formalin and copper sulfate on hoof water content was investigated. Forelimbs of six male (6 months to two years old) Holstein-Friesian cows were cut in slaughterhouse and transferred to lab. Hooves of the left forelimbs used as treatment group, and right forelimbs used as control positive and negative. Medial claws of the treatment group soaked in copper sulfate 5% (Cu) solution for 30 minutes and lateral claws soaked in formaldehyde 5% (Fid) solution for 30 minutes. Tap water used as positive control and in negative control group claws didn't receive any treatment. After soaking three samples, toe (T), sole (S) and Heel (H) were cut using surgical trephine (8mm). All samples were weighted and incubated in 102 degree oven to get dry and each 24 hours samples weighted again until the difference between two measurements reduce to 0.04 grams. Weights were corrected in according to the smallest sample and analyzed using two way ANOVA. P values of 0.05 and less revealed significant. Statistical analysis revealed significant changes during time in different groups from 0 to 48 hours after incubation (P<0.05). No significant difference among different groups and regions were revealed in any given times (P<0.05). Hardening of hooves reported to be one of the results of formalin bathing that regarding to current findings; it seems to be a consequence of another process except water extraction from the claw horn tissue.

Evaluation of formaldehyde concentration in footbaths

P. Hashemifard1, A. Mohebbi1, A. R. Mohammadnia1, P. Raiesi1, K. Raieszadeh1

1DVM student, College of Veterinary Medicine, Shahrekord University, Shahrekord, Iran. 2Department of Clinical Sciences, College of Veterinary Medicine, University of Shahrekord, Shahrekord, Iran. 3Department of Clinical Sciences, College of Veterinary Medicine, Ferdowsi University, Mashhad, Iran. Phashemifard@yahoo.com

Foot baths are widely used to disinfect feet for the prevention of claw infectious lesions such as digital dermatitis, heel horn erosions and foot rot. Formaldehyde is one of the most common disinfectants used in the foot baths. Regarding to experimental studies, the effective minimum concentration of formalin in foot baths is 2% w/w. In this study, the effect of number of cows passing through foot bath on formaldehyde concentration has been evaluated. This study was carry out in an industrial dairy farm with a population of 2500 Holstein cows. The foot bath (7.40 meters long and 1.21 meter wide) was filling to a depth of 9 cm with tap water and commercial 40% formalin to reach a 4 per cent concentration of disinfectant. Sampling was performed six times between August and September 2010. The temperature was 30±4°C during the experiment. Samples were collected before any cow had passed through foot bath and then immediately after passing every 30 cows. Formaldehyde concentrations of samples were assayed chemically. The foot bath formaldehyde concentration before passing cows was 2.98% ± 0.33. However, the formaldehyde contents of foot bath were reduced to 2.91 ± 0.57, 2 ± 0.79, 2±0.9 and 1.49 ± 0.46 after passing 50, 100, 150 and 200 cows respectively. We found a variation in the formaldehyde content of foot bath during different times of sampling. In samples were collected before passing cows, these variations may come from insufficient mixing of formaldehyde and water or miscalculations by a person who prepared the bath. On the other hand, environment temperature can play an important role in this variation. It is well known that a 10°C increase in environment temperature cause to increase formaldehyde evaporation two to three folds. The concentration of formaldehyde decreased in the presence of relatively constant amounts of foot bath solution, it seems that the reduced solution by passing cows have been replaced by feces, urine and dirt. Regarding to these finding, foot bath formaldehyde concentrations were less than 2% after passing 150 cows and it should be fresh to reach effective concentrations of disinfectant.

Evaluation of serum bone specific alkaline phosphatase activity in dairy cows with sole ulcer

P. Raissi1, A. Mohebbi1, A. Mohammadnia1, P. Hashemifard1, K. Raieszadeh1, M. Gholami1

1DVM student, College of Veterinary Medicine, Shahrekord University, Shahrekord, Iran. 2Assistant Professor, Department of Clinical Sciences, College of Veterinary Medicine, Shahrekord University, Shahrekord, Iran. 3Associate Professor, Department of Clinical Sciences, College of Veterinary Medicine, Ferdowsi University, Mashhad, Iran. 4DVM, Mahan Dam Sepahan Vet group, Esfahan, Iran. parisa_raissi@yahoo.com

