

Short Communication

Retrospective Assessment of Black Leg in Kafta Humera Woreda

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ABSTRACT

Retrospective study was conducted with the objective of assessing the vaccination coverage of Kafta Humera through observation of different woredas against black leg from records of the Humera veterinary clinic in Tigray region of Ethiopia, from 207/8-2012/13. The result revealed that there was vaccination program against black leg every year in the woreda. At the same time, there was a reduction in diseased animals and death rate from time to time. But there are some cases still existing with high rates of infection in Begait cattle (a breed common in northern Ethiopia). This indicates that the disease is still persisting in the area and strengthening the existing vaccination program and immediate detection of diseased animals and treating them is essential to mitigate the disease in the area.

Keywords: Black leg, Humera, Cattle, Tigray, Ethiopia.

1. INTRODUCTION

Ethiopia owns the largest livestock population in Africa and stands tenth in the world. The size of the livestock population is roughly 41.5 million heads of cattle, 28.2 million head of sheep and goats, 5.8 million head of equine, 1 million heads of camels, 42 million poultry and 4.6 million honey bee colonies (Adem et al., 2006).

Tigray is one of the regions of Ethiopia found in the northern part which has 3.04 million heads of cattle. Kafta Humera woreda owns currently around 219,993 cattle population. Like elsewhere in Ethiopia, animal husbandry is an important source of livelihood for families in the woreda, next to seasonal crop production (BOANR, 2007). The existing constraints to animal husbandry in the woreda includes, poor husbandry practices, lack of sufficient and standard nutrition, inadequate animal health service, lack of marketing facilities and opportunities and poor reporting system of different animal health cases. These constraints also exacerbate the spread of animal diseases from one area to another area (Adem et al., 2006).

Black leg is a highly fatal disease of young cattle, mainly two months old. Most fatalities occur in cattle between six months to two years of age. Occasionally, fatalities occur in adult cattle

caused by *Clostridium choevoei*, which is a spore forming and gas producing rod-shaped bacteria. The bacteria produce an acute local infection, and the resulting blood poisoning leads to rapid death. The name black leg is driven from the fact that the site of infection is often a leg muscle, and the affected muscle is dark in color. The spore of the *C. choevoei* can live in the soil for many years and can occur at any time of the year, though more fatalities are seen during hot, humid weather or following the sudden onset of cold periods. Note that the carcasses of animals dead from black leg should not be opened, rather be burned or buried on the lay down (Sarah and Wilson, 2007).

Previously, there was no any research conducted to assess the vaccination coverage of the disease and distribution of black leg in Kafta Humera using data obtained from the veterinary clinic of the woreda. Hence, the objective of this paper is to assess the vaccination coverage and distribution of the disease in different years.

2. MATERIAL AND METHODS

2.1. Description of the study area

Humera is located 587 km northwest of Mekelle, the capital city of Tigray region, bordering Sudan on the west and Eritrea on the north. Geographically the area lies between 14° 17' 26"N latitude and 36° 36' 29"E longitude with an elevation varying from 550m to 2800m above sea level. The annual rainfall in the area ranges from 500 mm to 500 mm. The mean maximum temperature is high ranging from 30⁰C in August to 40⁰C in March and May. The relative humidity is highest during the months of rain (June-July) and lowest at the end of the dry season in April (Hagos, 2009).

2.2. Study Design and Sampling Methods

Retrospective data on past vaccination status of livestock in Kafta Humera woreda was obtained from the woreda veterinary clinic from May to June 2014 and classified in to different age groups, breeds, sex and the number of dead and sick animals. The vaccination coverage data encompassed six years, from 2008 to 2013 (see appendix 1 for data).

2.2.2. Data Analysis

SPSS version 16 was used to analyze the data for descriptive statistics and the results are presented using the bar graphs.

3. RESULTS

Vaccination of cattle against black leg was conducted in the total population of animals in Humera in different years and the vaccination coverage against black leg is shown in figure 1.

