# Appraisal of Animal Welfare Practices and Disease Prevalence of Animals Slaughtered at The Central Abattoir, Ekiti State, Nigeria

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**Abstract**

*The concern for animal welfare and wholesome meat for human consumption is gradually taking priority in the Nigerian Livestock industry. Abattoirs have been reported to be associated with unethical and unwholesome practices. Despite the growing effort to incorporate best practices towards humans and animals, the successes achieved are still limited. Therefore, this research was designed to assess the livestock slaughtered, their health status, and disease prevalence at Ado-Ekiti, Ekiti State Central Abattoir. Data were obtained over a period of 76 days (November –January) using direct observation with the aid of a checklist camera and recorder. Information on the number of ruminant species slaughtered, sex, slaughtering pattern, processing style, disease prevalence, and fetal wastage were obtained. The study revealed that a total of 3893 ruminants were slaughtered (3793 cattle), 19 (sheep), and 81 (goats). The population of cattle slaughtered was 97.4%, goat was 2%, sheep was 0.4% of the total animals slaughtered. The majority of cattle slaughtered were females (66.8%). The only slaughtering method observed was the halal. Singeing (99.4%) and flaying (0.6%) were the two processing methods observed during which an average of 2.59 of the female cattle processed were found with fetuses at different stages of life. Also, emergency slaughtered cattle (10) was recorded. For disease prevalence, a total of 123 (3.09%) cattle had diseases. Seven different diseases were observed during appraisal with the highest being Paramphistomosis (40.7) and the least Mastitis (1). In conclusion, inspection of animal should be thoroughly carried out and animals that are not fit for slaughter should not be slaughtered. The welfare of animals should take priority regardless of the fact that they are meant for slaughtering. Diseased animals should be condemned.*

**Keyword:** Animal welfare, Disease prevalence, fetal wastage, cattle slaughtering, emergency slaughter.

# Évaluation des pratiques en matière de bien-être animal et de la prévalence des maladies chez les animaux abattus à l'abattoir central de l'État d'Ekiti, au Nigeria

**Résumé**

*Le souci du bien-être animal et de la salubrité de la viande destinée à la consommation humaine devient progressivement une priorité dans le secteur de l'élevage nigérian. Les abattoirs ont été associés à des pratiques contraires à l'éthique et insalubres. Malgré les efforts croissants visant à intégrer les meilleures pratiques envers les humains et les animaux, les succès obtenus restent limités. Cette étude a donc été conçue pour évaluer les animaux abattus, leur état de santé et la prévalence des maladies à l'abattoir central d'Ado-Ekiti, dans l'État d'Ekiti. Les données ont été recueillies sur une période de 76 jours (novembre-janvier) à l'aide d'une observation directe, d'une caméra et d'un enregistreur. Des informations ont été obtenues sur le nombre d'espèces de ruminants abattues, leur sexe, le mode d'abattage, le type de transformation, la prévalence des maladies et les pertes fœtales. L'étude a révélé qu'un total de 3 893 ruminants ont été abattus (3 793 bovins, 19 ovins et 81 caprins). La population de bovins abattus représentait 97,4 % du total des animaux abattus, celle des caprins 2 % et celle des ovins 0,4 %. La majorité des bovins abattus étaient des femelles (66,8 %). La seule méthode d'abattage observée était la méthode halal. Le brûlage (99,4 %) et l'écorchement (0,6 %) étaient les deux méthodes de transformation observées, au cours desquelles 2,59 bovins femelles transformés en moyenne ont été trouvés avec des fœtus à différents*

*stades de développement. De plus, 10 bovins abattus en urgence ont été enregistrés. En ce qui concerne la prévalence des maladies, 123 bovins (3,09 %) étaient atteints de maladies. Sept maladies différentes ont été observées. En ce qui concerne la prévalence des maladies, 123 bovins (3,09 %) étaient atteints. Sept maladies différentes ont été observées lors de l'évaluation, la plus fréquente étant la paramphistomose (40,7) et la moins fréquente la mammite (1). En conclusion, l'inspection des animaux doit être effectuée de manière approfondie et les animaux qui ne sont pas aptes à l'abattage ne doivent pas être abattus. Le bien-être des animaux doit être une priorité, même s'ils sont destinés à l'abattage. Les animaux malades doivent être condamnés.*

