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SAMPLE ENTRY

001 Paul, P.R.C.; Xavier, F.; Leena, A. (College of Veterinary and Animal Sciences, Trissur (India), Department, of Livestock Production Management) Dairysoft: A computer programme for dairy farms. Indian Journal of Animal Sciences (India). (Mar 2006).v. 76(3) p. 260-262 KEYWORDS: DAIRY FARMS; COMPUTER SOFTWARE

To exploit the full potential of dairy sector, a computerizd record management system dairysoft was developed. Visual Basis 6.0 was used as front end while MSAccess 97 was utilized as back end for the software. The menu base dairysoft was provided with facilities for obtaining necessary reports along with separate data entry options.

1. Entry number
2. Author(s)
3. Title in English
4. Source
5. Keywords
6. Organisation where work was carried out

C20 Extension

0192. Dhaka, B.L.; Krishi Vigyan Kendra, Bundi (India). Chayal, K.; Krishi Vigyan Kendra, Bundi (India). .Poonia, M.K.; Krishi Vigyan Kendra, Bundi (India). Identification of constraints limiting the productivity of livestock and strategies for its improvement in Bundi district of Rajasthan. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 94-96 KEYWORDS: LIVESTOCK. CONSTRAINTS. MILK PERFORMANCE. RAJASTHAN.

The productivity of livestock is constrained by several factors including inadequate knowledge, inadequate availability and poor quality of feed and fodder, poor genetic potential of animals, high incidence of diseases, repeated breeding, long calving intervals, non-availability of support services in time and poor extension support were emerged major limiting factors to livestock production. The strategy proposed in this paper could be helpful to improve the productivity of livestock to boost the livelihood of the farmer.

D50 Legislation

0193. Anjani Kumar; National Centre for Agricultural Economics and Policy Research, New Delhi (India). Rai, D.C.; National Centre for Agricultural Economics and Policy Research, New Delhi (India). Choudhary, K.R.; National Centre for Agricultural Economics and Policy Research, New Delhi (India). Prospects and opportunities for exports of dairy products from India. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81 (2) p. 188-193 KEYWORDS: MILK PRODUCTS. EXPORT POLICIES. INDIA. EXPORTS.

The economic policy reforms triggered in India in 1991 were oriented towards liberalization and integration with the world economy. These policy initiatives of reforms and economic liberalization widened the market opportunities for international trade including the dairy products. In this context, this paper examines the issues of trade possibilities for India, in view of growing domestic consumption, augmented supply and growing international market for dairy products. The study revealed that growth in Indian dairy sector has been impressive and if the existing growth rate can be sustained, India can pursue export of dairy products more vigorously. The projected demand scenarios for domestic requirement of dairy products lend credence to this optimism. It has been clearly brought out that the dairy production is competitive in comparison with other countries. India further has a geographical advantage to serve milk deficit areas in neighbouring countries. The demand for milk products in these deficit countries is expected to be growing. India needs to capitalize on these advantages by improving quality and hygiene standards of the dairy products and bringing more efficiency in milk production and processing. India needs to develop more competitiveness in products which are being imported in countries like Sri Lanka, Bangladesh and Nepal from other developed countries. For export to SAARC countries even some more liberal export policies may be explored.

L01 Animal Husbandry

0194. Varma, Arun; National Institute of Animal Welfare, Ballabhgarh (India). Animal Welfare Division. Animal welfare a giant economic venture in the era of climate challenge–A review. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 29-39 KEYWORDS: ANIMAL WELFARE. CLIMATIC CHANGE. EMPLOYMENT.

Animal welfare in the current world of science is conceptualized as physical and psychological state of animal, and is influenced by environmental and genetic factors. Scientific information is the base for the preparation of universally acceptable codes and practises of animal welfare science. These codes and practices should be appropriately evaluated and validated taking into account the different circumstances and contexts relevant to the system. Thus there is a need to promote scientific research and capacity building and communication. The animal welfare science is a science of safe food production system, biodiversity conservation of AnGR, addressing problems of climate change and biggest of all capacity of engaging very big mass of unemployed and underutilized youth of the country. The science is the responsibility of environment, agriculture, commerce, law and justice, human resource development and many others ministries to deal it

holistically. Food safety, biodiversity, environment safety, central zoo and disaster management authorities all have to marshal their resources to develop codes, practices and standards to fulfill the objectives of all four areas where this science will be used. The current paper highlights the issues, concerns and future prospects of a very noble role of animals in the era of climate change. The paper is in five parts introduction, animal welfare a holistic view, uses of animal welfare, global concerns and issues, livelihood and employment potential. Animal welfare science is concern of all global forums such as FAO, OIE, WHO, WTO, CBD and IPCC. Thus the science of animal welfare is a giant economic venture in the era of climatic changes. In future 15 major sectors will engage the manpower trained in animal welfare.

0195. Bhakat, Champak; National Research Centre on Camel, Bikaner (India). Pathak, K.M.L.; Indian Council of Agricultural Research, New Delhi (India). Important factors affecting sustainable livelihood of camel dairying in changing scenario of desert ecosystem. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 48-51 KEYWORDS: CAMELS. DESERTS. DAIRY FARMS. SUSTAINABILITY.

The changing scenario of desert ecosystem data were collected meticulously from 141 farmer families of Bikaner district to find out the association of important factors with sustainable livelihood of camel dairying. The households belonged to 14 villages out of which 2 villages were from each of the 7 tehsils, which were predominantly camel rearing regions. Sustainable livelihood encompasses appropriate use of camel as milch animal in changing scenario resulting in generation of adequate income and employment, ensuring food and nutritional security for family, conserving environment, effective input recycling which was ascertained by developing a sustainable livelihood index (SLI). The chi-square analysis of sustainable livelihood of camel dairying (SLCD) with important socio-personnel factors indicated that family size and communication pattern have a significant association with SLCD. The social participation of farmers have significant association with SLCD at 5% level. The analysis of data of important tech-economical variables indicated that market accessibility and land holding were having significant association with SLCD. The camel keeping patterns showed a highly significant association with SLCD. Some factors like farmers age, education, cropping pattern, and other livestock holding played important role towards camel dairying. Most of farmers were milking their camel through knuckling method and a few practiced hand stripping method. Milking was done in standing position by farmers. Presently, camel milk marketing proceeds entirely in the informal sector but major attraction of camel milk is its lower price at village level but high price at city level, due to imbalance between demand and supply. The need-based training and front-line demonstration of scientific camel dairying to farmers through suitable extension programme would provide impetus to practice profitable camel dairying. It will enhance the household income of camel keepers in changing scenario of desert ecosystem.

0196. Dixit, S.P.; Central Sheep and Wool Research Institute, Avikanagar (India). Gurmej Singh; Central Sheep and Wool Research Institute, Avikanagar (India). Dhillon, J.S.; Central Sheep and Wool Research Institute, Avikanagar (India). Genetic and environmental factors affecting fleece traits in Bharat Merino sheep. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 80-83 KEYWORDS: SHEEP. WOOL. LAND RACES. HERITABILITY.

The contribution of genetic and phenotypic parameters for fleece traits in 3/4th bred 2425 Bharat Merino Lambs, sired by 154 rams over period of 1982–96 were evaluated. The year and season of shearing, sex of lamb, type of birth, age and weight of lamb contributed 8 to 42% of the phenotypic variability in the fleece traits. The least squares means for the first and second six monthly greasy fleece weights, staple length, fibre diameter and medullation percentage were 0.874±0.015 and 1.010±0.017 kg, 3.32±0.07 cm, 18.89±0.15 microns and 4.39±0.49% respectively. Correspondingly, the heritability estimates were 0.54±0.13,0.31±0.09, 0.76±0.15, 0.46±0.13 and 0.15±0.10 respectively. The estimates of genetic correlation among the fleece traits ranged from low to high in magnitude. The wool yield had desirable and significant genetic association with the body weight but undesirable association with the fibre diameter. These estimates revealed the scope for the genetic improvement of these traits through appropriate selection index.

0197. Shukla, Saraswati; Govind Ballabh Pant University of Agriculture and Technology, Pantnagar (India). College of Veterinary and Animal Sciences. Department of Animal Nutrition.Tiwari, D.P.; Govind Ballabh Pant University of Agriculture and Technology, Pantnagar (India). College of Veterinary and Animal Sciences. Department of Animal Nutrition.Kumar Anil; Govind Ballabh Pant University of Agriculture and Technology, Pantnagar (India). College of Veterinary and Animal Sciences. Department of Animal Nutrition. Mondal, B.C.; Govind Ballabh Pant University of Agriculture and Technology, Pantnagar (India). College of Veterinary and Animal Sciences. Department of Animal Nutrition. Availability of Feed Resources and Animal Feeding Practices in Pauri District of Uttarakhand. Animal Nutrition and Feed Technology (India). (Jul 2011) v. 11(2) p. 211-219 KEYWORDS: LIVESTOCK. ANIMAL FEEDING. FEED RESOURCES. UTTAR PRADESH.

A survey was conducted through common questionnaire to find out the existing animal feeding practices followed by the farmers (15 in each village) belonging to four villages, two each from Kotdwar and Lansdown tehsils in Pauri district (hill region) of Uttarakhand. Based on the land holding farmers were categorized into landless (3.33%), marginal (36.67%), small (46.66%) and medium (13.33%) with family size ranging from 5.53 to 6.87. It was observed that landless, marginal, small and medium farmers had 3.38, 41.22, 36.15 and 19.26 per cent of total livestock population, respectively. The average milk production ranged from 2.30 to 13.90 lts./day/family. Animals were stall fed in the morning and evening and allowed for grazing during day time. The livestock owners of the target area used to feed wide range of common green grasses, tree leaves, cultivated fodders and dry fodder. In both tehsils, concentrate feeding included commercial concentrate pellet, readymade concentrate mixture, wheat bran and homemade concentrate mixture. There was no practice of providing mineral mixture to the animals while 76.67 per cent farmers used to provide common salt to their livestock in both the tehsils. The major reproductive problems observed in the study area were anoestrus (16.67 and 23.33% in Kotdwar and Lansdown tehsils, respectively), repeat breeding (20.00 and 23.33% in Kotdwar and Lansdown tehsil, respectively) and others like prolapse of uterus, dystocia etc. (10.00 and 11.66% in Kotdwar and Lansdown tehsils, respectively). Long calving interval (cattle 17.10 and buffaloes 20.24 months) and higher age at first calving (cattle 3.76 and buffaloes 3.91 yrs) were also observed. Animals of surveyed area exhibited negative balance for DM, DCP and TDN intakes. It was concluded that animals must be provided adequate amount of feeds and fodder along with mineral mixture supplementation to sustain dairy enterprises.

0198. Dass, R.S.; Indian Veterinary Research Institute, Izatnagar India). Centre of Advanced Faculty Training in Animal Nutrition. Mendiratta, S.K.; Indian Veterinary Research Institute, Izatnagar (India). Division of Livestock Product Technology. Bhadane, K.P.; Indian Veterinary Research Institute, Izatnagar (India). Centre of Advanced Faculty Training in Animal Nutrition. Mudgal Vishal,; Indian Veterinary Research Institute, Izatnagar (India). Centre of Advanced Faculty Training in Animal Nutrition. Lakshmanan, V.; Indian Veterinary Research Institute, Izatnagar (India). Centre of Advanced Faculty Training in Animal Nutrition. Effect of Vitamin E Supplementation on Growth and Meat Quality of Male Murrah Buffalo (Bubalus bubalis) Calves. Animal Nutrition and Feed Technology (India). (Jul 2011) v. 11(2) p. 221-231 KEYWORDS: CALVES. VITAMIN E. SUPPLEMENTS. MEAT. QUALITY.

An experiment was conducted on 15 male Murrah buffalo calves (194.0±0.64 kg BW and 14–15 months) to assess the effect of vitamin E supplementation on growth performance and meat quality. The buffalo calves were fed on a standard diet supplemented with 0, 300 and 600 IU vitamin E (α-tocopherol acetate) in group I, II and III, respectively. Feeding continued till the animals attained the slaughter weight of 350 kg. Immediately after sacrificing the animals, carcass samples were collected to study the meat quality. Growth performance of the calves was similar among the groups. Chemical composition of three different muscle samples of carcass showed no variations among the groups for CP, OM, pH and sensory attributes. Moisture content was significantly ($P<0.05$) higher in semitendinosus (ST) muscles of group III. Peroxide value decreased ($P<0.05$) and shear force values increased ($P<0.05$) from group I to III. Total heme pigments in all the groups showed non-significant ($P>0.05$) variation except for ST muscle, where supplementation of vitamin E decreased the THP. However, Lovibond tintometer color units for red showed no distinguish trend in three groups.

Concentration of vitamin E (µg/g) in the three muscles was higher (P<0.01) in vitamin E supplemented than control group. It may be concluded that supplementation of 300 IU of vitamin E/animal/day increased the muscle vitamin E concentration and shear force value, and reduced the peroxide value of meat.

0199. Ekambaram, B.; Sri Venkateswara Veterinary University, Hyderabad (India). Gupta, B.R.; Sri Venkateswara Veterinary University, Hyderabad (India.)Prakash, M.G.; Sri Venkateswara Veterinary University, Hyderabad (India). Sudhaker, K; Sri Venkateswara Veterinary University, Hyderabad (India). Reddy, V.R.; Sri Venkateswara Veterinary University, Hyderabad (India). Morphological characterization of Mahabubnagar goats. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81 (2) p. 176-179 KEYWORDS: GOATS. LAND RACES. BODY CONFORMATION

In a field study covering 172 farmers spread over 56 villages in 20 mandals, data were collected on the morphological characteristics of 1590 Mahabubnagar goats. The predominant coat colour was bicolour (63.5%) followed by single colour (25%) and multicolour (11.5%) on overall basis. The bicolour coat pattern consisted of mainly black and white (30.88%) followed by brown and white (22.14%) and black and brown (10.38%). Pendulous ears were predominant (91.57%) followed by erect (4.59%) and horizontal ears (3.84%). Majority of the goats (85.97%) had beard while wattles were present in only 34.34% of goats. Straight and curved horns were observed in 96.04% of animals in both sexes. Horn size was mostly medium (63.46%) followed by large size (10.81%) while 10.81% of animals had large horns oriented backward and backward and downward.

0200. Das, Kalyan Sundar; Indian Veterinary Research Institute, Izatnagar (India). DAS, NITYANANDA; Indian Veterinary Research Institute, Izatnagar (India). Inactive and locomotive behaviour of pregnant dairy heifers under loose housing system. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81 (2) p. 196–199 KEYWORDS: HEIFERS. ANIMAL HOUSING. PREGNANCY. BEHAVIOUR.

The pattern of inactive and locomotive behaviours of pregnant dairy heifers under loose housing system was studied. Inactive (loafing, sitting and sleeping) and locomotive (roaming) behaviour of 30 crossbred heifers were recorded at 60 seconds interval for 24 consecutive hours on 14 occasions (at weekly interval) during their last trimester (27th to 40th wk) of pregnancy. Bout and inter-bout length of these activities were also recorded. Loafing was the most frequent form of inactive behaviour followed by sleeping and sitting. Time spent on sitting and sleeping decreased gradually with the advancement of pregnancy whereas the trend was reverse for loafing. Short duration (15 min) bout length was predominant in all the 4 activities. Majority of the inter-bout incidences for roaming and loafing activity had duration of 15 min, whereas most of the sitting activities were repeated within 30 to 60 min. This basic information of inactive and locomotive behaviours will help to manage the pregnant dairy heifers better under loose housing system.

0201. Bharathy, N.; Tamil Nadu University of Veterinary and Animal Sciences, Chennai (India). Ramesh, V.; Tamil Nadu University of Veterinary and Animal Sciences, Chennai (India). Ramesh, V.S.K.; Tamil Nadu University of Veterinary and Animal Sciences, Chennai (India). Devendran, P.; Tamil Nadu University of Veterinary and Animal Sciences, Chennai (India). SIVAKUMAR, K.; Tamil Nadu University of Veterinary and Animal Sciences, Chennai (India). Effect of housing systems on the reproductive performance of broiler rabbits. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81 (2) p. 200-201 KEYWORDS: RABBITS. ANIMAL HOUSING. REPRODUCTIVE PERFORMANCE.

The reproductive performance of both White Giant and Soviet Chinchilla rabbits housed in modern raised platform shed was superior than that of rabbits housed in conventional tile roofed shed. The improvement of microclimate in modern raised platform shed increased the percentage of oestrus occurrence, breeding success, litter size and weight at birth and weaning.

0202. Moanaro; ICAR Research Complex for NEH Region, Jharnapani Medziphema (India). Nagaland Centre.Ngullie Ebibeni; ICAR Research Complex for NEH Region, Jharnapani Medziphema (India). Nagaland Centre.Walling Imtisenla; ICAR Research Complex for NEH Region, Jharnapani Medziphema (India). Nagaland Centre.Krose, M.; ICAR Research Complex for NEH Region, Jharnapani Medziphema (India). Nagaland Centre.Bhatt, B.P. ICAR Research Complex for NEH Region, Jharnapani Medziphema (India). Nagaland Centre. Traditional Animal Husbandry Practices in Tribal States of Eastern Himalaya, India. Indian Journal of Animal Nutrition (India). (Mar 2011) v. 28(1) p.23-28 KEYWORDS: SWINE. ANIMAL HUSBANDRY METHODS. ANIMAL HUSBANDRY. NAGALAND. HIMALAYAN REGION.

Traditional pig production system in the economically most backward district of Nagaland in North Eastern Himalayan region of India was investigated. Pigs are reared under low input production system where non-conventional feed resources contribute majority of feed stuffs offered to the animal. Important seasonally available plant species, predominant in the region includes Bidens pilosa L. Borreria hispida L.K. Schumann, Colocasia esculenta L. Schott, Ficus hispida L.f. Manihot esculenta Crantz, Musa paradisiaca L. Osbeckia sp. Saurauia nepaulensis D.C. Spilanthes acmella L. Murray and Vernonia anthelmintica L. Willd are fed with paddy husk to the pigs.Significant ($P<0.05$) variations in the proximate composition were recorded in different nonconventional feed resources. Among the several plant species, the highest and lowest DM content was recorded in Osbeckia sp. and C. esculenta, respectively and CP content was highest in S. acmella and lowest in M. esculenta. Average daily weight gain was 104.18 g during the study period. The feed conversion efficiency was highest in August and lowest in February. Net annual monetary return was 9471 (input: output ratio 1:2.518) per pig. It was concluded that feeding of NCFR is economical for sustainable pig husbandry. However, detail metabolic study with each NCFR component is indicated for their incorporation in commercial feed in future.

L02 Animal Feeding

0203. Jonali Devi; Assam Agricultural University, Guwahati (India). Goswami, j.; Assam Agricultural University, Guwahati (India). Sarmah, B.C.; Assam Agricultural University, Guwahati (India). Chakravarty, P.; Assam Agricultural University, Guwahati (India). Sarma, Kamal; Assam Agricultural University, Guwahati (India). Effect of zinc supplementation on testicular biometry in Assam local male goat. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 9-11 KEYWORDS: GOATS. KIDS. BIOMETRY. BODY MEASUREMENTS. ZINC. SUPPLEMENTS. SCROTUM. ASSAM.

The present study was conducted in 36 Assam local male kids of 3 months of age and between 3 and 4 kg of body weight. The animals were divided into group 1 (control group, in which kids were grown without zinc supplementation), group 2 (inorganic group, in which kids were grown with inorganic zinc supplementation, zinc sulphate) and group 3 (organic group, in which kids were grown with organic zinc supplementation, zinc propionate). The experimental goats received concentrate mixture 50 g/day/goat up to 5 months and then 100 g/day/goat up to 7 months of age in addition to their free range grazing. The study revealed gradual increase of different testicular measurements i.e length, width, thickness and scrotal circumference. Both inorganic and organic zinc supplemented group showed higher values than that of control group. When compared, kids receiving organic zinc-supplement had higher body weight and testicular measurements than that of inorganic zinc-supplemented kids.

0204. Sreedhar, S.; Sri Venkateswara Veterinary University, Tirupati (India). College of Veterinary Science. Seasonal feeding pattern of dairy animals in scarce rainfall zone of Andhra Pradesh. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 91-93 KEYWORDS: LIVESTOCK. DAIRY FARMS. ANIMAL FEEDING. GRAZING. DRY SEASON.

An exploratory study was conducted in Anantapur district of Scarce rainfall zone to assess the existing seasonal feeding pattern of dairy animals. The study revealed that combination of stall feeding and grazing was the most prevalent mode of feeding dairy animals. The animals were sent for grazing for a period of 5–6

hours daily. The farmers adopted stall feeding twice a day in morning and evening. Paddy straw, dried grass and stovers were used as dry fodders. The quantity of green fodder fed to wet cows was 21.50±0.51 and 20.75±0.49 kg/animal/day during winter and rainy seasons respectively. The lactating animals were fed 1.4±0.05 to 2.00±0.11 kg concentrates daily in the form of mash. Few farmers feeding silage to their animals during scarcity period.

0205. Bakshi, M.P.S.; Guru Angad Dev University of Veterinary and Animal Sciences, Ludhiana (India). Guru Angad Dev University of Veterinary and Animal Sciences, Ludhiana (India). Wadhwa, M. Nutritional status of dairy animals in different regions of Punjab State in India. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 52-58 KEYWORDS: LIVESTOCK. NUTRITIONAL STATUS. PUNJAB.

The objective of this study was to assess the nutritional status of animals with respect to macro nutrients in different regions of Punjab state. The Punjab State is divided into 6 agro climatic zones — the sub mountain undulating zone (SMUZ), undulating plain zone (UPZ), central plain zone (CPZ), western plain zone (WPZ), western zone (WZ) and flood prone bet zone (FPBZ). Two districts were selected from each region; from each district 2 tehsils/blocks were selected. From each tehsil, 2 villages and from each village at least 10 farmers of different socio-economic status were selected. The animals of WZ had highest body weight (518 kg) produced highest milk (6.9 kg/d), while that of SMUZ had the lowest body weight (467 kg) and animals of UPZ produced only 5.1 kg/d. The daily DM intake expressed as per cent of body weight varied between 2.35 (UPZ) and 2.84% (WPZ). The animals of all the zones, except that of CPZ (protein) and WPZ (EE) were offered either protein and fat deficient diets, or the diet offered was not able to meet the requirement of these nutrients, as also indicated by the milk urea-N (MUN), which varied between 4.67 (WPZ) and 9.45 mg/dl (CPZ). The NDF content in the complete feed was much higher in all the zones than the recommended level. The proportion of roughage in the complete feed was highest in UPZ (86.9%) followed by that in FPBZ (83.69%) and lowest proportion was used in the diet of animals of WZ (71.41%),where relatively high proportion of concentrate was used (28.59%),which was clear from the health and productive performance of the animals of WZ. The purine derivatives excreted in urine revealed that allantoin concentration was highest in animals of WZ indicating highest microbial protein synthesis in the rumen for meeting the protein requirements. The results revealed that animals of WZ utilized the nutrients more efficiently compared to animals of any other zone, as indicated by higher milk production. The animals of WPZ though consumed higher amount of DM and CP, the absorption of purines and microbial nitrogen synthesis was low, indicating inefficient utilization of dietary nutrients. Only 19.7% of the farmers offered mineral mixture (MM) in CPZ, followed by that of FPBZ and lowest (2.5%) in SMUZ. With regards to salt supplementation in the diet, the situation was better than that for MM, as 48% of the farmers of CPZ and only 19.68% of the farmers of WZ supplemented the diet with salt. The deficiency of minerals and salt was reflected in reproductive problems faced at farm houses. The highest cases of repeat breeding/anoestrus were recorded in CPZ and WPZ (52.0–51.5%)and the lowest number (28–34%) of cases was recorded in WZ and FPBZ.It was concluded that feeding of the balanced diet (with respect to energy, protein and minerals) must be advocated under field conditions.

0206. Deori, D.; Assam Agricultural University, Guwahati (India). Baruah, K.K.; Assam Agricultural University, Guwahati (India). Saikia, B.N.; Assam Agricultural University, Guwahati (India). Phukan, B.; Assam Agricultural University, Guwahati (India). Phukan, J.; Assam Agricultural University, Guwahati (India). Effect of inclusion of ajar seed kernel in the diets of kids on their performance. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 59-61 KEYWORDS: GOATS. KIDS. KERNELS. FEED CONVERSION EFFICIENCY. NUTRITION PHYSIOLOGY. ASSAM.

An investigation was carried out to observe effect of replacing maize with ajar seed kernel (ASK) on the performance of Assam local goat kids. Assam local goat kids (20), 4–5 months of age, mean body wt.6 kg were randomly divided into G–1 (fed concentrate mixture containing maize as cereal grain), G–2, G–3, and G–4 (fed rations containing 25, 37.5 and 50% ASK, respectively replacing maize). All the groups received para grass ad lib. Feeding trial was continued for 91 days followed by a 7–day digestion trial. The average

DMI/100 kg and per kg 0.75, daily gain and feed conversion ratio were 3.40±.50, 3.39±.23 kg; 60.03±0.63, 58.96±0.24 g/d; 32.11±0.64, 37.67±0.41 g; 7.40±0.08, 7.46±0.16 kg, respectively and significantly higher in 1 and 2 than other groups. Similarly digestibility of organic nutrients, energy and N-balance were higher in the corresponding groups. However, no significant difference was observed in dressing percentage. Overall observation revealed satisfactory performance of Assam local kids on feeding ajar seed kernel 25% replacing maize.

0207. Katoch, S.; CSK Himachal Pradesh Krishi Vishvavidalaya, Palampur (India). Kaistha, M.; CSK Himachal Pradesh Krishi Vishvavidalaya, Palampur (India). Sharma, K.S.; CSK Himachal Pradesh Krishi Vishvavidalaya, Palampur (India). Katoch, B.S.; CSK Himachal Pradesh Krishi Vishvavidalaya, Palampur (India). Effect of supplementing combination of direct fed microbial isolated from vegetable sources on biological performance of different strains of broiler chicken. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 62-67 KEYWORDS: BROILER CHICKENS. NUTRIENTS. SUPPLEMENTS. SINGLE CELL PROTEIN.

The dietary performance of the combination of direct fed microbial (DFM) namely Lactobacillus acidophilus, Streptococcus uberis and Saccharomyces cerevisiae (T2), which were isolated from over ripe Luffa cylindrica and Mommordica charantia was studied vis-à-vis the combination of their respective standard direct fed microbial (DFM) Lactobacillus acidophilus (L4), Streptococcus lactis (S1) and Saccharomyces cerevisiae (Y3) (T1) and control diet (T0) in strains of commercial poultry broilers up to 6 weeks of age. Strain specific growth response in poultry broilers was exhibited owing to supplementation of isolated DFM. Significantly higher gain in live weight was exhibited by Vancobb strain of broiler birds supplemented with standard combination of DFM whereas nonsignificant difference for gain in live weight was exhibited by both Starbro and Kegbro strain. Overall results revealed poor feed conversion in all the broiler strains supplemented with both isolated and standard DFM. Difference in mean for mortality and dressing percentage exhibited was nonsignificant in all the treatments. Significantly higher growth response in standard DFM supplemented treatment comprising Vancobb strain of broilers appeared to be due to effective colonization of standard DFM in gastro- intestinal tract as evidenced by significantly higher total and differential microbial counts. It is thus concluded that direct fed microbials not only are strain specific but may have specific compatibilities for particular strain of broilers to exhibit desirable beneficial effects.

0208. Kumari, M. ; CSK Himachal Pradesh Krishi Vishvvidyalya, Palampur (India). Wadhwa, D.; CSK Himachal Pradesh Krishi Vishvvidyalya, Palampur (India). Sharma, V.K.; CSK Himachal Pradesh Krishi Vishvvidyalya, Palampur (India). Sharma, K.S.; CSK Himachal Pradesh Krishi Vishvvidyalya, Palampur (India). Katoch, B.S; CSK Himachal Pradesh Krishi Vishvvidyalya, Palampur (India). Dietary effect of combination of some probiotic microorganisms on productive performance of layer chickens fed up to the starter phase. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 68-72 KEYWORDS: LAYER CHICKENS. ANIMAL FEEDING. PROBIOTICS. RATIONS.

