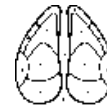


Managing Hoof Health in Exotic & Crossbred Dairy cows/bulls in Indian Conditions



INTRODUCTION : Improving productivity of dairy cattle is attributed to contributing factors which include mostly the Breeding, Reproduction, Health care, Nutrition, Housing and other management practices which are directly correlated to production of milk and economic gain to the farmers at large.



With the increasing adoption of crossbred cows by the farmers in pursuit of more milk production and more income, the problem of diseases have increased manifold and it has become a challenge for the dairy farmers and farms as well. Unlike the indigenous cows which are resistant to most of the infectious diseases, the exotic and crossbred cows of Jersey and Holstein Friesian (HF) are susceptible to a slew of infectious diseases of viral, bacterial, blood protozoan and worms origin and above all there are many diseases caused due to faulty nutrition also.

While confronting with all the infectious diseases, the diseases of hoof are mostly neglected by the dairy farmers owing to lack of knowledge on the subject and unavailability of readily available tools, techniques and required skill to treat the cases of hoof problems.



Hoof problem is the disease of exotic and crossbreds due to natural genetic predisposition and it gets aggravated when required management practices are not followed to contain the same. In addition to this, the exotics HF and Jersey have a relatively soft hoof compared to the indigenous cows which have very strong hooves. Nevertheless the Indian born crossbred and exotic cows/bulls develop stronger hooves due to their adaptability over the years. Our Veterinarians, Technicians, Bull Attendant and field Supervisors engaged in production enhancement activities in various projects of Dairy Herd Improvement programs and Semen Stations need to be

educated on the subject in order to manage the hoof problems in cows and bulls.



IMPACT OF HOOF PROBLEM : Hoof lameness is a highly painful condition when the inside of the hoof structures comprising of nerves, blood vessels, tendons, the sensitive corium, sole, digital cushion, pedal bones, pedal joints and the horn of the hoof are affected causing inflammation of the whole of the hoof, the sequel being the lameness and difficult gait, difficulty in getting up, recumbence etc.

THE CONSEQUENCES :

1. Drastic loss of milk production in cows
2. Loss of semen production in bulls
3. Loss of reproductive potential
4. Deterioration of health
5. Increase susceptibility to other diseases
6. Loss of immunity
7. Overall economic loss to the farmer/firm



Needless to mention that a case of chronic hoof ulcer can impair the productivity to one fourth if not attended on time, a case of hoof abscess can cause irreparable damage to the claw even leading to prolonged recumbence and death. Deterioration of health and production of (semen/milk) due to depraved appetite is associated with all hoof diseases as the cow/bull in intense pain due to hoof affections remain isolated and spend less time in manger leading to less feed intake.

WHY HOOF PROBLEMS :

Hoof problems occur due several factors comprising of primary and secondary reasons. Productive exotic/crossbred cows suffer more than the cows which are not in production. The soft nature of hoof of the exotics and crossbred make them more vulnerable to get damaged by any hard/sharp objects and hard floor conditions leading to damage to the sole which finally turns to a wound.



A look of the inside of the Hoof

The cows suffer more during the rainy season than in summer and winter as the horny tissues of the hoof get swelled and become liable to damage/erosion. The manifestation of hoof lameness is more prominent during the stressful conditions of June-Sept month when the adverse conditions of high humidity and high temperature affect the overall health and productivity of the exotic cows. The cows with a hidden wound on its hoof get aggravated with onset of in-conducive climatic conditions of thermal stress in hot-humid atmospheric conditions.

In a dairy herd of exotic cows/bulls of HF/Jersey the morbidity level can go up to 100 % and the mortality can be up to 20%. Hence the hoof management need to be given due impetus by the farmers and firms dealing with exotic cows/bulls.


















1. The primary reason of hoof problem is due to the innate genetic factors which predispose the cows to hoof lameness. The original exotics, the purebred HF & Jersey are extremely susceptible to hoof problems than those born in Indian conditions. Yes, the Indian born develop bit resistance.
2. Wrong hoof management practices
3. Lack of knowledge on hoof diseases and required practical skill to handle hoof problem.
4. Feeding and nutrition can also be correlated to hoof lameness; an imbalanced feeding high/low energy/protein intake can also cause hoof lameness in cattle.
5. Stress factors – heat stress, stress of more production, stress of pregnancy and lack of comfortable housing contributes to more hoof problems.
6. Lack of proper tools for trimming of hooves and wrong technique lead to more problems than solution.