**Mots-clés**: bien-être animal, prévalence des maladies, perte fœtale, abattage de bovins, abattage d'urgence.

## Introduction

The quest for animal protein in food consumed by humans has led to the slaughtering of many animals both ruminant and non-ruminant in Nigeria. Due to this high number slaughtered, different breeds, sex and sizes of cattle are slaughtered in the Nigerian abattoir. Obi (2000) reported that animal protein production in eastern and southern part of Nigeria is not high enough to meet demand in these regions. Ahmad *et al.,* (2017) reported that both male and female cattle are slaughtered in Nigerian abattoirs, with some studies suggesting a higher proportion of males. Ogunbodede and Oladele (2016) studied the body weights and age distribution of cattle slaughtered in Ibadan abattoir. The health status of the different animals slaughtered should, however, be of concern for humans' safety. In the same vain, the care of animals to be slaughtered must take priority at all stages of life before end of life. The handling pattern of cattle during transportation to the abattoir should be well monitored as well as other management processes. Grandin (2010) reported that cattle should be well monitored during handling and transportation to the abattoir as this will ensure proper welfare and prevent stress, injuries and mortality. Proper handling and inspection is essential for ensuring meat safety and quality Buncic *et al.,* 2014). It is important that ante and postmortem inspection be carried out at the abattoir Adenkola *et al.,* (2008). Animals slaughtered must be free from disease and pain. Ninios *et al.,* (2014) reported the prevention of lesions and abnormalities in animal slaughtered in the abattoir during inspection. It is important to note that both antemortem and postmortem inspection will ensure safety and quality. In Nigeria, there is no baseline data on animal welfare practices and disease prevalence in the different abattoirs. This study was therefore carried out to assess the physical characteristics and health status of ruminants slaughtered at the central abattoir in Ado-Ekiti, Nigeria.

## Materials and methods

The study was carried out at the Central abattoir Ado-Ekiti, Ekiti State, Nigeria. The abattoir is located along Ado Ekiti-Iworoko Road, Ekiti State, Nigeria. Ado Ekiti with Latitude: 7.6233° N and Longitude: 5.2214°E experiences a tropical savanna climate, with significant rainfall variation throughout the year with annual rainfall of approximately 1,447.7 millimeters. The study area was purposely selected because it is the only abattoir that is functional in the state. It's been reported that all other centers where animals are slaughtered are slaughter houses and slabs.

The study lasted for a period of 76 days from November 2024 to January 2025 (Sundays were exempted from the records as slaughtering was not usually carried out). Collection of data was within the slaughtering hours (6:30-11:00am) with the use of check list, recorder and camera. Data collected include, number of ruminant animals slaughtered, sex, emergency slaughter, disease occurrence, fetus wastage, condemnable carcasses, slaughtering methods and processing method (singeing or flaying). Data obtained were analyzed using descriptive statistics and Anova using SPSS V-20.

**Results and discussion**

Presented in figure1 is a pie chart showing the different species of ruminant animals slaughtered at Ado Ekiti abattoir. The study revealed that a total of 3893 animals were slaughtered in which all were ruminants (Cattle, Sheep and Goat). Cattle dominate the slaughter numbers, with 3,793 cattle processed, while only 81 goats and 19 sheep were recorded. This result suggests a preference for beef over other meat types at this abattoir. This finding is related to the report of Umaru *et al.*, (2017) beef is the most preferred meat type, accounting for 38.11% of meat consumed. These authors further reported that these preferences were as a result of taste and reduced price compared to mutton and chevon.