Comparative biological response of combination of different strains of lactobacilli, streptococci and yeast, isolated from different indigenous sources was studied in commercial laying chickens. The treatments consisted of T1 (control feed with culture medium only), T2 (Lactobacillus bulgaricus L4 + Streptococcus lactis S1 + Saccharomyces cerevisiae Y3), T3 (L. acidophilous leopard excreta + S. faecalis leopard excreta + Torulopsis spherica calf dung), T4 (L. acidophilous bottle gourd + S. uberis bitter gourd + S. cerevisiae bitter gourd), T5 (L. lactis tomato + S. faecium khamir + Pichia memberanaefaciens tomato), T6 (T2 + T3) and T7 (T3 +T4). In overall, the FCR was higher in probiotic fed groups as compared to that of the control. Mortality was observed in the control (T1) and T5 group only. Feed consumed per kg egg mass was lower and, per cent hen day egg production was higher in all the probiotic fed groups. The probiotic feeding resulted in larger egg size production. The better egg laying performance could be due to the higher total and % Gram +ve microbial counts in the intestinal tract. It could be concluded that the probiotics, fed only up to 8 weeks of age showed a carry-over effect on the laying performance throughout the laying period and there was no need to mix too many strains of microbes from different sources to increase the farm returns.

0209. Ambasankar, K.; Tamil Nadu University of Veterinary and Animal Sciences, Chennai (India). Balakrishnan,V.; Tamil Nadu University of Veterinary and Animal Sciences, Chennai (India). Influence of protected sardine oil on in vitro rumen fermentation and nutrient digestibility of complete diet. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 84-86 KEYWORDS: RUMEN DIGESTION. DIGESTIBILITY. IN VITRO EXPERIMENTATION. COMPLETE FEEDS.

The present study was carried out with the objective to examine the influence of various forms of protected sardine oil in a complete diet on rumen fermentation and nutrient digestibility. In vitro gas production studies on 4 complete diet having sardine oil, calcium soap of sardine oil, formaldehyde treated protein encapsulated sardine oil and fatty acyl amide of sardine oil at 3% levels revealed significantly higher digestibility of apparent dry matter (65.63%), true dry matter (71.79%) and cellulose (56.01%) in 3% fatty acyl amide of sardine oil based complete diet. No significant difference in ammonia nitrogen, total gas production and CO2 : CH4 ratio was observed among the experimental diets at 12, 24 and 36 h of incubation. Significantly higher microbial biomass production (6.16%) was observed in diet containing fatty acyl amide of sardine oil. This study revealed fatty acyl amide of sardine oil based complete diet was effective in protecting the fat from degradation in rumen and improves the apparent and true DMD. However, further studies are needed to conclusively tell the improved nutritive value of the diets through this protection technique.

0210. Basavaraj, M. ; Karnataka Veterinary and Fishery Science University, Bidar (India). Veterinary College, Dept. of Animal Nutrition.Nagabhushana, V,; Karnataka Veterinary and Fishery Science University, Bidar (India). Veterinary College, Dept. of Animal Nutrition.Prakash, N.; Karnataka Veterinary and Fishery Science University, Bidar (India). Veterinary College, Dept. of Animal Nutrition.Appannavar, M.M. ; Karnataka Veterinary and Fishery Science University, Bidar (India). Veterinary College, Dept. of Animal Nutrition.Prashanth, W.; Karnataka Veterinary and Fishery Science University, Bidar (India). Veterinary College, Dept. of Animal Nutrition.Mallikarjunappa, S.; Karnataka Veterinary and Fishery Science University, Bidar (India). Veterinary College, Dept. of Animal Nutrition. Effect of Dietary Supplementation of Curcuma Longa on the Biochemical Profile and Meat Characteristics of Broiler Rabbits under Summer Stress. Veterinary World (India). (Jan 2011) v.4(1) p. 15-18 KEYWORDS: RABBITS. HEAT STRESS. ANTIOXIDANTS. CURCUMA LONGA. CURCUMA. TURMERIC.

Eighteen four weeks old weaned broiler rabbits of comparable body weights were allotted to three dietary treatment groups of six rabbits in each group namely T0 (basal control diet, T1 (basal diet added with turmeric rhizome powder, TRP, at the ratio of 150mg)and T2 (basal diet added with TRPat the ratio of 300mg/100g diet). Different hematological and serum biochemical parameters such as packed cell volume, Hemoglobin, total erythrocyte count and total leukocyte count and serum total protein, albumin, cholesterol, alkaline phosphatase, alanine transaminase and aspartate transaminase due to the dietary inclusion of turmeric powder rhizome supplementation at 0, 0.15 and 0.30 percent did not show significant difference between the treatment groups. Carcass parameters and chemical composition of meat were closer to the standard values. The results of the study indicated no beneficial effect of dietary inclusion of turmeric (Curcuma longa) rhizome powder at 0, 0.15 and 0.30 per cent on blood biochemical and meat characteristics of broiler rabbits reared under summer stress

0211. Somkuwar, A.P.; KNP College of Veterinary Science, Shirval (India). Department of Pharmacology & Toxicology.Kadam, A.S.; KNP College of Veterinary Science, Shirval (India). Department of Livestock Production and Management.Shiva Kumar; Provimi Animal Nutrition India Pvt. Ltd. Bangalore (India). Provimi India Innovation Centre.Radhakrishna, P.M.; Provimi Animal Nutrition India Pvt. Ltd. Bangalore (India). Provimi India Innovation Centre. Efficacy study of metho-chelated organic minerals preparation feeding on milk production and fat percentage in dairy cows. Veterinary World (India). (Jan 2011) v.4(1) p. 19-21 KEYWORDS: DAIRY COWS. MILK YIELD. MINERAL NUTRIENTS. SUPPLEMENTS. NUTRIENTS.

The objective of the study was to compare the effect of feeding different mineral based formulation on dairy cow production performance, namely milk yield and fat percentage. The trial was conducted with dairy cows across various stages of lactation (Early, Mid and Late stage with 30 cows per stage). The experimental treatments included: Bestmin Gold (Metho-chelated organic minerals, given 30 gms per day), Inorganic mineral preparation (Inorg. Mineral, 50 gms/day/ cow) and control. The study lasted from 0 to 40 days. Milk yield and fat percentage of cows were measured individually on Days 0, 5, 10, 15, 20, 25, 30 and 40. The Bestmin Gold treated group Metho-chelated organic minerals) improved the milk yield, net gain in milk and the milk fat percentage of animals across the various stages of lactation as compared to in control and inorganic mineral treated group of animals.

0212. D. Srinivas Kumar; NTR College of Veterinary Science, Gannavaram (India). Department of Animal Nutrition.Rama Prasad, J.; NTR College of Veterinary Science, Gannavaram (India). Department of Animal Nutrition.Rao, E.Raghava; NTR College of Veterinary Science, Gannavaram (India). Department of Animal Nutrition. Influence of diet supplementation with yeast culture (Saccharomyces cerevisiae) on intake and nutrient utilization in graded murrah buffaloes. Veterinary World (India). (Jan 2011) v.4(1) p. 22-24 KEYWORDS: WATER BUFFALOES. LAND RACES. SUPPLEMENTS. SCHIZOSACCHAROMYCES. NUTRITION PHYSIOLOGY.

A feeding trial was conducted in graded Murrah buffaloes to study the influence of yeast culture (Saccharomyces cerevisiae CNCM I-1077 strain) supplementation on intake and nutrient utilization. 12 graded Murrah buffaloes with an average body weight of 465.4 ± 20.92 kg were randomly divided into two groups (Control and treatment) of 6 animals each. Animals in both the groups received a basal diet comprising of roughages and concentrates separately to meet the maintenance and production requirements (ICAR, 1998). In addition, the animals in treatment group received yeast culture 0.5 g/animal/day. The average DMI of buffaloes during the digestion trial was 114.31 and 119.24 g/kg W0.75 respectively, in control and treatment groups. The digestibility coefficients of gross nutrients and fibre fractions showed non-significant differences between the control and treatment groups, though the values were found to be comparatively higher in the yeast supplemented group. The DCP and TDN contents were observed to be 8.03 and 53.06 per cent in control group and 8.15 and 54.06 per cent in treatment groups, respectively. It can be concluded that yeast culture did not show any significant positive effect on nutrient utilization in graded Murrah buffaloes.

0213. Jadhav, N.V.; Veterinary College, Bidar (India). Department of Livestock, Production Management .Suranagi, M.D.; Veterinary College, Bidar (India). Department of Livestock, Production Management . Anjaneya, S.N.; Veterinary College, Bidar (India). Department of Livestock, Production Management .Prakashchandra; RBS College, Agra (India). Department of Animal Husbandry and Dairying.Mallikarjunappa, S.; Veterinary College, Bidar (India). Department of Livestock, Production Management . Effect of Replacing Soybean Meal and Dicalcium Phosphate in the Diets with Alternative Ingredients and Phytase Supplementation on Growth and Nutrient Balance in Broiler Chicken. Animal Nutrition and Feed Technology (India). (Jul 2011) v. 11(2) p. 203-210 KEYWORDS: BROILER CHICKENS. PHYTASE. SUPPLEMENTS. SUNFLOWER MEAL. ANIMAL PERFORMANCE.

The study was conducted for evaluating the effect of phytase supplementation on growth and nutrient balance in broiler chicken fed diets containing sunflower meal (SFM) as a partial replacement for soybean meal and two different levels of dicalcium phosphate (DCP) with or without exogenous phytase. The experiment was carried out using 300 broilers from 1 to 35 day of age. There were 5 dietary treatments in each with 4 replicates of 15 birds in each. Soybean meal in control diet was partially replaced using 20% SFM with either 1 or 2 percent DCP supplementation; each level of DCP was again supplemented with 500 FTU/kg of a commercial phytase. Phytase supplemented chickens recorded significantly ($P<0.01$) higher body weight, feed conversion ratio and dressing yield when compared with non-supplemented birds. The nutrient retention was significantly ($P<0.01$) higher in the broilers supplemented with phytase compared to non-supplemented

rations. The economic benefit analysis (on feed cost) revealed higher net returns in broilers fed with rations having alternative ingredients and supplemented with phytase when compared with birds on reference diet. It can be concluded that SFM can replace SBM by 20 percent along with 50 percent substitution of DCP by limestone when supplemented with phytase.

0214. Sharma, Sanjita; Rajasthan University of Veterinary and Animal Sciences, Bikaner (India). College of Veterinary and Animal Sciences. Department of Animal Nutrition.Sharma, Vishnu; Rajasthan University of Veterinary and Animal Sciences, Bikaner (India). College of Veterinary and Animal Sciences. Department of Animal Nutrition. Purohit, G.R.; Rajasthan University of Veterinary and Animal Sciences, Bikaner (India). College of Veterinary and Animal Sciences. Department of Animal Nutrition. Effect of Replacing Groundnut Cake with Various Nitrogen Sources of Arid Region on Nutrient Utilization and Rumen Fermentation Pattern in Marwari Goats. Animal Nutrition and Feed Technology (India). (Jul 2011) v. 11(2) p. 233-240 KEYWORDS: GOATS. GROUNDNUT MEAL. NUTRITION PHYSIOLOGY. RUMEN DIGESTION.

An experiment was conducted to assess the effect of replacing groundnut cake with different nitrogen sources of arid zone on feed intake, nutrient utilization and rumen fermentation pattern. Various sources used were tumba (Citrullus colocynthis), taramira (Eruca sativa) and matira (Citrullus lanatus) oilseed cakes and compared with conventional groundnut cake in beri pala (Ziziphus nummularia) leaf based complete diets for Marwari goats. A metabolic trial was conducted on 16 mature bucks. The control diet (T1) contained 50:50 concentrate-roughage ratio with conventional protein source groundnut cake (GNC). In experimental diets 50 per cent nitrogen of GNC was replaced by Tumba (T2), Taramira (T3) and Matira (T4) oilseed cakes. No significant difference was observed for digestibility of various nutrients except fibre. In T2 group i.e. tumba cake, CF digestibility vary significantly ($P<0.05$) with T3 group i.e. taramira seed cake. Statistically no significant differences was observed for digestible dry matter intake (DDMI), digestible crude protein (DCP) and total digestible nutrients (TDN). All the animals of four treatment groups had positive balances regarding nitrogen, calcium and phosphorus and no significant differences was observed for rumen parameters viz. rumen pH, total volatile fatty acids, rumen ammonia nitrogen and total protozoal count. Study suggests that 50 per cent nitrogen of GNC can be easily replaced with tumba, taramira and matira seed cakes for effective goat production in arid regions.

0215. Patel, M.; Govind Ballabh Pant University of Agriculture and Technology, Pantnagar (India). Effect of feeding different levels of jaggery filter cake on blood biochemical and mineral profile in Yorkshire pigs. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81 (2) p. 180-183 KEYWORDS: SWINE.

Jaggery filter cake (JFC) is a good unconventional source of energy as well as minerals. An experiment was conducted using 30 Large White Yorkshire piglets (3 ½ month old), randomly divided and maintained on 5 dietary treatment groups, viz. group 1, concentrate only; group 2, concentrate +250 g JFC; group 3, concentrate +500 g JFC; group 1V, concentrate +750 g JFC and group V, ad lib. JFC only to observe blood biochemical and mineral profile. Jaggery filter cake supplemention was increased in the ratio of 50: 100: 150 g in group 2, 3, 4 respectively, every fortnight during growing stage and every week during finishing stage. To study the biochemical parameters, blood samples were collected at 0 day, 61st day and 121st day of feeding trail. The plasma glucose concentration of group 1, 2, 3, 4 and 5 ranged from 87.68 to 93.88 mg/dl. Glucose concentration was increased at the end of finishing stage as compared to growing stage in all the treatments. A significant (P0.01) difference was found between group 2 and 3 and group 3 and 4. Plasma total protein value did not show any trend in the subsequent growing stage and finishing stage. Plasma A: G ratio ranged from 0.66 to 0.71 which did not differ significantly between different treatment groups. A: G ratio increased in all the treatment groups and control. Thus, supplementation of JFC along with concentrate or sole feeding of JFC did not affect plasma biochemical parameters and did not cause any adverse effect on the mineral profiles.

0216. Kumari, R.; Birsa Agriculture University, Ranchi (India). Tiwary, B.K.; Birsa Agriculture University, Ranchi (India). Prasad, A.; Birsa Agriculture University, Ranchi (India). Ganguly, S.; Birsa Agriculture University, Ranchi (India). Immunomodulatory effect of herbal feed supplement in normal and immunocompromised broiler chicks. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81 (2) p. 158-161 KEYWORDS: BROILER CHICKENS. CHICKS. CHICKENS. DRUG PLANTS. SUPPLEMENTS. HUMORAL IMMUNITY. CELL MEDIATED IMMUNITY. ASPARAGUS.

The use of W. somnifera and A. racemosus dried root powder in a specific dose during the scheduled period showed significant positive effects on both humoral and cell mediated immune responses of the birds. The bursectomized and thymectomized birds showed a decline in the antibody titer. The variation in skin thickness was significantly more among the herbal treated. Herbal formulation containing extracts of W. somnifera and A. racemosus may be therefore recommended for use as positive immunomodulator in normal and immunocompromized broiler chicks. The present study also indicated the determinative roles of herbal fed additives in helping the immunodeficient subjects in obtaining higher humoral and cell mediated immune responses providing better protection level against infections.

0217. Sachan C.B.; M.V.R.S. Agriculture University, Gwalior (India). Kundu S.S.; National Dairy Research Institute, Karnal (India). Singh Sultan; Indian Grassland and Fodder Research Institute,Jhansi (India). Kushwaha, B.P.; Indian Grassland and Fodder Research Institute, Jhansi (India). Singh Hari; B.N.D. College, Ratti Hamirpur (India). Feed Intake and Nutrient Utilization in Bhadawari Buffaloes Fed Sorghum, Grass and Stylosanthes Hays. Indian Journal of Animal Nutrition (India). (Mar 2011) v. 28(1) p. 18-22 KEYWORDS: WATER BUFFALOES. ROUGHAGE. FEEDS. HAY. FEED INTAKE. FEED CONVERSION EFFICIENCY. NITROGEN RETENTION.

Eighteen lactating Bhadawari buffaloes (mean body weight 379.1± 13.27 kg, milk yield 3.97±0.41kg) were distributed in 3 dietary groups of 6 animals each and offered sorghum (G1), grass (G2) and stylosanthes hay (G3), respectively; along with 3 kg wheat straw and 2 kg concentrate mixture. DMI from sorghum hay (G1) was ($P<0.05$) higher than other hays but total as DMI (% body weight) was comparable among the groups and ranged from 2.66 to 2.78. CP digestibility was ($P<0.05$) higher in G3 (55.92) than G1 (47.16) than G2 (37.37%). NDF, ADF, cellulose and hemicellulose digestibility differed ($P<0.05$) across the dietary groups. Total N intake was ($P<0.05$) higher in G3 (174.05) followed by G1 (111.20) and G2 (105.73 g/day). Nitrogen balance was highest ($P<0.05$) in G3 (73.58) than G1 (38.75) and G2 (22.68 g/day). The DCP and TDN contents were significantly ($P<0.05$) higher in G3 (5.89 and 63.75) than G1 (3.12 and 58.10) and G2 (2.42 and 57.97%), respectively. Results indicated that stylosanthes hay diet had higher CP, NDF and ADF digestibility and supplied more nutrients (DCP and TDN) to animals.

0218. Ebrahimi, Seyed Hadi; National Dairy Research Institute, Karnal (India). Dairy Cattle Nutrition Division.Jha, Pankaj; National Dairy Research Institute, Karnal (India). Dairy Cattle Nutrition Division. Mohini, Madhu; National Dairy Research Institute, Karnal (India). Dairy Cattle Nutrition Division. Calibration of In Vitro Gas Production Technique Using Digital Pressure Gauge: Air Versus Fermentative Gases. Indian Journal of Animal Nutrition (India). (Mar 2011) v. 28(1) p. 29-33 KEYWORDS: STANDARDIZING. IN VITRO EXPERIMENTATION. FERMENTATION.

This experiment was aimed to compare air with fermentative gas for calibrating an in vitro gas production system using digital pressure gauge. Serum bottles (100 ml) containing 45 ml of in vitro medium were injected with air and fermentative gas produced from incubation of starch (S gas), starch and cellulose (S + C gas) and cellulose (C gas). The pressures in the bottles were read after equilibrating the vials overnight at 39°C for each gas, calibration line was constructed by linear regression of gauge reading (in psi) versus volume fraction (Fv) of added gas, where Fv = milliliters added gas/milliliters bottle headspace volume. For all four gases (air, S gas, S + C gas and C gas), there was a linear relationship between volume and pressure ($r^2 = 0.99$). There was no significant difference between slopes of calibration curve obtained from air, S gas, S + C gas and C gas. Results of present work indicated that calibration of in vitro gas production system using air

can give reliable regression equation applicable for measurement of total gas volume of wide ranges of substrates.

0219. Meena, J.P.; Maharana Pratap University of Agriculture and Technology, Udaipur (India). College of Technology and Engineering. Gupta, Lokesh; Maharana Pratap University of Agriculture and Technology, Udaipur (India). College of Technology and Engineering. Tiwari, G.S.; Maharana Pratap University of Agriculture and Technology, Udaipur (India). College of Technology and Engineering. Garg, Rajeev; Maharana Pratap University of Agriculture and Technology, Udaipur (India). College of Technology and Engineering. Effect of Feeding Probiotic Mixture with Untreated or Urea Treated Wheat Straw on Nutrient Utilization in Growing Crossbred Males. Indian Journal of Animal Nutrition (India). (Mar 2011) v. 28(1) p. 39-43 KEYWORDS: CATTLE. CROSSBREDS. ANIMAL FEEDING. PROBIOTICS. WHEAT STRAW. NUTRITION PHYSIOLOGY. GROWTH.

Nine crossbred males (15–18 months age, 123.78 kg BW) were divided into three similar groups and fed untreated wheat straw (T1); untreated wheat straw plus probiotic (T2) and urea treated wheat straw plus probiotic (T3). Digestibility of nutrients was significantly higher in group T3, resulting in higher nutritive value of ration T3 in terms of DCP, TDN, DE and ME followed by those of T and T. The DMI (kg/day) was significantly higher in group T than in groups T and T and variation between later groups was not-significant. Intake of DE and ME was highest in group T3 followed by T2 and T 1 and variation among groups was significant. Total water intake was significantly higher in group T3 than that in groups T2 and T 1. The ADG was significantly higher in group T3 than in other groups. From these results it may be concluded that nutrient utilization was enhanced by supplementing the wheat straw based ration with probiotic, which was further enhanced on using the urea-ammoniation of wheat straw. Thus, supplementation of urea treated wheat straw may be recommended with probiotic for its optimum utilization in the ration of growing crossbred males.

0220. Sorathiya, L.M.; Navsari Agricultural University, Navsari (India). Livestock Research Station.Fulsoundar, A.B.; Navsari Agricultural University, Navsari (India). Livestock Research Station. Effect of Urea-Molasses Supplementation on Nutrient Utilization in Surti Buffalo Heifers Fed Paddy Straw Based Ration. Indian Journal of Animal Nutrition (India). (Mar 2011) v. 28(1) p. 44-46 KEYWORDS: HEIFERS. STRAW. SUPPLEMENTARY FEEDING. UREA. MOLASSES. NUTRITION PHYSIOLOGY.

Twelve Surti buffalo heifers (571.42±33.65 days age and 156.75±18.60 kg body weight), divided in three groups of 4 each were fed control diet (T1), supplementation of molasses @ 8% of ration (T2)and supplementation with 1% urea and 8% molasses(T3). DM digestibility in groups T1, T2, and T 3 was 60.20, 65.85 and 66.57 percent, respectively, and variation among groups was significant. Moreover, Digestibility of OM and CF were higher in group T3 but variation among groups was not significant. The NFE digestibility was improved with molasses supplementation. The total DMI (kg/d) was higher in groups T2, and T3 than in control group. The mean total straw intake (kg/d) was significantly higher ($p<0.01$) in group T3 than in other groups.

0221. Yadav, C.M.; Maharana Pratap University of Agriculture and Technology, Udaipur (India). Krishi Vigyan Kendra.Khan, P.M.; Maharana Pratap University of Agriculture and Technology, Udaipur (India). Krishi Vigyan Kendra.Naagar, K.C.; Maharana Pratap University of Agriculture and Technology, Udaipur (India). Krishi Vigyan Kendra. Meena, R.H.; Maharana Pratap University of Agriculture and Technology, Udaipur (India). Krishi Vigyan Kendra. Effect of Supplementing Urea Molasses Mineral Blocks on Performance of Lactating Buffaloes. Indian Journal of Animal Nutrition (India). (Mar 2011) v. 28(1) p. 47-50 KEYWORDS: WATER BUFFALOES. LACTATION. SUPPLEMENTS. MOLASSES. MILK YIELD.

Fifteen lactating buffaloes in mid lactation with similar age, body weight and milk yield were selected from dairy farms of the local farmers and divided into three groups of five animals each. Control group (T1) was maintained as per farmer's practices, while groups T2 and T3 were fed on concentrate mixture (@50% of

milk yield) and roughage but ration of group T3 was provided additional urea-molasses-mineral block (UMMB) @ 300g/day/head for 180 days. The average milk yield (kg/day) was significantly (P < 0.01) higher in group T3 (7.78 ± 0.37) than in groups T2 (7.25 ± 0.19) and T1 (5.65± 0.27). The milk fat content also improved significantly (P < 0.01) in group T3 over control group. It was concluded that feeding of UMMB alongwith balance diet improved milk yield and fat percent as well as reproductive performance in lactating buffaloes.

0222. Kayastha,T.B.; Apollo College of Veterinary Medicine, Jaipur (India). Department of Animal Nutrition.Pal, V.; Apollo College of Veterinary Medicine, Jaipur (India). Department of Animal Nutrition. Dutta, S.; Apollo College of Veterinary Medicine, Jaipur (India). Department of Animal Nutrition.Sharma, D.R.; Apollo College of Veterinary Medicine, Jaipur (India). Department of Animal Nutrition. Effect of Probiotic on Growth Performance of Kuroiler FFG Strain Chicks. Indian Journal of Animal Nutrition (India). (Mar 2011) v. 28(1) p. 64-67 KEYWORDS: CHICKS. PROBIOTICS. WEIGHT GAIN.

One hundred and sixty day old straight run Kuroiler chicks (FFG strain) were randomly distributed into four dietary treatment groups T1 (Control, basal diet), T2 (Probiotic at 0.02%), T3 (Probiotic at 0.025%) and T4 (Probiotic at 0.03%) and each treatment group was again divided into 2 replica containing 20 birds each. The probiotic supplement contained Yeast culture (Saccharomyces cerevisae, 1.5×1011 CFU) and Lactobacillus sparogenes (5 × 1010 CFU). The basal diet was formulated for starter (0–3 weeks, 23.12% CP, 2820 ME Kcal/Kg) and finisher phase (4–5 weeks, 20.45% CP, 2912 ME Kcal/kg) separately following BIS (1992) requirement. Weight gain and feed conversion ratio were significantly (p<0.05) improved in chicks fed on probiotic supplemented diet compared to control diet. Differences among groups for feed intake, meat composition, dressing percentage were non significant. It was concluded that probiotic supplementation was beneficial for growth performance of Kuroiler FFG chicks.

0223. Panda, A.K.; Project Directorate on Poultry, Hyderabad (India). Rao, S.V. Rama; Project Directorate on Poultry, Hyderabad (India). Effect of Vitamin D3 Supplementation to Diets Containing Sub-Optimal Levels of Calcium and Non-Phytate Phosphorus on Performance of Vanaraja Breeder Chicks. Indian Journal of Animal Nutrition (India). (Mar 2011) v. 28(1) p. 68-73 KEYWORDS: CHICKS. SUPPLEMENTS. VITAMIN D. CALCIUM. PHOSPHORUS. ANIMAL PERFORMANCE.

An experiment was conducted on Vanaraja breeder (female parent line) chicks (432) to estimate the effect of vitamin D3 supplementation (200, 1200, 2400 IU/kg) in diets containing various levels of calcium (Ca) and non-phytate phosphorus (NPP) at a constant ratio of 2:1 (0.6:0.3; 0.7:0.35; 0.8:0.4%, respectively) during 0 to 6 weeks of age. Feed conversion ratio, leg abnormality score, serum Ca and P concentrations, tibia length and weight, Ca and P content of tibia ash were influenced by the interaction between the concentrations of Ca: NPP and vitamin D3 in the diet. However, body weight gain, serum protein concentration and tibia ash content were not influenced by dietary treatments. Enhancing the vitamin D3 content from 200 to 1200 IU/kg in the diet containing 0.6% Ca and 0.3% NPP significantly improved feed conversion ratio, lowered leg abnormality and increased the tibia weight, which was comparable with other test diets. Serum concentrations of Ca and P and tibia length increased significantly by increasing the concentration of vitamin D3 from 200 to 2400 IU/kg at the lowest Ca: NPP diet (0.6:0.3). However, this was not different from 1200 IU/kg vitamin D3 diet. The results obtained on 0.6% Ca, 0.3% NPP and 1200 IU/kg vitamin D3 was comparable with those of 0.7:0.35 and 0.8:0.4, Ca: NPP diets, irrespective of the levels of vitamin D3 tested. Considering the overall performance, it was concluded that Ca and NPP levels in Vanaraja Breeder chicks can be reduced to 0.6 and 0.3%, respectively by maintaining the vitamin D3 level at 1200 IU/kg diet.

0224. Vijay, K.; College of Veterinary Science, Hyderabad (India). Mahender, M; College of Veterinary Science, Hyderabad (India). Nagalakshmi, D.; College of Veterinary Science, Hyderabad (India). Raghunandan, T.; College of Veterinary Science, Hyderabad (India). Effect of Feeding Graded Levels of Poultry Slaughter Waste on Performance of Labrador Pups. Indian Journal of Animal Nutrition (India). (Mar 2011) v. 28(1) p. 74-78 KEYWORDS: PUPPIES. FEEDING. ABATTOIR BYPRODUCTS. ANIMAL PERFORMANCE.

