**CHAPTER VI**

**Discussion**

A cross-sectional study was carried out to determine the possible hoof disorders and their proportion in dairy cows correlated to different risk factors. About 2100 dairy cows were examined and a sum of 500 was identified to have different kinds of hoof diseases and disorders. The study revealed that in commercial and backyard dairy cows, the prevalence of hoof cracks was 17% and 19% respectively that were almost similar to the findings of Bielfeldt *et al.* (2012) who reported 15.7% to 21% in Switzerland dairy cows. However, higher than the present rates was recorded by Mishamo and Fromsa, (2012) and Thomas *et al.* (2002) who reported 40% in Ethiopia and 27% in Sweden accordingly. On the other hand, wide varieties of lower rates were published as 0.5% and 12% in UK by J.Hedges *et al.*, (2001) correspondingly, 7% in US by Vanegas (2005), 7.9% in Germany by Schopke, 0.01% to 0.1% in Denmark by Vander-Waaij *et al.,* (2005). The commercial dairy cows showed higher risk to suffer from different hoof disorders compared to backyard or grazing cows (Haskell *et al.,* 2006; Hultgren *et al.,* 2004; Chesterton *et al.,* 1989). The variations might be due to the variations in climatic and farming system among the studied areas.

Among the disorders of hooves, prevalence of fissure was discovered the highest 37% while Clarkson *et al.* (1993), Vanegas (2006), Schopke and Vander-Waaij *et al.,* (2005) recorded 22-28%, 4%, 12.6% and 0.13-0.91% in UK, US, Germany and Denmark respectively. In addition, the present study showed 16% to 20% prevalence of swollen hooves that were approximate to the findings of Hedges *et al.* (2001) (13.8%), Bielfeldt *et al.,* (2012) (20%) and Mishamo and Fromsa, (2012) (16.6%). Whereas a higher 26.6% prevalence was recorded by Global veterineria (2012) and lower 5%, 5.5.% and 10% were published by Clarkson *et al.,* (1993), Schopke and Mishamo and Fromsa, (2012) (16.6%) accordingly. Moreover, the survey exposed 19% to 20% prevalence of partially broken hooves among the cows which was agreed by Bielfeldt *et al.,* (2012) who reported 18% on a cross-sectional study at Canada. But comparatively higher and lower rates than the present study findings were found by Vanegas (2005) (60%) and Clarkson *et al.* (1996) (8%) and Schopke (7.1%) who worked at US, UK and Germany respectively. Finally, a range of 6% to 9% cows were found to have more than one hoof problem under the study. Whereas, Schopke and Vander-Waaij *et al.* (2005) found 57.8% and 39.9% prevalence of hematoma at German and Danish dairy cows accordingly, Bielfeldt *et al.* (2012) and Mishamo and Fromsa, (2012) reported 30.3% and 13.3% prevalence of overgrown hooves in Switzerland and Ethiopia correspondingly. Variable sizes of the study population, climatic effect and flooring type of the study farms and genetic make-up of different breeds might be reflected into the variations in results.

Seasonal prevalence of the study showed 17% cracked, 19% partially broken, 37% fissured, 19% swollen and 8% cows having multiple disorders during autumn while Wells *et al.* (1993), Hedges *et al.* (70%), Whitakes *et al.,* (2000), Alban (1995) and Manske *et al.,* (2002) reported overall prevalence of 16.7% in US, 70% and 23.7% in UK, 6.92% in Denmark and 5.1% in Sweden respectively. In addition, the rainy season prevalence of hoof disorders were found as crack 18%, partially broken 19%, fissure 38%, swollen 19% and cows having more than single diseases were 6% whereas Wells *et al.,* (1993) and Clarkson *et al.,* (1996) recorded 13.7%, 20% and 18.6% in US and UK accordingly. Furthermore, prevalence at winter were noticed as crack 17%, partially broken 20%, fissure 36%, swollen hooves 18% and multiple problem 8% though Clarkson *et al.,*(1996) published 80% and 25% in US and UK consequently. Geographical distribution of animals might be adapted to a particular climate favorable to avoid unnecessary sufferings by seasonal variations.

Type of floor on which cows were inhabited had a variably greater impact on hoof disorders. The study established 13.27% prevalence on cows housed on bricked floor and 68.40% prevalence on concrete floor though lower prevalence rates were reported by Faye (1989) that was 19.8%, Frankena *et al.,* (1991) that stands for 44.6%, Frankena *et al.* (2008) (20.1%) and Bergsten (2001) (10.21%). Additionally, 18.30% prevalence on concrete floor having rubber bedding was revealed by this study was much higher than the findings of Bergsten (2001).

The present study also noticed that the commercial dairy cows housed in intensive condition showed significantly higher prevalence of hoof disorders compared to free-range or semi-intensive. The findings was disagreed by Somers *et al.,* (2003) who reported higher 63% prevalence in pasture grazing animals than lower 37.4% prevalence in housed animals. On the other hand, Vander-Waaij *et al.*,(2005), Amory *et al.,* (2008),) and Nielsen *et al.* recorded 21.2%, 21.7%, 7.5%, 195 and 62% digital dermatitis as hoof lesions in Netherland, UK and Denmark accordingly. The type of soil and floor materials used in different countries might have variable effects on production of hoof disorders.

The cows identified having hoof diseases all were cross of local whereas Global Veterinaria (2012) reported 3.8% prevalence in both local jebu and Holstein Friesian cow with 1.6% in cross breeds. The study also showed a higher 70.42% prevalence in the cow of 6 to 8 years old with lower in the cows below 5 years (16.29%) and above 8 years (13.27%) while Global Veterinaria (2012) published a higher 4% prevalence in the cows of ≥2 years and a lower 2.2% in <2 years old cows. In addition, Talukdar *et al.* (2005) found 2.11% and 2.82% prevalence in calves and heifer cow respectively in Bangladesh.

The cows having 10 to 14 liter of milk production were found more prone to hoof disorders (72%) compared to 19.1% in <10 liter and 8.45% in >14 liter milk yielding cows and the findings were agreed by Hultgren *et al.* (2004). In addition, Shearer and Amster (2013) recorded 11.4%, 13.3% and 8.1% in the cows with 1st, 2nd and subsequent lactations. High yielding cows suffer from more disorders might be due to inadequate nutrient supply and management.