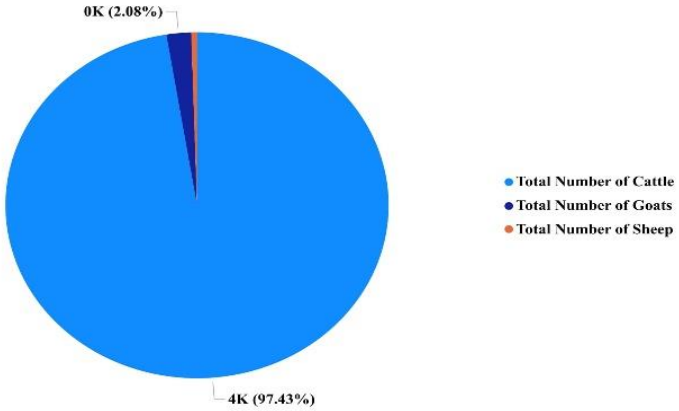


**Figure 1: Specie of Ruminant Slaughtered at Central Abattoir, Ado-Ekit**

Figure 2 shows a bar chat of the sex of livestock slaughtered in the study area which includes 3,793 cattle, with 2,535 (66.83%) being female and 1,258 (33.17%) being male. The female cattle slaughtered could be the spent female that have left breeding or unreproductive female in the herd. In other cases, farmers could dispose their female animals if they are in dare need of money. Komolafe *et al.*, (2019) reported that more female cattle being slaughtered could be that the price of female is cheaper than male and that the animals might be unproductive. Ahmad *et al.*, (2017) reported that both male and female cattle are slaughtered in Nigerian abattoirs, with some studies suggesting a higher proportion of males. The slaughtering of more female animals to male could be that female animals are cheaper in price than their male counterpart.

The independent samples t-test comparing the number of male and female cattle shows a statistically significant difference between the two groups. With 74 observation each, the mean number of female cattle (34.26) is significantly higher than that of male cattle (17). The calculated t-statistic is -14.84, far beyond the critical value of ±1.98 (two-tailed), and the p-value is virtually zero ($3.12 \times 10^{-30}$). The comparison between female goats and the total number of goats reveals no statistically significant difference. Adesope *et al.*, (2021) recorded that 57.35% of the respondents prefer beef while 42.65% preferred chevon.