Diets containing processed poultry slaughter waste (PSW) at 0, 10 and 20% levels in diets 1, 2 and 3, respectively were fed to the Labrador pups and during a 20 weeks long growth trial the ADG was 109.56±7.62, 122.95±3.39 and 124.46±4.49g for diet 1 (control), 2 and 3, respectively, and feed efficiency was similar on all diets. CP efficiency was 13.56% higher on diets 3 and 2 than on control. ME efficiency (kcal/g gain) of diets 3 (8.82±0.33) and 2 (8.92±0.27) was significantly (P<0.05) higher than control diet (10.64±0.73). The DMI/100 kg body weight was comparable among the diets. DM digestibility of diet 3 (68.33±0.85) was higher (P<0.05) than diet 1 (63.75±0.93). There was no significant difference among diets for the digestibility of OM, CP and NFE. The CF digestibility of diets 3 and 2 was significantly (P<0.05) higher than control diet. The EE digestibility of diet 3 was significantly higher than diets 1 and 2, while comparable between diets 1 and 2. PSW containing diets were economical and it could be included up to 20% level in dog diets.

0225. Ramesh, J.; Tamil Nadu University of Veterinary and Animal Sciences, Chennai (India). .Madras Veterinary CollegeChandrasekaran, D.; Veterinary College & Research Institute, Namakkal (India). Effect of Pure Enzyme Mixtures Supplementation on Performance of Laying Hens. Indian Journal of Animal Nutrition (India). (Mar 2011) v. 28(1) p. 83-87 KEYWORDS: HENS. SUPPLEMENTS. ENZYMES. ANIMAL PERFORMANCE.

A study was undertaken to evaluate the effect of supplementation of different pure enzyme mixtures on production performance of laying hens. Three types of pure enzyme mixtures (A, B and C) were evaluated biologically in laying hens (23–36 weeks) fed standard layer ration (SR) without (control) and with enzyme mixture A (SR-A), B (SR-B) and C (SR-C) and less dense ration (LR) without (control) and with enzyme mixture A (LR-A), B (LR-B) and C (LR-C). Addition of enzyme was able to achieve extra egg production in LR groups, which was equal to that of SR control. Numerically, higher hen housed egg production was observed in enzyme added SR (85.85, 85.70 and 85.85% in SR-A, SR-B and SR-C respectively) and LR groups (83.35, 83.30 and 82.75% in LR-A, LR-B and LR-C, respectively) over their respective non enzyme group (SR control: 85.10% and LR control: 78.45%). The effect was more pronounced in LR groups. Addition of enzymes resulted in better feed efficiency in both SR and LR groups over their respective control. However, enzyme supplementation did not influence the egg weight, yolk index, yolk color score, albumen index, shape index and egg shell thickness in both SR and LR groups. The feed cost to produce an egg was reduced by 2 paise and 3 paise, respectively in SR and LR enzyme groups compared to control.

0226. Dangi, R.L.; Rajasthan College of Agriculture, Udaipur (India). Department of Animal Production. Mathur M.C.; Rajasthan College of Agriculture, Udaipur (India). Department of Animal Production. Singh, Y.; National Dairy Research Institute, Karnal (India). Yadava, R.; National Dairy Research Institute, Karnal (India). Roy, B.K.; BLRI, Savar (Dhaka). Roy, A.; BLRI, Savar (Dhaka). Influence of Different Levels of Sunflower Cake (Helianthus annus L.) on Growth Performance of Broiler Chicks. Indian Journal of Animal Nutrition (India). (Mar 2011) v. 28(1) p. 88-91 KEYWORDS: BROILER CHICKENS.

Influence of replacement of groundnut cake (GNC) at different levels by deoiled sunflower cake (Helianthus annus L.) was investigated on growth performance on 250 day-old broiler chicks, divided randomly into 5 groups of 50 each. The GNC was replaced by DSFC at 0 (T1), 25 (T2), 50 (T3), 75 (T4) and 100 (T5) per cent level, which corresponded to 0, 7.5, 15, 22.5 and 30 per cent of the total diet in iso-caloric and iso-nitrogenous. During six weeks period, body weight gain, feed intake, PI and FCR were gradually improved (P<0.05) up to 50 per cent level of replacement, however, further increase in sunflower cake level decreased the performance of chicks. It was concluded that the GNC can be replaced up to 50% level by deoiled sunflower cake in the diet of chicks without any harmful effect on their performance.

0227. Singh, Parminder; Guru Angad Dev University of Veterinary and Animal Sciences, Ludhiana (India). College of Veterinary Sciences . Kansal, M.L.; Guru Angad Dev University of Veterinary and Animal Sciences, Ludhiana (India). .College of Veterinary Sciences. Sikka, S.S.; Guru Angad Dev University of Veterinary and Animal Sciences, Ludhiana (India). College of Veterinary Sciences. Layers Performence on Feeding Different

Enzymes. Indian Journal of Animal Nutrition (India). (Mar 2011) v. 28(1) p. 92-97 KEYWORDS: LAYER CHICKENS. LAYING PERFORMANCE. SUPPLEMENTS. ENZYMES.

Five hundred seventy six layers of 50 weeks age, equally distributed in four groups, were reared in cages with 4 layers in each cage. A control diet was formulated. Three commercial enzyme preparations were supplemented to the control diet as per manufacturer's recommendations. Feed was offered ad lib to the birds in cages for three periods of 30 day each. Percent egg production and feed intake per bird were significantly ($P<0.05$) affected by the diets and periods. Periods also affected the feed consumption per egg. Significant ($P<0.05$) interaction between the diets and the periods for egg production, feed consumption per bird, feed, protein and ME consumption/egg were observed. Significantly ($P<0.05$) higher egg production with more feed intake was observed in birds fed diet T 3 containing E2 enzyme. Egg production was significantly ($P<0.05$) more in P2 period. Feed, protein and ME intakes were significantly ($P<0.05$) more in P2 and P3 periods. It was concluded that the birds can perform better at lower enzyme concentrations and the enzymes which are to be supplemented in the diet should be substrate specific and the concentration of the enzymes should be optimum rather than as per the recommendation of manufacturer.

0228. Mourya, P.S.; Veterinary Science and Animal Animal Husbandry, Mhow (India). Mehta, M.K; Veterinary Science and Animal Animal Husbandry, Mhow (India). Jain, A.; Veterinary Science and Animal Animal Husbandry, Mhow (India). Jain, R.K; Veterinary Science and Animal Animal Husbandry, Mhow (India). Nutrient Utilization and Growth Performance of Broilers on Dietary Supplementation of Acidifiers. Indian Journal of Animal Nutrition (India). (Mar 2011) v. 28(1) p. 98-101 KEYWORDS: BROILER CHICKENS. SUPPLEMENTS. ANIMAL PERFORMANCE.

Supplementation of broiler diet with different levels of acidifiers (lactic acid and formic acid on an inert carrier) was investigated on day old chicks (200) of 'Vencob' strain for 42 days. The chicks were randomly divided into four groups of 50 each: C - Control, T1- Control + acidifier @ 2 kg/ton in starter and grower and 1kg/ton in finisher, T2- control + acidifier @ 1.5 kg/ton in starter and grower and 1.5kg/ton finisher and T3- 5% less nutrients than in control + acidifier as in T2.. The birds were raised on ad lib feed and water with continuous lighting. In first two weeks, the feed intake in control group was higher than in treatment groups, however, it was significantly higher in treatment groups in subsequent four weeks. The average weekly live weight and weight gain of birds in group T1were significantly higher than in groups T2, T3 and control, showing beneficial effects of acidifier especially at higher level. In group T3 the nutrient concentration was reduced by 5%, which may be a reason for lower weight gain. The feed conversion ratio was narrow in group T1 during the whole experimental period which indicated better utilization of nutrients in the broilers supplemented with acidifiers @ 2kg/tonn.

0229. Kumar Rajesh; Birsa Agricultural University, Ranchi (India). Thakur, S.; Birsa Agricultural University, Ranchi (India). Sinha, A.K.; Birsa Agricultural University, Ranchi (India). Effect of Solvent Extracted Mustard Cake Feeding on Growth and Nutrient Utilization in Japanese Quail. Indian Journal of Animal Nutrition (India). (Mar 2011) v. 28(1) p. 107-109 KEYWORDS: QUAILS. OILSEED CAKES. ANIMAL FEEDING. NUTRITION PHYSIOLOGY.

Two hundred Japanese quail chicks of 3 weeks of age were divided randomly into 5 treatment groups comprising 4 replicates of 10 chicks in each. Groundnut cake of control ration (T1) was replaced at 50% level on protein equivalent basis by untreated solvent extracted mustard cake (SEMC) (T2), 0.4% copper sulphate treated (T3), 1% ferrous sulphate treated (T4) and combined copper sulphate and ferrous sulphate treated (T5) SEMC in experimental rations. Experimental feeding continued for 8 weeks followed by a metabolic trial. Average daily feed consumption did not differ significantly among groups. Average daily gain in body weights was 2.36 ± 0.04, 2.37 ± 0.07, 2.46 ± 0.07, 2.50 ± 0.05 and 2.54 ± 0.04 g in groups T1 to T 5, respectively, and variation among groups was not significant. The retention of nitrogen in different groups also did not differ significantly. However, average daily retention of calcium and phosphorous was significantly higher in ferrous sulphate treated SEMC fed group. It was concluded that solvent extracted mustard cake can replace 50%

protein of groundnut cake protein in the ration of Japanese quail and its treatment with copper sulphate or ferrous sulphate was advantageous.

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0230. Eswari, S.; Indian Veterinary Research Institute, Izatnagar (India). Saikumar, G.; Indian Veterinary Research Institute, Izatnagar (India). Sharma, G.T.; Indian Veterinary Research Institute, Izatnagar (India). Expression of messenger RNA encoding LIF receptor beta in buffalo preimplantation embryos produced in vitro. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 12-14 KEYWORDS: WATER BUFFALOES. GENE EXPRESSION. FERTILIZATION. IN VITRO.

Leukaemia inhibitory factor (LIF) is a pleotrophic cytokine from interleukin–6 family and plays an essential role during embryonic development and implantation. LIF exerts its biological effects via binding to a specific receptor system; LIF receptor beta (LIFRβ) and glycoprotein 130 (gp130). While LIFRβ serves as the specific binding unit for the LIF, the gp130 subunit is similarly used by other cytokines. The temporal expression pattern of genes for several growth factors and their receptors have been examined in pre-implantation buffalo embryos using RT- PCR. This study investigated the expression of buffalo LIFRβ in immature, in vitro matured oocytes and pre-implantation embryos. A pool of immature oocytes, matured oocytes, 2–4 cells, 8–16 cells, morulae and blastocyst were collected and used for total RNA isolation. The transcripts encoding LIFRb were detected by employing RT-PCR. LIFRβ mRNA were present during the pre-implantation stages of development from immature oocytes to the hatched blastocyst. The presence of functional LIFRb in the preimplantation embryos indicated the important role of cytokine LIF in embryo development.

0231. Maurya,V.P.; Central Sheep and Wool Research Institute, Avikanagar (India). Naqvi, S.M.K.; Central Sheep and Wool Research Institute, Avikanagar (India). Joshi, A.; Central Sheep and Wool Research Institute, Avikanagar (India). Mittal, J.P.; Central Sheep and Wool Research Institute, Avikanagar (India). Singh, V.K.; Central Sheep and Wool Research Institute, Avikanagar (India). Influence of thermal stress on estrus behaviour and fertility of native Malpura sheep under semi-arid region of India. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 15-18 KEYWORDS: SHEEP. OESTROUS CYCLE. HEAT STRESS.

Heat stress is a major limitation to reproductive function of sheep because it has deleterious effect on estrus incidences, estrus intensity and embryo production, which finally affects their productivity. Adult Malpura ewes (14) with an average body weight of 30.8 kg were randomly allocated into 2 groups of 7 each. Animals of group 1 were maintained under shed throughout the study while animals of group 2 were exposed to thermal stress (45°C/6 h/d) for 8 weeks in the hot chamber from 10: 00 to 16: 00 h and then taken back to the shed. All the animals were subjected to 15-days of pre-experimental period for getting them acclimatized to feed and micro-environment. The ewes were synchronized for estrus by administering 2 injections of PGF a (7.5 mg) at 10 days interval at their respective places. The onset of estrus, estrus duration and various sexual behaviours i.e. circling, tail fanning, head turning, standing and approaching to ram were recorded during the experiment. The ewes maintained under shed set in estrus earlier and had longer duration of estrus as compared to ewes exposed to thermal stress. The lambs born from the group 1 ewes had significantly higher birth weight than lambs from group 2 ewes. It is concluded from this study that exposure to heat stress treatment was sufficient to alter the onset of estrus, sexual behaviour, conception and lambing rates of ewes reared in the semi-arid tropical environment.

0232. Dixit, S.P.; National Bureau of Animal Genetic Resources, Karnal (India). Aggarwal, R.A.K.; National Bureau of Animal Genetic Resources, Karnal (India). Verma, N.K.; National Bureau of Animal Genetic Resources, Karnal (India). Vyas, M.K.; National Bureau of Animal Genetic Resources, Karnal (India). Rana,

Jyoti; National Bureau of Animal Genetic Resources, Karnal (India). Sharma, Anurodh; National Bureau of Animal Genetic Resources, Karnal (India). Chander, R.; National Bureau of Animal Genetic Resources, Karnal (India). Genetic variability and bottleneck analyses of Kanniadu goat breed based on microsatellite markers. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 40-43 KEYWORDS: GOATS. BREEDS (ANIMALS). GENETIC VARIATION. GENETIC MARKERS. MICROSATELLITES.

Genetic variation at 25 microsatellite loci was examined in Kanniadu goats of Tamil Nadu. The Kanniadu goat is a prolific meat breed thriving well in the tropical draught conditions. The observed number of alleles ranged from 5 (RM4) to 13 (RM088, OarE129) with an average value of 8.64±0.48. The effective number of alleles ranged from 1.45 (ILSTS34) to 7.89 (ILSTS033 and OMHC1) with the overall mean value of 4.22±0.34. The average observed and expected heterozygosity values were 0.53±0.03 and 0.73±0.02, respectively. The polymorphic information content value ranged from 0.30 to 0.86. These high values of PIC indicated higher polymorphism in the breed. Within population inbreeding estimate (Fis = 0.25) showed moderate level of inbreeding, which warranted adoption of appropriate breeding strategies under field conditions. The high level of genetic variability, however, suggested the scope for further genetic improvement of Kanniadu goats.

0233. Aravindakshan, T.V; Kerala Agricultural University, Thrissur (India). Simi, R.S.; Kerala Agricultural University, Thrissur (India). Binoy, A.M.; Kerala Agricultural University, Thrissur (India). Individual identification and paternity determination in Asian elephant by using microsatellite markers. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 44-47 KEYWORDS: ELEPHANTS. FATHERS. IDENTIFICATION. MICROSATELLITES.

The objective of this study was to set up a panel of highly polymorphic microsatellite markers suitable for individual identification and parentage verification in Asian elephant. A random sample of elephants was typed for 18 microsatellite loci known to be polymorphic either in African or in Asian elephant. The number of alleles varied from 3 to 18 with an average of 9.9 alleles per locus. The expected heterozygosity (He) values of the markers ranged from 0.568 to 0.927 and PIC values from 0.499 to 0.911. The locus specific mean paternity exclusion (PE) probabilities ranged from 0.299 to 0.852 with an average of 0.632. The cumulative mean exclusion probabilities for the 2 loci with the highest exclusion probabilities was 97.5, for the best 3 was 99.5, and for the best 5 exceeded 99.8. The cumulative individualization potential (PID) for the best 5 loci was 3.18×10^{-8}, which was equivalent to probability of 3.15×10^{-7} for selecting 2 identical genotypes in a reference population.

0234. Karanveer Singh; National Bureau of Fish Genetic Resources, Lucknow (India). Lakra, W.S.; National Bureau of Fish Genetic Resources, Lucknow (India). Gopalakrishnan, A.; National Bureau of Fish Genetic Resources, Lucknow (India). Modayil, Mohan Joseph; National Bureau of Fish Genetic Resources, Lucknow (India). Malakar, Abhishek K; National Bureau of Fish Genetic Resources, Lucknow (India). Sobti, R.C.; National Bureau of Fish Genetic Resources, Lucknow (India). Molecular identification and phylogenetic relationship of seahorse, Hippocampus kuda (Bleeker 1852) using mitochondrial 16S rRNA and COI gene sequences from east and west coasts of India. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 97-101 KEYWORDS: HIPPOCAMPUS (GENUS). GENETIC MARKERS. DNA HYBRIDIZATION.

Traditionally, fish species identification is based on morphological characters, yet, in many cases it is difficult to establish identity as in the case of seahorses which lack key species-diagnostic morphological features. The spotted or yellow seahorse - Hippocampus kuda has a complex identity and the samples collected from the east and west coasts of India were analyzed for the species identification and phylogenetic relationship, based on partial sequence information of mitochondrial genes - 16S rRNA and Cytochrome C Oxidase subunit I (COI). Estimates of genetic divergence with both 16S rRNA and COI genes, when compared with the sequence divergence values of H. kuda from other continents (as obtained from NCBI accessions) were sufficient enough to discriminate individuals of the same species from Indian waters. Pair-wise _ST values and AMOVA indicated significant levels of genetic differentiation of H. kuda populations among east

coast, Kerala and Konkan populations; however, no significant genetic partitioning was observed between the Palk Bay and Gulf of Mannar populations.

0235. Saha, Sujit; National Dairy Research Institute, Karnal (India). Joshi, B.K.; National Dairy Research Institute, Karnal (India). Avtar Singh; National Dairy Research Institute, Karnal (India). Incidence and consequences of inbreeding in Karan Swiss cattle. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 73-76 KEYWORDS: DAIRY CATTLE. CROSSBREDS. INBREEDING.

The data on 3168 Karan Swiss cows maintained at NDRI, Karnal during 1963–2000 were utilized to study the incidence and consequences of inbreeding. Out of total 3168 Karan Swiss animals, 16% animals (507) were found to be inbred with average inbreeding coefficient of 5.94%. Around 65% of the total inbreds have inbreeding coefficient 6%. Out of total inbred animals, 11% were found to be moderately inbred (inbreeding coefficient 6–12%) and 24% were highly inbred (inbreeding coefficient 12%). Incidence of inbreeding followed an increasing trend over the generations, whereas level of inbreeding reduced over the generations. Detrimental effect of inbreeding on various performance traits was observed at relatively higher level of inbreeding. The animals with inbreeding coefficient 12% were poorer with respect to various growth, first lactation production, reproduction traits and herd life. However, the effect of inbreeding was significant only for birth weight (BWT) in Karan Swiss, whereas, for other traits the effect was statistically nonsignificant. Regression of various performance traits on inbreeding indicated the deleterious effect of inbreeding on the respective traits. Regression coefficients were found significant for weight at first fertile service (WFS) and age at first calving (AFC).

0236. Singh, V.K.; Govind Ballabh Pant University of Agriculture and Technology, Pantnagar (India). Singh, C.V.; Govind Ballabh Pant University of Agriculture and Technology, Pantnagar (India). Sire evaluation using animal model and conventional methods for milk production in crossbred cattle. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 77-79 KEYWORDS: CATTLE. CROSSBREDS. SIRE EVALUATION. ANIMAL MODELS. STATISTICAL METHODS.

The present study was made to compare effectiveness of different methods of sire evaluation for milk production in crossbred cattle. Breeding values of sires for first lactation traits were estimated by least square method (LSM), best linear unbiased prediction (BLUP) and DFREML version 3.0- b. The estimated breeding value of sires estimated for the first lactation milk yield by LSM was adjudged as the most efficient and accurate. The results indicated that there was high degree of similarity in ranking of sires by these 3 methods.

0237. Dodamani, Mahesh S.; Karnataka Veterinary and Fishery Science University, Bidar (India). Veterinary College.Tandle, M.K.; Karnataka Veterinary and Fishery Science University, Bidar (India). Veterinary College.Mohteshamuddin, Khaja; Karnataka Veterinary and Fishery Science University, Bidar (India). Veterinary College. Honnappagol, S.S.; Karnataka Veterinary and Fishery Science University, Bidar (India). Veterinary College. Induction of fertile estrus in true anoestrus by re-utilization of crestar implants in she buffaloes. Veterinary World (India). (Jan 2011) v.4(1) p. 28-30 KEYWORDS: WATER BUFFALOES. INDUCED OVULATION.

The effect and economy of re-utilization of Crestar implant alone and in combination with PMSG for induction of fertile estrus in 30 true anoestrus she buffaloes was conducted in and around Bidar district of Karnataka state. The animals were randomly divided into three groups of ten animals each. The animals in Group 1 and 2 were injected with 500 mg progesterone intramuscularly followed by implantation of used Crestar on day 4 of progesterone administration and removed on day 9,whereas animals in Group 2 were injected with 500 IU PMSG on day 9 (the day of implant removal).whereas Group 3 served as control group. On removal of the implant, 70.00 % she buffaloes from Group 1 and 2 exhibited estrus (2.60 + 0.80 and 2.47 + 0.73 days)respectively. The animals were artificially inseminated twice with 12hrs interval and conception rate was 70% from animals of Group 1 and 2. No extra beneficial effect of PMSG was observed either on

estrus response or conception rate. None of the animals from Group 3 (control) showed estrus. The animals of Group 1 and 2 exhibited 25 and 45 % and 50 and 20% intense and intermediate estrus respectively with absolute conception, while 30 % of the animals in both the treated groups exhibited weak symptoms of estrus and failed to conceive. 70 % of the animals from both the groups had satisfactory arborization patterns with 66.67 percent conception. Whereas only 20 percent of the animals in both the groups showed good arborization patterns of cervico- vaginal mucus with absolute conception. None of the animals conceived expressing weak symptoms of estrus and missing arborization pattern in both the treated groups. It was concluded that utilized Crestar implant (for 7 days) can also be re-utilized to reduce the cost of treatment for induction of fertile estrus even with out PMSG in field conditions.

0238. Dhanda, Suman; National Dairy Research Institute, Karnal (India). Atreja, S.K.; National Dairy Research Institute, Karnal (India). Fatty acyl chains of phosphatidyl choline and ethanolamine as diacyl, alkyl and alkenyl forms during in vitro capacitation of goat spermatozoa. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81(2) p. 127-132 KEYWORDS: GOATS. SPERMATOZOA. SEMEN PRESERVATION. IN VITRO EXPERIMENTATION.

The fluidity of sperm plasma membrane increases during capacitation and acrosome reaction as these processes involve the remodeling of many proteins and phospholipid components. Therefore, we were interested in comparing the fatty acyl chains associated with phosphatidylcholine (PC) and phosphatidylethanolamine (PE) in capacited and acrosome reacted spermatozoa of goat. PC and PE were separated from total phospholipids (PL) during in vitro capacitation and acrosome reaction. Radyl acetates were prepared from diradyl derivatives after phospholipase C treatment of PC and PE in the presence of pyridine and acetic anhydride. The corresponding fatty acyl chains were analysed by gas liquid chromatography (GLC) in diacyl, alkenyl and alkyl radyl acetate by separation and methyl ester preparation. C 12 , C 14: 0 , C 16: 0 , C 18: 0 , C 20: 0 and C 24: 0 are saturated and C 16: 1 , C 18: 1 , and C were the main unsaturated fatty acyl chains. Moreover, the major fatty acyl chains of spermatozoa are different from those of surrounding fluid during the course of in vitro capacitation and acrosome reaction. The results clearly indicated the rapid turnover of these 2 sperm phospholipids in terms of active deacylation and reacylation reactions. These changes would definitely alter the sperm fertilizing ability. This may also generate bioactive PLs, viz. autocoids, fusogens, cis-unsaturated fatty acids, secondary messengers and detergents to accomplish the processes preceeding and succeeding fertilization. 20: 4.

0239. Yadav, D.K.; National Bureau of Animal Genetic Resources, Karnal (India). Arora, Reena; National Bureau of Animal Genetic Resources, Karnal (India). Bhatia, S.; National Bureau of Animal Genetic Resources, Karnal (India). GURMEJ SINGH; National Bureau of Animal Genetic Resources, Karnal (India). Short tandem repeat based analysis of genetic variability in Munjal—the threatened sheep population of Northwestern India. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81 (2) p. 171-175 KEYWORDS: SHEEP. LAND RACES. GENETIC VARIATION. MICROSATELLITES.

This paper examines the genetic variability at 25 microsatellite loci in Munjal - an important sheep of northwestern semi-arid region of India. Various genetic diversity estimates revealed high level of genetic variation within the investigated sheep population. The mean number of observed alleles (allele diversity) per microsatellite marker was 8.64 and that of effective alleles was 4.57. The average observed and expected heterozygosity (gene diversity) values were 0.712 and 0.744 respectively. The mean polymorphic information content value (0.721) further reflected high level of polymorphism across the loci. High heterozygosity values suggested low level of inbreeding and large number of alleles. Within the population, inbreeding estimate (F =0.034) further supported low level of inbreeding in the population. The Mode shift test showed that reduction in effective population size or a recent genetic bottleneck (40–80 generations) was unlikely in this sheep breed. Considerable level of genetic variability observed in the present study can be utilized in planning future breeding strategies of Munjal sheep especially in view of its threatened population status. In addition, information generated in the study can further be utilized for studying

differentiation and relationships among different Indian sheep breeds for the selection of priority breeds at national level to maximize genetic diversity to be conserved for the benefit of future generations.

0240. Prakashi, M.G.; Sri Venkateswara Veterinary University, Hyderabad (India). Narasimha Rao, G.; Sri Venkateswara Veterinary University, Hyderabad (India). Gupta, B.R.; Sri Venkateswara Veterinary University, Hyderabad (India). Venkatramaiah, A.; Sri Venkateswara Veterinary University, Hyderabad (India). Narasa Reddy, G.V.; Sri Venkateswara Veterinary University, Hyderabad (India). Chromosomal profile of Deccani sheep. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81 (2) p. 397-400 KEYWORDS:SHEEP. CHROMOSOME BANDING. CYTOGENETICS. KARYOTYPES.

The present study was conducted to standardize the karyotype profiles and various morphological and Inorphometric characters of chromosomes of Deccani sheep. The diploid chromosome number in Deccani sheep was 54. All the autosomes were acrocentric except the first three pairs, which were sub-metacentric. The X chromosome was the longest acrocentric, while Y-chromosorne was the slnallest hi-armed chromosome. Sex ofthe animal had a nonsignificant influence on the morphometric measurements of all the chromosomes, while the differences among the chromosomes were significant. The mean relative length of autosomes varied from 1.78 to 9.35%. The X- and Y- chromosomes contributed 5.05 and 1.70% of the total genome, respectively. The means for the ann ratio, centromeric index and morphological index of the sub-metacentric autosomes 1, 2 and 3 varied from 1.17 to 1.20, 0.54 to 0.55 and 9.40 to 11.57, respectively. The G-banding pattern ofthe chromosomes in Deccani sheep more or less matched with the standard karyotypes. All the autosomes revealed centromeric C-hands. The nucleolar organizer regions were detected on chromosomes 1, 2,3,4 and 25.

0241. Sharma, A.; Jawahar Lal Nehru Krishi Vishwavidhyalaya, Jabalpur (India). Shukla, S.N.; Jawahar Lal Nehru Krishi Vishwavidhyalaya, Jabalpur (India). Agrawal, R.G.; Jawahar Lal Nehru Krishi Vishwavidhyalaya, Jabalpur (India). Joseph, E.;Jawahar Lal Nehru Krishi Vishwavidhyalaya, Jabalpur (India). Sarkhel, B.C.;Jawahar Lal Nehru Krishi Vishwavidhyalaya, Jabalpur (India). Fertility response on administration of insulin in repeat breeding crossbred cows. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81 (2) p. 168-170 KEYWORDS: CATTLE. REPRODUCTIVE PERFORMANCE. GNRH.

The present study found trends of beneficial effect of insulin on fertility response in repeat breeder cows. Also, supra-basal concentration of progesterone at estrus may be used as a marker for prediction of repeat breeding in cows.

