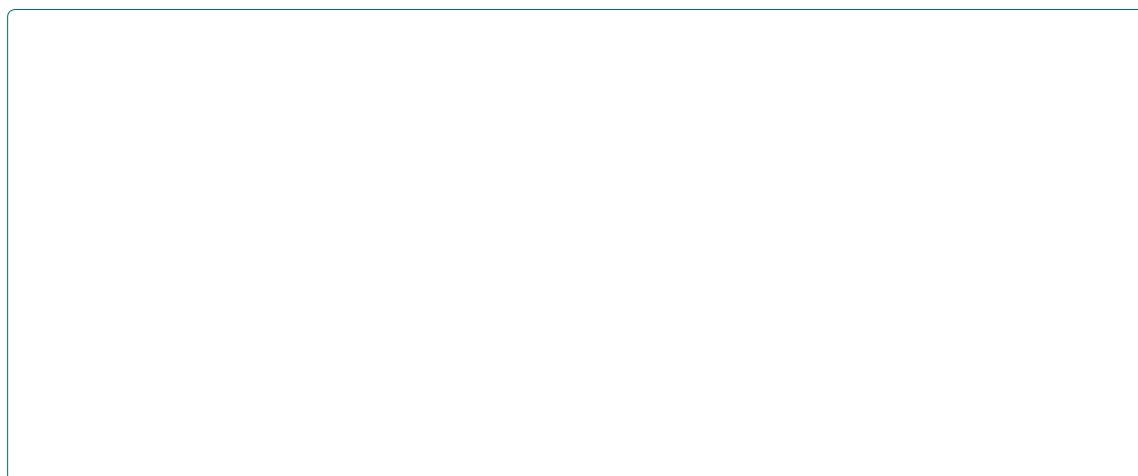


# Cross-Breed Neonatal Calf Mortality and Health Problems in Small Scale Dairy Production in and around Bishoftu Town, Oromia



**Keywords:** Calves; Mortality; Risk factors; Small holder dairy farms

**INTRODUCTION**

In many developing countries, raising livestock is one of the main ways to raise people's standards of life. Livestock is essential to the national economy and the livelihood of rural inhabitants in sub-Saharan African nations ILCA. However, this sector is growing relatively slowly in sub-Saharan African nations. In particular, the tropics are not an ideal region for calf rearing due to the high temperature and humidity which introduce many potential disease problems to milk-fed calves Moran which impair appropriate heifer replacement. Calf morbidity and mortality are ongoing issues for dairy producers worldwide Heinrichs and Radostits. By enabling dairy farmers to undertake selective culling of underproductive heifers, heifer replacement significantly increases dairy farmers' capacity to raise productivity Moran. Although other illnesses such as navel illness Kasari arthritis, bloat, septicemia, arthropod parasites, and nutritional diseases are also reported, the two primary diseases are diarrhea and pneumonia Virtala, which are the most prevalent in young calves and pre-weaned calves, respectively. Development of the dairy farms in Ethiopia can have a substantial impact on the reduction of poverty and improvement of nutrition in the nation due to the significant potential for smallholder income and employment production from high-value dairy products. However, the percentage of calf crop survival determines the success of any breeding program as well as the future of smallholder dairy farms, therefore calf mortality and morbidity are of major concern Heinrichs and Radostits. Because most deaths occur within the first two weeks of life, the neonatal period (0-28 days) is crucial Wells. Calves frequently endure episodes of diarrhea during the first few weeks of life, when they are routinely fed whole milk or milk substitutes. These episodes are frequently brought on by infectious agents such as Rotavirus, Escherichia coli, Cryptosporidium parvum, or Salmonella spp Amb. Cattle ranchers around the world suffer significant financial losses as a result of calf loss. Not only are there financial losses connected with death, but there

are also losses of genetic material, intervention costs, performance losses, and reduced output later in life Wells. Mortality-causing calf

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located 45 km South East of Addis Ababa, capital of Ethiopia. It lays 9°N latitude and 40°E longitude at an altitude of 1850m above sea level.