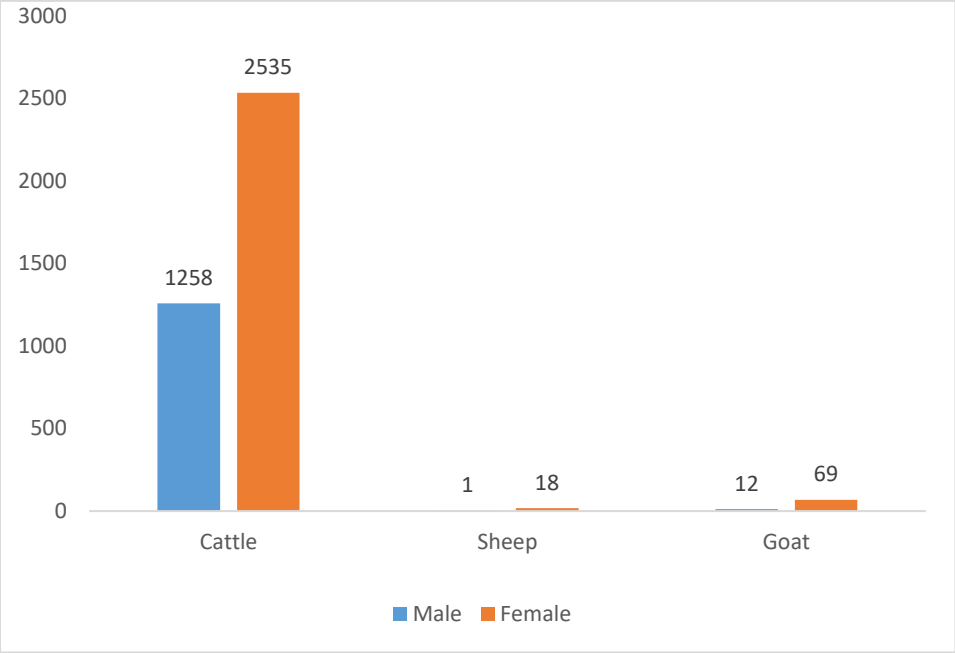


**Figure 2: Sex of Cattle, Sheep, and Goat slaughtered at Ado-Ekiti Abattoir**

**Table 1: Sex of cattle slaughtered in the study area**

| | Male Cattle | Female Cattle |
|---|---|---|
| Mean | 17 | 34.25676 |
| Variance | 36.21918 | 63.80989 |
| Observations | 74 | 74 |
| Hypothesized Mean Difference | 0 | |
| Df | 136 | |
| t Stat | -14.8427 | |
| P(T<=t) one-tail | 1.56E-30 | |
| t Critical one-tail | 1.656135 | |
| P(T<=t) two-tail | 3.12E-30 | |
| t Critical two-tail | 1.977561 | |

**Processing Pattern and Emergency Slaughter of Animals**

The processing pattern of cattle slaughtered at the study area is shown in Figure 3. The result shows that two processing method were used after slaughtering by cutting through the jugular vein of the different animals. The most common processing method observed in the study area is singeing (99.37%), while 0.63% were flayed, burning with kerosene or dried stick from plants

around the abattoir. According to Table 2, Singeing was the most frequent processing activity, with an average of 50.93 cases per observation, a relatively high standard deviation of 9.96, and a total of 3769 cases across all 74 observations. This suggests singeing was a common and consistent practice, though the count ranged widely from 20 to 78. In contrast, flaying occurred far less frequently, with a mean of 0.32, a maximum of just 1 case per observation, and a total of 24 cases. Similarly, emergency slaughter was the least frequent, with an average of 0.14, a total of 10 cases, and a maximum of 2 in any single observation. In Nigeria and many other African countries, singeing of the hides of goats, sheep and cattle are often done over open fires using various materials which include firewood sometimes mixed with spent engine oil, spent automobile tires, plastics and liquefied petroleum gas (LPG). (Obiri-Danso, 2008; Aya and Nwite, 2016; Sunu. 2014; and Frimpong *et al.*, 2012)

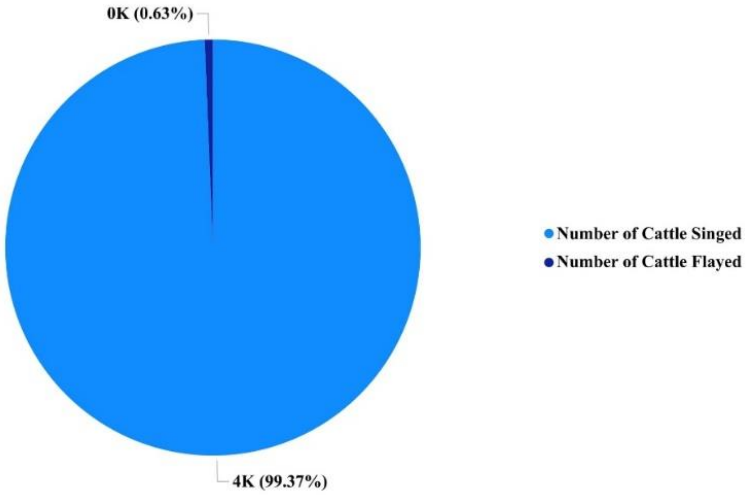


**Figure 3: Processing pattern of slaughtered animals in Ado-Ekiti**

**Table 2: Emergency slaughter and processing pattern of ruminants at the abattoir.**

| | Emergency Slaughter | Flaying | Singeing |
|---|---|---|---|
| Mean | 0.14 | 0.32 | 50.93 |
| Standard Deviation | 0.42 | 0.47 | 9.96 |
| Minimum | 0 | 0 | 20 |
| Maximum | 2 | 1 | 78 |
| Sum | 10 | 24 | 3769 |
| Count | 74 | 74 | 74 |

