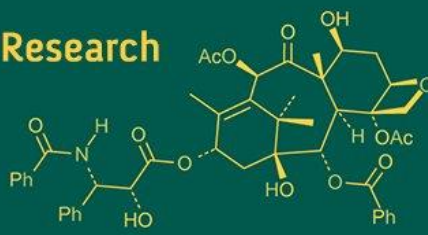
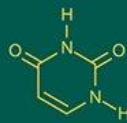


International Journal of Advanced Biochemistry Research



ISSN Print: 2617-4693
ISSN Online: 2617-4707
NAAS Rating (2026): 5.29
IJABR 2026; 10(5): 788-791
www.biochemjournal.com
Received: 10-02-2026
Accepted: 15-03-2026

Atul Kumar Kushwaha
M.V.Sc. Scholar, Veterinary
Surgery and Radiology, CoVSc &
A.H. Rewa, NDVSU Jabalpur,
Madhya Pradesh, India

Neelam Tandia
Associate Professor, Department of
Veterinary Surgery and Radiology,
CoVSc & A.H. Rewa, NDVSU
Jabalpur, Madhya Pradesh, India

Dharmendra Kumar
Professor, Department of
Veterinary Surgery and Radiology,
CoVSc & A.H. Rewa, NDVSU
Jabalpur, Madhya Pradesh, India

Priya Singh
Assistant Professor, Department of
Veterinary Surgery and Radiology,
CoVSc & A.H. Rewa, NDVSU
Jabalpur, Madhya Pradesh, India

Shailesh Patel
Assistant Professor, Department of
Veterinary Pathology, CoVSc &
A.H. Rewa, NDVSU Jabalpur,
Madhya Pradesh, India

Amit Jha
Assistant Professor, Department of
Animal Genetics and Breeding,
CoVSc & A.H. Rewa, NDVSU
Jabalpur, Madhya Pradesh, India

Nitin Soni
M.V.Sc. Scholar, Veterinary
Surgery and Radiology, CoVSc &
A.H. Rewa, NDVSU Jabalpur,
Madhya Pradesh, India

Lavlesh Mishra
M.V.Sc. Scholar, Veterinary
Surgery and Radiology, CoVSc &
A.H. Rewa, NDVSU Jabalpur,
Madhya Pradesh, India

Himashi Majhi
M.V.Sc. Scholar, Veterinary
Surgery and Radiology, CoVSc &
A.H. Rewa, NDVSU Jabalpur,
Madhya Pradesh, India

Mavle Siddharth Umesh
M.V.Sc. Scholar, Veterinary
Surgery and Radiology, CoVSc &
A.H. Rewa, NDVSU Jabalpur,
Madhya Pradesh, India

Corresponding Author:
Atul Kumar Kushwaha
M.V.Sc. Scholar, Veterinary
Surgery and Radiology, CoVSc &
A.H. Rewa, NDVSU Jabalpur,
Madhya Pradesh, India

Incidence of hoof disorders in cattle, in and around Rewa

Atul Kumar Kushwaha, Neelam Tandia, Dharmendra Kumar, Priya Singh, Shailesh Patel, Amit Jha, Nitin Soni, Lavlesh Mishra, Himashi Majhi and Mavle Siddharth Umesh

DOI: <https://www.doi.org/10.33545/26174693.2026.v10.i5j.8526>

Abstract

Livestock rearing is a major source of livelihood in India, with increasing emphasis on enhancing milk productivity to meet the demands of a growing population. Hoof disorders and lameness markedly compromise animal performance and are responsible for substantial economic losses in dairy production systems. Adoption of effective hoof health management practices can facilitate to improved productivity and animal welfare. The present investigation was carried out to study the incidence of hoof affections in cattle in and around Rewa. Out of 150 cattle screened, 35 animals were found to be affected with various hoof disorders, indicating an overall incidence of 23.34%. Breed-wise distribution of affected cases showed the highest proportion among Crossbred cattle (42.82%), followed by HF (22.85%), non-descript (14.28%), Gir (14.28%) and Sahiwal (5.71%). Sex-wise incidence revealed a markedly higher prevalence in females (80%) compared to males (20%) and age-wise distribution of affected animals indicated that the majority of cases occurred in cattle aged >6 years (45.71%), followed by 4-6 years (37.14%), while comparatively fewer cases were observed in 2-4 years (8.75%) and 0-2 years (8.57%) age groups.

Keywords: Hoof disorders, lameness, cattle hoof health, incidence, cattle hoof

Introduction

Livestock rearing in India is increasingly becoming a vital source of livelihood following agriculture, playing an important role in the national economy through the supply of milk, manure, draught power, and various animal by-products. Due to the growing population, it is necessary to improve animal productivity, especially milk production. This has led to the use of free open barns and intensive farming methods to reduce production losses (Bruijnjs *et al.*, 2010) [1].