0242. Pandey, A.K.; National Bureau of Animal Genetic Resources, Karnal (India). Sharma, Rekha; National Bureau of Animal Genetic Resources, Karnal (India). Singh, L.V.; National Bureau of Animal Genetic Resources, Karnal (India). Maitra, A.; National Bureau of Animal Genetic Resources, Karnal (India). Mishra, B.P.; National Bureau of Animal Genetic Resources, Karnal (India). Kumar, D.; National Bureau of Animal Genetic Resources, Karnal (India). Estimation of genetic variability parameters in Kumaun hill cattle (Kumauni cattle) by STR markers. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81 (2) p. 194-195 KEYWORDS: CATTLE. GENETIC PARAMETERS. MICROSATELLITES. LAND RACES. INDIA.

Microsatellite data on 23 loci was generated and utilized to evaluate the genetic variability of Kumaun cattle. Sufficient allelic diversity was observed with a mean number of 9.652 alleles per locus. The mean observed heterozygosity in the population was 0.664, reflecting reasonable within breed genetic diversity. Population showed little heterozygote deficiency (F , 0.082) and deviated from HWE at 12 investigated loci.

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0243. Behera, Suvendu Kumar; Indian Veterinary Research Institute, Izatnagar (India). Division of Veterinary Medicine. Dimri, Umesh; Indian Veterinary Research Institute, Izatnagar (India). Division of Veterinary Medicine. Kataria, Meena; Indian Veterinary Research Institute, Izatnagar (India). Division of Animal

Biochemistry. In vivo immunostimulatory effects of alcoholic extract of Tinospora cordifolia against CdCl2-induced immunosuppression in mice. Indian Journal of Veterinary Research (India). (Jan-Jun 2012) v. 21(1) p.60-65 KEYWORDS: OXIDATION. STRESS. IMMUNOLOGICAL DISEASES. TINOSPORA. MICE.

The present study was done to assess the immunomodulatory and ameliorative potential of Tinospora cordifolia against CdCI2 intoxicated Swiss albino mice. Fifty mice were divided into five groups of ten each where group I served as control, group II treated with 100 ppm of CdCl2 every alternate day for six weeks and group III, IV and V were initially treated with methanolic extract of T. cordifolia 00, 250 and 500 mglkg body weight for first two weeks. From second week onwards group III, IV and V were treated with T. cordifolia extract at above mentioned dose rates along with additional supplementation of 00ppm of CdCl2 for next four weeks making a total duration of experiment to be six weeks. Positive effects were observed on both cellular as well as humoral immune responses with improved 'oxidant-antioxidant balance in the treatment groups showing promising immunostimulatory effects of methanolic extract of T. cordifolia.

0244. Das, A.K.; Indian Veterinary Research Institute, Izatnagar (India). Majumdar, N.K.; Indian Veterinary Research Institute, Izatnagar (India). Reduced glutathione, glucose-6-phosphate dehydrogenase and hemoglobin in Indian buffaloes. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81(2) p. 123-126 KEYWORDS: WATER BUFFALOES. GLUTATHIONE. HAEMOGLOBIN. PHENOTYPES. LAND RACES.

The reduced glutathione, G-6-PD enzyme activity and hemoglobin level were estimated in 6 different breeds of buffaloes. The overall reduced glutathione level in buffaloes was 19.76±0.12 mg/100 ml blood, with the highest in Murrah (22.79±0.35) followed by Badhawari (21.64±0.48), Nili-Ravi (21.49±0.72), Surti (19.76±0.53), Jaffarabadi (19.35±0.46) and lowest in non-descript breeds as 18.86±0.14. The effect of breed was highly significant on reduced glutathione level. Higher level of reduced glutathione was in young animals as compared to calves and adults. Three G6-PD phenotypes determined by screening test on the basis of blood enzyme activity level were normal, heterozygote and deficient types. The G-6-PD activity was highest in the normal phenotype and lowest in deficient phenotype. Whereas the heterozygote phenotype was intermediate. The effect of breeds, age groups, health status and G-6-PD phenotypes were significant on hemoglobin and reduced glutathione while the effect of breeds, age groups and sex was nonsignificant on G-6-PD activity. Healthy animals showed higher levels of G-6-PD activity, reduced glutathione level and haemoglobin concentration. Significant correlations were found between reduced glutathione level with hemoglobin and G-6-PD activity in different breeds, age groups, health status and sex.

L51 Animal physiology – Nutrition

0245. Ingale, S.L.; Indian Veterinary Research Institute, lzatnagar (India). Division of Animal Nutrition. Singh, P.; Indian Veterinary Research Institute, lzatnagar (India). Division of Animal Nutrition.Verma, A.K.; Indian Veterinary Research Institute, lzatnagar (India). Division of Animal Nutrition.Mehra, U.R.; Indian Veterinary Research Institute, lzatnagar (India). Division of Animal Nutrition.Sharma, Nitika; Indian Veterinary Research Institute, lzatnagar (India). Division of Medicine. Effects of plane of nutrition on IL-2 and IL-IO expression in Fasciola gigantica infected calves as determined by real-time PCR. Indian Journal of Veterinary Research (India). (Jan-Jun 2012) v. 21(1) p.16-21 KEYWORDS: CATTLE. FASCIOLA GIGANTICA. PCR.

The effects of plane of nutrition on the expression of interleukin-2 (IL-2) and interleukin- 10 (IL-1O)in crossbred (Bos taurus x Bos indicus) calves infected with Fasciola gigantic was investigated. Animals in groups I and II were fed with 100 % of NRC (National Research Council) requirement while the group III were fed on 125% of NRC requirement. IL-2 and IL-10 were measured during early phase (30 days post infection) and chronic phase (75 days post infection) of infection by real-time polymerase chain reaction. The IL-2 was not detected in peripheral blood mononuclear cells (PBMCs) of calves at d 30 and 75 post infection and control groups. The IL-10 was detected in PBMCs of infected groups at d 30 and 75 post infection. There was no significant difference (P0.05) in the expression of IL-1O cytokine in both the infected groups provided

with different NRC requirements. The findings suggested the plane of nutrition had no effect on Th2 response to F. gigantica infection.

0246. Shete, S.M.; National Dairy Research Institute, Karnal (India). Dairy Cattle Nutrition Division. Tomar S.K.; National Dairy Research Institute, Karnal (India). Dairy Cattle Nutrition Division. Siroh,i S.K.; National Dairy Research Institute, Karnal (India). Dairy Cattle Nutrition Division. Thakur, S.S.; National Dairy Research Institute, Karnal (India). Dairy Cattle Nutrition Division. Rumen Degradation Kinetics of Feedstuffs as Estimated by in situ and in vitro Gas Production Techniques. Indian Journal of Animal Nutrition (India). (Mar 2011) v. 28(1) p. 34-38 KEYWORDS: BIODEGRADABILITY. RUMEN DIGESTION. DIGESTIBILITY. IN VIVO EXPERIMENTATION.

The rumen fermentation kinetics of thirteen feed ingredients was studied by two techniques. The organic matter degradability of the feedstuffs was estimated by nylon bag technique (NBT) while the gas production was estimated by in vitro technique (IVGPT). The OM degradation and gas production kinetic parameters were calculated by first order exponential model. The rapidly soluble 'a' fraction was maximum in mustard cake (52.2%) and minimum in maize grain (10.0%) and wheat straw (8.7%). Potentially degradable 'b' fraction was higher in grains (66.1% and 76.3%) than in cakes and fodders. The rate of degradation was higher in cakes and grains (except maize grain) than in fodders. The potential gas production was higher in grains (79.5 and 77.3 ml). The rate of gas production was higher in cakes than grains and fodders. The correlation coefficient (r) between OM degradability by NBT and gas production by IVGPT was more than 0.9 for most of the feed ingredients showing a greater degree of linear correlation between them. The linear regression of OM degradation kinetic parameters on extent and rate of gas production was significant ($P < 0.01$). Regression equations were derived between extent of gas production (B_{gas}) and potential OM degradation (b); and rate of gas production (C_{gas}) and instantly soluble OM fraction (a), rate of OM degradation (c) and effective OM degradability (EOMD). It was concluded that NBT can be replaced by IVGPT to assess OM degradation kinetics of feedstuffs.

0247. Sonawane, P.; Indian Veterinary Research Institute, Izatnagar (India). Division of Physiology and Climatology.Nath, N.C.; Indian Veterinary Research Institute, Izatnagar (India). Division of Physiology and Climatology.Hooda, O.K.; Indian Veterinary Research Institute, Izatnagar (India). Division of Physiology and Climatology. . Effect of Vitamin C Supplementation on LDH Activity in Buffaloes Exposed to Thermal Stress. Indian Journal of Animal Nutrition (India). (Mar 2011) v. 28(1) p. 51-53 KEYWORDS: WATER BUFFALOES. HEAT STRESS. HEAT. ASCORBIC ACID. LACTATE DEHYDROGENASE.

Eighteen adult Murrah buffaloes divided into three groups of six each. Group I and group II were exposed at 40°C in a climatic chamber. Buffaloes in group II were supplemented with L-Ascorbyl 2 Phosphate 20 g/animal/day, while those in group III, kept in shed (January-February), served as control. The differences in LDH activity before exposure to thermal stress were statistically non-significant among groups. After exposure to thermal stress LDH activity increased significantly in group I than in group III. The LDH activity in group II was higher but statistically non-significant than that in group III. However, LDH activity of group II was significantly lower than that in group I. The significantly lower LDH activity in vitamin C supplemented heat exposed buffaloes indicated a counterbalancing action of vitamin C to prevent cell damage during thermal stress.

L52 Animal physiology - Growth and development

0248. Kharde, S.D.; MAFSU, Nagpur Veterinary College, Seminary Hills, Nagpur (India). Departmentof Veterinary Physiology. Shirbhate, R.N.; MAFSU, Nagpur Veterinary College, Seminary Hills, Nagpur (India). Departmentof Veterinary Physiology. Bahiram, K.B.; MAFSU, Nagpur Veterinary College, Seminary Hills, Nagpur (India). Departmentof Veterinary Physiology. Nipane, S.F.; MAFSU, Nagpur Veterinary College, Seminary Hills, Nagpur (India). Departmentof Veterinary Physiology. Effect of Spirulina supplementation

on growth performance of broilers. Indian Journal of Veterinary Research (India). (Jan-Jun 2012) v. 21(1) p.66-69 KEYWORDS: BROILER CHICKENS. FEED CONVERSION EFFICIENCY. GROWTH. SPIRULINA.

The experimental trial of six weeks was undertaken on 90 broiler chicks divided into three groups. Control (To) group was fed standard broiler diet and T1 and T2 groups were provided same broiler diet supplemented with 300 and 500 mg of Spirulina per kg feed, respectively. Mean live body weight of six weeks of the experiment and live weight at the end of experiment were found to be significantly (P0.05) higher in Spirulina supplemented T1 and T2 groups of broilers than that of control (To) group. Comparatively better mean weekly weight gain and feed efficiency were also observed in Spirulina supplemented groups (T1 and T2)with decreased feed consumption as compared to control (To) group of broilers.

L70 Veterinary science and hygiene

0249. Asif, M.A.; Karnataka Veterinary, Animal and Fisheries Sciences University, Veterinary College, Bidar (India). Dilipkumar, D.; Karnataka Veterinary, Animal and Fisheries Sciences University, Veterinary College, Bidar (India). Shivaprakash, B.V.; Karnataka Veterinary, Animal and Fisheries Sciences University, Veterinary College, Bidar (India). Department of Surgery and Radiology. Usturge, S.M.; Karnataka Veterinary, Animal and Fisheries Sciences University, Veterinary College, Bidar (India). Kasaralikar, Vivek R.; Karnataka Veterinary, Animal and Fisheries Sciences University, Veterinary College, Bidar (India). Department of Veterinary Clinical Medicine Ethics and Jurisprudence.Raidurg. Ravi; Karnataka Veterinary, Animal and Fisheries Sciences University, Veterinary College, Shivamoggaa (India). Department of Surgery and Radiology. Clinical evaluation of static and dynamic veterinary intramedullary interlocking nailing technique for femoral fracture repairs in dogs. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.94-98 KEYWORDS: DOGS. FRACTURES. DIAGNOSIS.

The study was conducted on 24 clinical cases of dogs with diaphyseal femoral fracture, divided into four groups consisting of six animals each. Group I animals with transverse diaphyseal femoral fracture were treated with static intramedullary interlocking nailing with one proximal and one distal bolt. Group II animals were treated with dynamic intramedullary interlocking nailing with two distal bolts. Group III animals with oblique diaphyseal femoral fractures were treated with static intramedullary interlocking nailing with one proximal and one distal bolt and ancillary cerclage wiring at the fracture site. Animals of group IV weretreatedwith two distal bolts and an ancillary cerclage wiring at the fracture site. Bony union by negligible callus and early bone remodeling was the characteristic finding in groups I and III, where static intramedullary interlocking nailing was used. Bony union by large periosteal callus and early bone remodeling was characteristic finding in groups II and IV, where dynamic intramedullary interlocking nailing was used.

0250. Singh, Sarbjit; Veterianry Practitioner, Gurgaon (India). Singh, Kuldip; Lala Lajpat Rai University of Veterinary and Animal Sciences, College of Veterinary Sciences, Hisar (India). Department of Veterinary Surgery and Radiology. Kumar, Ashok; Lala Lajpat Rai University of Veterinary and Animal Sciences, College of Veterinary Sciences, Hisar (India). Department of Veterinary Surgery and Radiology. Singh, Jit; Maharana Pratap University of Agriculture and Technology, Udaipur (India). Singh, Sukhbir; Lala Lajpat Rai University of Veterinary and Animal Sciences, College of Veterinary Sciences, Hisar (India). Department of Veterinary Surgery and Radiology .Peshin, P.K.; Lala Lajpat Rai University of Veterinary and Animal Sciences, College of Veterinary Sciences, Hisar (India). Department of Veterinary Surgery and Radiology. Evaluation of atropine-acepromazine-xylazine-ketamine combination for general anaesthesia in buffalo calves. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p. 99-102 KEYWORDS: ATROPINE. WATER BUFFALOES. CALVES. KETAMINE. XYLAZINE.

The study was undertaken in 12 male buffalo calves by administering atropine (0.04 mg/kg, i.m.) followed by acepromazine(Q.04 mg/kg, i.m.), xylazine (0.04 mg/kg, i.v.) and ketamine(2.0 mg/kg, i.v.). The calves attained sternal recumbency with chin on ground at 1.49 +- 0.90 min after xylazine-ketamine

adminstration. Corneal and palpebral reflexes were lost at 8.25+-O.62 min after xylazine-ketamine administration with complde analgesia at 9.33+- 2.44 min. Complete recovery took 48.31+-2.73 min. Plasma glucose and sodium levels were significantly increased after 10 min of xylazine-ketamine administration and at recovery. Plasma potassium leve was significantly lower 10 min after acepromazine administration, and remained lower at recovery and even at 24 hr after drug administration. There was significant increase in heart rate at 10 min after acepromazine administration as compared to the base value, followed by decrease at 20 min after xylazine-ketamine administration. The mean arterial pressure also showed significant decrease at 20 min after xylazine-ketamine administration. It was concluded that the combination in safe for use in buffalo calves.

0251. Singh, M.; Madhya Pradesh Pashu Chikitsa Vigyan Vishwa Vidyalaya, College of Veterinary Science & Aanimal Husbandry, Jabalpur (India). Department of Veterinary Surgery and Radiology. Bhargava, M.K.; Madhya Pradesh Pashu Chikitsa Vigyan Vishwa Vidyalaya, College of Veterinary Science & Animal Husbandry, Jabalpur (India). Department of Veterinary Surgery and Radiology. Sahi, A.; Madhya Pradesh Pashu Chikitsa Vigyan Vishwa Vidyalaya, CVSc & AH, Jabalpur (India). Department of Veterinary Surgery and Radiology.Jawre, S.; Madhya Pradesh Pashu Chikitsa Vigyan Vishwa Vidyalaya, CVSc & AH, Jabalpur (India). .Department of Veterinary Surgery and Radiology.Singh, R.; Madhya Pradesh Pashu Chikitsa Vigyan Vishwa Vidyalaya, CVSc & AH, Jabalpur (India). Department of Veterinary Surgery and Radiology. Chandrapuria,V.P.; Madhya Pradesh Pashu Chikitsa Vigyan Vishwa Vidyalaya, CVSc & AH, Jabalpur (India). Department of Veterinary Surgery and Radiology. Kocchar, G.; Triveni Hospital, Jabalpur (India). Efficacy of low level LASER therapy on wound healing in dogs. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.103-106 KEYWORDS: DOGS. LASERS. THERAPY. WOUNDS. HEALING.

The study was undertaken to assess the efficacy of low level LASER therapy on wound healing in 30 dogs.The dogswere randomly divided into five groups, each consisting of six dogs. The dogs of group 1 were treated as control, whereas the dogs of groups II, III, IV and V were treated with low level LASER therapy for 2 min, 10 Hz, 1.2 Joules;4 min, 10 Hz, 2.4 Joules;2 min,30 Hz, 1.2 Joules; and 4 min, 30 Hz, 2.4 joules, respectively.The clinical parameters were recorded on day 0 (control) and subsequently on days 3rd,5th,7th, 10th and 14th in the animals of all groups. Increased healing percentage, decreased inflammation and exudation with clinically no scab during healing and minimal scar at wound site after healing, early regeneration of granulation tissue, better organization, compactness and intense epithelial regeneration were observed in dogs treated with laser therapy as compared to control animals. Significant increase in rectal temperature with non-significant variation in pulse and respiratory rates were observed in all the groups. The maximum decrease in the size of the wounds was observed in groups III and V, with a maximum healing rate of 94.84% and 88.01%, respectively up to 14 days,with maximum efficacy at 4 min, 10 Hz, 2.4 joules protocol followed by 4 min, 30 Hz, 2.4 joules.

0252. Singh, Sunil; N.D.University of Agriculture and Technology, College of Veterinary Science & Animal Husbandry. Kumarganj, Faizabad (India). Singh, H.N.; N.D.University of Agriculture and Technology, College of Veterinary Science & Animal Husbandry. Kumarganj, Faizabad (India). Gangwar, A.K.; N.D.University of Agriculture and Technology, College of Veterinary Science & Animal Husbandry. Kumarganj, Faizabad (India). Devi, Kh. Sangeeta; N.D.University of Agriculture and Technology, College of Veterinary Science & Animal Husbandry. Kumarganj, Faizabad (India). Teaching Veterinary Clinical Complex. Niyogi, D.; N.D.University of Agriculture and Technology, College of Veterinary Science & Animal Husbandry. Kumarganj, Faizabad (India). Dept. of Veterinary Pathology.Waghaye, J.Y.; N.D.University of Agriculture and Technology, College of Veterinary Science & Animal Husbandry. Kumarganj, Faizabad (India). Department of Veterinary Anatomy. Effect of Uraria picta on bone healing in rabbits: a radiographic, angiographic and histopathological study. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.107-110 KEYWORDS: HEALING. BONES. RABBITS. RADIOGRAPHY.

The study was conducted on 18 New Zealand white rabbits divided into groups 1 and 2 consisting of 9 animals each. Under thiopentone anaesthesia(2.5%) osteotomy of ulna was created in each animal. The animals of group 1 were fed with powdered stem and leaves of Uraria picta alongwith rabbit feed throughout the study period. In animals of group 2 only rabbit feed was given. Bone healing was assessed by radiography,angiography and histopathological examination at 7, 14, 21 and 28 day intervals. In group 1 animals at day 28 the osteotomy gap was filled completely and exogenous soft tissue vascularity was near normal; histopathologically, the newly formed bone appeared more or less compact. However, in group 2 animals the compact trabecular bone was less mature than the adjacent cortical bone. The results suggest that feeding of drystem and leaves of Uraria picta enhances bone healing in rabbits.

0253. Vedpathak, H.S.; Anand Agricultural University, College of Veterinary Sciences and Animal Husbandry, Anand (India). .Tank, P.H.; Anand Agricultural University, College of Veterinary Sciences and Animal Husbandry, Anand (India). Department of Veterinary Surgery and Radiology.Karle, A.S.; Anand Agricultural University, College of Veterinary Sciences and Animal Husbandry, Anand (India). .Bhatia, Ami; Anand Agricultural University, College of Veterinary Sciences and Animal Husbandry, Anand (India). .Desai, B.D.; Anand Agricultural University, College of Veterinary Sciences and Animal Husbandry, Anand (India). Clinical evaluation of tie-in configuration and intramedullary pinning for stabilization of femoral fractures in dogs. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.111-113 KEYWORDS: DOGS. FRACTURES.

Clinical assessment of fracture repair using intramedullary pinning and tie-in configuration technique was carried out in 12 clinical cases of diaphyseal femoral fractures in dogs. The dogs were randomly divided into 2 groups of 6 animals each. In group I, intramedullary pinning was carried out whereas in group II, tie-in configuration technique was carried out. Serosanguinous discharge was noted at entry points in all the dogs of group II. All the dogs showed sever pain up to the 2nd post operative day which subsided by 14th postoperative day in dogs of group I whereas it was still evident in dogs of group II. The earlier return to the functional usage of the limb was observed in dogs of group II as compared to those of group 1. Most of the dogs of group I when observed post operatively had mal-alignment either in the form of impacted fracture fragments or rotation of the distal fragment. Good post operative alignment was observed in most of the dogs of group II throughout the study, in spite of loosening of transftxation pin in 3 of the 6 dogs.

0254. Karle, A.S.; Anand Agricultural University, College of Veterinary Sciences and Animal Husbandry, Anand (India). Tank, P.H.; Anand Agricultural University, College of Veterinary Sciences and Animal Husbandry, Anand (India). Department of Veterinary Surgery and Radiology. Vedpathak, H.S.; Anand Agricultural University, College of Veterinary Sciences and Animal Husbandry, Anand (India). Bhatia, A.; Anand Agricultural University, College of Veterinary Sciences and Animal Husbandry, Anand (India). Use of computerized radiography in diagnosis of foot lameness in horses. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2)p.114-116 KEYWORDS: RADIOGRAPHY. FEET. MOVEMENT DISORDERS. HORSES.

Six adult lame horses of either sex were included in the present study on survey radiography of the digital region. Radiography of the digital region of fore limbs and hind limbs of the horses was performed in latero-medial and orthogonal views using Computed radiography. All the radiographs were interpretated and evaluated contemplating on the basis of history. Additionally, morphometric measurements of the phalanges based on radiographic images from abnormal horses was recorded. The radiographs of six horses with the history of lameness showed various abnormalities viz. ring bones, side bones, quittor with sinus tract, pedal bone periostitis and osteoporosis. The radioosteometry provided baseline data of normal radiographic morphometry. Thehorn-laminar diameter and palmar angle were found to be higher in lame horses, whereas sole depth was more in a horse having infectious degeneration of the frog. Based on the results, it was concluded that the radiographic assessment of lame horses is important for prognostic prediction of the pathology and correct diagnosis of foot lameness. The morphometric evaluation may serve

as referencefor comparative assessment of osteopathies, which lead to change in size, shape and contour of the phalanx.

0255. Suneja, B.B.; Indian Veterinary Research Institute, Izatnagar (India). Division of Surgery. Amarpal; Indian Veterinary Research Institute, Izatnagar (India). Division of Surgery. Rathore, R.; Indian Veterinary Research Institute, Izatnagar (India). Kinjavdekar, P.; Indian Veterinary Research Institute, Izatnagar (India). Division of Surgery.Aithal, H.P.; Indian Veterinary Research Institute, Izatnagar (India). Division of Surgery.Pawde, A.M.; Indian Veterinary Research Institute, Izatnagar (India). Division of Surgery. Survey on microbial inhabitants of common surgical conditions in dogs and cattle. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.121-123 KEYWORDS: CATTLE. DOGS. SURGICAL OPERATIONS.

The present study was conducted to record the presence of microbial inhabitants of the healthy skin and some common surgical conditions in dogs and cattle. Staphylococcus, Streptococcus, Pseudomonas and candida species were the common inhabitants of the normal ear canal, but frequency of Pseudomonas and fungal infection increased in otitic ears. S. pyogenes, S. epidermidis and Proteus spp. were isolatedfrom the perianal region in the normal dogs, but Proteus, S. pyogenes and Pseudomonas were the main bacteria isolated from the cases of perianal fistula. S. epidermidis was the most frequently isolated organism from the normal skin in dogs. The most frequently isolated organisms from other conditions of dogs were Staphylococcus spp. and Proteus spp. The organisms isolated from the control site in cases of cattle included Citro bacter freundii, Coliforms and Staphylococcus spp.While Streptococcus pyogenes and Proteus spp. were the most common bacteria in the specimens taken from the different conditions in cattle.

0256. Rana, Rajesh; CSK Himachal Pradesh Agriculture University, Palampur (India). Department of Surgery and Radiology.Varshney, A.C.; CSK Himachal Pradesh Agriculture University, Palampur (India). Dr. G.C Negi College of Veterinary and Animal Sciences. Tyagi, S.P.; CSK Himachal Pradesh Agriculture University, Palampur (India). Department of Surgery and Radiology. Kumar, Amit; CSK Himachal Pradesh Agriculture University, Palampur (India). Department of Surgery and Radiology. Kanwar, M.S.; CSK Himachal Pradesh Agriculture University, Palampur (India). Department of Surgery and Radiology. Efficacy of seabuckthorn seed and pulp oil in the healing of aseptic excisional cutaneous wounds in calves. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.124-126 KEYWORDS: COWS. CALVES. HIPPOPHAE.

Seabuckthorn (SBT) seed and pulp oil were evaluated for their wound healing property in full thickness cutaneous excisional wounds in cow calves in comparison to liquid paraffin and 5% povidone iodine ointment. The efficacy of these treatments was monitored by clinical and haematological parameters at 0, 3rd,7th,10th,14th,21stand 28th day of experiment. In animals of four groups, the rectal temperature, heart rate, respiratory rate, Hb, PCV, TLC, TEC and DLC values were within normal physiological range. Grossly the degree of exudation was less pronounced in case of SBT seed oil and SBT pulp oil groups as compared to liquid paraffin and 5% povidone-iodine treated groups. There were less pronounced inflammatory signs in 5% povidone-iodine,SBT seed oil and pulp oil groups as compared to liquid paraffin treated group. SBT seed oil group and pulp oil group showed early shedding of scab as compared to other groups. Better healing response, which included better granulation, epithelization and per cent wound contraction was seen in SBT seed oil and pulp oil treated groups as compared to control.

0257. Singh, Jagmohan; CSK Himachal Pradesh Agriculture University, DGCN College of Veterinary and Animal Sciences, Palampur (India). Department of Surgery and Radiology.Sharma, S.K.; CSK Himachal Pradesh Agriculture University, DGCN College of Veterinary and Animal Sciences, Palampur (India). Department of Surgery and Radiology. Kumar, Adarsh; CSKHimachal Pradesh Agriculture University, DGCN College of Veterinary and Animal Sciences, Palampur (India). Department of Surgery and Radiology. Kumar, Amit; CSK Himachal Pradesh Agriculture University, DGCN College of Veterinary and Animal Sciences, Palampur (India). Department of Surgery and Radiology.Varshney, A.C.; CSKHimachal Pradesh Agriculture University, DGCN College of Veterinary and Animal Sciences, Palampur (India). Department of Surgery and

Radiology.Cardiovascular and electroencephalographic effects of medetomidine hydrochloride in neonatal calves. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.127-128 KEYWORDS: BLOOD. BLOOD PRESSURE. CALVES. ELECTROCARDIOGRAPHY. ANALGESICS.

Medetomidine hydrochloride was used in six neonatal male cow calves10 mg/kg b.wt, i.m. Bradycardia and initial hypertension followed by hypotension were noticed. Electrocardiographic studies showed increase in various time interval parameters. Electroencephalographic studies revealed profound sleep and decreased brain activity.

0258. Sooryadas, S.; Madras Veterinary College, Chennai (India). Dept. of Veterinary Surgery and Radiology.Amma, T. Sarada; Kerala Agricultural University, College of Veterinary and Animal Sciences, Mannuthy, Thrissur (India). Dept. of Veterinary Surgery and Radiology. Rajankutty, K.; Kerala Agricultural University, College of Veterinary and Animal Sciences, Mannuthy, Thrissur (India). Dept. of Veterinary Surgery and Radiology. Gopakumar, N.; Kerala Agricultural University, College of Veterinary and Animal Sciences, Pookot, Wyanad (India). Dept. of Veterinary Pharmacology and Toxicology. Nayar, K.N.M.; Kerala Agricultural University, College of Veterinary and Animal Sciences, Mannuthy, Thrissur (India). Dept. of Veterinary Surgery and Radiology. Electrocardiogram changes during xylazine-propofol anaesthesia in dogs: a clinical study. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.129-130 KEYWORDS: DOGS. ELECTROCARDIOGRAPHY. XYLAZINE. ANAESTHESIA.