Some cattle were observed to have been slaughtered before arrival at the abattoir which is tagged emergency slaughter. Figure 4 shows that a total of 10 cattle were already slaughtered which could be as a result of stress either during loading and offloading or transportation. It could also be that the animals had underlying ailment and could not withstand the stress of transportation and handling. Nielsen *et al.,* (2011) reported that animals on transportation should be unequivocally free from injury, unnecessary suffering and generally fit to travel. Farmers might decide to sell animals that are not responding to treatment or there had been reoccurrence of illness. It is important that animals should be well examined before and after slaughter to be sure that the carcass is in a healthy state for human consumption. Processing of emergency slaughter should be discouraged except there is assurance that the carcass is safe for human consumption. The occurrence of emergency slaughter could be an indication of failed process of either handling or transportation which could imply that the welfare of the animal is compromised. Reference on transportation stress. Bruising and injury seem more frequent in short-distance transportation Gebresentbet *et al.,* (2011). Nielsen *et al.,* (2011) reported that bruises can be greatly reduced if the producers, truckers and packers will take care of the offloading facility. Gebresentbet *et al.,* (2011) reported that bruise sustained on the skin by cattle usually increase due to the presence of sharp objects and the high stocking density during loading.

The trend of slaughtering shown in Figure 4 also revealed that there were instances of emergency slaughter in December and January and non for November. This could be that there were more cattle transported to the study area as a result of the festivity of the season in which vehicles carry more than the expected number of animals that they are meant to transport. This could result in overcrowding and suffocation which result in the need for urgent slaughtering. Also the harsh weather (heat) could also affect the complete wellbeing of cattle transported to the study area. The welfare of cattle at all stages of life should be of priority. Akinyemi *et al.,* (2013) reported that cattle transported during the hot hours of the day or heavy down pour would be stressed and weakened.