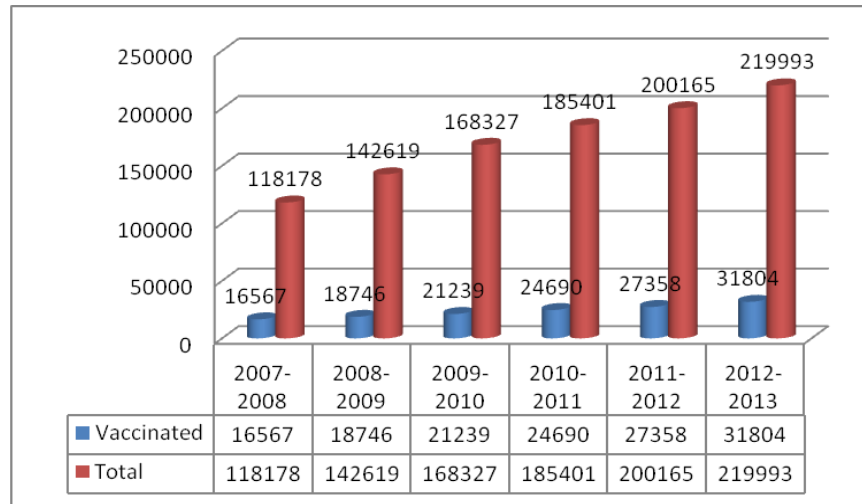


Figure 1. Vaccination coverage and total animal population.

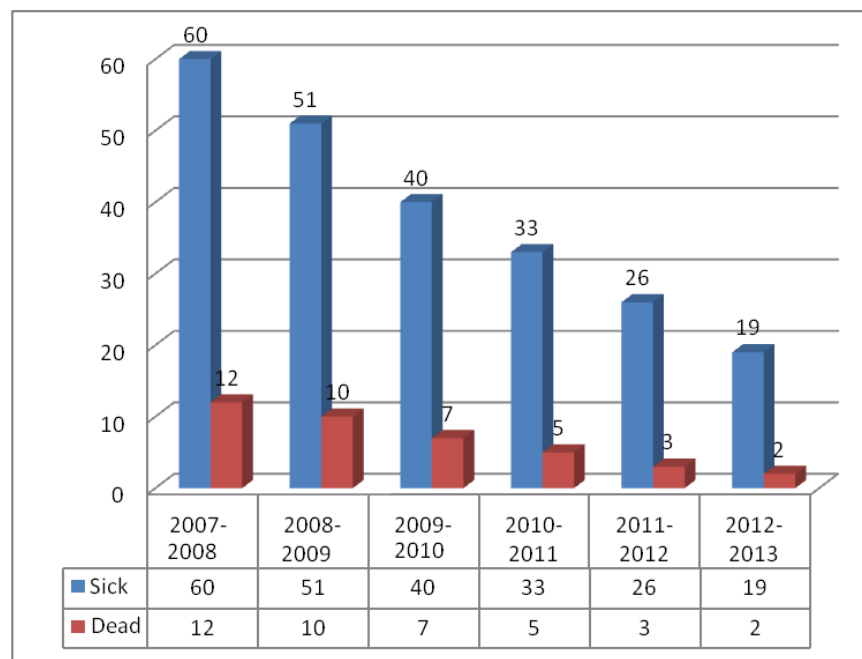


Figure 2. Incidence of black leg in different years and its death rates.

In the study area, the distribution of the disease in different years vary from time to time with the highest rate of diseased animals in 2007/8 -2012/13 E.C (Appendix 1).The death rate due to the disease was also higher in the same year as indicated in figure 2. In the study area, distribution of the disease in Bagait and Holstein Fresian cattle is varying from year to year from 2007/8 to 2012/13 with decreasing trend as shown in figure 3. The rate of the disease in different years indicated that the male cattle are more affected than that of female as indicated in figure 4. The rate of the disease in young and adult cattle also varied from year to year as indicated in figure 5.