Fifteen dogs of different breeds and of either sex presented for surgery were divided into two groups, group I and group II. Eight apparently healthy dogs undergoing elective surgery formed the first group, while seven dogs undergoing surgery with compromised health status formed the second group. All were premedicated with atropine sulphate and xylazine, followed 10 min later by induction of general anaesthesia with intravenous injection of 1% w/v propofol 'to effect' and was maintained with incremental dose(s)of propofol as intermittent boli as and when required. ECG was recorded using Lead II system at a paper speed of 25 mm/s before and after premedication and every 15 min after anaesthetic induction, till recovery. The changes observed were tachycardia, bradycardia with 2nd degree heart block, wandering pacemaker, ventricular pre-excitation, atrial premature contraction, ST coving, biphasic T waves and peaked T waves.

0259. Udehiya, Rahul Kumar; Guru Angad Dev Veterinary and Animal Sciences University, College of Veterinary Sciences. Ludhiana (India). Department of Veterinary Surgery and Radiology. Mohindroo, J.; Guru Angad Dev Veterinary and Animal Sciences University, College of Veterinary Sciences. Ludhiana (India). Department of Veterinary Surgery and Radiology. Singh, S.S.; Guru Angad Dev Veterinary and Animal Sciences University, College of Veterinary Sciences. Ludhiana (India). Department of Veterinary Surgery and Radiology. Radiographic and ultrasonographic features of reticular abscess in bovines: A report of four clinical cases. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.131-132 KEYWORDS: BOVINAE. RADIOGRAPHY. ULTRASONICS. ECHOGRAPHY.

The study was conducted in four adult bovines clincially suspected for reticular abscess. Radiography and ultrasonography were found useful and complemented each other for diagnosis of reticular abscess.

0260. Zama, M.M.S.; Indian Veterinary Research Institute, Izatnagar (India). Division of Surgery. Ansari, M.M.; Indian Veterinary Research Institute, Izatnagar (India). Division of Surgery.Hoque, M.; Indian Veterinary Research Institute, Izatnagar India). Division of Surgery.Aithal, H.P.; Indian Veterinary Research Institute, Izatnagar (India). Division of Surgery. Maiti, S.K.; Indian Veterinary Research Institute, Izatnagar (India). Division of Surgery.John, R.; Indian Veterinary Research Institute, Izatnagar India). Division of Surgery.Shakya, G.; Indian Veterinary Research Institute, Izatnagar (India). Division of Surgery. Clinical evaluation of ultrasound therapy in equine peripheral myopathy. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2)p.133-134 KEYWORDS: MUSCULAR DISEASES. ULTRASONICS. THERAPY.

Ultrasound therapy MHz, 1watt/cm2 intensity, when given along with conventional supportive medication, resulted in rapid and early resolution of peripheral myopathy in horses.

0261. Sharma, A.K.; R V C. Kanke, Ranchi (India). Department of Surgery and Radiology. Gupta, O.P.; Indian Veterinary Research Institute, Izatnagar (India). Division of Surgery.Singh, G.R.; College of Veterinary and Animal Sciences, Aizawl, Mizoram (India). Maiti, S.K.; Indian Veterinary Research Institute, Izatnagar (India). Division of Surgery. Pawde, A.M.; Indian Veterinary Research Institute, Izatnagar (India). Division of Surgery. Effectiveness of therapeutic ultrasound in the treatment of paraparesis in dogs. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.135-137 KEYWORDS: DOGS. BLOOD. ULTRASONICS.

A total of 16 clinical cases, comprising of 8 animals each in groupI (animals paraparesis, which could stand, and had staggeringgait) and II (which were unable to stand and dragged hind legs while walking) were treated with therapeutic ultrasound.The intensity of 1.5-2.0 Watts/cm 2 was used for treatment.The treatments were given biweekly for 5-10 min till the discharge of the case. The response to treatment was faster in group II (75%) compared to group I (50%). It was concluded that the dogs which were unable to stand and dragged hind legs(group11)responded better than the dogs which had staggering gait (group 1). Haematobiochemical and physiological changes were transient and suggested no advers effect of therapeutic ultrasound on body systems.

0262. Kumar, Deepesh; UP. Pt. Deen Dayal Upadhayay Pashu Chikitsa Vigyan Vishvavidyalay Evam Go-Anusandhan Sansthan, College of Vet. Sciences, Mathura (India). Department of Surgery and Radiology.Kumar, Gulshan; UP. Pt. Deen Dayal Upadhayay Pashu Chikitsa Vigyan Vishvavidyalay Evam Go-Anusandhan Sansthan, College of Vet. Sciences, Mathura (India). Department of Surgery and Radiology.Malik, Vivak; UP. Pt. Deen Dayal Upadhayay Pashu Chikitsa Vigyan Vishvavidyalay Evam Go-Anusandhan Sansthan, College of Vet. Sciences, Mathura (India). Department of Surgery and Radiology.Gautam, Kuldeep Singh; UP. Pt. Deen Dayal Upadhayay Pashu Chikitsa Vigyan Vishvavidyalay Evam Go-Anusandhan Sansthan, College of Vet. Sciences, Mathura (India). Department of Surgery and Radiology.Varshney, Viram; UP. Pt. Deen Dayal Upadhayay Pashu Chikitsa Vigyan Vishvavidyalay Evam Go-Anusandhan Sansthan, College of Vet. Sciences, Mathura (India). Department of Surgery and Radiology.Pandey, R.P.; UP. Pt. Deen Dayal Upadhayay Pashu Chikitsa Vigyan Vishvavidyalay Evam Go-Anusandhan Sansthan, College of Vet. Sciences, Mathura (India). Department of Surgery and Radiology. C-arm guided closed management of fractured radius-ulna in dogs. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.138 KEYWORDS: FRACTURES. LIMB BONES. DOGS.

Four adult canine patients with closed fractures of radius-ulna were presented at the with a history of blunt trauma or fall. Physical examination and radiography revealed two cases with mid diaphyseal, one with proximal third and one with distal third radius-ulna fracture. The disruption of the carpal joint by retrograde I.M. pinning by open method can be prevented by normograde closed insertion of the rush pin under distal extremity of radius above the radio-carpal joint. An entry portal was created with a reamer through which the rush pin was driven into the fractured distal segment of the bone under the guidance of image intensifier.

0263. Anand, A.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Department of Veterinary Surgery and Radiology. Singh, K.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Department of Veterinary Surgery and Radiology. Sangwan, V.; Guru Angad Dev Veterinary and Animal Sciences University, College of Veterinary Science, Ludhiana (India). Department of Clinical Services Complex (Surgery). Mahajan, S.K.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Department of Veterinary Surgery and Radiology. Kumar, A.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Department of Veterinary Surgery and Radiology.Saini, N.S.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Department of Veterinary Surgery and Radiology. Surgical management of unilateral open thoracic trauma with multiple rib fractures

in a mare. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.139-140 KEYWORDS: MARES. SURGICAL OPERATIONS. BODY CAVITIES. LESIONS.

Thoracic trauma in horses may result from running into the sharp objects, such as fences, sticks or being kicked by other horses. The potential sequelae of thoracic trauma in horses include pneumothorax, pneumome-diastinum, hemothorax, pleuritis, pleural abscess, fistulae at the sternum or ribs, and diaphragmatic hernia and warrant emergency. Reconstruction plates, self tapping screws and cerclage wire have been successfully used for the repair of rib fractures in foals. The present case report describes successful surgical management of unilateral open thorax having multiple rib fractures in a mare.

0264. Dar, Mehraj U. din; Anand Agricultural University, College of Veterinary Science and Animal Husbandry, Anand (India). Department of Veterinary Surgery and Radiology. Tiwari, D.K.; Anand Agricultural University, College of Veterinary Science and Animal Husbandry, Anand (India). Department of Veterinary Surgery and Radiology. Parikh, P.V.; Anand Agricultural University, College of Veterinary Science and Animal Husbandry, Anand (India). Department of Veterinary Surgery and Radiology. Patil, D.B.; Anand Agricultural University, College of Veterinary Science and Animal Husbandry, Anand (India). Department of Veterinary Surgery and Radiology. Jhala, S.K.; Anand Agricultural University, College of Veterinary Science and Animal Husbandry, Anand (India). Department of Veterinary Surgery and Radiology. Repair of ruptured cranial cruciate ligament in a Neapolitan Mastiff with an 'over the top' tibial tunnel technique. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.141-142 KEYWORDS: REPAIRING. LIGAMENTS.

A 2-year- old Neapolitan mastiff dog weighing 35 kg was presented with the history of sudden fall from bed with its paw still planted in the bed, two days before. The animal was unable to bear its weight with limping in the hind leg. On physical examination crepitus, decreased range of motion, pain, swelling and the shifting of the weight to one side of the body while standing were observed. With the stifle joint in maximal flexion, the curved graft passer was inserted between the femoral condyles, lateral to the caudal cruciate ligament. With the help of the graft passer the loop was passed through the joint space through the biceps femoris muscle and caudal to lateral femoral condyle.

0265. Tiwari, D.K.; AAU, College of Veterinary Science and Animal Husbandry, Anand (India). Department of Veterinary Surgery and Radiology. Jawre, S.; Madhaya Pradesh Pashu Chikitsa Vigyan Vishwa Vidyalaya, College of Veterinary Science and Animal Husbandry, Jabalpur (India). Department of Veterinary Surgery and Radiology. Bhargava, M.K.; Madhaya Pradesh Pashu Chikitsa Vigyan Vishwa Vidyalaya, College of Veterinary Science and Animal Husbandry, Jabalpur (India). Department of Veterinary Surgery and Radiology. Shahi, A.; Madhaya Pradesh Pashu Chikitsa Vigyan Vishwa Vidyalaya, College of Veterinary Science and Animal Husbandry, Jabalpur (India). Department of Veterinary Surgery and Radiology. Swamy, Madhu; Madhaya Pradesh Pashu Chikitsa Vigyan Vishwa Vidyalaya, College of Veterinary Science and Animal Husbandry, Jabalpur (India). Department of Veterinary Pathology.Singh, Randhir; Madhaya Pradesh Pashu Chikitsa Vigyan Vishwa Vidyalaya, College of Veterinary Science and Animal Husbandry, Jabalpur (India). Department of Veterinary Surgery and Radiology. Diagnosis and surgical management of ectopic kidney in a German shepherd dog. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.143-144 KEYWORDS: DIAGNOSIS. SURGICAL OPERATIONS. BRYOZOA. KIDNEY DISEASES. KIDNEYS. DOGS.

The kidneys are paired bean shaped glands, situated at the dorsal aspect of the abdominal cavity above peritoneum, symmetrically placed on either side of the spine. An ectopic kidney is a birth defect of the urinary tract in which a kidney is located in an abnormal position. Unilateral ectopic kidney is common than bilateral. They may go undetected in life and may not cause any symptoms and may function normally, even though it is not in its usual position. Many animals have an ectopic kidney and do not discover it until they have tests done for other reasons. Often they are diagnosed for the presence of a pelvic mass or on pyelogram. Ectopic or congenital unascended kidney has to be carefully differentiated from (acquired) nephroptosis, where the length of the ureter is normal. Symptoms due to ectopic kidney may vary from none to pain, hydronephrosis, pyelonephritis or lithiasis.

0266. Bisla, R.S.; Lala Lajpat Rai University of Veterinary and Animal Sciences, Veterinary Unit Substation Teaching Veterinary Clinical Complex, Kamal (India). Singh, Harpreet; Lala Lajpat Rai University of Veterinary and Animal Sciences, Veterinary Unit Substation Teaching Veterinary Clinical Complex, Kamal (India). Chaudhri, S.S.; Lala Lajpat Rai University of Veterinary and Animal Sciences, Veterinary Unit Substation Teaching Veterinary Clinical Complex, Kamal (India). Lateral patellar luxation and its surgical treatment in a dog. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.145 KEYWORDS: DISLOCATIONS. DOGS. SURGICAL OPERATIONS.

A six-month-old non-descript male dog was presented with a history of walking with semi flexed hocks for two months. The condition developed slowly after the age of four months. Clinical examination revealed frequent lateral luxation of both patellae during flexion. Radiological examination of both limbs revealed lateral deviation of patellae with shallow trochlae.

0267. Ponnuswamy, K.K.; Tamil Nadu Veterinary and Animal Sciences University, Veterinary College and Research Institute, Namakkal (India). Department of Clinics. Arthanarieeswaran, M.; Tamil Nadu Veterinary and Animal Sciences University, Veterinary College and Research Institute, Namakkal (India). Department of Clinics.Jeyaraja, K.; Tamil Nadu Veterinary and Animal Sciences University, Veterinary College and Research Institute, Namakkal (India). Department of Clinics.Unny, N. Madhavan; Tamil Nadu Veterinary and Animal Sciences University, Veterinary College and Research Institute, Namakkal (India). Department of Clinics.Nagarajan, L.; Tamil Nadu Veterinary and Animal Sciences University, Veterinary College and Research Institute, Namakkal (India). Department of Clinics.Subramanian, M.; Tamil Nadu Veterinary and Animal Sciences University, Veterinary College and Research Institute, Namakkal (India). Department of Clinics. Endoscopic diagnosis of guttural pouch mycosis in a horse. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.146 KEYWORDS: ENDOSCOPY. DIAGNOSIS. HORSES.

An Indian Thorough bred gelding aged 10 yr was brought with the history of unilateral nasal discharge for the past 2 months. On physical examination the horse had unilateral mucopurulent nasal discharge from the left nostril and all the vital parameters were well within normal ranges. No abnormalities were detected by percussion of sinuses.

0268. Verma, Pallavi; Guru Angad Dev Veterinary and Animal Sciences University, College of Veterinary Sciences, Ludhiana (India). Department of Veterinary Surgery and Radiology. Singh, Tarunbir; Guru Angad Dev Veterinary and Animal Sciences University, College of Veterinary Sciences, Ludhiana (India). Department of Veterinary Surgery and Radiology.Raghunath, M.; Guru Angad Dev Veterinary and Animal Sciences University, College of Veterinary Sciences, Ludhiana (India). Department of Veterinary Surgery and Radiology.Singh, Navdeep; Guru Angad Dev Veterinary and Animal Sciences University, College of Veterinary Sciences, Ludhiana (India). Department of Veterinary Extension and Education.Mohindroo, J.; Guru Angad Dev Veterinary and Animal Sciences University, College of Veterinary Sciences, Ludhiana (India). Department of Veterinary Surgery and Radiology. Hyperplasia of third eyelid gland and its surgical management in a buffalo(Bubalus bubalis). Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.147 KEYWORDS: WATER BUFFALOES. HYPERPLASIA. EYES. SURGICAL OPERATIONS.

Prolapse or protrusion of third eyelid gland, also called ”Cherry Eye” (hyperplasia or adenitis), occurs frequently in young dogs which might be a genetic problem, acquired due to the enlargement of the gland of the nictitating membrane due to conjunctivitis and local irritation.

0269. Singh, Tarunbir; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Dept. of Vet. and Animal Husbandry Extension Education. Raghunath, M.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Dept. of Vet. and Animal Husbandry Extension Education.Singh, Navdeep; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Dept. of Vet. and Animal Husbandry Extension Education. Mohindroo, J.; Guru Angad Dev Veterinary and Animal Sciences

University, Ludhiana (India). Dept. of Veterinary Surgery and Radiology.Verma, Pallavi; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Dept. of Vet. and Animal Husbandry Extension Education.Sood, N.K.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Dept. of Veterinary Pathology. Diagnosis and treatment of papillary ovarian adenocarcinoma in a female dog. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.152 KEYWORDS: DIAGNOSIS. OVARIAN CYSTS. OVARIAN DISEASES. ADENOMA. DOGS. FEMALES.

Ovarian tumors are not common entity comprising 0.5-1.2% of all the canine tumors and their occurrence in intact canine female is reported to be upto 6.25%. An 8.5year old, female Doberman pinscher police dog of explosive detection squad was presented with a history of gradual loss of appetite since one month and complete anorexia for three days. The animal was passing black coloured faeces and exhibited polydipsia and polyuria.

0270. Kumar, Deepesh; U.P.Pt. Deen Dayal Upadhayaya Pashu Chikitsa Vigyan Vishvavidyalaya Evam Go-Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Surgery and Radiology. Kumar, Gulshan; U.P.Pt. Deen Dayal Upadhayaya Pashu Chikitsa Vigyan Vishvavidyalaya Evam Go-Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Surgery and Radiology. Gautam, Kuldeep Singh; U.P.Pt. Deen Dayal Upadhayaya Pashu Chikitsa Vigyan Vishvavidyalaya Evam Go-Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Surgery and Radiology.Pandey, R.P.; U.P.Pt. Deen Dayal UpadhayayaPashu Chikitsa Vigyan Vishvavidyalaya Evam Go-Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Surgery and Radiology.Kumar, Sanjiv; U.P.Pt. Deen DayalUpadhayaya Pashu Chikitsa Vigyan Vishvavidyalaya Evam Go-Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Pathology. Surgical management of lipoma at neck region in a buffalo. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.153 KEYWORDS: SURGICAL OPERATIONS. LIPOMA. NECK. WATER BUFFALOES.

Lipoma is a benign tumour of the adipocytes. These tumors are well differentiated and present as a nodular mass in the subcutis. Lipomas are the most common in dogs but also occur in cattle and horses. The proximal extremity of the limbs and the trunks are the most common sites for lipomas.

0271. Nath, I.; G.U.A.T. College of Veterinary Science, Bhubaneswar (India). Division of Surgery.Singh, Jasmeet; G.U.A.T. College of Veterinary Science, Bhubaneswar (India). Division of Surgery. Samantara, S.; G.U.A.T. College of Veterinary Science, Bhubaneswar (India). Lalita,L.; G.U.A.T. College of Veterinary Science, Bhubaneswar (India). Department of Veterinary Surgery and Radiology. Mallick, S.; Indian Veterinary Research Institute, Izatnagar (India). Removal of fish hook from the oesophagus of a checkered keel back (Xenochrophis piscator) snake. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.154 KEYWORDS: ARAUCARIA CUNNINGHAMII. OESOPHAGUS. SNAKES.

A checkered keelback (Xenochraphis piscator) snake about 1.5 m in length weighing 2.5 kg was presented with a nylon thread hanging from mouth of the snake by the members of a non- government organization ”Snake Helpline” working for the well being of snakes. Anamnesis revealed that during fishing by the local people in a nearby village on the outskirts of Bhubaneswar city, a fish hook was accidently engulfed by the snake. The villagers thought it as a big fish and took out it with force which resulted in a penetrating wound on the ventral wall of the anterior one-third of body of the snake. The snake was subjected to C-arm examination, which revealed the presence of a fish hook lodged in the oesopahegal region. It was decided to attempt surgical removal of the fish hook on emergency basis.

0272. Singh, Jai Pal; Chaudhary Charan Singh Haryana Agricultural University, College of Veterinary Sciences, Hisar (India). Department of Veterinary Surgery and Radiology.Singh, Sukhbir; Chaudhary Charan Singh Haryana Agricultural University, College of Veterinary Sciences, Hisar (India). Department of Veterinary Surgery and Radiology.Singh, Jit; Chaudhary Charan Singh Haryana Agricultural University, College of

Veterinary Sciences, Hisar (India). Department of Veterinary Surgery and Radiology.Kumar, Ashok; Chaudhary Charan Singh Haryana Agricultural University, College of Veterinary Sciences, Hisar (India). Department of Veterinary Surgery and Radiology.Peshin, P.K.; Chaudhary Charan Singh Haryana Agricultural University, College of Veterinary Sciences, Hisar (India). Department of Veterinary Surgery and Radiology. Evaluation of ascorbic acid, vitamin E and selenium combination as antioxidants in buffaloes suffering from traumatic reticuloperitonitis. Indian Journal of Veterinary Research (India). (Jan-Jun 2012) v. 21(1) p.33-39 KEYWORDS: ASCORBIC ACID. WATER BUFFALOES. VITAMIN E. SELENIUM.

The study was conducted on eighteen adult buffaloes suffering from traumatic reticuloperitonitis (TRP). Preoperative blood samples were taken and left flank laparorumenotomy was performed to remove foreign bodies.Postoperatively, broad spectrum antibiotic,analgesic and vitamin B complex in appropriate doses were administered. In six animals, no other therapy was given and these animals served as control. In another six animals, ascorbic acid .5 gm in 500 ml5 per cent dextrose normal saline was administered intravenously, immediately after surgery and thereafter at 24 and 48 hour post surgery. In remaining six animals, 10 ml E-Care SeTM(containing a tocopheryl acetate 550 Lu. and sodium selenite 15 mg) was given intramuscularly immediately after surgery and then at 24 and 48 hour post surgery. Preoperatively, these buffaloes had lower values of sodium, potassium and chloride whereas the reduced glutathione (GSH) and packed cell volume (PCY) values were higher than the normal. In control animals of group A, the oxidative stress factor (OSF) was 59.46 per cent higher before surgery, whereas in treatment groups Band C, it was 69.05 and 39 per cent higher than the normal, respectively. In control animals, the OSF increased by 37.8 per cent at 54 hour post surgery whereas administration of ascorbic acid and vitamin E with seleniumreduced the OSF by 32.5 and 44.1 per cent, respectively, at the same interval. In all animals, there was no improvement in the plasma concentrations of electrolytes.

0273. Singh, Nidhi; College of Veterinary Science and Animal Husbandry, Rasalpura, Mhow (India). Department of Veterinary Medicine.Mehta, Hemant; College of Veterinary Science and Animal Husbandry, Rasalpura, Mhow (India). Department of Veterinary Medicine.Bagherwal, R. K.; College of Veterinary Science and Animal Husbandry, Rasalpura, Mhow (India). Department of Veterinary Medicine. Efficacy of some chemotherapeutic drugs against Theileria annulata infection in crossbred calves. Indian Journal of Veterinary Research (India). (Jan-Jun 2012) v. 21(1) p.73-76 KEYWORDS: THEILERIA. THEILERIA ANNULATA. DRUG THERAPY. CROSSBREDS. CROSSBREEDING. CALVES.

The efficacy of four chemotherapeutic agents namely Diaminazine aceturate along with Oxytetracycline, Buparvaquane and Chloroquine was ascertained in calves experimentally infected with Theileria annulata. The results indicated that the Buparvaquane was found to be 100% effective under experimental conditions. The singledose therapy was found effective in eliminating the protozoan parasites from the blood with breakdown of subclinical carrier stage of theileriosis. The animals trial with Diaminazine aceturate along with Oxytetracycline also recovered but repetition ofthe treatment was required to eliminate the carrier state in subclinically infected animals. while Chloroquine proved to be totally non effective against T. annulata infection.

0274. Chawla, S.K.; Lala Lajpat Rai University of Vet Lala Lajpat Rai University of Veterinary and Animal Sciences, Hisar (India). College of Veterinary Sciences. Department of Veterinary Surgery and Radiology. Peshin, P.K.; Lala Lajpat Rai University of Veterinary and Animal Sciences, Hisar (India). College of Veterinary Sciences. Department of Veterinary Surgery and Radiology. ProfessorSingh, Jit; Lala Lajpat Rai University of Veterinary and Animal Sciences, Hisar (India). College of Veterinary Sciences. Department of Veterinary Surgery and Radiology. Patil, D.B.; AAU, Anand, Gujarat. Department of Veterinary Surgery and Radiology. Singh, Kuldip; Lala Lajpat Rai University of Veterinary and Animal Sciences, Hisar (India). .College of Veterinary Sciences. Department of Veterinary Surgery and Radiologyiences, Hisar (India). Kumar, Ashok; Lala Lajpat Rai University of Veterinary and Animal Sciences, Hisar (India). College of Veterinary Sciences. Department of Veterinary Surgery and Radiology. Singh, Sukhbir; Lala Lajpat Rai University of Veterinary and

Animal Sciences, Hisar (India). College of Veterinary Sciences. Department of Veterinary Surgery and Radiology. Tyagi, R.P.S.; CSK HPKVV, Palampur (India). Effects of mephentermine and norepinephrine administration following thiopentone induced circulatory insufficiency in buffalo calves (Bubalus bubalis). Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.6-8 KEYWORDS: WATER BUFFALOES. CALVES. SURGICAL OPERATIONS.

The study was undertaken to evaluate the effects of mephentermine and norepinephrine following thiopentone induced circulatory insufficiency in buffalo calves. Fifteen buffalo calves were equally divided in three groups. In all the three groups, circulatory insufficiency was induced with thiopentone sodium, and in group I animals no treatment was given. In other groups, efficacies of mephentermine (group II) and norepinephrine (group III) were evaluated. Electrical activity in the EEG was noticed 2.47±0.32 min after mephentermine administration. The heart rate and mean arterial pressure (MAP) were significantly elevated 5 min after mephentermine administration. The elevated CVP recorded during circulatory insufficiency fell below the base value following mephentermine administration. Arterial O2 tension remained elevated, while venous O2 and arterial CO2 tension remained within normal limits. Moderately elevated blood glucose levels during circulatory insufficiency were further elevated by mephentermine administration. Electrical activity in the EEG returned within 1.63±0.18 min after the start of norepinephrine drip. Arterial pressure was lowered by 5 min. The elevated CVP recorded during circulatory insufficiency also decreased after 15 min of norepinephrine drip. The results indicated that both drugs are effective in counteracting circulatory insufficiency, but mephentermine appears better of the two.

0275. Malik, V.; College of Veterinary Sciences and Animal Husbandry, DUVASU, Mathura(India). Kinjavdekar, P.; Indian Veterinar Research Institute, Izatnagar(India). Division of Surgery. Amarpal,; Indian Veterinar Research Institute, Izatnagar (India). Division of Surgery. Aithal, H.P.; Indian Veterinar Research Institute, Izatnagar(India). Division of Surgery. Pawde, A.M.; Indian Veterinar Research Institute, Izatnagar(India). Division of Surgery. Surbhi; Indian Veterinary Research Institute, Izatnagar (India). Division of Surgery. Electrocardiographic and haematobiochemical changes during continuous intravenous infusion anaesthesia with ketamine in medetomidine or midazolam premedicated buffaloes. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.9-13 KEYWORDS: WATER BUFFALOES. ANAESTHESIA. SURGICAL OPERATIONS.

Six male buffaloes were used twice as groups K1 and K2 for Continuous Intravenous Infusion (CII) anaesthesia. In K1, medetomidine (2.5 ìg/kg) + butorphanol (0.05 mg/kg) and in K2, midazolam (0.25 mg/kg) + butorphanol (0.05 mg/kg) were used intravenously as premedicants. Induction of anaesthesia was done by 5% thiopentone sodium and maintenance by 1% ketamine. Electrocardiographic and haematobiochemical parameters were recorded. ECG showed sinus bradycardia in K1 and sinus tachycardia in K2 groups. Inverted T wave for a very short period was observed in two animals of K2 group. Hb, PCV and TLC decreased with neutrophilia and lymphocytopenia in both groups. Plasma cortisol increased in both groups. In K1 and K2 groups plasma glucose level increased gradually up to 45 min and 60 min, respectively and then returned to the base line. Plasma creatinine and Na+ and K+ concentration fluctuated within normal limits. Plasma urea nitrogen did not change significantly after premedication till the end in both groups. Significant increase in AST values was observed in both groups in the later part of observation period.

0276. Malik, V.; College of Veterinary Sciences and Animal Husbandry, DUVASU, Mathura (India). P. Kinjavdekar; Indian Veterinary Research Institute, Izatnagar (India). Division of Surgery. Amarpal; Indian VeteIndian Veterinary Research Institute, Izatnagar (India). Division of Surgery. Aithal, H.P.; Indian VeteIndian Veterinary Research Institute, Izatnagar (India). Division of Surgery. Pawde, A.M.; Indian Veterinary Research Institute, Izatnagar (India). Division of Surgery. Continuous intravenous infusion anaesthesia with propofol in medetomidine and midazolam premedicated buffaloes: a quantitative electrocardiographic and haemato-biochemical study. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.14-18 KEYWORDS: WATER BUFFALOES. ANAESTHESIA. INJECTION. ELECTROCARDIOGRAPHY. CONTINUOUS PROCESSES.