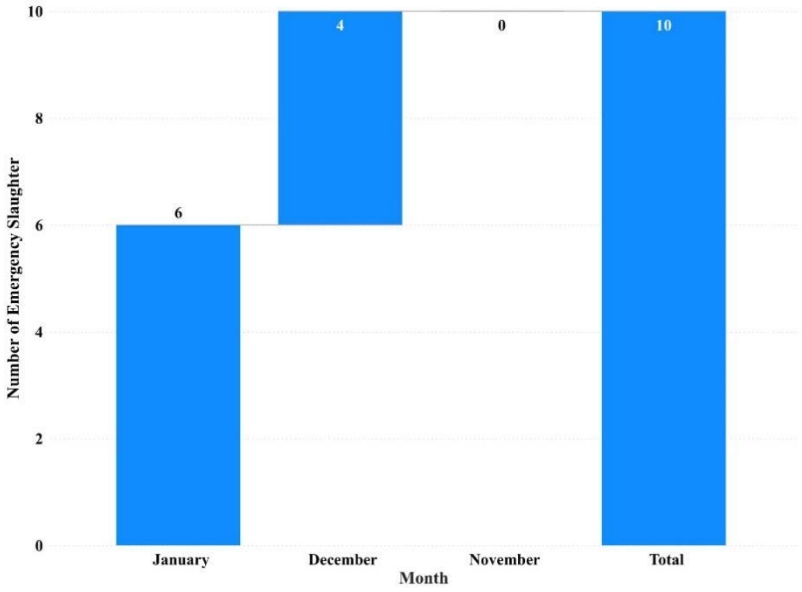

**Figure 4: Emergency slaughter of cattle in the study area**

Presented in Figure 5 is a graph showing the fetus wastage in the study area. It was observed that some female cattle slaughtered were already pregnant. Some with advance pregnancy which should be noticed. fetus was found at the different month of the study however highest in November and lowest in January. The health status of female cattle should be given more attention and pregnancy test should be conducted before female animals be slaughtered. Slaughtering of pregnant cattle can amount to an economic loss as the fetus could be a potential mother that could help to increase the population of cattle in the future *Njoga et al.*, (2021). Most importantly, it is unethical that a pregnant cattle be slaughtered. This could cause pain and psychological disturbance to the cow. Slaughtering of pregnant cow might be that the butcher is ignorant or lacks the technical knowhow on how to detect pregnancy. It could also be that some butchers do not have choice since the animal has been bought with the purpose of slaughtering. Since their intention is not too rare, it might be quite difficult to keep such animals even when they are aware of the pregnancy state.

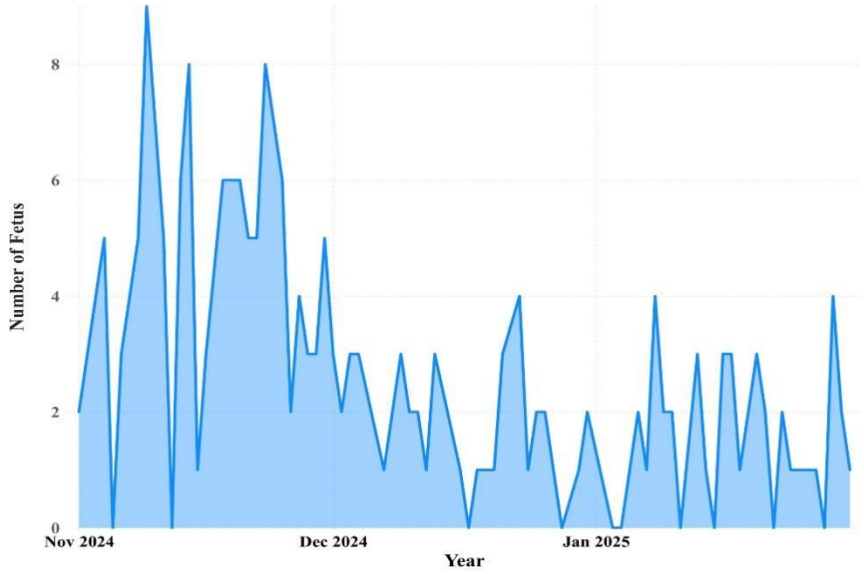


**Figure 5: Number of fetuses observed in female cattle slaughtered at central abattoir Ado-Ekiti**

Disease prevalence in cattle slaughtered in Ado-Ekiti central abattoir is shown in Figure 6. A total of 123 cattle slaughtered, (3.09% of the population) were infected with diseases. Seven different diseases were observed during the period of the study which were Paramphistomosis (50 cases), Contagious Bovine Pleuropnemonia (23), Fasciola (13), Tuberculosis (12), Dermatophilosis (5), Mange (20), and Mastitis (1). Paramphistomosis (50 cases) is the leading condition, meaning liver fluke infection was a significant issue while mastitis was the least. Paramphistomosis is linked to poor pasture management, as cattle pick up these parasites from contaminated water and vegetation. Ieren *et al.*, (2016) reported a prevalence rate of 37.2% in an abattoir study, while Ozung *et al.*, () found a prevalence rate of 31.7% in a retrospective study over a 5-year period in Zaria. Charlier *et al.*, (2014) in a review article discussed the impact of liver fluke infections and gastrointestinal nematode infections on cattle productivity and welfare, highlighting the economic significance of these parasites in livestock production while

Khan *et al.*, (2019) in a study on liver fluke infections in cattle discussed the link between poor pasture management and the spread of the parasites. The CBPP (23 cases) is a highly infectious respiratory disease, meaning poor herd health management or cross-contamination at the abattoir could be issues. Fasciola (20 cases), another parasitic infection, suggests poor grazing conditions or water contamination. Tuberculosis (12 cases) a zoonotic disease remains a public health concern as it can spread to humans through meat consumption. Other conditions like Dermatophilosis, Mange, and Mastitis were present but in lower numbers.