The hoof is a very significant structure in the body of an animal responsible for walking. Even though an animal with hoof problems may be able to function but performances are always less than optimal based on the extent of the problem (Hernandez *et al.*, 2001) [2].

An animal with sore feet is less likely to walk and thus, will have less inclination to reach a feed bunk which will ultimately decrease weight gain or milk production in comparison to a sound animal (Berry *et al.*, 1999) [3].

While there are some hoof disorders that cannot be avoided, management practices can significantly lower the occurrence of sound hoof issues in all classes of animals. An effective hoof health program reduces the cost of treating issues as well reduce losses through lower performance and productivity of the animal (Hepworth *et al.*, 2004) [4]. Lameness is third in the causation of economic loss followed by mastitis and low fertility known all over the globe (Van Nuffel *et al.*, 2015) [5].

Foot lesions and consequent lameness lead to severe economic losses to the farmers (Bruijnjs *et al.*, 2010) [1]. The hoof is an essential and intricate component necessary for the health and productivity of an animal although hoof anatomy differs among species, the fundamental composition is the same in cloven-hoofed animals 2 like cattle, sheep, goats and pigs, the hoof is composed of two digits lateral and medial compared with the one solid hoof of a horse (Bansal *et al.*, 2019) [6].

Materials and Methods

The work was carried out in the Department of Veterinary Surgery and Radiology, College of Veterinary Science and Animal Husbandry, Rewa (MP). Survey was conducted at farmer's door step of different villages, organized, unorganized dairy farms and Gaushalas of Rewa. Total 150 cases were screened to record the Incidence of hoof affections on the basis of anamnesis, posture, gait, manual palpation and gross examination.

The animals were restrained appropriately either in lateral recumbency or in a routine foot-trimming crush to provide safe handling. Hoof was cleaned thoroughly before examination. The hoof was then be examined carefully for any lesions and the results recorded in order to determine various hoof affections. (Plate: 01). Clinical examination of the hooves was done according to standard procedures for lameness evaluation in cattle, including examination of

posture, gait and hoof appearance. (Desrochers *et al.*, 2001) [7].

- **Inspection:** Posture and gait of all the animals was observed while standing and in locomotion to evaluate lameness.
- **Observation and palpation:** Each hoof was closely observed and palpated for physical abnormalities, lesions and trauma.
- **Percussion:** Percussion was performed by tapping the wall and sole with a light hammer.
- **Compression:** Compression of hoof was done with hoof tester to determine undue sensitivity or pain.

Results and Discussion

1. Incidence

1.1 Breed wise incidence of hoof disorders in cattle

Table 1: Total number of cattle examined and breed wise incidence

Breed	Total no. of cattle	No. of cattle affected	Incidence within breed %	Overall incidence %
Sahiwal	10	2	20	5.71
HF	15	8	53	22.85
Crossbred	30	15	50	42.82
Gir	25	5	20	14.28
Non-descript	70	5	7.14	14.28
Total	150	35		

Out of 150 screened cattle, 35 animals were found affected with hoof disorders, indicating an overall incidence 23.34%. Breed-wise distribution of affected cases showed that crossbred cattle constituted the highest proportion of affected animals (42.82%), followed by Holstein Friesian (22.85%), Gir (14.28%), non-descript (14.28%) and Sahiwal (5.71%). When incidence within breed was considered, Holstein Friesian cattle exhibited the highest incidence (53%), closely followed by crossbred cattle (50%), whereas Gir and Sahiwal showed comparatively lower incidence (20% each) whereas the lowest incidence within breed was recorded in non-descript cattle (7.14%). (Table: 01)

The result of present study also point towards a higher susceptibility of Holstein Friesian and crossbred cattle to hoof affections compared to indigenous and non-descript cattle. These results were observed and documented earlier by Saikia *et al.* (1992) [9] and Maiti *et al.* (1996) [8] while examining the incidence of hoof disorders in Friesian and crossbred cattle. Higher occurrences of hoof disorders and foot affections have also been documented in Holstein Friesian crossbred cattle compared to indigenous cattle, as reported by Pugashetti *et al.* (2010) [10] and Parmar *et al.* (2014) [11]. In the present study, the higher occurrences of hoof disorders and foot affections might be attributed to increased metabolic stress due to increased milk production, reduced adaptability to the local environment, and increased mechanical stress in Holstein Friesian and crossbred cattle. In comparison, the indigenous and non-descript cattle exhibit better adaptability to the harsh environment and thus develop increased resistance against hoof disorders.