Continuous intravenous infusion (CII) anaesthesia was studied in six male adult buffaloes used twice for P1 and P2 groups. In P1 medetomidine (2.5 ìg/kg) + butorphanol (0.05 mg/kg) and in P2 midazolam (0.25 mg/kg) + butorphanol (0.05 mg/kg) i.v. were used as preanaesthetics. Induction by 5% thiopentone sodium and maintenance by 1% propofol as continuous infusion was done. Electrocardiographic and haematobiochemical parameters were recorded. ECG showed sinus bradycardia and a slight decrease in atrial depolarization area in group P1 after premedication; whereas, sinus tachycardia and increase in atrial depolarization area was observed in P2 after preanaesthetic administration. In group P2 ventricular depolarization time and area increased significantly after preanaesthetic administration and remained so throughout the maintenance period. PR interval, however, did not show a definite pattern but it decreased in group P2 after preanaesthetic administration. Increased QT interval was observed in P1, whereas, P2 showed decreased QT interval. The T wave amplitude remained non-significantly ($P<0.05$) different from the baseline throughout the observation period in group P1 whereas, in P2 a significant ($P<0.05$) decrease in the T wave amplitude was recorded. Slight neutrophilia, lymphocytopenia and an increase in plasma glucose level was observed in both groups. Plasma cortisol increased after the preanaesthetic administration but showed decreasing trend towards the end of observation period in both groups. Plasma creatinine, urea nitrogen and transaminases (AST and ALT) showed significant increase in both groups. It was concluded that neither of the combination induced serious electrocardiographic or haematobiochemical changes and are safe.

0277. Bhardwaj, H.R.; SKUAST-J, R.S. Pura, Jammu (India). Division of Veterinary Surgery and Radiology. Amarpal; Indian Veterinary Research Institute, Izatnagar (India). Division of Surgery. Aithal, H.P.; Indian Veterinary Research Institute, Izatnagar (India). Division of Surgery. Kinjavdekar, P.; Indian Veterinary Research Institute, Izatnagar (India). Division of Surgery. Pawde, A.M.; Indian Veterinary Research Institute, Izatnagar (India). Division of Surgery. Changal, Nazir Ahmad; SKUAST-J, R.S. Pura, Jammu (India). Division of Veterinary Surgery and Radiology. Role of preemptive epidural blockade with lignocaine, ketamine or pethidine in inhibition of anaesthetic and surgical stress response typified by levels of plasma cortisol in dogs. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.19-22 KEYWORDS: ANAESTHETICS. DOGS. SURGICAL OPERATIONS. STRESS. ANALGESICS.

The present study was undertaken to evaluate the role of preemptive epidural blockade with lignocaine, ketamine or pethidine in inhibition of anaesthetic and surgical stress response in dog model of stress prepared by creation and repairing of fracture of proximal metaphysis of tibia. Twenty four dogs were allotted to four groups (I, II, III and IV) of six animals each. The fixation of fracture was done by the crosspinning and the inter-fragmentary wiring under general anaesthesia induced with atropine triflupromazine- thiopentone along with preemptive epidural blockade using lignocaine, ketamine or pethidine in groups II, III and IV, respectively. In animals of group I normal saline was given epidurally which served as control. Stress response measured was typified by levels of plasma cortisol in perioperative and postoperative period. Venous blood plasma samples were collected just before and after induction of general anaesthesia, and then after the completion of surgery and at 6, 24 and 48 hr postoperatively. Atropine-triflupromazine-thiopentone produced a significantly ($P<0.05$) high levels of cortisol immediately after the induction of anaesthesia in groups I, II and IV; whereas, in group III the increase was less significant. The stress response typified by high levels of cortisol could be most effectively blocked by epidural ketamine (group-III), followed in decreasing order by pethidine (group-II) and lignocaine (group-II).

0278. Sankar, P.; Tamil Nadu Veterinary and Animal Sciences University, Chennai (India). Madras Veterinary College.Department of Surgery and Radiology. William, B. Justin; Tamil Nadu Veterinary and Animal Sciences University, Chennai (India). Madras Veterinary College. Department of Surgery and Radiology. Rao, G. D.; Tamil Nadu Veterinary Tamil Nadu Veterinary and Animal Sciences University, Chennai (India). Madras Veterinary College. Department of Surgery and Radiology. Prathaban, S.; Tamil Nadu Veterinary Tamil Nadu Veterinary and Animal Sciences University, Chennai (India). Madras Veterinary College. Department of

Surgery and Radiology. Kumar, R. Suresh; Tamil Nadu Veterinary and Animal Sciences University, Chennai(India). Madras Veterinary College. Department of Surgery and Radiology. Leela, V.; Madras Veterinary College. Department of Physiology. Cardiopulmonary and haematobiochemical alterations during ketamine or propofol anaesthesia in acepromazine-xylazine premedicated horses. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.23-26 KEYWORDS: HORSES. SURGICAL OPERATIONS. ANAESTHESIA.

Twelve clinical cases of horses were randomly divided into group I and group II consisting of six each. Xylazine (0.50 mg/kg b.wt) and acepromazine (0.03 mg/kg) were administered i.v. as pre-anaesthetics in both groups. Ketamine 2.20 mg/kg b.wt and 0.05 mg/kg/min was used i.v. for induction and maintenance of anaesthesia in group I. Propofol 2.0 mg/kg b.wt and 0.15 mg/kg/min was used i.v. for induction and maintenance of anaesthesia in group II. Cardiopulmonary and haematobiochemical parameters were recorded before sedation, after sedation, after induction and maintenance of anaesthesia and after recovery. The heart rate was significantly higher in group I, and the mean central venous pressure was significantly higher in group II. Hyperglycemia and hypoproteinemia were more with ketamine than propofol. Considering the cost and the volume required based on the cardiopulmonary and haematobiochemical parameters, it could be concluded that ketamine being cost effective could be used as induction and maintenance agent in anaesthetic procedures requiring short duration of anaesthesia, whereas propofol could be used in anaesthetic procedures requiring longer duration in field ambulatory equine practice.

0279. Joy, Nisha; Anand Agricultural University, Anand (India). College of Veterinary Science and Animal Husbandry. Department of Surgery and Radiology.Jhala, S.K.; Anand Agricultural University, Anand (India). College of Veterinary Science and Animal Husbandry. Department of Surgery and Radiology. Patil, D.B.; Anand Agricultural University, Anand (India). College of Veterinary Science and Animal Husbandry. Department of Surgery and Radiology. Parikh, P.V.; Anand Agricultural University, Anand (India). College of Veterinary Science and Animal Husbandry. Department of Surgery and Radiology. Sheth. M.J.; Anand Agricultural University, Anand (India). College of Veterinary Science and Animal Husbandry. Department of Surgery and Radiology. Mistry, K.; Anand Agricultural University, Anand(India). College of Veterinary Science and Animal Husbandry. Department of Surgery and Radiology. Complications of extracapsular cataract surgery: a report of 54 cases . Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.27-30 KEYWORDS: EYE DISEASES. DOGS. CATARACT. EXTRACTION. OEDEMA.

A clinical study on intra and postoperative complications of extracapsular cataract surgery with (34 eyes) or without (28 eyes) IOL was conducted in 54 dogs with mature cataract under coaxial operating microscope. Intraoperative complications included chemosis (06), haemorrhage from canthotomy site (10), miosis (II), iris bulging (05) and vitreous prolapse (26). Postoperatively, corneal oedema (27) and suture line opacity (57) were frequently observed. Suture dehiscence (21) and subsequent iris prolapse was usually met in dogs with poor owner compliance. Other complications were vaulting of IOL (in roomy eyes) (07), uveitis (11), posterior capsular opacity (09) and retinal detachment (05).

0280. Mahesh, V.; Karnataka Veterinary, Animal and Fisheries Sciences University, Bidar (India). Ranganath, L.; Karnataka Veterinary, Animal and Fisheries Sciences University. Department of Veterinary Surgery and Radiology, Veterinary College, Bangalore(India). Evaluation of Type 1b, Type 2 and Type 3 external skeletal fixators for radius fracture treatment in dogs. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.36-38 KEYWORDS: DOGS. BONES. FRACTURES.

A study was undertaken in 18 clinical cases of dogs with radius fracture to evaluate the efficacy of different configurations of external skeletal fixators viz. Type 1 b, Type 2 and Type 3 (Group A, Group B and Group C of six animals each). Based on fixator stability, pain evaluation, weight bearing, patient tolerance and radiographic assessment of fracture healing, it was found that Type 1 b, Type 2 and Type 3 fixator frames could be easily applied for the treatment of radius fracture. Among them, Type 3 external skeletal fixator provided better stability when compared to Type 1 b and Type 2 external skeletal fixators.

0281. Sagu, G.S.; Creditview Animal and Bird Hospital, Mississauga, Gosal, Navjot S.; Edmonton North Animal Hospital, Edmonton, Sharma, Sumeet; University of Alberta, Edmonton, Department of Agricultural, Food and Nutritional Science. Yadav, R.K.; C.V.H. Seeltheh, Ghanour, Patiala (India). Comparative efficacy of two suture materials in canine perineal herniorrhaphy. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.42-44 KEYWORDS: DOGS. HERNIA. SUTURES.

The purpose of this study was to compare the efficacy of absorbable and non-absorbable sutures in canine perineal herniorrhaphy. In eight confirmed cases of perineal hernia, standard perineal herniorrhaphy was performed under general anaesthesia and the dogs were grouped (n=4 each) according to the suture material used. Post-treatment antibiotic course as well as dietary management was followed and topical antiseptic dressing was applied on the wounds. Recurrence was reported in all the cases (100%) of group 1, where absorbable suture material (chromic catgut and vicryl) was used while only in one case (25%) of group 2, where nonabsorbable suture material (monofilament non-braided silk) was used; and average recurrence period in group 1 and 2 was 4 and 7 months postsurgery, respectively. In all the dogs a significant decrease in neutrophil count at three-week interval compared with the pretreatment value was observed. On the basis of the results of the current study, it is recommended that non-absorbable suture may be preferred for standard perineal herniorrhaphy. Key words: Dogs, Perineal hernia, P.

0282. Kumar, Deepesh; U.P. Pt. Deen Dayal Upadhayay Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go-Anusandhan Sansthan,Mathura (India). Veterinary College. Department of Surgery and Radiology,. Assistant ProfessorPandey, R.P.; U.P. Pt. Deen Dayal Upadhayay Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go-Anusandhan Sansthan,Mathura (India). Veterinary College. Department of Surgery and Radiology. Clinico-physiological effects of epidural bupivacaine-xylazine or bupivacaine-butorphanol-xylazine combinations in dogs. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.51-53 KEYWORDS: DOGS. ANALGESICS. SURGICAL OPERATIONS. PHYSIOLOGICAL FUNCTIONS.

The study was conducted to evaluate bupivacaine-xylazine and bupivacaine-butorphanol-xylazine combinations for epidural analgesia in dogs. Eight clinical canine patients were divided into two treatment groups (A and B) comprising of 4 animals each. The animals of group A were given bupivacaine hydrochloride 1 mg/kg b.wt in combination with xylazine HCl 0.5 mg/kg b.wt epidurally at lumbosacral space, while those of group B were given a combination of bupivacaine HCl 1 mg/ kg b.wt, butorphanol tartarate 0.2 mg/kg b.wt and xylazine HCl 0.5 mg/kg b.wt epidurally at lumbosacral space. The effect of two treatments in the animals was compared on the basis of clinical, physiological, heamodynamic, haematological and biochemical parameters. In group B, time for onset of analgesia (4.12±0.31 min) was insignificantly (P0.05) faster in comparison to group A (4.88±0.43 min). Mean duration of sedation did not differ significantly. Complete recovery time was insignificantly (P<0.05) quicker in group A (354.00±9.28 min) than group B (371.50±8.72 min). The results indicated that bupivacaine-xylazine and bupivacaine-xylazinebutorphanol combinations can be used for various clinical interventions and lengthy surgeries without adversely affecting the cardiopulmonary and haemato-biochemical parameters in dogs. Addition of butorphanol to xylazine and bupivacaine provides superior analgesia.

0283. Kushwaha, R.B.; Sher-e-Kashmir University of Agricultural Sciences and Technology-J, Jammu(India). Division of VC&TH. Gupta, A.K.; Sher-e-Kashmir University of Agricultural Sciences and Technology-J, Jammu(India). Division of VC&TH. Bhadwal, M.S.; Sher-e-Kashmir University of Agricultural Sciences and Technology, Jammu(India). FVSc&AH. Kumar, Sharad; Sher-e-Kashmir University of Agricultural Sciences and Technology-J, Jammu(India). Division of VC&TH Tripathi, A.K.; Sher-e-Kashmir University of Agricultural Sciences and Technology-J, RS Pura, Jammu (India). Division of VC&TH. Incidence of fractures and their management in animals: a clinical study of 77 cases. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.54-56 KEYWORDS: DOGS. FRACTURES.

The objective of the study was to record the incidence of fractures and the outcome of their management in different animals. The data were analysed with respect to the species, breed, sex and age of

the animal, duration and cause of fracture, limb and bone involved, type of fracture and the technique of fixation. The results showed higher occurrence of fractures in young, male dogs and bovines. Intramedullary pinning was found satisfactory for fixation of long bone fractures in most of the dogs, and in large animals Plaster of Paris cast with Splint was satisfactory in closed fractures below the stifle and elbow joints.

0284. Ahmad, Rayees; Jawahar Lal Nehru Krishi Vishwavidyalay. College of Veterinary Sciences and AH, Mhow (India). Department of Veterinary Surgery and Radiology . Shukla, B.P.; Jawahar Lal Nehru Krishi Vishwavidyalay. College of Veterinary Sciences and AH, Mhow (India). Department of Veterinary Surgery and Radiology . Jain, R.; Jawahar Lal Nehru Krishi Vishwavidyalay. College of Veterinary Sciences and AH, Mhow (India). Department of Veterinary Surgery and Radiology. Clinicophysiological changes following epidural analgesia by bupivacaine, ropivacaine or ropivacaine-xylazine combination in goats. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.57-58 KEYWORDS: ANALGESICS. GOATS.

The study was undertaken to compare the epidural analgesia induced by bupivacaine, ropivacaine and their combination in goats. Six healthy male non-descript goats were subjected to 3 treatments with an interval of 8 days. In treatment I, bupivacaine hydrochloride 1.7 mg/kg b.wt, in treatment II, ropivacaine hydrochloride 0.6 mg/kg b.wt, and in treatment III, a combination of ropivacaine hydrochloride 0.6 mg/kg b.wt and xylazine hydrochloride 0.5 mg/kg were administered simultaneously in the lumbo-sacral epidural space. The clinicophysiological partameters were evaluated at different intervals. The onset of analgesia was faster in treatment III as compared to treatments I and II. Ropivacaine induced longer duration of analgesia than bupivacaine, and ropivacaine-xylazine combination showed some synergistic analgesic effect. The respiratory and pulse rates and rectal tremperature decreased significantly in treatments I and III, and did not change significantly in group II. Results suggested that ropivacaine induced excellent epidural analegesia without affecting the cardio-respiratory function in goats.

0285. Joy, Nisha; Anand Agricultural University, Anand(India). Veterinary College. Department of Surgery and Radiology. Jhala, S.K.; Anand Agricultural University, Anand (India). Veterinary College. Department of Surgery and Radiology. Dar, Mehraj U Din; Anand Agricultural University, Anand (India). Veterinary College. Department of Surgery and Radiology. Patil, D.B.; Anand Agricultural University, Anand (India). Veterinary College. Department of Surgery and Radiology. Parikh, P.V.; Anand Agricultural University, Anand (India). Veterinary College. Department of Surgery and Radiology. Pitroda, A.H.; Anand Agricultural University, Anand (India). Veterinary College. Department of Surgery and Radiology. Ultrasonographic diagnosis of retinal detachment in dogs: a report of 18 cases. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.61-62 KEYWORDS: ULTRASONICS. DOGS. EYE DISEASES.

Real time B mode ultrasonography was conducted in 63 dogs presented with history of vision loss and those that underwent cataractous lens extraction by extra-capsular technique. Horizontal, vertical and oblique positionings of the transducer were used to scan the eyes thoroughly. The observations were correlated with anamnesis, clinical signs and indirect ophthalmoscopic findings to describe the type of retinal detachment. Indirect ophthalmoscopy was also performed in eyes with transparent anterior segment. Ultrasonographic examination was found useful in evaluation and categorization of retinal detachment.

0286. Srivastava, A.K.; Pet Aid Centre, Lucknow (India). Chaturvedi, Saurabh; Pet Aid Centre, Lucknow (India). Srivastava, Sangeeta; Pet Aid Centre, Lucknow (India). Yadav, Vineet Kumar; Pet Aid Centre, Lucknow (UP). Srivastava, Ashish; Pet Aid Centre, Lucknow (India). Electromyographic evaluation of sciatic nerve regeneration following transcutaneous electrical nerve stimulation in dogs. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.63-64 KEYWORDS: DOGS. ELECTROMYOGRAPHY. NERVES. REGENERATION.

The study was conducted to evaluate electromyography in sciatic nerve regeneration. Ten adult male cross bred dogs were equally divided into two groups. The right sciatic nerve was crushed in each dog under general anaesthesia. No treatment was given in one group of dogs, whereas animals of other group were

subjected to trancutaneous electrical nerve stimulation for 10 min daily for 15 days with frequency of 100 Hz and 80 ìs in intensity. Clinical signs were recorded for two months and EMG was recorded from semi-membranosus and semi-tendinosus extensor and flexor muscles up to 45 days. The results indicated that electromyography can be used to evaluate neural recovery induced by TENS.

0287. Manjunatha, D.R.; Karnataka Veterinary, Animal and Fisheries Sciences University, Bangalore(India). Veterinary College. Nagaraja, B.N.; Sciences University, Hebbal, Bangalore (India). Veterinary College . Surgery and Radiology. Suguna Rao; Karnataka Veterinary, Animal and Fisheries Sciences University, Bangalore (India). Veterinary College. Dept Veterinary Pathology. Yathiraj , S.; KVAFSU, Nandinagar, Bidar. Ranganath, L.; Karnataka Veterinary, Animal and Fisheries Sciences University, Bangalore (India). Veterinary College. Surgery and Radiology. Evaluation of closed and open interlocking nailing for femoral fracture repair in dogs. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.65-66 KEYWORDS: DOGS. LIMB BONES. FRACTURES.

The study was carried out on 12 dogs to compare the closed and open interlocking nailing techniques for femoral fracture repair. The dogs were randomly divided into two groups, A and B, consisting of 6 each. In group A, fracture was repaired by C-arm guided interlocking nailing, whereas in group B, aiming device was used to accomplish interlocking nailing. The results indicated that C-arm guided interlocking nailing technique is superior than aiming device guided interlocking nailing.

0288. Singh, K.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Department of Veterinary Surgery and Radiology. Thakur, N.; C.V.H. Hosiarpur (India). Mohindroo, J.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Department of Veterinary Surgery and Radiology. Gopinathan, A.; IVRI, Izatnagar (India). Division of Surgery. Mahajan, S.K.; , COVS, Department of Veterinary Surgery and Radiology. Successful surgical repair of bilateral humerus fracture with modified T-plate and end threaded intramedullary pin in a dog. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.67 KEYWORDS: SURGICAL OPERATIONS. LIMB BONES. DOGS. FRACTURES.

An 8-month-old, male, non-descript dog weighing 15 kg was presented with acute nonweight- bearing lameness on both forelimbs following an automobile accident. Postoperatively the dog was administered with antibiotic and analgesic in standard dosage. Robert Jones bandage was applied on both the operated limbs. The dog started bearing weight on both the limbs by 15th postoperative day. By the end of 4th week there was a significant reduction in thelameness.

0289. Holey, Ashish; Karnataka Veterinary, Animal and Fishery Sciences University . Veterinary College, Bangalore(India). Department of Vet. Surgery and Radiology. Mahesh, V.; Karnataka Veterinary, Animal and Fishery Sciences University . Veterinary College, Bangalore (India). Department of Vet. Surgery and Radiology. Ranganath, L.; Karnataka Veterinary, Animal and Fishery Sciences University. Veterinary College, Bangalore (India). Department of Vet. Surgery and Radiology. Foreign body obstruction at oesophageal cardia in a Holstein Friesian calf. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.68 KEYWORDS: FOREIGN BODIES. OESOPHAGUS. CALVES. CROSSBREDS.

Oesophageal obstruction by foreign body is more common in bovines. Obstruction in different parts of oesophagus has been reported in cattle due to ingestion of mango kernel, potato, brinjal and even stone. In order to determine the exact location of the obstruction, palpation or passing stomach tube or sometimes both were used by veterinarians In the present case, thoracic oesophageal obstruction at cardia in a calf and its removal by laparorumenotomy is reported. Among various methods of treatment, rumenotomy may be preferred to relieve obstruction closure to the diaphragm since this approach eliminates necessity of oesophagotomy, which is associated with complications like stricture, stenosis and fistula. Rumenotomy is simple, safe and less time consuming as compared to thoracic oesophagotomy.

0290. Fazili, M.R.; Sher-e-Kashmir University of Agriculture Science and Technology, Srinagar (India). Teaching Veterinary Clinical Complex; Buchoo, B.A.; Sher-e-Kashmir University of Agriculture Science and Technology (Kashmir), Shuhama, Srinagar (India). Teaching Veterinary Clinical Complex;. Athar, H.; Sher-e-Kashmir University of Agriculture Science and Technology, Srinagar(India). Faculty of Veterinary Sciences and AH. Division of Veterinary Surgery and Radiology. Dedmari, F.H.; Sher-e-Kashmir University of Agriculture Science and Technology (Kashmir), Shuhama, Srinagar (India). Faculty of Veterinary Sciences and AH. Division of Veterinary Surgery and Radiology,. MVSc Scholar, Singh, M.; Sher-e-Kashmir University of Agriculture Science and Technology (Kashmir), Shuhama, Srinagar (India). Faculty of Veterinary Sciences and AH. Division of Veterinary Surgery and Radiology,. PhD Scholar,. Surgical management of an iatrogenic large deep cold abscess in the neck of a horse. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.69 KEYWORDS: HORSES. ABSCESSES. NECK.

Muscle abscesses are sporadically encountered in equines (Hodgron, 1999). In this paper, we put on record, the surgical management of an iatrogenic, deep, cold abscess in the neck of a horse. Large abscesses in pectoral muscles and less commonly in axillary region, ventral abdomen and limbs have been reported by Hodgron (1999). The disorder is usually suspected on the basis of clinical signs and confirmed by aspiration. The animal recovered completely over a period of six weeks.

0291. Reddy, K. Ram Chandra; Sri Venkateswara Veterinary University, Rajendranaga.r, Hyderabad (India). Department of Animal Reproduction & Gynaecology;. Reddy, K.C.S.; Sri Venkateswara Veterinary University, Hyderabad (India).Department of Animal Reproduction & Gynaecology; Raghavender, K.B.P.; Sri Venkateswara Veterinary University, Rajendranagar, Hyderabad (India). College of Veterinary Science. Department of Surgery and Radiology. Murali Mohan, K.; Sri Venkateswara Veterinary University, Hyderabad (India). Department of Animal Reproduction & Gynaecology;. Surgical treatment of a macrostomia in a buffalo calf. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.70 KEYWORDS: WATER BUFFALOES. CALVES. SURGICAL OPERATIONS.

Macrostomia, a condition with wide mouth and extended lips, has not been reported in buffalo calves so far. The present paper deals with one such case of macrostomia (wide mouth, lips extended up to 3rd premolar region). This may occur due to failure of reduction in the primitive mouth slit. A two-day-old non-descript female buffalo calf was referred with the history of inability to swallow milk after suckling from the dam.The skin edges of lips, mucous membrane and some muscle fibres of orbicularis oris were trimmed with a B.P. blade about the level of incisors to the commissures of lips on both upper and lower lips bilaterally. The trimmed edges of the upper and lower lips, mucous membrane and orbicularis oris muscle were sutured with No. 2 chromic catgut in simple interrupted sutures and skin was sutured with No. 1 polyamide in interrupted horizontal mattress pattern The calf recovered uneventfully and the sutures were removed on the 8th postoperative day.

0292. Singh, K.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Department of Veterinary Surgery and Radiologyry and Radiology. Mahajan, S.K.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Department of Veterinary Surgery and Radiology and Radiology. Sangwan, V.; College of Veterinary Science. Department of Clinical services Complex. Kumar, A.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Department of Veterinary Surgery and Radiology. Gopinathan, A.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Department of Veterinary Surgery and Radiologyry and Radiology. Saini, N.S.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Department of Veterinary Surgery and Radiology. Ventral abdominal hernioplasty using polypropylene mesh in a cow. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.71 KEYWORDS: HERNIA. ABDOMEN. COWS.

An 8-year-old recently calved Jersey cow, which met a violent fall 8 days back, was reported with a swelling on lateral abdomen just below the stifle fold. The size of hernia was progressively increasing. Physical examination revealed about 11 inches long tear on the lateral abdominal wall through which

herniated intestinal loops were evident. Unsuccessful herniorrhaphy was done under general anaesthesia using silk with vestover- pant suture pattern. In second attempt after one week of first surgery, hernioplasty was carried out with polypropylene mesh. The animal was premedicated with midazolam. Similar to the present study polypropylene mesh was used for the repair of diaphragmatic, ventral abdominal, inguinal and flank hernias in equines and traumatic lateral body wall hernia

0293. Velavan, A.; Tamilnadu University of Veterinary and Animal Sciences, Chennai (India). Madras Veterinary College.Department of Clinics;. Jayaprakash, R.; Tamilnadu University of Veterinary and Animal Sciences, Chennai (India). .Madras Veterinary College.Department of Veterinary Surgery and Radiology,. Jeyaraja, K.; Tamilnadu University of Veterinary and Animal Sciences, Chennai (India). .Madras Veterinary College.Department of Veterinary Surgery and Radiology. Shafiuzama, Md.; Tamilnadu University of Veterinary and Animal Sciences, Chennai (India). Madras Veterinary College.Department of Veterinary Surgery and Radiology. Diagnosis and surgical management of ureterolith in a dog. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.72 KEYWORDS: DOGS. URETER.

Surgical removal of ureteroliths is indicated when a ureter is partially or completely obstructed. Successful surgical management of ureterolith results in good long-term survival of dogs (Snyder et al. 2005). This paper describes the diagnosis and surgical management of ureterolith in a dog. The quantitative analysis of the calculi revealed calcium oxalate, a common constituent of canine urinary calculi.

0294. Fazili, M.R.; Sher-e-Kashmir University of Agricultural Sciences and Technology, Srinagar (India). Teaching Veterinary Clinical Complex (TVCC). Buchoo, B.A.; Sher-e-Kashmir University of Agricultural Sciences and Technology, Srinagar (India). Teaching Veterinary Clinical Complex. Darzi, M.M.; Sher-e-Kashmir University of Agricultural Sciences and Technology, Srinagar(India). .Faculty of Veterinary Sciences and Animal Husbandry. Division of Veterinary Pathology. Bhattacharya, H.K.; Sher-e-Kashmir University of Agricultural Sciences and Technology (Kashmir), Shuhama, Srinagar (India). Teaching Veterinary Clinical Complex. Cutaneous melanocytoma in a crossbred Jersey cow. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.73 KEYWORDS: CROSSBREDS. COWS. MELANOMA.

In the present report, a large cutaneous melanoma arising from ventrolateral abdomen of a cow from Kashmir valley is placed on record. Histological sections showed melanin in subepidermal region with spindle or rounded cells and the cellular details were obscured because of the pigment. These cells were interspersed by connective tissue stroma. The epidermis was intact and revealed changes of acanthosis and parakeratosis. Melanocytoma in the present case showed no recurrence.

