**CHAPTER I**

**Introduction**

Hoof health has a great impact directly on cattle and indirectly on the dairy production system. In cattle, it is one of the major issues of economic profit in dairy production (Hernandez *et al.,* 2005; Kossaibati *et al.*, 1997). Hoof diseases considered as the most important health problem having a negative effect on the welfare of dairy cows unswervingly (Alban, 1995; Webster, 1987).

Absence of hoof/hooves, sloughed-off, cracked, fissured, broken, luxated hooves are commonly reported disorders of hooves disturbing the hoof health. Different local and systemic diseases like foot and mouth disease, laminitis, foot rot, physical trauma, wound, arthritis, bed sore, abscess, milk fever, Downer’s cow syndrome predispose the cow towards abnormalities of hoof/hooves leading to lameness and recumbence of animal (Cook *et al.,* 2005). In addition, high yielding dairy cows reared intensively, over-nourished and heavy weight animals, and the animals housed on concrete floored are found equally susceptible to claw disorders.

There are some other intrinsic risks for lameness that cannot be changed. These include season gestation and stage of lactation (Green *et al.,* 2002; Knight, 2001), previous disease (Hirst *et al.,* 2002; Alban *et al.,* 1995) and parity (Hirst *et al.,* 2002; Hedges *et al.,* 2001). Genetically determined intrinsic risk for development of lesions also reported by Koenig *et al.* 2005 and Boettcher *et al.,* 1998.

Lameness due to hoof disorder has also been identified as a major welfare determinant in cattle because of discomfort and pain that it causes (Offer *et al.,* 2000). Hoof lesions account for 60% to 90% of all lameness incidences in cattle in various countries of the world (Manske *et al.,* 2002; Weaver, 2000; Bergsten & Christer 2004). More than 60% of lameness in cattle is caused by lesions and disorders affecting the horn of the hoof such as sole ulcers, heel erosion, sole bruising, and white line separation and under run (double) soles. All these hoof disorders and lesions have a direct or indirect effect on the dermis (corium) of the hoof and are associated with laminitis (Belge & Bakir, 2005; Manske *et al.,* 2002).

Reduction of milk yield through discarding of milk due to withdrawal period of drugs used to treat the lameness condition, cost of veterinary drugs and professional services in managing the conditions lowered the farm profit (Hernandez *et al.,* 2005). Reduced conception rate and increased calving interval, reduced ovarian activity during early postpartum period, as well as premature culling and occasional mortalities sometimes reported associated with lameness (Sogstad *et al.,* 2006; Garbarino *et al.,* 2004; Enting *et al.,* 1997). Finally lame animals show more susceptibility to mastitis, the most important economic disease of dairy animals leading to poor production and loss of the farm profit.

Worldwide incidence of lameness is reported as high as 26% of all dairy cattle with a much higher incidence in high producing dairies in temperate countries. Canada has an incidence rate of 35% whereas the US suffered from 46% and a staggering 62% in the UK. In Manitoba, lameness accounted for just under 10% of all culls however it would have contributed to low condition and fertility problems as lame cows have reduced intakes leading to poorer body condition

(http://www.gov.mb.ca/agriculture/livestock/dairy/cda21s02.html).

Claw disorders of animals were investigated by many researchers on various aspects like Enting *et al.,* 1997 worked on welfare problem related to lameness in today’s milk production, Greenough *et al.,* 1997 explored the multi-factorial etiology of claw disorders, Alban 1995 found breed and conformation of claw were the main influencing factors related to hoof deformities. Similarly, Green *et al.* 2002, Hirst *et al.* 2002, Hedges *et al.* 2001, Knight 2001, Vokey *et al.,* 2001, Heuer *et al.,* 1999 along with several other scientists worked on hoof disorders associated with production and reproduction of cows and farm profit. But limited information was recorded on these topics in Chittagong, Birgonj of Dinajpur and Thakurgaon of Bangladesh.

Considering the above facts the present study was designed to explore:

* The prevalence of hoof diseases in dairy cows at Chittagong metropolitan area, Birgonj upazilla of Dinajpur district and Sadar of Thakurgaon districts of Bangladesh.
* The associated risk factors with special emphasis on predisposing factors leading to hoof disorders of dairy cow.