Thus, the hoof lameness is due to affection of the hoof by infections, faulty nutrition, poor housing arrangements and overall the improper management practices. All concerned with the management of exotic cows/bulls need to understand the nitty-gritty of the hoof affections in order to successfully handle the cases of hoof lameness towards better productivity and health of the cows& bulls.

To enumerate a few conditions of hoof problem manifestations in exotic/cross bred dairy cattle, there are nearly 18 different claw problems arising out of many reasons, they are presented as follows.

Various types of Hoof affections in the form of hoof diseases:

Sl. No.	Various Diseases affecting Hooves of Exotic/Cross bred dairy cattle	Manifestations	Sl. No.	Various Diseases affecting Hooves of Exotic/Cross bred dairy cattle	Manifestations
1	Interdigital Dermatitis The claws are affected and the skin of the interdigital space infected causing pain and inflammation.		10	Sole Abscess The affection on the sole turned to an abscess	
2	Digital Dermatitis The distal surface of the heel develops erosions leading to wounds		11	Hoof laminitis Continuous inflammation of the corium of the hoof causing painful gait and crossing of legs.	
3	Interdigital Nacrobacillosis (Foot Rot) The interdigital space gets severely infected causing swelling of the epidermal tissues, bleeding at times infested by maggots.		12	White line disease The adhesion between the sole and horn get damaged causing dislodging of the horn of the hoof and allowing mud to go inside.	
4	Interdigital Tissue Hyperplasia/Interdigital Fibroma The condition develops due to excessive growth of tissues between the claws of hoof causing inflammation and infections		13	Hoof Overgrowth Hoof Overgrowth - excessive growth of hoof : The claws are overgrown following lack of trimming for long time causing improper weight bearing and wrong standing posture.	
5	Interdigital Phlegmon There is a inflammatory swelling of the coronet due to some bacterial infections causing lameness.		14	Cork Screw condition of hoof Here the claws are overgrown and overlap on one another.	
6	Heel Horn Erosion There is erosion of the heel and horn causing wound.		15	Double Sole: The condition arise when the old sole is not removed and the new sole start coming up. There is a layer of mud in between.	
7	Varicose Dermatitis There is cauliflower like growth on the distal part of the hoof.		16	Multiple affections of Sole Here the sole is affected with several lesions of different types.	
8	Sole Haemorrhage There is haemorrhage to the layer of corium, the most sensitive part of the hoof which produces the sole.		17	Arthritis following chronic hoof lameness: The cows unable to walk following a chronic hoof disorder, it could be due to chronic laminitis and ulcer on the sole.	
9	Sole Ulcer Sole Ulcer causing haemorrhage in the sole : the wound on the sole having no tendency to heal in spite of repeated treatment.		18	Chronic Laminitis The condition arise when there is continues inflammation of the layer of corium of hoof due to multiple factors concerning biochemical reactions, nutrition etc.	

Glimpses of Hoof Management Practices :

Management of hoof diseases consists of several steps to be adopted by the farmers/farm managers. The practices include the following important points.

1. Regular hoof trimming and pedicuring at least every 6 months.
2. Attending the cases of lameness as soon as it is noticed and timely treatment.
3. Maintenance of hygiene and sanitation in the barn by regular spray of disinfectants.
4. Regular footbath by disinfectant solutions at least once in a week for 30 minutes prevents infections to hoof.
5. Feeding a balanced diet to the cows in production, the energy protein ratio as per production standards and DMI intake need to be fixed.
5. Training in Hoof care and management of those involved in managing cows and bulls.
6. Redesigning the housing structure to provide optimum comfort to the cows/bulls especially to the hooves. The ratio between the standing and loafing are need to be optimum, say 1:4.
7. Selection of breeding bulls with less history of hoof problems/resistance to hoof lameness, heritability of such characters are also very high.



A set of tools for hoof trimming



Practice of Hoof trimming



Amputation of claw following an ir-repairable hoof affections : photo at ABC, Salon



A training session to Vets at SAG, Bidaj



Functional trimming & Pedicuring



Practice by the learner on hoof trimming



Foot bath as preventive measure



A comfortable housing essential to contain hoof problem



A hoof trimming crate- essential to conduct hoof trimming



Dressing/plastering of the hoof lesions