1.2 Sex wise incidence of hoof disorders in cattle

In the current study, among the 35 animals suffering from hoof disorders, 28 (80%) were females and 7 (20%) were males (Table 02, Figure 02), which clearly shows that the incidence of hoof disorders is significantly higher in females. The result is in accordance with Saikia *et al.* (1992)

[9], Pugashetti *et al.* (2010) [10], Talukdar *et al.* (2005) [12], and Parmar *et al.* (2014) [11], who reported a higher incidence of hoof disorders in females, especially lactating cows.

The increased susceptibility of females could be due to the metabolic stress of high milk production, negative energy balance and endocrine changes that occur around the time of calving, leading to laxity of the ligaments surrounding the distal phalanx and integrity of the hoof horn.

Table 2: Sex wise incidence of hoof disorders in cattle

Sex	Examined	Affected	Incidence (%)
Male	38	7	20
Female	112	28	80
Total	150	35	100

1.3 Age wise incidence of hoof disorders in cattle

In the current research work, age-wise distribution of 35 cases showed that the highest incidence of hoof related issues was found in the age group above 6 years, which was 45.71% in cattle, followed by the age group of 4-6 years, contributing 37.14% to the incidence. 2 years below age group and 2-4 years age group, showed significantly lower incidence with 8.57% each. These values showed that the incidence increases with increasing age (Table 03, Figure 03).

The current results are in accordance with Saikia *et al.* (1992) [9], Pugashetti *et al.* (2010) [10], Talukdar *et al.* (2005) [12], Olechnowicz *et al.* (2010) [13] and Parmar *et al.* (2014) [11], who recorded a higher prevalence of hoof disorders in adult and older cows, especially in the later parities. The higher prevalence in older cows could be attributed to the cumulative effect of mechanical stress on the claws, prolonged exposure to hard flooring, repeated lactations, and the age-related changes in the quality of hoof horn.

However, the current results are at variance with the findings of Ahmed and Shekidef (2012) [14], who recorded a

higher prevalence of certain claw lesions in early lactation and younger cows, which could be attributed to the differences in parity distribution, type of lesions considered, and management systems studied.

Table 3: Age wise incidence of hoof disorders in cattle

Age	Number of animal affected	Incidence (%)
0-2 year	3	8.57
2-4 Year	3	8.57
4-6 Year	13	37.14
>6 year	16	45.71

1.4 Incidence of specific hoof disorders in cattle

The distribution of specific hoof disorders observed during the study period is presented in Table 04 and Figure 04. Among all hoof disorders, Traumatic injury recorded the highest incidence (25.71%), followed by Interdigital dermatitis and Hoof overgrowth (17.14%). Moderate incidence was noted for Heel horn erosion (11.42%), Sole ulcer (5.71%), White line separation (5.71%), Scissor claw (5.71%), Hoof crack (5.71%), and Hoof avulsion (5.71%). The least prevalent conditions were Corkscrew and Coronitis, each with an incidence of 2.85% (Table 04, Plate 01).

In the current study, traumatic injury was the most common hoof problem (25.71%), which clearly suggests that external mechanical forces play a major role in the field. The current observation is in agreement with Pugashetti *et al.* (2010)^[10] and Parmar *et al.* (2014)^[11]. The high incidence of traumatic injuries in the current study might be due to the highly irregular and uneven sampling areas, which include various villages, organized and unorganized dairy farms and poorly managed gaushalas.

Interdigital dermatitis and hoof overgrowth (17.14%), were the second most common problems, which clearly suggest

the impact of poor foot hygiene and irregular hoof trimming, as also suggested by Talukdar *et al.* (2005)^[12] and Olechnowicz *et al.* (2010)^[13]. The incidence of heel horn erosion (11.42%) further strengthens this association with Fjeldaas *et al.* (2006)^[15].

Lesions such as sole ulcer, white line separation, scissor claw, hoof crack, and hoof avulsion had a lower and equal incidence (5.71% each). Although this is partly in agreement with Sagliyan *et al.* (2010)^[16], the lower prevalence of sole ulcer and white line disease is not in agreement with the findings of Olechnowicz *et al.* (2010)^[13] and Thomas *et al.* (2015)^[17], which could be attributed to differences in farms flooring, severity of lesions, and diverse management practices.

The lowest incidence of corkscrew claw and coronitis (2.85% each) indicates that these lesions were more sporadic in nature, as reported in previous field studies (Pugashetti *et al.*, 2010; Parmar *et al.*, 2014)^[10, 11].