The rainfall is bimodal. It receives an annual rainfall of 1151.6mm of which 84% is received during the long rainy season covering June to September and the remaining in the short rainy season extending from March to May. The dry season extends from October to February.

of death (bloat and accident) recorded in this study was equivalent to cause-specific mortality proportion of (0.63%). The calf death rate or incident rate was 0.0055/calf week. The average for the occurrence of mortality incidents was 10 weeks. Proportionally, the highest mortality incidents occurred in the first week of life, in which 61.5% of the total cases of mortality occurred. Again, 76.9 per cent of the total cases of crude mortality occurred in the first month of age and 100 per cent of the total cases of crude mortality occurred in the first three months of age.

20% were college graduates. The average herd size per household of the dairy cattle in the study area was 11 and ranged from 5 to 17 heads of cattle. The average number of cross-breed calves per household was 2. About 61.7% of the owners had farm experience more than ten years, while the rest 28.3% and 10% had 5-10 years and less than 5 years, respectively. About 86.7% of the farm owners have no calving pen. All owners use artificial insemination (AI) for breeding and 81.7% of the owners use dairy farms as a secondary source of income, where as 18.3% of the owners mainly depend on the farm for livelihood. As the owner replied that hypocalcaemia (36.7%), mastitis disease (33.3%),

#### A. Risk factors associated with crude calf mortality

A total of eleven different potential risk factors (sex, age, navel disinfection, time of colostrum ingestion, milk supplementation after separation from the dam, delivery condition, and amount of colostrum ingestion, age of separation from the dam, calf barn, and farm size and management system of the farm) were investigated for their potential association with the occurrence of crude calf mortality. Among the risk factors assessed, age of the calf (OR=6.5, P= 0.046), delivery condition (OR=5.9, P=0.018), the amount of colostrum ingestion (OR=0.17, P = 0.039) and farm size (OR = 12.9, P = 0.007) were found to be significantly associated with the death of calves while the other risk factors; separation of calf house from the farm and sex were not found to be significantly associated to the death of calves (Tables 1 and 2).

#### D. Socio-demographic characteristics of the farm owners

The majority of the farm owners were male (61.7%) and the rest (38.3%) were female. 48.7% of the age of the owners was between 31-50 years while 26.6%, 16.7%, and 8.3% were above 51 years, 25-30 years, and less than 25 years respectively. As far as household literacy is concerned; (16.7%), of the farm owners were illiterate 30% attended primary school 33.3% completed secondary school and diploma, and

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further investigation is suggested to identify the specific causative agents incriminating for calf mortality in dairy farms of the study area.

#### D

Since the research was undertaken by collecting data using questionnaires it did not abuse animal welfare protocols. All procedure of data collection was carried out in accordance with relevant guidelines. This research studies comply with international guidelines.

This research was mainly focused on evaluating neonatal calf mortality rate and assessing potential management risk factors associated with calf mortality in small-scale dairy farms. Therefore, this research could not address the isolation, identification, and molecular characterization of major causative agents of calf mortality and it will not reveal information about the antimicrobial resistance pattern of the causative agents within the study area, which is supposed to aid the effective prescription of antimicrobial drugs to reduce the problems of drug resistance developments. Since the study was conducted on the small scale dairy farms, the finding of this research will not be extrapolated to the entire population of the study area.

#### A

Since we want to work with the scientific and research community, the data underlying the findings of a paper should be publicly available wherever possible and as open as possible. We therefore firmly support and endorse the Findability, Reusability, and Accessibility of this article. So, we prefer to deposit the data in a public repository that meets appropriate standards of archiving, citation, and curation.

#### C

We declare that the authors have no competing interests or other

interests that might be perceived to influence the results and/or discussion reported in this paper.

#### E

We write this to inform you that, we are from a lower-income economy country and we haven't any supporting body of a publisher.