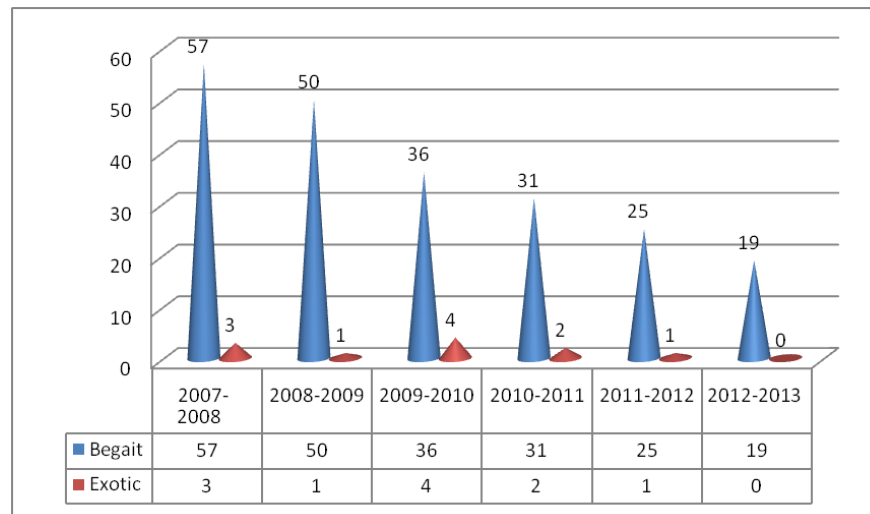


Figure 3. Incidence of black leg in Begait and exotic breeds.

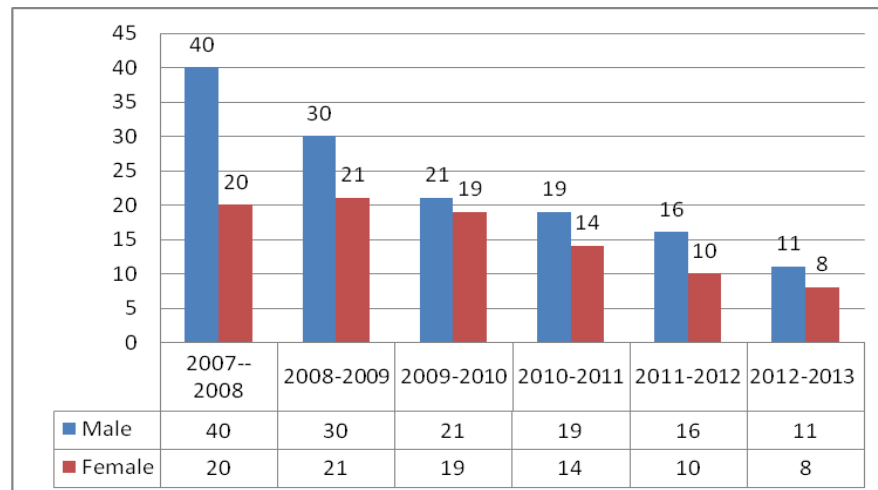


Figure 4. Incidence of black leg in male and female.

