Factors and Diseases Influencing Dairy Goats Production among Small Scale Farmers in Laikipia East District, Kenya

Maitho T. and Kinyua J. W.

University of Nairobi, Department of Public Health, Pharmacology, and Toxicology
P O Box 29053-00625, Nairobi, KENYA

*Corresponding author: tmaitho@uonbi.ac.ke

Abstract

Dairy goats are reared in Kenya in order to produce milk, meat and leather and thus improve food security and income of farmers. The dairy goat development in Kenya has been growing slowly although the government initiated several projects in late 1970s in order to improve dairy goat stock for distribution to farmers. The dairy goat sector has also been growing slowly and there is reduced milk production in Laikipia East District although the dairy goats were introduced in 2005 and the District is endowed with suitable climate for dairy goat production. A study was therefore conducted in order to establish factors and diseases which influence production of dairy goats among small scale farmers in Laikipia East District since limited information is available in this area. The objectives of the study were to determine social economics factors, breeding methods and diseases which influence production of dairy goats among small scale farmers in Laikipia East District. The study was conducted using a descriptive survey design and 170 small scale farmers. Questionnaires and interview schedules were utilized to collect primary data from the respondents and data was analyzed using Statistical Package for Social Sciences. The response rate obtained in the study was excellent since 167 out of 170 respondents filled and returned the questionnaires. The results showed that majority (61.7%, N=167) of the respondents were females and majority (66.3%) of farmers were over 49 years while youth (18-34 years) comprised only 10.6%. Majority (50%) of the respondents had primary level of education. The average household size was 7 members and 88.3% of the respondents earned livelihood from the farming only. The results on production showed that majority (53.1%) of the farmers kept Alpine breed while 18.5% of the farmers kept Toggenberg breed. The results indicate that 49.4% of farmers had 1-2 goats in lactation and 43.8% of the farmers did not have a goat in lactation. A total of 54% of the respondents indicated that the average daily milk production per doe was less than 1 liter and 82.1% of the respondents used milk for household consumption. The findings on the methods of breeding showed that 94.4% of the respondents used natural mating of goats while 5.6% used Artificial Insemination (A.I). The first mating age of the does was about 1.5 years. The results indicate that 50% of the respondents were aware of artificial insemination technology while 71.6% indicated that (A.I) technology was not available in most areas of the District. The results on diseases indicate that 52.5% of the respondents had encountered diseases in their flock within one year. The important diseases found in the district included diarrhoea, eye infections, pneumonia, bloat, mastitis, heartwater and Contagious Caprine Pleural Pneumonia. It was only 40.1% of the flock which had been vaccinated against Contagious Caprine Pleural Pneumonia and 30.2% of the respondents reported that they were not aware of the vaccination schedule. The findings on the control of parasites indicate that 57.4% of the farmers dewormed goats after 3 months while 64.8% of the respondents controlled ticks once a week. In conclusion, this study shows that social
economic factors, adaption of breeding technology, diseases, and pests influence dairy goat and milk production in Laikipia East District.

**Key words:** Factors, Diseases Control, Dairy goat production, Kenya


**Introduction**

Great importance is attached to dairy goat farming because goats produce meat, milk and leather and this contributes to the improvement of food security, nutrition, and income of farmers. The dairy goat sector is also important because it contributes to economic development, employment opportunities, and reduction of poverty especially in the rural areas. The dairy goat farming is a sustainable enterprise because it requires small land size, less capital and labour and it improves income and livelihood of the households through the sale of goats, milk, meat, and leather.

The development of dairy goat farming has been growing slowly although exotic dairy goats were introduced in the country in the mid 1950’s. According to the Ministry of Livestock Development there are 40,000 improved goats in Kenya. There is also slow development of dairy goat farming in the Arid and Semi Arid Areas of Kenya although the Government and Non-Governmental Organizations has initiated several projects for improving dairy goat farming in these areas. The factors contributing to the slow growth of dairy goat production and decreased milk production in the country are not well understood although the major constraints facing goat production in the country include drought, marketing and diseases.

A study was therefore conducted in Laikipia East District which lies in the Arid and Semi Arid Areas of Kenya. The District has a low population of 2500 dairy goats although it’s endowed with suitable land and climate for goat production. The objectives of this study were to establish social economic factors, breeding practices and diseases which influence dairy goat production among small scale farmers in Laikipia East District. The findings of this study are useful to Government officers, researchers, farmers and other stakeholders because the information obtained in the study will enhance knowledge and understanding of the dairy goat farming.

**Material and Method**

The research methodology which was used in the study is presented below.

**Research Design**
A descriptive survey design was used to collect data on factors which influence dairy goat production in Laikipia East District. The descriptive design was utilized in the study because it allowed collection of data in order to assess the relationship between the variables. The descriptive survey design was suitable for this study because data on various variables was collected from a large population (Mugenda and Mugenda 2008).

**Target Population**

The target population for this study was small scale farmers who were engaged in dairy goat farming in Laikipia East District which lies on the western side of mountain Kenya. The district has a population of 2500 dairy goats and 1175 households who keep dairy goats. The data on factors which influence dairy goat production was obtained from the target population in the area of study.

**Sampling Procedure**

A sample size of 170 households was obtained by using Yamane (1967) sampling Table with 7% precision level. Proportional random sampling procedure was used to select 170 households from 11 sub locations of the district. The data for this study was collected from the household heads rearing dairy goats in the Districts.