Table 4: Incidence of specific hoof disorders in cattle

S. No.	Types of hoof affection	No. of animals affected	Incidence (%)
1	Corkscrew	1	2.85
2	Coronitis	1	2.85
3	Heel horn erosion	4	11.42
4	Hoof avulsion	2	5.71
5	Hoof crack	2	5.71
6	White line separation	2	5.71
7	Interdigital dermatitis	5	14.28
8	Overgrowth	5	14.28
9	Scissor claw	2	5.71
10	Sole ulcer	2	5.71
11	Traumatic injury	9	25.71
	Total	35	



Plate 1: Types of hoof disorders (A) Corkscrew, (B) Coronitis, (C) Heel horn erosion, (D) Hoof avulsion, (E) Hoof crack, (F) White line separation, (G) Interdigital dermatitis, (H) & (I) Overgrowth, (J) Scissor claw, (K) Sole ulcer, (L) Traumatic injury

Conclusion

The overall incidence of hoof disorders in cattle was found to be 23.34% among the 150 cattle examined. Crossbred cattle showed the highest breed-wise incidence, while HF cattle had the highest within-breed incidence, indicating greater susceptibility of exotic and crossbred animals. Female cattle were more affected than males and incidence was highest in cattle above 6 years of age. Traumatic injury was the most common hoof disorder observed, followed by interdigital dermatitis and hoof overgrowth. Breed, age and sex were found to influence the occurrence of hoof disorders in cattle. Proper management, hygiene and regular hoof care are important for reducing hoof disorders and improving animal health.

References

1. Bruijn MR, Hogeveen H, Stassen EN. Assessing economic consequences of foot disorders in dairy cattle using a dynamic stochastic simulation model. *J Dairy Sci.* 2010;93(6):2419-2432.
2. Hernandez J, Shearer JK, Webb DW. Effect of lameness on the calving-to-conception interval in dairy cows. *J Am Vet Med Assoc.* 2001;218(10):1611-1614.
3. Berry SL, Graham TW, Mongini A, Arana M. The efficacy of *Serpens* spp bacterin combined with topical administration of lincomycin hydrochloride for treatment of papillomatous digital dermatitis (footwarts) in cows on a dairy in California. *Bov Pract.* 1999;33:6-11.
4. Hepworth K, Neary M, Keyon S. Hoof anatomy, care and management in livestock. *Purdue Univ Coop Ext Serv West Lafayette.* 2004.
5. Van Nuffel A, Zwertvaegher I, Pluym L, Van Weyenberg S, Thorup VM, Pastell M, *et al.* Lameness detection in dairy cows: Part 1. How to distinguish between non-lame and lame cows based on differences in locomotion or behavior. *Animals.* 2015;5(3):838-860.
6. Bansal N, Uppal V, Gupta A, Pathak D. Applied anatomy of hoof in different animals. *Alumni Assoc Coll Vet Sci GADVASU Ludhiana.* 2004:30.
7. Desrochers A, Anderson DE, St-Jean G. Lameness examination in cattle. *Vet Clin Food Anim Pract.* 2001;17(1):39-51.
8. Maiti SK, Parai TP, Nantiyal LP. Incidence of foot disorders in an organized dairy farm. *Indian Vet J.* 1996;73:341-343.
9. Saikia J, Sarma B, Sarma KK, Gogoi SN. Incidence of foot disorders. *Indian Vet J.* 1992;69:70-72.
10. Bhageerathi Pugashetti BP, Shivakumar MC, Kulakarni VS, Hosamani SV. Incidence of foot affections in cross-bred cows. 2010.
11. Parmar JJ, Patel PB, Kag BG. Incidence of hoof affections in cattle of North Gujarat. *Indian J Vet Surg.* 2014;35(1):61-63.
12. Talukdar MM, Alam MM, Mohammed Y, Hossain MA. Claw affections of dairy cows in an organized dairy farm. *Bangladesh J Vet Med.* 2005;3(2):110-113.
13. Olechnowicz J, Jaśkowski JM, Antosik P, Bukowska D, Urbaniak K. Claw diseases and lameness in Polish Holstein-Friesian dairy cows. *Bull Vet Inst Pulawy.* 2010;54:93-99.
14. Ahmed IH, Shekidef MH. Incidence and management of bovine claw affections and their economic impact: A field study on dairy farms. 2012.
15. Fjelddas T, Sogstad ÅM, Østerås O. Claw trimming routines in relation to claw lesions, claw shape and lameness in Norwegian dairy herds housed in tie stalls and free stalls. *Prev Vet Med.* 2006;73(4):255-271.
16. Sagliyan A, Han MC. Prevalence of lesions associated with subclinical laminitis in dairy cattle. *Isr J Vet Med.* 2010;65(1):1-6.
17. Thomas HJ, Miguel-Pacheco GG, Bollard NJ, Archer SC, Bell NJ, Mason C, *et al.* Evaluation of treatments for claw horn lesions in dairy cows in a randomized controlled trial. *J Dairy Sci.* 2015;98(7):4477-4486.