0295. Veena, P.; Sri Venkateswara Veterinary University, Tirupati (India). Department of Veterinary Surgery and Radiology. Sankar, P.; Sri Venkateswara Veterinary University, Tirupati (India). Department of Veterinary Surgery and Radiology. Suresh Kumar, R.V.; Sri Venkateswara Veterinary University, Tirupati (India). Department of Veterinary Surgery and Radiology. Dhanalakshmi, N.; Sri Venkateswara Veterinary University, Tirupati (India). Department of Veterinary Surgery and Radiology. Sreelatha, Ch.; Sri Venkateswara Veterinary University, Tirupati (India). College of Veterinary Science. Kokila, S.; Sri Venkateswara Veterinary University, Tirupati (India). Department of Veterinary Surgery and Radiology. College of Veterinary Science. Homeopathic treatment for oral papillomatosis in a dog. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.75 KEYWORDS: HOMEOPATHY. DOGS. ORAL ADMINISTRATION. PAPILLOMA.

Oral papillomatosis is horizontally transmitted by a DNA viral agent from dog to dog. Affected animals are generally young. The lesions appear as wart like and are generally multiple in the oral cavity, pharynx, tongue or lips. The majority of patients will undergo a spontaneous regression of disease within 4-8 weeks. For resistant cases, a wide variety of treatments have been attempted. The present paper reports homeopathic treatment of oral papillomaosis in an 8-year-old dog. In the present case many warts were seen in the oral cavity involving the tongue and cheeks, whereas surgical intervention or vaccination would not

have been the right choice of treatment, since it might have aggravated the condition further. Keeping this in view, the homeopathic medication was preferred with better recovery.

0296. Suresh Kumar, R.V.; Sri Venkateswara Veterinary University, Tirupati (India). Department of Veterinary Surgery and Radiology. Veena, P.; Sri Venkateswara Veterinary University, Tirupati (India). Department of Veterinary Surgery and Radiology. Sankar, P.; Sri Venkateswara Veterinary University, Tirupati (India). Department of Veterinary Surgery and Radiology. Dhana Lakshmi, N.; Sri Venkateswara Veterinary University, Tirupati (India). Department of Veterinary Surgery and Radiology. Ch. Srilatha; Sri Venkateswara Veterinary University, Tirupati (India). Pathology. College of Veterinary Science. Kokila, S.; Sri Venkateswara Veterinary University, Tirupati (India). Department of Veterinary Surgery and Radiology. Plasma cell tumours in a dog. Indian Journal of Veterinary Surgery (India). .(Jun 2011) v.32(1) p.76 KEYWORDS: BLOOD PLASMA. CYTOKINES. DOGS.

Plasmacytomas or plasma cell tumours represent 2.4% of all canine tumours. The skin of the limbs and head including the ears (12.8%) is the most frequently reported cutaneous site The majority of cutaneous plasma cell tumours in the dog are almost always benign and have an excellent prognosis after conservative surgical excision, though a few will recur.

0297. Suresh Kumar, R.V.; Sri Venkateswara Veterinary University, Tirupati (India). College of Veterinary Science. Department of Veterinary Surgery and Radiology. Veena, P.; Sri Venkateswara Veterinary University, Tirupati (India). College of Veterinary Science. Department of Veterinary Surgery and Radiology. Dhanalakshmi, N.; Sri Venkateswara Veterinary University, Tirupati (India). College of Veterinary Science. Department of Veterinary Surgery and Radiology,. Sankar, P.; Sri Venkateswara Veterinary University, Tirupati (India). College of Veterinary Science. Department of Veterinary Surgery and Radiology,. Yasotha, P.; Sri Venkateswara Veterinary University, Tirupati (India). College of Veterinary Science. Department of Veterinary Surgery and Radiology. Caesarean section in a guinea pig (Cavia porcellus). Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.78 KEYWORDS: SURGICAL OPERATIONS. GUINEA PIGS.

Dystocia in guinea pigs is most commonly recorded in primiparous sows greater than seven months of age at first breeding, obese sows and old breeders (Blaes, 2001). The only clinical sign may be prolonged parturition. During uncomplicated births the pubic symphysis separates to open the birth canal two to 48 hr prepartum, which may be palpated by placing the index finger over the pubic symphysis and pressing gently. The laparotomy wound was closed with simple interrupted suture pattern using No. 2/0 catgut. Postoperatively animal was given broad spectrum antibiotic and antiseptic dressing. Animal recovered uneventfully.

0298. Kumar, Senthil D.; High Security Animal Disease Laboratory, Bhopal (India). Department of Veterinary Pathology, Suguna Rao,; Veterinary College, Bangalore (India). Department of Veterinary Pathology. Satyanarayana, M.L.; Veterinary College, Bangalore (India). Department of Veterinary Pathology. Gowda, S.M. Byre; Institute of Animal Health and Veterinary Biologicals, Bangalore (India). Kumar, P.G.Pradeep; Veterinary College, Bangalore (India). Department of Veterinary Pathology. N.Anitha; Veterinary College, Bangalore. Department of Veterinary Pathology. Effect of herbal oil, toxin binder and their combination during induced aflatoxicosis in broilers: Growth and biochemical study. Indian Journal of Veterinary Pathology (India). (Jun 2012) v.36(1)p.64-68 KEYWORDS: POISONING. AFLATOXINS. BROILER CHICKENS. PHYTOTHERAPY. TOXINS.

An experiment was conducted to study protective role of both individual and combined effect of herbal oil and toxin binder during induced aflatoxicosis in broilers. A total of 320 broilers were divided on 7th day of age into eight equal groups. Group A served as a control and was given standard broiler feed without aflatoxin and groups E, F, G and H were given aflatoxin 1 ppm in feed. Groups B, D, G and H were given herbal oil 2.5 g /kg of feed and groups C, D, G and H were given toxin binde,r 19!kg of feed. The chicks were given respective feed from 7th day to 42nd day of age. There was reduction in the body weight and

increased FCR in toxin fed birds of group E, F, G and H from 21” day of age. But in general, herbal oil and toxin binder supplementation either alone or in combination showed marginally improved body weight gain and FCR marginally than toxin fed Group E. There was~crease in relative liver weight in,aflatoxin fed birds and it was reduced in toxin fed groups supplemented with herbal oil and toxin binder either alolle or in combination. There was marginal improvement in the serum total protein and albumin in supplemented birds. Significant increase in serum AST, ALP and AL T levels was observed in only toxin fed group and were significantly reduced in broilers fed with herbal oil, toxin binder or both. But significant reduction in AL T levels in toxin binder alone supplemented group was observed only at the end of the experiment. Supplementation of diets with herbal oil, toxin binder both partially counteracted the alterations induced by aflatoxicosis. The supplementation of herbal oil alone or both was marginally superior to toxin binder alone.

0299. Raut, S.S.; Maharashtra Animal and Fishery Sciences University, Seminary Hills, Nagpur (India). Nagpur Veterinary College. Department of Pathology. Ganorkar, A.G.; Maharashtra Animal and Fishery Sciences University, Seminary Hills, Nagpur (India). Nagpur Veterinary College. Department of Pathology. Bhandarkar, A.G.; Maharashtra Animal and Fishery Sciences University, Seminary Hills, Nagpur (India). Nagpur Veterinary College. Department of Pathology. Jangir, Babu Lal; Maharashtra Animal and Fishery sciences University, Seminary Hills, Nagpur (India). Nagpur Veterinary College. Department of Pathology. Mahaprabhu , R.; Maharashtra Animal and Fishery Sciences University, Seminary Hills, Nagpur (India). Nagpur Veterinary College. Department of Pathology. Kurkure, N.V.; Maharashtra Animal and Fishery Sciences University, Seminary Hills, Nagpur (India). Nagpur Veterinary College. Department of Pathology. Effect of trivalent chromium on haerttato-biochemical and histopathological parameters at higher doses in broilers. Indian Journal of Veterinary Pathology (India). (Jun 2012) v.36(1) p.73-79 KEYWORDS: CHROMIUM. BROILER CHICKENS. BLOOD. BIOCHEMISTRY. HISTOPATHOLOGY. CHROMIUM. BROILER CHICKENS. BLOOD. BIOCHEMISTRY. HISTOPATHOLOGY.

An experiment was conducted in equally distributed 7 groups of 140, day old broilers to study the effect of trivalent organic chromium picolinate (Cr-Pic) 40, 80, 120mg/kg and inorganic chromium chloride (CrCl3) 80, 120, 200mg/kg feed in group B,C,D,E,F and G, respectively. Group A was kept as control. The hematological and biochemical parameters were studied at weekly interval, whereas, pathomorphological studies was conducted on day 21 and 42. Experimental birds did not exhibit any clinical signs of toxicity during the period of observation. The groups Band D receiving Cr-Pic showed higher body weights while the lowest body weights was recorded in the groups F and G receiving CrCl3 120mg and 200mg/kg respectively. Haematological observations revealed anaemia in all the treatment groups receiving CrCl3 on the other hand groups received Cr-Pic showed increased TEC, Hb and PCV values. Mild heterophillia with relative lymphopenia as observed. The serum glucose and cholesterol was decreased significantly in all the groups receiving organic and inorganic chromium with increased levels of serum creatinine and AST levels. Histo-pathologically, liver showed granular degenerative changes, periportal and perivascular necrosis with bile duct hyperplasia in birds receiving higher doses of chromium. Various degenerative changes in tubular epithelium and accumulation of hyaline cast in kidney tubules were noticed. Hyalinization of glomeruli and interstitial nephritis along with fibrous tissue proliferation were evident in group receiving'higher dose of CrCl3 . Present investigation suggest that organic and inorganic trivalent chromium salt produces histo-pathological alterations in liver and kidney.

0300. Roy, H.S.; Faculty of Veterinary & Animal Sciences, Kolkata (India). Department of Veterinary Pathology,Mukhopadhayay, S.K.; Faculty of Veterinary & Animal Sciences, Kolkata (India). Department of Veterinary Pathology. Niyogi, D.; Narendra Deva University of Agriculture and Technology, Faizabad (India). College of Veterinary Science and Animal Husbandry. Choudhary,P.K.; Narendra Deva University of Agriculture and Technology, Faizabad (India). College of Veterinary Science and Animal Husbandry. Ganguly, S.; West Bengal University of Animal and Fishery Sciences, Kolkata (India). Faculty of Fishery Sciences. Department of Fish Processing Technology. Organic acids as a replacer of growth promoter antibiotics in broilers :

Pathological and bacteriological studies on intestine. Indian Journal of Veterinary Pathology (India). (Jun 2012) v,36(1) p.114-116 KEYWORDS: BROILER CHICKENS. GROWTH CONTROL. INTESTINES. ORGANIC ACIDS.

Experimental studies were conducted to evaluate the pathomorphological effect of different combination of organic acids viz. formic acid, propionic acid and lactic acid as a replacer of growth promoter antibiotics. The birds were divided into six equal groups viz. negative control (C,), positive control (C2) and treatment groups (T1; T2. T3 and TJ Birds of group CI were supplied with diet without any antibiotics or acid, group C2 with Virginiamycin 500 gm/100kg feed, group T, wit}:! 0.3% ammonium formate group T2 with 0.3% calcium propionate, group T3 with 0.15% ammonium formate and 0.15% calcium propionate and group T 4 with 0.1 % ammonium formate, 0.1 % calcium propionate and 0.1 % calcium lactate. Body weight gain was higher in C, and C2 compared with treatment groups in first two weeks, but pathological changes were maximum in negative control, i.e. after 6 weeks, weight gain was significantly better in T3 and T4 than in groups CI, T, and T2 groups. Bacteriologically, significant (PO.Ol) reduction of E. coli in TI and T4 was evident. Pathomorphological changes in group C, and T2 were maximum. Group C2 and TI showed same types of changes but the changes were less severe in group T3 and T4 • The most common changes among the groups were thickening of muscular layer, accumulation of inflammatory cells and congested blood vessels. Based on present investigation, it is suggested that combination of organic acid may be used in broiler feed as a replacer of growth promoter antibiotic instead of using only one acid.

0301. Verma, A.K.; Indian Veterinary Research Institute, Izatnagar (India). Sinha, D.K.; Indian Veterinary Research Institute, Izatnagar (India). Singh, B.R.; Indian Veterinary Research Institute, Izatnagar (India). .Seroprevalence study on salmonellosis in apparently healthy dogs by enzyme-linked immunosorbent assay. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 3-5 KEYWORDS: DOGS. SALMONELLA. SALMONELLOSIS. ELISA.

Sera samples (575) were collected from 17 breeds of apparently healthy dogs from different parts of the country and tested for the presence of antibodies against cytotoxin-I antigen ELISA from S. Weltevreden (BM1613) to know the seroprevalence of salmonellosis. The overall seroprevalence was 58.08%. Place-wise the highest seroprevalence was in sera samples collected from Dehradun (92.00%), while breed-wise maximum sera samples of Labrador (81.58%) showed the presence of anti- cytotoxin-I antibodies of salmonella. The difference of seroprevalence of salmonellosis between 2 sexes was nonsignificant and the age group of 7–9 years and above showed the highest serprevalence (63.37%). Our results showed a high seroprevalence of salmonellosis in dogs, which indicates a serious threat to human health.

0302. Bharath, B.K.; Shri Venkateshwara Veterinary University, Tirupati (India). College of Veterinary Science. Anjaneyulu, Y.; Shri Venkateshwara Veterinary University, Tirupati (India). College of Veterinary Science.Srilatha, Ch.; Shri Venkateshwara Veterinary University, Tirupati (India). College of Veterinary Science. Imuunomodulatory effect of Ocimum sanctum against endosulfan induced immunotoxicity in wistar rat. Veterinary World (India). (Jan 2011) v.4(1) p. 25-27 KEYWORDS: ENDOSULFAN. TOXICITY. PHYTOTHERAPY.

The present experiment was designed to make a systematic study of experimentally induced immunotoxicity of endosulfan and its amelioration with Ocimum sanctum in male Wistar rats at 6, 3 and 1.5 mg / Kg b.wt to groups II, III and IV by mixing in ground nut oil for 6 weeks. To the groups V, VI and VII in addition to endosulfan as above mentioned dose, Ocimum sanctum was given at 200 mg / kg b.wt daily per orally for the same duration to study immuno modulatory effect. Group I served as oil control and Group VIII as Ocimum sanctum control. Significant reduction in the both HA titer and DNCB contact sensitivity score was observed in the endosulfan treated groups indicates endosulfan has immunotoxic effect. But significant improvement in the immunity was observed in the Ocimum sanctum treated groups indicates the immuno modulatory property.

0303. Rao, Ch.Mallikarjuna; Veterinary Dispensary, Allavaram (India). Prasad, B.C.; SAHTC, Tanuku (India). Hari Krishna, N.V.V; N.T.R College of Veterinary Science, Gannavaram (India). Surgical management of lipoma in a dog. Veterinary World (India). (Jan 2011) v.4(1) p. 34 KEYWORDS: DOGS. LIPOMA. SURGICAL OPERATIONS.

Lipomas are benign fatty tumours composed of mature fat cells. This paper reports about a case of lipoma in a dog.

0304. Jain, S.K.; Department of Veterinary Pharmacology and Toxicology. Sahni, Y.P.; Department of Veterinary Pharmacology and Toxicology. Rajput, Neetu; Department of Veterinary Pharmacology and Toxicology. Gautam, Vidhi. Department of Veterinary Pharmacology and Toxicology,. Nanotoxicology : An emerging discipline. Veterinary World (India). (Jan 2011) v.4(1) p. KEYWORDS: HUMAN POPULATION.

Nanotoxicology refers to the study of the interactions of nanostructures with biological systems with an emphasis on elucidating the relationship between the physical and chemical properties of nanostructures with induction of toxic biological responses. Nanotoxicology is aimed at providing information on the potential toxicological effects, risk assessment and safety evaluation of nanostructured materials on human health. Nanoparticles present possible dangers, both medically and environmentally. They are also able to pass through cell membranes in organisms and their interactions with biological systems are relatively unknown. Animal studies have shown that nanoparticles can penetrate cells and tissues, move through the body and brain and cause biochemical damage. The greater chemical reactivity of nanomaterials result in increased production of reactive oxygen species which may contribute to similar patterns of cell injury and alterations at the molecular level by initiation, propagation and autocatalytic chain reactions. Intracellular signaling activation and inactivation of enzymes, stimulation, secretion and release of pro-inflammatory cytokines, chemokines and nuclear factor activation and alteration are also common events.

0305. Malik, V.; Indian Veterinary Research Institute, Izatnagar (India). Kinjavdekar, P.; Indian Veterinary Research Institute, Izatnagar (India). Amarpal; Indian Veterinary Research Institute, Izatnagar (India). Aithal, H.P.; Indian Veterinary Research Institute, Izatnagar (India). Pawde, A.M.; Indian Veterinary Research Institute, Izatnagar (India). Surbhi; Indian Veterinary Research Institute, Izatnagar (India). Continuous intravenous infusion anaesthesia with ketamine in medetomidine, midazolam, butorphanol premedicated and thiopental induced buffaloes. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81(2) p. 116-122 KEYWORDS: WATER BUFFALOES. ANAESTHESIA. INJECTION. BARBITURATES.

The study was conducted with an objective to standardise and evaluate the continuous intravenous anaesthesia using ketamine in buffaloes and to compare it after 2 different preanaesthetic regimens. Continuous intravenous infusion (CII) anaesthesia in 6 male adult buffaloes was used in K-1 and K–2 groups. In K medetomidine (2.5 µg / kg) + butorphanol (0.05 mg/kg) and in K 2 1 midazolam (0.25 mg/ kg) + butorphanol (0.05 mg/kg) intravenously were used. Induction by 5% thiopental sodium and maintenance by 1% ketamine was done. Clinicophysiological, haematobiochemical and haemodynamic parameters were recorded. Group K-1 produced better sedation and analgesia. Muscular relaxation was excellent in both groups. Depression of palpebral reflex was better in K-2, depression of corneal reflex was comparable and depression of pedal and pinprick reflexes was higher in K-1. Lesser dose of thiopental was required in K-1 (2.87±0.44 mg/kg) than K group (7.14±0.36 mg/kg). The infusion rates of ketamine were 0.13±0.01 and 0.16±0.01 mg/kg/min in K-1 and K-2. Weak time was comparable. Recovery time, resumption of sternal recumbency and standing time were higher in K-2. Bradycardia in K-1 and tachycardia in K-2 was recorded. Respiratory rate decreased in K-1. Rectal temperature decreased in both groups. MAP decreased in K-1 and increased in K-2. CVP increased after premedication, decreased after induction and maintenance in both groups. Medetomidine - butorphanol provides better quality sedation, analgesia and muscle relaxation, has more dose sparing effect on induction and maintenance agents and maintains cardiopulmonary dynamics better than midazolam-ketamine in buffaloes. Additionally continuous intravenous infusion of ketamine

(0.13–0.16 mg/kg/min) can be used safely and effectively for maintenance of anaesthesia in buffaloes premedicated with proposed drugs.

0306. Ranjan, A.; Birsa Agriculture University, Ranchi (India). Roy, B.K.; Birsa Agriculture University, Ranchi (India). Prasad, R.; Birsa Agriculture University, Ranchi (India). Ranjan, R.; Birsa Agriculture University, Ranchi (India). Meloxicam co-treatment alters pharmacokinetics of ceftizoxime in febrile sheep. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81 (2) p. 152-154 KEYWORDS: SHEEP. CEPHALOSPORINS. MEDICINAL PROPERTIES.

Effect of meloxicam co-treatment on pharmacokinetic parameters of ceftizoxime (CZX) in E coli LPS induced febrile sheep (n=12) was studied. Group 1 (n=6) animals received single intravenous injection of CZX 25 mg/ kg body weight, while group 2 animals (n = 6) received CZX 25 mg/ kg body weight along with single intravenous dose of meloxicam 0.5 mg/ kg body weight. Plasma drug concentration-time profile in both groups evidenced a biexponential disposition curves and best fitted to two compartment open model. Plasma CZX concentrations in group 2 remained higher than group 1 throughout the observation period. In both groups, plasma CZX concentration reached below detection level after 3 h of drug administration. Half-life of elimination phase did not differ significantly in between the two groups. However, zero time drug concentration at distribution phase, theoretical zero time plasma drug concentration, half-life of distribution and elimination phases, total body clearance, rate constants of drug diffusion from peripheral to central and central to peripheral compartment, elimination rate constant from central compartment and peripheral/ central compartment drug concentration ratio were significantly lower in group 2. Other parameters, like zero time drug concentration at elimination phase, area under plasma concentration curve and mean residual time were significantly higher in group 2. Our results revealed that meloxicam co-treatment enhances the plasma CZX concentration possibly by reducing tissue distribution of the drug.

0307. Vijayakumar, H.; Indian Veterinary Research Institute, Izatnagar (India). Pandey, N.N.; Indian Veterinary Research Institute,Izatnagar (India). Gurav, A.; Indian Veterinary Research Institute, Izatnagar (India). Mishra, K.K.; Indian Veterinary Research Institute, Izatnagar (India). Mondal, D.B.; Indian Veterinary Research Institute, Izatnagar (India). Diagnostic evaluation of ultrasonography in canine hepatobiliary and urinary disorders. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81 (2) p. 162-167 KEYWORDS: DOGS. URINARY TRACT DISEASES. LIVER DISEASES. ULTRASONICS. ECHOGRAPHY.

In the present study a comparative evaluation was made between clinical signs, ultrasonography, serum biochemistry and radiology for diagnosis of hepatobiliary and urinary disorders in dogs. The normal ultrasonographic appearances were studied for liver, gall bladder, kidneys and urinary bladder and the observations were compared with diseased group. The findings were also correlated with the blood biochemical alterations, viz. albumin, ALT, GGT, BUN and creatinine along with plain radiography. The study indicated that ultrasonographically the incidences of hepatobiliary and urinary disorders were more, with the clinical signs were relatively vague and variable in nature. Ultrasonography served as a valuable aid in diagnosing and differentiating hepatobiliary and urinary disorders especially especially cirrhosis, renal failure, cystitis, cystoliths and hepatosplenomegaly compared to serum biochemistry and radiography.

L72 Pests of Animals

0308. Das, S.S.; Rajiv Gandhi College of Veterinary and Animal Sciences, Puducherry (India). Dept. of Veterinary Parasitology.Rajkumar, K.; Rajiv Gandhi College of Veterinary and Animal Sciences,Kurumbapet, Puducherry (India). Dept. of Veterinary Epidemiology and Preventive Medicine.Sreekrishnan, R.; Rajiv Gandhi College of Veterinary and Animal Sciences, Puducherry (India). Dept. of Veterinary Parasitology.Rao, V.N.; Rajiv Gandhi College of Veterinary and Animal Sciences, Puducherry (India). Dept. of Veterinary Clinical Medicine, Ethics and Jurisprudence.Kumar, D.; Rajiv Gandhi College of Veterinary and Animal Sciences, Puducherry (India). Dept. of Veterinary Parasitology. Occurrence of Liponyssoides sanguineus and Polyplax

spinulosa on an albino rat in Puducherry. Indian Journal of Veterinary Research (India). (Jan-Jun 2012) v. 21(1)p.70-72 KEYWORDS: POLYPLAX. RATS.

Mite Liponyssoides sanguineus and louse Polyplax spinulosa are reported ITomrat (Rattus norvegicus) for the first time from Puducherry.

0309. Borkataki , Sanku; Faculty of Veterinary Sciences and Animal Husbandry, Jammu (India). Department of Parasitology. Islam, Saidul; College of Veterinary Sciences, Khanapara, Guwahati (India). College of Veterinary Parasitology. Goswami, Pankaj; Faculty of Veterinary Sciences & Animal Husbandry, Srinagar (India). Department of Pathology. Haematological and pathological changes in piglet infected with Taenia solium. Indian Journal of Veterinary Pathology (India). (Jun 2012) v.36(1) p.28-32 KEYWORDS: PATHOLOGY. SWINE. TAENIA SOLIUM.

Porcine cysticercosis is a major public health concern in many developing countries for which pigs are the intermediate hosts of human tapeworm Taenia solium. Cysticercosis in pigs has economic impacts through the condemnation of affected meat as the intermediate stage of the parasite encysted in various tissues or organs on ingestion of Taenia solhlm eggs. To study the typical changes produced by this parasite, an experiment of induced porcine cysticercosis was conducted in piglets with administration of lxl05 Taenia solium viable eggs per os. Gradual increase of lymphocytes and eosinophils and simultaneous decreaseQf neutrophils were the important-baematological findings. Infected pigs slaughtered at 90th days of post infection reveled development of Cysticercus cellulosae in liver, lungs, spleen and skeletal muscles. More numbers of cysts were detected in liver. Intense immunopathological reaction could be observed around the encysted larvae in liver seCtions. Histologically, the lesions were of degeneration of parasite surrounding granuloma formation with layers of infiltrating cells. Hydropic degenerationof hepatic parenchyma, dilatation of sinusoids and bile duct proliferation were recorded besides the granulomatous lesions in liver. The typical form of granulomatous reaction initiated by the cysticercus in the visceral organs could be used for designing therapeutic and iInmunoprophylactic study to combat the disease.

0310. Londhe, M.S.; Mahatma Gandhi Veterinary College, Bharatpur (India). Department of Veterinary Pathology. Tripathi , K.K.; Mahatma Gandhi Veterinary College, Bharatpur (India). Department of Veterinary Pathology. Agrawal, R.D.; Mahatma Gandhi Veterinary College, Bharatpur (India). Department of Veterinary Parasitology. Cardiac Cysticercus tenuicollis in Barbari goat - A case report. Indian Journal of Veterinary Pathology (India). (Jun 2012) v.36(1) p.92-93 KEYWORDS: CYSTICERCOSIS. GOATS. PERICARDIUM.

Post-mortem examination of 8 months old Barbari goat revealed variable sized multiple tape worm cysts of Cysticercus tenuicollis attached to the omentum, mesentery and pericardium. The occurrence of such cysts on the pericardium as observed in the present case appears to have not been reported earlier in the available literature.

0311. Rout , M.; Project Directorate on FMD, Mukteswar, Nainital (India). Saikumar, G.; Indian Veterinary Research Institute, Izatnagar (India). Division of Pathology. Porcine cysticercosis: An underestimated zoonotic disease. Indian Journal of Veterinary Pathology (India). (Jun 2012) v.36(1) p.94-96 KEYWORDS: SWINE. CYSTICERCOSIS. ZOONOSES.

Infection with Taenia solium, the pig tapeworm is widely prevalent in human and porcine hosts in many developing countries. To study of prevalence and pathology of porcine cysticercosis, animals were examined and sampled at a local slaughterhouse in Bareilly city of Uttar Pradesh state (India). On gross and histopathological examinations, 4 out of 119 (3.36%) pigs slaughtered during the period of study were found positive for porcine cysticercosis. Characteristic cystic lesions were found in the brain, heart, skeletal muscles and tongue. The prevalence of this zoonotic disease in Bareilly region implies increased risk of transmission to human beings and occurrence of neurocysticercosis. Stringent inspection of carcasses at the slaughter point by public health authorities and confinement rearing of pigs needs to be implemented for control of this deadly disease.

0312. Maharshi, A.K.; Rajasthan University of Veterinary and Animal Science, Bikaner (India). .Swarnkar, CP.; Rajasthan University of Veterinary and Animal Science, Bikaner (India). Singh, D; Rajasthan University of Veterinary and Animal Science, Bikaner (India). Manohar, G.S.; Rajasthan University of Veterinary and Animal Science, Bikaner (India). Ayub, M.; Rajasthan University of Veterinary and Animal Science, Bikaner (India). Status of anthelmintic resistance in gastrointestinal nematodes of sheep in Rajasthan. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81(2) p. 105-109 KEYWORDS: SHEEP. ANTHELMINTICS. BENZIMIDAZOLES. HAEMONCHUS CONTORTUS. RAJASTHAN.