Sole ulcer is the most frequently encountered lesion in lame cattle. It is a circumscribed loss of horny sole that exposes the corium. Lameness can be severe and is worse when the granulation tissue protrudes or if deeper tissues are involved. Serum bone specific alkaline phosphatase (BALP) is one of the most sensitive and specific biomarkers of bone metabolism. In present study, serum BALP activity has been assessed in cows with sole ulcers. This study was performed in an industrial dairy farm in Shahrekord, Iran. Animals were housed in a loose-stall system. Sole ulcers diagnosis was carried out by a veterinary practitioner. Venous blood samples were collected from venous caudalis mediana in evacuated tubes without any additives. Blood samples also were taken from the same number of healthy cows.
Samples were centrifuged at 1800 G for 10 minutes. The serum samples were stored at −70°C until analysis, which was performed within 2 weeks of sample collection. Serum BALP activity was quantified by heat inactivation method. All values were presented as mean ± SD. Data were analyzed using a Student's t-test. Serum BALP activities were significantly higher in cows suffering from sole ulcer than those in healthy cows, 33.7 ± 8.2 and 26.57 ± 9.55 respectively (p<0.05). BALP is considered the most accurate marker of bone metabolism. However, the published information available for serum levels of BALP in dairy cows is scarce. Based on our findings, sole ulcer increases serum BALP activity in dairy cows. Increased BALP activity has been reported in a wide range of bone and cartilage diseases of human and animals. Considering the possibility of bone involvement in cows with sole ulcer, increased serum BALP activity could be expected in such cows. However, bone involvement is not a certain outcome of sole ulcer. In this case, lameness and lack of natural distribution of weight may stimulate bone tissue osteoblasts to synthesis more enzyme. However, it seems that for introducing BALP as a reliable biomarker for sole ulcer diagnosis, the relationship between enzyme activity and disease severity should be investigated.

**Hoof Morphometry before and after hoof trimming in Donkey**

**A. Hassanpour, SN. Dehghani**

Department of Veterinary Surgery, Faculty of Veterinary Medicine, Shiraz University, Shiraz, Iran.

hooftrimming@yahoo.com

Hoof trimming should be done every 4 to 6 weeks on horses that are used barefoot. The object of proper trimming is to make the shape of the foot, the angle of the foot axis and the foot level as nearly normal as possible. The hoof should be trimmed so that pastern and hoof axis form an unbroken line. Two population of the donkeys (7 and 10) with very long toes were referred for hoof trimming. Therefore The objective of this study was to find out the normal dimensions of the foot in the Donkeys after a proper trimming protocol. Methods: The donkeys were restrained and the dimensions of the hooves were measured before hand. Then the feet were trimmed starting from the toe then from the toe to the lateral and medial side up to the heel area. Each frog was cleaned, trimmed from the apex to the heel. The sole was given similar attention as the sole of the horses. The wall of hoof was trimmed until the white line appeared in white moist rubbery appearance and the angle of the sole and dorsal hoof wall as well frog was almost similar to that of the horses. The average toe length before trimming for front legs were 12.22± 4.1 cm and for the hind legs were 8.3± 4.2 cm. but after trimming the average length of the cranial hoof wall for front leg was 5.6± 2.3 cm and for hind leg was 6.1± 1.4 cm. The average heel length for front leg was 3.4± 1.4 and hind leg was 3.8± 1.3 cm. The animals use to walk with great difficulties before trimming, but after trimming they walked in a very comfortable manner. Some farriers prefer to trim from the heel down to the toe, but many prefer to start from the toe upward to the heel area. In some cases there was sole lesions such as hemorrhage in three cases which was diagnosed after trimming. Regardless of the techniques used, the donkeys should be trimmed according to their work type and at least every 6 week to prevent long hoof induced lameness and injury.

**Interdigital phlegmon in dairy cows**

**Sh. Khaliﬁrad1, A. H. Farajnejad1, M. Gholami2, E. Naderi1, Z. Ghorbani1, F. Akhavanatari1, A. R. Mohamadnia1**

1Pishro Management consultants, Esfahan, Iran. 2Mahan dam Co, Esfahan, Iran. 3DVM student, College of Veterinary Medicine, Ferdowsi University, Mashad, Iran. 4Department of Clinical Sciences, College of Veterinary Medicine, Ferdowsi University of Mashhad, Iran.

amirhosein_vet63@yahoo.com

Interdigital phlegmon is a causative reason for cow lameness. It makes Interdigital swelling, ﬁssure and foul smell. Some common predisposing factors of Interdigital phlegmon are mechanical trauma, wet environmental conditions and other diseases that damage skin and prepare the anaerobic condition for causative bacteria. This current study was done during a nine-month period in a free stall dairy herd with 2000 milking cows. Hoof trimming and inspections were done in a regular basis by expert trained hoof trimmers. Gait of the cows was scored by a five point scoring system on a monthly basis and treatment was done by surgically removing of the swelled tissue. Total of 27 Interdigital phlegmon were recorded, as 10 (37%) in front feet and 17 (63%) in rear feet. Locomotion scores of the cows was increased from two months before recording (2.46 ± 0.96), reach to the highest level at the month of lesion detection (3.46 ± 1.45), and decreased till two month after ward (1.93 ± 1.06) (p<0.05). The average days in milk in affected cows were 85. Seventy nine (79.1) percent of affected cows were not pregnant and twenty (20.8) percent of them were pregnant. The herd average of conception in these nine months was sixty two (62.7) percent. Milk yield of the affected cows increased from the month of lesion detection (36.68 ± 10.28) till three month afterward (41.67 ± 12.44) (p<0.05). Results show possible earlier detection of the lesion by locomotion scoring and removing the lesion in appropriate time can save milk yield. A bacterial cause is a basis for the pathogenesis of this condition, anyway some