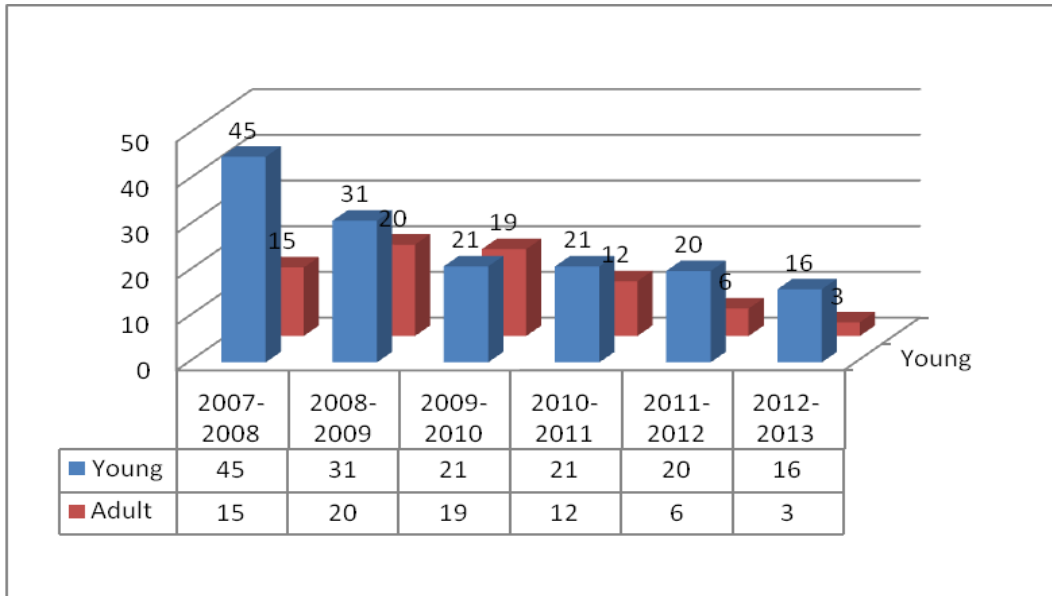


Figure 5. Incidence of black leg in young and adult.

4. DISCUSSION

The current findings indicate that there was vaccination of cattle in the woreda to protect the disease. Similarly, there were different reports of dead and diseased animals in the area with high rate of infected animals during the year 2007/8-2012/13 compared to the rest of the years. In line with the current finding, Workneh (2004) indicated that black leg was one of the major diseases affecting cattle in Oromiya region. At the same time, Teshager et al. (2013) indicated that black leg was one of the common diseases affecting cattle in south-western Ethiopia.

Comparison of the rate of black leg infection between Begait and exotic breeds showed that it was significantly higher in Begait compared to that of exotic once. This variation might be due to the difference in the data available in the clinic and the high number of begait animals visited the clinics. In addition, Begait breeds due to the extensive grazing system of the animals which exposes them to trauma compared to exotic animal which are kept in indoor and high vaccination coverage of the exotic animal, their chance of getting the infection might be high in Begait breed. Sex-wise distribution of the disease indicated that male cattle were highly affected compared to the female cattle. This might be due to the number of the animals which visited the veterinary clinic of Humera. Age-wise distribution of the disease also indicated that the young cattle are

more affected compared to adult cattle past six years. Radostitis et al. (2007) indicated that occurrence of black leg is common among young animals aged between 6 months to 2 years old.

5. CONCLUSION AND RECOMMENDATIONS

Black leg is one of the most common disease affecting cattle in the study area as evidenced from the clinical record of the past six years. There was vaccination program in the Woreda against different animal diseases one of which is against black leg. Though, there was vaccination for animals against black leg from time to time, the disease still persists but with reduced rate of infection. The results also revealed that the black leg infection in Kafta Humera woreda is higher among Begait breeds than exotic breeds; male cattle are more infected than females; and young cattle are affected more than other age groups. Similarly, higher rate of the disease is observed in young cattle in different years. Based on the study, it is recommended that i) it is essential to strengthen the existing vaccination scheme; ii) it is essential to isolate the sick animals immediately and provide treatment; and iii) long-term researches on the rate of the disease infection, transmission and its associated risk factors should be conducted.

6. REFERENCE

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Appendix 1

Year	Sick	Dead	Age	sex	Breed	Vaccinated	Total
			A	M	Begait		
			Y	F	Exotic		
2007/8	60	12	15	40	57	16567	118178
			45	20	3		
2008/9	51	10	20	30	50	18746	142619
			31	21	1		
2009/10	40	7	19	21	36	21239	168327
			21	19	4		
2010/11	33	5	12	19	31	24690	185401
			21	14	2		
2011/12	26	3	6	16	25	27358	200165
			20	10	1		
2012/13	19	2	3	11	19	31804	219993
			16	8	0		

(Source: Humera, Bureau of Agriculture and Rural development).