carrying out their organizational missions. Visiting scientists from ACA have spent time at LU conducting research and receiving training in laboratory techniques, research methodology and data handling and analysis. Each visiting scientist has conducted a research trial. Research is also underway at ACA. Research at GIGR has focused on evaluating the use of crop residues and byproducts of the poultry industry as feedstuffs for goats. Research at ACA will characterize the feeding value of tree legume pods and leaves.

The development aspect of this partnership targets the development issues of food security and income generation through improving goat production and extension. Central to the development aspect is the formation of women's groups for goat production and the provision of goats and training. The strategy that the partnership proposes is to increase the production of goat meat, milk and other products through the establishment of women's groups dedicated to raising goats. In the Awassa region, it is traditional for women and children to be the main caretakers of goats and women are responsible for gathering of saleable products from their animals, such as milk. Women are also the decision makers on what foods the family consumes. Putting goats in the hands of women will empower them financially and will increase their ability to provide adequate nutrition for their families, especially children. The goals of the development project supported the Special Objective of the USAID Mission in Ethiopia of "Enhanced Household Food Security in Target Areas" and its intermediate results of "increased household income" and "improved health status in target areas". Additionally, the development project contributes to the

U.S. Government's Greater Horn of Africa Initiative Strategic Objective 1: "Strengthened African Capacity to Enhance Regional Food Security".

Whereas the partnership between ACA and LU encompasses many activities, this report focuses on results to date of the development program. Steps taken in conducting the development component project include selection of women participants, training, purchase and distribution of goats and monitoring activities.

Formation of Women's Groups

After receiving official approval of the project, ACA staff visited officials of the zonal agricultural bureaus located in the proposed project areas and explained the project and its anticipated goals. Further discussion was held on the mode of implementing the project with extension experts. The necessity of conducting an initial survey was identified as an important step to acquire in-depth knowledge of the role of goats (small ruminants) in the farming system. It was also agreed to involve the Ministry of Agriculture (MOA) and their development agents in the project. These agents have experience in conducting surveys of this type, speak the local languages and have the advantage of being familiar with the production characteristics in their geographical areas of responsibility. Through further discussions with MOA, development agents and village elders, the following criteria were developed and used as a guide when 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 (when possible), e.g., widowed, would receive animals

- 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, twenty women were selected from the Shebedino district, approximately 20 to 30 km south of Awassa. The project goals and objectives were presented to the potential participants along with the responsibilities of each party. Each woman then signed an agreement to abide by project practices. At a later stage the project was expanded to involve another group of 20 women in the Arssi-Negele district, located approximately 40 km north of Awassa.

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 cereal grains such as maize are also produced to a large extent. Conversely, the Arsi-Negele district is dominated by a cereal crop based agricultural system. The main crops grown in the area include wheat, teff (*Eragrostis abyssinica*), maize, Irish potatoes and onions. Livestock are

important in both areas. In general, more intensive management is given to animals in the Shebedino district where there is less free grazing and more alternative forms of feeding such as tethering than in Arsi-Negele. 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.

Purchase of animals and distribution

Eighty female goats, locally known as Arssi-Blae type, were purchased from *Bulbula* market for distribution to the selected women. Purchase and distribution took place in September, 1999. Distribution of goats to women in both districts took place at the same time.

Forage Development

From the outset of the project, a need was felt to encourage backyard forage development by project women. Seedlings of tree legumes like *Sesbania* spp. and *Callliandra* 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 have 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.

Training

Training of women was an important aspect of this project. Women were brought to the ACA goat farm and had a chance to see the infrastructure of the goat research farm and to learn some aspects of goat husbandry. Apart from this training, extension agents and ACA scientists give advice on issues of concern such as care of new-born young and feeding of pregnant animals during monthly visits.

Progress Reports

Shebedino Area

Goats distributed to women farmers in Shebedino are monitored on monthly basis. ACA personnel travel to the project sites to compile data and conduct follow-up work on forage development. 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. Compared with literature values, litter size obtained here was small. This is due to the fact that most goats are in their first parity. Thirty-three kids have been born to date. The number kids born per household is presented in Table 1. Some women have expressed an intent to begin repaying their debt to the project so as to own their animals free of debt.

Table 1. Number of goat kids born to farmers

Number of farmers	Number of kids born	Total
6	1	6

10	2	20
1	3	3
1	4	4
2	0	0
20		33

As seen from the Table 1, four of the goats distributed to the women farmers have not yet kidded. Two of the goats have had a previous history of abortion, while the remaining two are at the last stage of pregnancy. Goats that prove to be infertile will be replaced by the project.

Monthly weight recordings have shown that kids could attain 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 this year. 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.

Arssi-Negele Area

The rationale for extending the project to this site was simply related to the utilisation of goat milk in the area. A preliminary survey indicated that goat milk is widely used by farmers in the area. Of the initial foundation animals, 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 s 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 inco-ordination 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. Minerals lick that contain copper have been distributed to model farmers. It is hoped to increase the distribution of this mineral lick.

Table 2. Current number of kids at Arssi-Negele

Number of households	Number of kids	Total
10	1	10
6	2	12
3	3	9
1	4	4
20		35

Conclusions

The major difference 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 Arssi-Negele. This is perhaps due to differences in the production systems employed in the areas. More intensive management of goats is practised in Shebedino as compared with the more

extensive feeding management practiced in the Arssi-Negle area. This suggests that 'improved goats', or offspring of local goats bred to exotic goat breeds, are likely to do better under the Shebedino production system than the more free-grazing conditions employed at 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, the research required to formulate such strategies must 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 available resources. Collaborative projects, such as the current partnership between ACA and LU, can be instrumental in providing resources and training that enhance the ability of institutions like ACA to perform the research required to formulate appropriate intervention strategies that have a beneficial impact.

Citation:

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