The presence of tuberculosis, CBPP, and parasitic infections raises serious concerns about meat inspection and zoonotic disease control. It is important that strict measure be taken on the inspection of meat to prevent the sale of infected and contaminated carcass in the markets. Educating Butchers and farmers about the risk of transmission of zoonotic disease through animals and pastures could help prevent the spread of parasites Paramphistomosis and Fasciola. Antemortem and postmortem inspection must be enforced strictly in the markets and abattoir meat inspection to prevent tuberculosis-infected meat from entering the market.

The presence of CBPP, tuberculosis, and other diseases could be linked to emergency slaughter cases, as sick cattle may not survive the journey to the abattoir. Emergency slaughters peaked in December and January, possibly due to increased demand for meat during festive periods or harsh weather conditions affecting cattle health. Sick animals should receive proper veterinary care before reaching the point of slaughter, rather than being slaughtered in a deteriorated state.

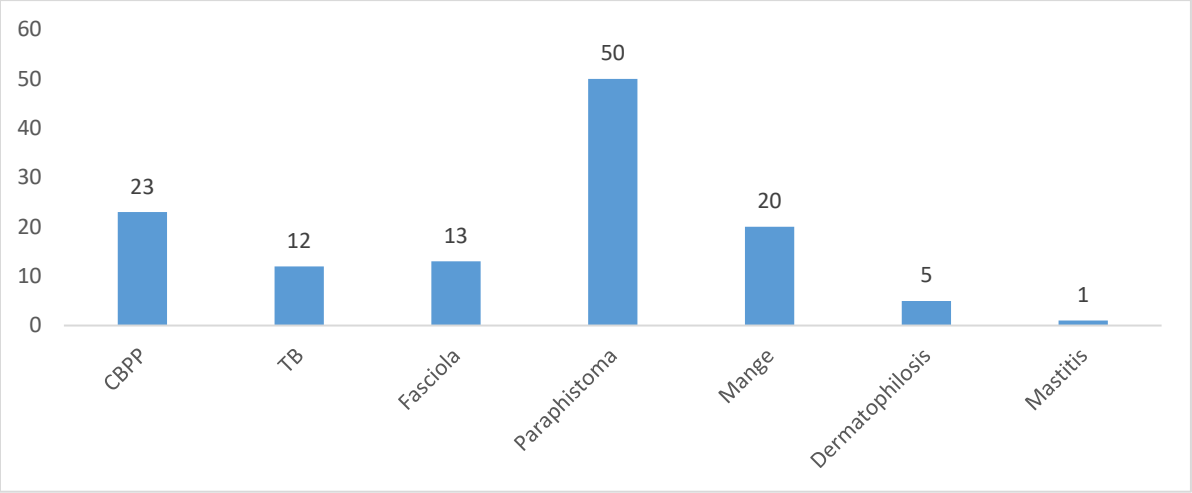


**Figure 6: Disease prevalence in the Abattoir**

**Conclusion**

The study revealed that three species of livestock (Cattle, Goat, and Sheep) were slaughtered at the abattoir with the majority being cattle. Female cattle were mostly slaughtered. There were cases of emergency slaughtered cattle being processes and some of the female cattle were slaughtered with pregnancy. Different diseases were found among cattle brought for slaughtering and during post mortem examination. The most prevalent disease was Paramphistomosis and the least was mastitis.

***Recommendation***

1. Animal welfare should take priority at the abattoir.

2. Cows should be thoroughly examined before slaughter.
3. Ante-mortem and post-mortem inspection of cattle to be slaughtered should be done as well as meat displayed for sale by the veterinarians and meat inspectors
4. Slaughtering of pregnant cattle should be totally discouraged.
5. Compensation for pregnant cattle or diseased animals should be made by the government.

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