**Data Collection**

The primary data was collected from the small scale farmers by using questionnaires with open ended and closed ended questions which addressed the study variables. Secondary data was obtained from Laikipia East Dairy Goat Annual Report and District Livestock Annual Reports. Validity and reliability of the questionnaire were tested in order to ensure accuracy and consistency of data obtained in the study.

**Results**

The results in the study are presented following the objectives. The return rate of the questioners was 95.3% since 162 out of 170 respondents filled and returned the questionnaires. The return rate of this study is considered excellent according to Mugenda and Mugenda (2008).

The findings on social factors are presented below. The results on the gender of the respondents show that 61.7% of the 162 respondents were females while 38.3% were males. The results on age of the respondents indicate that 36.3% of the respondents were between 49-58 years and 30% were above 59 years. A small percentage (2.5%) of respondents was aged between 18-25 years. The findings on the level of education indicate that majority (50%) of the respondents had primary education while 42.5% had secondary education. The study shows that majority of farmers were literate and 60% of the farmers had less than 2 years experience in dairy goat rearing.

The average household size was 7 members and 88.3% of the respondents earned their livelihood from farming only. The results on dairy goat production in Laikipia East District are summarized below. The findings on the size of the flock indicate that majority of the respondents had an average of 1 male, 2
females and two kids. A total of 71(43.9%) farmers reported that they did not have any goat in lactation during the year and the average lactation length was less than 3 months. The average kidding interval of the dairy goats was 11 months. The average milk production of the doe per day was less than 1 litre and most of the respondents reared for household milk supply.

The findings on methods of breeding show that majority (94.4%) of the respondents used natural mating in the breeding of goats and it was only 5.6% of the farmers who used artificial insemination. The bucks were owned by a group of farmers and the first age of mating of doe was about 1.5 years. The results also indicate that majority (1.6%) of the farmers reported that Artificial Insemination service was not available in their areas.

The findings of the study show that most (52.5%) of the farmers had encountered diseases in their flock during one year. The diseases found in the district included diarrhoea, pneumonia, eye infections, bloat, heart water, Contagious Caprine, Pleura Pneumonia, injuries and wounds.

The diseases contributed to 38.3% of death of goats while injuries contributed to 24.7% of the loss of goats.

The findings also show that majority (59.9%) of the flocks had not been vaccinated against diseases for the last one year. Lastly, the results indicate that worms and ticks were the most common parasites of the goats and the farmers controlled worms after every 3 months and ticks were controlled weekly using acaricides.

**Discussion**

The factors and diseases influencing dairy goat production in Laikipia East District of Kenya are discussed below. The findings on the social economic factors indicate that majority (61.7%) of goat farmers are females and most of the respondents were more than 49 years and a small percentage (25%) of respondents were youth. This shows that goat farming is mainly practiced by females, old farmers and youth rarely practice goat farming. The results on level of education show that majority (92.5%) of household heads had primary and secondary education and this indicates that most of the household heads are literate and can read information on goat rearing. However, most (60.6%) of the respondents had very little experience in dairy goat farming. The results show that most (45.1%) households had 7-9 family members and this indicates that most families produce milk for family consumption and this can improve nutrition status of the family since most (88.3%) of the respondents did not have alternative source of income especially during dry period of the year. The finding on consumption of dairy milk concurs with a report of Dubeuf (2003) which showed that households consume most of the milk produced. The results on goat production revealed that Alpine breed of goats were kept by most farmers. Many farmers (43.8%) did not have a goat in lactation and the average diary milk production per doe was less than 1 litre. This
finding is in agreement with (Devendra and Burns, 1983) who reported that the Kenyan goat milk yield is very low.

It was also established from the study that most (94.4%) of the farmers used natural mating in breeding the goats and it was only a few farmers who used Artificial Insemination (AI). The bucks utilized for breeding were owned by farmers’ groups in the area of the study. The farmers preferred using bucks for mating because it is cheaper than Artificial Insemination and AI service was not readily available in the District. The adoption of AI technology should be enhanced in the area because utilization of AI service enhances upgrading of goats, reduces cost of breeding and keeping of bucks and transmission of the diseases. This observation is consistent with findings of Heinlein et. al. (2011) who showed that Artificial Insemination has several advantages over natural breeding and it aids in the improvement of the flock.

The results on diseases indicate that many farmers encountered diseases in their flock in the last one year and diseases were the main cause of death among goats reared in the area. The farmers should seek veterinary assistance early so that sick animals can be treated in order to reduce mortality in goats. The farmers should also be sensitized on the control of diseases since it was only 40.1% of the flock which was vaccinated against Contagious Caprine Pleural Pneumonia.

The findings of this study are in agreement with previous reports (Mugerwa, 1996 and Franz and Nguyen, 1997) which showed that diseases should be controlled properly because they reduce productivity. The results are also in agreement with a report of De Haan and Bekure (1991) who observed that diseases cause direct losses due to mortality and mortality. Lastly, it was shown that the farmers were aware worms and ticks posed great threat to the health of goats and they controlled the parasites by using drug products which were available in the District.

**Conclusion**

This study shows that social economic factors, breeding methods diseases and parasites influence dairy goat and milk production in Laikipia East District. The farmers should be sensitized to adapt Artificial Insemination technology in order to reduce inbreeding and breeding diseases in the flock and thus enhance goat and milk production.

Lastly, the diseases were the major cause of loss of goats and disease control programmes should be enhanced by sensitizing farmers on importance of disease control.

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References