

1. Animal Production and Health

a. Camel Productivity Improvement

Camel production is known in Eastern Ethiopia, but productivity is very low. There is poor milk handling practice and high post harvest loss, and genetic and management problems hamper camel productivity. Trypanosomosis and other diseases are common causes of morbidity and mortality, and there is an indiscriminate use of anti-trypanocidal drugs. External parasites are prevalent and there is little or no information on vector borne diseases. Research focus areas are:

- Improving feed and water resource; adopting and up-scaling of feeds and feed treatment technologies; post-harvest handling, quality and shelf life of camel milk and milk products;
- Studies on quantitative and qualitative genetic parameters on camel selection and evaluation of economic traits.
- Epidemiological study and integrated prevention methods of Surra, external parasite, and camel calf morbidity and mortality.

b. Chicken Productivity Improvement

Smallholder chicken is an integral component of the livelihoods of nearly all poor rural households. However, germplasm resources are generally under-exploited and under-leveraged due to management problems, lack of effective capacity for testing, multiplication, and delivery to farmers, followed by continuous genetic improvement. Poultry diseases such as Newcastle disease, infectious bursal disease and infectious coryza are also the most important hindrances to village and improved poultry industry. Research focus areas are:

- Feeding different herbs and non-conventional feeds to improve productivity of dual purpose chicken; selection of potential chicken ecotype and on station genetic performance and feed conversion evaluation under optimum management;
- Adoption demonstration and development of synthetic tropical dual-purpose chicken breeds;
- Epidemiological study, preparation and determination of vaccination regime, and use of local and imported vaccines for ND, IBD and IFC, and design control methods for commercial and small scale poultry production.

c. Dairy Productivity Improvement in Eastern Ethiopia

The capacity of local dairy cattle is very low in milk production. There are high milk loss, poor milk handling and limited selection and genetic improvement programs for high milk production within indigenous cattle, and also the efficiency of reproductive technologies like AI and synchronization is poor. The technological intervention to improve the local available low quality feeds is poor; there is also shortage of feed. Poor performance of calf and heifers and higher mortality of calves limits future dairy replacement and expansion. Mastitis and other diseases that cause reduced milk production are common in the area, and there are no clear control and prevention methods for clinical and subclinical mastitis in dairy farms. The problem of drug resistance among mastitis causing organisms is increasing. The incidence and causes of reproductive disorders are also unidentified. The priority focus areas are:

- Effect of improved forage and feed treatment on milk production and milk quality; Milk handling and reducing post-harvest loss; The role of gender in urban dairy production;
- Genetic improvement of local dairy cattle through selection and breeding; Assessment of calf and replacement of heifer husbandry practice; Evaluation of estrous synchronization protocol and effectiveness of artificial insemination; Investigation of the major causes of reproductive disorders; Design and implementation of appropriate mitigation strategies;

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- Epidemiological study, control and prevention methods of mastitis; Calf morbidity and mortality and appropriate control and prevention methods; Drug sensitivity test and selection of effective groups of drugs in Eastern Ethiopia.

d. Goat Productivity Improvement

There is limited selection and genetic improvement and lower productivity of local goats. Poor husbandry and high mortality rate of kids; technologies to improve feeds and feeding methods seem to be major problems. Presence of serious infectious diseases (CCPP, PPR etc) are hampering export of small ruminants and meat from these species to prime meat markets with better economic return. Kid morbidity and mortality are widespread affecting growth and replacements.

Reproductive disorders resulting in abortion are common in local goats. And also, parasitic diseases are among the most important causes of productivity loss in adult goats. The following are the focus areas:

- Development of different feed treatment technologies on performance of goat, and alternative starter feed formulation and housing management to reduce kid mortality;
- Improvement of goat breeds through selection and cross breeding;
- Investigation of internal parasites dynamics for strategic interventions; Epidemiological investigation on causes and risk factors of young stock morbidity and mortality; Impact of PPR and CCPP; and reproductive disorders affecting goats in Eastern Ethiopia.