A study was conducted to assess the status of anthelmintic resistance in gastrointestinal nematodes (predominantly Haemonchus contortus) of sheep maintained at organized farms and farmer’s field in Rajasthan through in-vivo faecal egg count reduction test and in-vitro egg hatch assay. The magnitude of reduction in the faecal egg counts by fenbendazole (5.0 mg kg-1 body weight) revealed emergence of benzimidazole resistance in H. contortus of sheep from all the farm and field flocks except in field flocks from north-eastern Rajasthan where 66.7% flocks possessed benzimidazoleresistant H.contortus.With tetramisole (15 mg kg -1 body weight) resistance in H. contortus was observed in farm flock of north-eastern region whereas among field flocks it ranged from 33.33% (north region) to 83.33% (eastern region). On egg hatch assay, strains of worms were found susceptible to benzimidazole in farm flocks of northern region while in field flocks prevalence of benzimidazole resistance strongyle worms was 100% in eastern and northern region and 83.33% in north-eastern region. A high agreement (86.4%) with poor linear correlation (r = 0.087) was observed between results of both faecal egg count reduction test and egg hatch assay for benzimidazole resistance.

0313. Maharshi, A.K.; University of Veterinary and Animal Science, Bikaner (India). Swarnkar, C.P.; University of Veterinary and Animal Science, Bikaner (India). Singh, D.; University of Veterinary and Animal Science, Bikaner (India). Manohar, G.S.; University of Veterinary and Animal Science, Bikaner (India). Correlation between status of benzimidazole resistance in Haemonchus contortus on bio and molecular assays. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81(2) p.110-115 KEYWORDS: HAEMONCHUS CONTORTUS. ANTHELMINTICS. BENZIMIDAZOLES.

In relation to benzimidazole resistance in Haemonchus contortus, the diversity in genotypes was established through) of sheep from different agroclimatic regions of Rajasthan. The results of molecular assay were correlated with results obtained on biological assay (faecal egg count reduction test and egg hatch assay). The study was conducted in 22 sheep flocks and a total of 691 L allele specific-polymerase chain reaction in infective larvae (L 3 was genotyped for benzimidazole resistance. The overall genotypic frequency for homozygous resistant (rr) larvae ranged from 72.22% (north-eastern region) to 96.87% (eastern region) in farm flocks and from 61.79% (north-eastern region) to 95.83% (eastern region) in field flocks. The results of correlation revealed that phenotypic expression of benzimidazole resistance on faecal egg count reduction test was evident with occurrence of 30% rr genotypes in population. Likewise presence of 30% r alleles in population were found to express the benzimidazole resistance on egg hatch assay. With decrease in faecal egg count reduction%, there was a linear increase in the frequency of ‘rr’ genotype in population with maximum of ‘rr’ genotype (96.58%) in flocks exhibiting 50% efficacy for benzimidazole on faecal egg count reduction test.

0314. Mandal, A.; Central Institute for Research on Goats, Makhdoom (India). Agarwal, N.; Central Institute for Research on Goats, Makhdoom (India). Nigam, P.; Central Institute for Research on Goats, Makhdoom (India). Sharma, D.K.; Central Institute for Research on Goats, Makhdoom (India). Roy, R.; Central Institute for Research on Goats, Makhdoom (India). Susceptibility of Haemonchus contortus infection in Jakhrana goats. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81 (2) p. 149-151 KEYWORDS: HAEMONCHUS CONTORTUS. GOATS. DISEASE RESISTANCE.

The study revealed that the overall prevalence rate of H. contortus infection in the Jakhrana flock was 71.3% and the females had higher prevalence rate as compared to males (66% vs. 34%). The fecal egg count was a good indicator of naturally infected nematode infection. Sex-wise susceptibility pattern to the infection in this breed revealed that males had significantly higher worm load than females. The occurrence of the infection was significantly higher in pregnant animals as compared to non-pregnant animals in this breed. Negative association between fecal egg count and packed cell volume of animals was also observed at phenotypic level.

0315. Singh, D.; Central Sheep and Wool Research Institute, Avikanagar (India). Swarnkar, C.P.; Central Sheep and Wool Research Institute, Avikanagar (India). Khan, F.A.; Central Sheep and Wool Research Institute, Avikanagar (India). Bhagwan, P.S.K.; Central Sheep and Wool Research Institute, Avikanagar (India). Dubey, S.C.; Central Sheep and Wool Research Institute, Avikanagar (India). In vitro ovicidal and larvicidal activity of Andrographis paniculata (Kalmegh) leaves on Haemonchus contortus. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81 (2) p. 155-157 KEYWORDS: ACANTHACEAE. ANTHELMINTICS. HAEMONCHUS CONTORTUS.

The aqueous extract from leaves of Andrographis paniculata was evaluated for anthelmintic activity against eggs and larvae of Haemonchus contortus. The extract was caused marked inhibition of embryonation and hatching of eggs. At the concentration of 1.25 mg ml -1 , the corrected mean egg embryonation and egg hatching were 22.06±3.76 and 0.47±0.17%, respectively indicating presence of both ovicidal and embryotoxic activity. However, the extract revealed moderate (43.58%) larvicidal activity at the concentration of 20.0 mg / ml after 72 h post-exposure.

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0316. Sharma, P.C.; National Dairy Research Institute, Karnal (India). DCB Division. Gupta, A.K.; National Dairy Research Institute, Karnal (India). DCB Division. Mohanty, T.K.; National Dairy Research Institute, Karnal (India). DCB Division. Chakravarty, A.K.; National Dairy Research Institute, Karnal (India). DCB Division. Singh, A.; National Dairy Research Institute, Karnal (India). DCB Division. Raja, T.V.; National Dairy Research Institute, Karnal (India). DCB Division. Economic losses due to clinical mastitis in Karan Fries (Holstein Crossbred) dairy cattle. Indian Journal of Veterinary Research (India). (Jan-Jun 2012) v. 21 (1) p.1-5 KEYWORDS: LOSSES. MASTITIS. CROSSBREDS. CROSSBREEDING. DAIRY CATTLE.

A study was conducted to evaluate the economic losses due to clinical mastitis in Karan Fries cows maintained at National Dairy Research Institute, Kamal. The overall economic losses due to clinical mastitis using price of medicine and milk losses during the period of 2006-08 were considered for estimating economic losses. The incidence of mastitis was found to be 0.40 in 485 lactations of Karan Friescows during the period 2006-08. Total milk loss and expenditure were estimated as 9899.73 Kg and Rs. 94,381.90 in 343 cases of mastitis. The average milk loss and expenditure on medicines due to mastitis were estimated as 33.02+-5.39 Kg and Rs 283.51 +- 24.94 per case, respectively. Significant influence of clinical mastitis on milk loss and treatment cost per case was observed for season and period.The milk lossesand cost of treatment per case were highest(49.96 +- 10.20 kg and Rs 390.47 +- 47.21) in summer season.

0317. Sharma, R. N.; St. George's University, Schoolof Veterinary Medicine, Grenada (WestIndies). Pathobiology Academic Program. Hariharan, H.; St. George's University, School of Veterinary Medicine, Grenada (WestIndies). Pathobiology Academic Program. Roopnarine, R.; St. George's University, Schoolof Veterinary Medicine, Grenada (WestIndies). Pathobiology Academic Program. Ciprofloxacin resistance in campylobacters from chickens in Grenada. Indian Journal of Veterinary Research (India). (Jan-Jun 2012) v. 21 (1) p.6-9 KEYWORDS: CAMPYLOBACTER. CHICKENS. GRENADA. RESISTANCE TO CHEMICALS.

To assess the rates of ciprofloxacin resistance among zoonotic campylobacter isolates from chickens in commercial farms in Grenada, 125 chickens were examined for Campylobacter Jejuni, c.coli and c.lari in

their ceca. Ofa total of 64 isolates recovered, 21 were c.jejuni, 39 c.coli, and 4 c.lari. Eight isolates (12.5%) were resistant to ciprofloxacin, 6 of which showed additional resistance to one or more of the following drugs: ampicillin, chloramphenicol, gentamicin, erythromycin, tetracycline, and metronidazole. The emergence of zoonotic campylobacters resistant to ciprofloxacin in chickens is of public health concern.

0318. Lambate, S.B.; Bombay Veterinary College, Mumbai (India). Department of Veterinary Anatomy and Histology. Dhande P.L. ; Bombay Veterinary College, Mumbai (India). Department of Veterinary Anatomy and Histology. Ghule, P.M.; Bombay Veterinary College, Mumbai (India). Department of Veterinary Anatomy and Histology. Karnde, V.Adsul, N. S.; Bombay Veterinary College, Mumbai (India). Department of Veterinary Anatomy and Histology. Effect of GNA nucleotide (immunomodulatory agent) on the histoarchitecture of the bursa of Fabricius and spleen in broiler. Indian Journal of Veterinary Research (India). (Jan-Jun 2012) v. 21(1) p.40-45 KEYWORDS: HORSES. TREATMENT DATE. SPLEEN. BROILER CHICKENS. NUCLEOTIDES.

The immune system of the bird is often disturbed by the activity of various immuno-suppressors, both non infectious (linked to breeding conditions) and infectious. In group T 1and T4 the lymphocytes were densely packed in cortex as well as in medulla. The height of epithelium was more in group T 1 followed by group T4, T2 and T3. Lymphoid follicles were well developed and showed greater interfollicular connective tissue in group Tl. The diameter of follicle was more in group Tl followed by group T4. In group T3 the number of follicles per mm2 was more while diameter of follicle was the smallest among all groups. The muscle layer was composed of smooth muscle fibers. The amount of connective tissue in the serosa was more in the group Tl. The splenic tissue showed major red pulp and smaller white pulp in all treatment groups. The white pulp was spherical in appearance in group T1 while it was irregular in shape in other treatment groups. The cells of the red and white pulp were densely populated in Tl. The diameter of white pulp was greater in group Tl among the all groups.

0319. Singh, Bhoj Raj; Central Agricultural Research Institute, Port Blair (India). Division of Animal Science. Roy, Subamo; Indian Council of Medical Research, Regional Medical Research Centre, Port Blair (India). Biodiversity in enteropathogens of public health significance in Andaman and Nicobar Islands. Indian Journal of Veterinary Research (India). (Jan-Jun 2012) v. 21(1) p.46-53 KEYWORDS: DIARRHOEA. SALMONELLA. SHIGELLA. ESCHERICHIA COLI. ANDAMAN AND NICOBAR ISLANDS.

Andaman and Nicobar Islands (ANI) is a hot spot for tourists and also a biodiversity. But little is known about the prevalence of enteropathogens in the Islands. This review explored the epidemiology of different enteropathogens prevalent in ANI. Shigella spp, S. enterica ser Typhimurium and E. coli are the major enteropathogens of human beings. In urban and suburb population children below five years of age experienced about one bout of enteric (mostly diarrhoea) disease every month but incidence is low (0.02/child year) in Nicobar. Common causes of diarrhoea reported in other coastal areas including Aeromonas spp, Edwardsiella spp. Vibrioparahaemolyticus and other marine Vibrio spp. are rarely reported trom ANI. In animals and birds also, predominant enteropathogens are Salmonella and E. coli. Serological surveys of poultry birds revealed up to 75% positive reactors for salmonellosis. The disease might be sub-clinical in adult birds but may be responsible for high chick mortality, reported to be around 50% year after year in ANI.

0320. Ramachandran, Durairajan; G C. Negi College of Veterinary and Animal Sciences, Palamapur (India). Department of Veterinary Microbiology and Immunology. Verma, Harshit; G C. Negi College of Veterinary and Animal Sciences, Palamapur (India). Department of Veterinary Microbiology and Immunology. Sharma, Mandeep; G C. Negi College of Veterinary and Animal Sciences, Palamapur (India). Department of Veterinary Microbiology and Immunology. Study on virulence and gene sequencing of the Avibacterium paragallinarum isolated from broiler and layer farms. Indian Journal of Veterinary Research (India). (Jan-Jun 2012) v. 21(1) p.77-80 KEYWORDS: GENES. PCR. POULTRY.

Isolates of A. paragallinarum from infraorbital sinus samples of birds were identified by conventionalmethod and HP-2 PCR. 0.2 ml(lO” CFU) of culture suspension of each isolate grown on brain heart infusion broth was instilled intranasally of four seven weeks old chickens for pathogencitiy test in day old chicks. The infected chickens showed nasal discharge, conjunctivitis and depression. Sequencing of HA gene was carried out for phylogenetic analysis of A. paragallinarum. The gene sequencing of isolated local strains A. paragallinarum had 98.9-99.6 per cent homology with A. paragallinarum Modesto strain and A. paragallinarum 0083 strain. The PCR test permitted rapid and specific identification of A. paragallinarum and was found suitable for the diagnostic and epidemiological studies.

0321. Verma, Pallavi; Guru Angad Dev Veterinary and Animal Science University, Ludhiana (India). Mohindroo, J.; Guru Angad Dev Veterinary and Animal Science University, Ludhiana (India). Department of Veterinary Surgery and Radiology. Singh, S.S.; Guru Angad Dev Veterinary and Animal Science University, Ludhiana (India). College of Veterinary Sciences. Ultrasonographic features of liver affections in dogs. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.1-5 KEYWORDS: DOGS. GALL BLADDER. LIVER DISEASES. LIVER. ULTRASONICS.

The present study was conducted on 34 dogs with the history of anorexia, inappetence, weight loss and icterus. These animals were subjected to ultrasonography using a 3.5 MHz microconvex transducer. Ultrasonographically, hepatitis (n=10), cirrhosis (n=3), hepatic congestion (n=13), hyperechoic nodules (n=4), cholecystitis (n=8) and hepatomegaly (n=5) could be well differentiated. More than one condition could be seen in the majority of the cases. It was concluded that ultrasonography is a sensitive imaging techniques for diagnosis of hepatic affections in dogs. However, diagnosis based on ultrasonography should be complemented with haematobiochemical and clinical findings to arrive at a definitive diagnosis.

0322. Manjunath, S.M.; Karnataka Veterinary, Animal and Fisheries Sciences University, Bidar (India). Department of Surgery and Radiology. Shivaprakash, B.V.; Karnataka Veterinary, Animal and Fisheries Sciences. University, Bidar (India). Department of Surgery and Radiology. Dilipkumar, D.; Karnataka Veterinary, Animal and Fisheries Sciences. University, Bidar (India). Department of Surgery and Radiology Usturge,S.M.; Veterinary College, Bidar. Classification, haematobiochemical profile, histopathological evaluation and different treatments for yoke gall. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.31-35 KEYWORDS: BULLOCKS. REFRIGERANTS. HARNESS. BILE. KERATIN.

The present study was conducted in 57 clinical cases of yoke gall that were used for classification and evaluation of 8 different treatments. The yoke galls were classified as 6 major types viz. acute, sub acute, chronic fibrosed, chronic suppurative (abscess), chronic ulcerative and mixed (miscellaneous). In group I, diclofenac sodium injection and topical application of khand malam No. 1 (7.5% lime juice, 25% turmeric powder, petroleum jelly and pure ghee base) was done. In group II, dicofenac sodium injection and topical application of khand malam No. 1 and dimethyl sulfoxide (DMSO) was done. In group III, only topical application of DMSO was given. In group IV, intravenous dimethyl sulfoxide 1 g/kg b.wt as 10% solution was given. In group V, dexamethasone injection was given directly into the swelling, and in group VI, herbal treatment using Triumfetta rotundifolia and Dregia volubilis was done. In group VII, surgical drainage of acute yoke gall by stab incision was carried out and in group VIII, surgical excision was done in nine bullocks with chronic yoke gall. Routine anti-inflammatory agents such as diclofenac sodium or topical ointments were not totally effective for acute yoke gall and they were least effective for sub acute and chronic yoke gall. Intravenous injection of dimethyl sulfoxide or local injection of dexamethasone provided complete improvement in large, acute yoke galls. Surgical drainage by stab incision was better for the treatment of large and extensive acute yoke gall than medical treatment alone; and surgical excision was the best and 100% effective for chronic fibrosed, chronic ulcerative and chronic supparative types of yoke galls.

0323. Bansal, K.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Department of Veterinary Pathology. Singh, c.K.; Guru Angad Dev Veterinary and Animal Sciences University,

Ludhiana(India). Department of Veterinary Pathology. Sandhu, B.S.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). .Department of Veterinary Pathology.Dandale, M.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Department of Veterinary Pathology.Sood, N.K.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Department of Veterinary Pathology. Comparat~ve analysis of histopathological alterations of rabies in cows, buffaloes and dogs. Indian Journal of Veterinary Pathology (India). (June 2012) v.36(1) p.1-5 KEYWORDS: WATER BUFFALOES. COWS. DOGS. FATS. RABIES.

In the present study, histpathological alterations in nervous tissue of 8 dogs, 5 cows and 7 buffaloes were analyzed. Sensitivity of histpathological alterations was compared with immunofluorescence (FAT). On the basis of Negri body detection and histomorphological alterations rabies was confirmed in 11 (55%) cases constituting of 2 dogs, 5 cows and 4 buffaloes while, FAT detected rabies viral antigen in 13 (65%) cases consisting of4 dogs, 5 cows and 4 buffaloes. Sensitivity ofhistpathological study as compared with FAT was found to be 86.67%. Quantitative assessments of other histpathological alterations reported were perivascular cuffing, neuronal degeneration, gliosis, congestion, hemorrhages, neuronophagia, satellitosis and meningitis.

0324. Sandhu, B.S.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Department of Veterinary Pathology. Awahan, Sumedha; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Department of Veterinary Pathology. Singh, C.K.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Department of Veterinary Pathology. Gupta, Kuldip; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana(India). Department of Veterinary Pathology. Sood, N.K.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). Department of Veterinary Pathology. Immunopathological studies for detection of rabies in skin. Indian Journal of Veterinary Pathology (India). (June 2012) v.36(1) p.6-9 KEYWORDS: FATS. RABIES VIRUS. SKIN DISEASES. BIOPSY.

In the present study, the efficacy of different immunopathological techniques for anti and post - mortem diagnosis of rabies in skin from 11 animals (3 buffaloes, 4 cattle and 4 dogs) suspected for rabies was compared. One step polymer HRPO Immunohistochemical detection system yielded 28.57 % sensitivity in skin biopsies comparison to FAT on brain impression smears. Immunohistochemistry on skin samples of post-mortem cases was positive in 5/31 cases (16.13%). Necropsied skin impression showed a sensitivity of 35.71 % in comparison to FAT on brain impression. The study concluded that skin biopsies may serve as a useful material for ante-mortem diagnosis of rabies using immunohistochemistry.

0325. Mir, M.S.; Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir, Shuhama,Shuhama Alusteng, Srinagar (India). Division of Veterinary Pathology. Darzi, M.M.; Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir, Srinagar (India). .Division of Veterinary Pathology. Mir, A.Q.; Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir, Shuhama, Alusteng, Srinagar (India). Malik, H.U.; Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir, Srinagar(India). Division of Clinical Veterinary Medicine, Ethics and Jurisprudence. Mustafa, M.; Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir, Shuhama, Alusteng, Srinagar(India). Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir, University Science, Srinagar (India). Instrumentation Centre Faculty of Veterinary Sciences and Animal Husbandry. Pathomorphology of bovine visceral linguatuliasis (Linguatula serrata). Indian Journal of Veterinary Pathology (India). (June 2012) v.36(1) p.10-14 KEYWORDS: NYMPHS. TONGUE. CATTLE. LINGUATULA. MICROSCOPY.

Two cases of viscerallinguatuliasis diagnosed at post-mortem examination were subjected to a thorough examination including gross, histopathological and parasitological examination besides evaluating the clinical and clinicopathological observations. The parasites recovered from Case-Ilwere dead while that from Case-I were live and vigorously wriggled into the parenchyma of the nodes. The morphometric and morphological characters of the nymph have been described using light'~icroscopic, steromicroscopican-E,

scanning electron microscopic examinations Mesenteric lymphnodes were most severely affected histopathologically revealing a moth eaten appearance, and larvae and nymph in the oedematous cystic spaces surrounded by zones of lymphoid hyperplasia characterized by presence of lymphoblasts.

0326. Londhe, M.S.; Lala Lajpat Rai University of Veterinary and Animal Sciences Hisar (India). Department of Veterinary Pathology. Pruthi, A.K.; Lala Lajpat Rai University of Veterinary and Animal Sciences, Hisar (India). .Department of Veterinary Pathology. Gupta, R.P.; Lala Lajpat Rai University of Veterinary and Animal Sciences, Hisar (India). Department of Veterinary Pathology. Anshu Shanna,Renu,,; Lala Lajpat Rai University of Veterinary and Animal Sciences Hisar (India). College Central Laboratory. Nehra ,Vikas; Lala Lajpat Rai University of Veterinary and Animal Sciences Hisar (India). Department of Veterinary Pathology.Deepika Lather; Lala Lajpat Rai University of Veterinary and Animal Sciences, Hisar (India). .Department of Veterinary Pathology. Pathomicrobial studies on Escherichia coli infection in bovine. Indian Journal of Veterinary Pathology (India). (June 2012) v.36(1) p.15-18 KEYWORDS: BOVINAE. ESCHERICHIA COLI. PATHOLOGY. ENTERITIS.

Pathomicrobial studies on Escherichia coli causing bovine mortality in Haryana state was undertaken on 30 bovine carcasses. A total of nineteen serotypes of E. coli were identified from various visceral organs, among which 012 and 060 were most predominant and associated with severe pathogenic lesions. The isolates revealed maximum sensitivity to amikacin. Pathological studies of various serotypes of E. coli revealed perihepatitis alongwith pericellular cirrhosis, serofibrinous pneumonia, haemorrhagicl catarrhal enteritis, vascular changes in kidneys, myocarditis and fibrinous pericarditis.

0327. Rathnapraba, S.; Tamilnadu Veterinary and Animal Sciences University, Chennai (India). Madras Veterinary College. Department of Animal Biotechnology. Vadivoo, V.S.; Tamilnadu Veterinary and Animal Sciences University, Chennai (India). Madras Veterinary College. Department of Animal Biotechnology. Manoharan, S.; Tamilnadu Veterinary and Animal Sciences University, Chennai (India). Madras Veterinary College. Department of Animal Biotechnology. Logesh, K.; CollegelVaccine Research Centre- Viral Vaccines, MMC, TANUVAS, Chennai(India). Kumanan, K.; Tamilnadu Veterinary and Animal Sciences University, Chennai (India). Madras Veterinary College. Department of Animal Biotechnology. Molecular detection of classical swine fever from a field outbreak in Tamil Nadu. Indian Journal of Veterinary Pathology (India). (June 2012) v.36(1) p.22-27 KEYWORDS: SWINE FEVER VIRUS. NESTING. PHYLOGENY. PCR.

Classical swine fever (CSF) is an economically important viral disease of swine, characterised by high fever and multiple haemorrhages. The paper describes molecular detection of swine fever from a field outbreak in a small piggery unit in Tamilnadu, based on histopathology, virus isolation and 5'UTR and E2 nested primer based reverse transcriptase peR. The 5'UTR specific primers resulted in 138 bp amplicon and E2 nested outer with 680 bp amplicon and inner resulting in 270 bp amplicon. The E2 inner nested RT - PCR amplified products were bulk produced, purified and sequenced and nucleotide blast analysis performed. Phylogenetic analysis of the sequenced isolate was compared with few available genebank sequences, revealed maximl,(m 96% homology with CSFV Hisar polyprotein gene and 95% with CSFV Kerala isolates. Based on the phylogenetic analysis, the Erode isOlate was grouped closer to the Keralaisolate tracing back the spread of the disease may be from the neighbouring state Kerala. Further, virus isolation was done in PK15 cell line and after 4 dpi confirmed by indirect immunofluorescent test using standard polyclonal serum showed intracytoplasmic fluorescence in the infected cells.

0328. Verma, Rishendra; Indian Veterinary Research Institute, Izatnagar(India). .Division of Bacteriology & Mycology. Sharma, A.K.; Indian Veterinary Research Institute, Izatnagar (India). Center for Wild Life Conservation, Management and Disease Surveillance. Ramane. Sangram P.; Indian Veterinary Research Institute, Izatnagar (India). Division of Bacteriology & Mycology. Kidangam, Alex; Indian Veterinary Research Institute, Izatnagar (India). Division of Bacteriology & Mycology,Mandal , Tista; Indian Veterinary Research Institute, Izatnagar-243 122 (U.P.). Division of Bacteriology & Mycology. Harshit Verma; Indian Veterinary

Research Institute, Izatnagar (India). Division of Bacteriology & Mycology. Generalized tuberculosis in Nilgai (Boselaphus tragocamelus) caused by Mycobacterium fortuitum. Indian Journal of Veterinary Pathology (India). .(Jun 2012) v.36(1) p.33-36 KEYWORDS: TUBERCULOSIS. MYCOBACTERIUM. BOVINAE.

Generalized tuberculosis in a Nilgai (Boselpahus tragocame/us) caused by Mycobacterium fortuitum was diagnosed on the basis of isolation and identification of M. fortuitum, PCR assay based on IS6100, gross and histopathology. Grossly, the lesions in lungs were characterized by presence of variable sized milliary caseo-calcified nodules embedded in parenchyma as well as slightly elevated from the surface which contained cheesy mass. Histopathological lesions in lungs were characterized by areas of diffuse caseous necrosis with at times calcification. The necrotic areas were surrounded by cellular reaction comprised of lymphocytes, macrophages and epithelioid cells. Giant cells were absent except at few places where macrophages were seen in the process of fusion. The microscopic granulomas so formed were not encircled by fibrous connective tissue and seen advancing into the adjacent parenchyma.

0329. Balasubramaniam, A.; Veterinary College and Research Institute, Namakkal (India). Department of Veterinary Microbiology. Balasubramaniam, G.A.; Veterinary College and Research Institute, Namakkal (India). Department of Veterinary Pathology. Sivaseelan, S.; Veterinary College and Research Institute, Namakkal (India). Department of Veterinary Pathology. Gopalakrishnamurty, T.R.; Veterinary College and Research Institute, Namakkal (India). Poultry Disease Diagnosis and Surveillance Laboratory. Dorairajan , N.; Veterinary College and Research Institute, Namakkal (India). Department of Veterinary Microbiology Dinakaran, A. Manickavasaka; Veterinary College and Research Institute , Namakkal (India). .Department of Veterinary Preventive Medicine,. Pathotyping of infectious bronchitis virus isolated from broiler chickens showing nephropathy. Indian Journal of Veterinary Pathology (India). (Jun 2012) v.36(1) p.49-53 KEYWORDS: BRONCHITIS. VIRUSES. KIDNEY DISEASES. CHICKENS.

Seven infectious bronchitis virus (IBV) isolates, isolated from two to three weeks-old broiler chickens were subjected for the pathotyping trial. The virus isolated from dead or sacrificed chicks produced lesions characteristic of IBV after three passages embryonated SPF chicken eggs. All the dead chicks showed pale, enlarged kidneys and urate deposit in ureters. Microscopically, kidney showed severe vascular congestion and intertubular haemorrhages. The lesions such as single cell necrosis, tubular epithelial necrosis and interstitial lymphoplasmocytic infiltration were markedly observed during 14 and 21 DPC. Nephropathogenicity of the IBV field isolates was assessed by giving score based on microscopic renal lesions induced in chicks which died due to nephritis. The isolates Ind/KA/07/l and Ind/TN/ 07/2 had the highest score of 1.33. Based on the mortality and lesio~s produced, isolates Ind/KA/07/1, and IndjTN/07/2 were found more virulent in nephropathogenicity.

0330. Sawale, G.K.; Bombay Veterinary College, Mumbai (India). Department of Veterinary Pathology. Roshini, S.; Bombay Veterinary College, Mumbai (India). Department of Veterinary Pathology.Tirpude, N.V.; Bombay Veterinary College, Mumbai (India). Department of Veterinary Pathology. Patil, G.; Bombay Veterinary College, Mumbai(India). Department of Veterinary Pathology. Satale, S.B.; Bombay Veterinary College, Mumbai (India). Department of Veterinary Pathology. Yadav, M.; Bombay Veterinary College, Mumbai(India). Department of Veterinary Pathology. Mustare, A.K.; Bombay Veterinary College, Mumbai(India). Department of Veterinary Pathology. Mhase, A.K.; Bombay Veterinary College, Mumbai(India). Department of Veterinary Pathology. Wavhal, S. Kadam, D. P. ; Bombay Veterinary CollegeP, Mumbai (India). Department of Veterinary Pathology. Patil,S.G.;Bombay Veterinary College, Mumbai(India). Department of Veterinary Pathology. Moregaonkar, S.D.; Bombay Veterinary College, Mumbai (India). Department of Veterinary Pathology. Systemic mycosis in commercial broiler chicken flock. Indian Journal of Veterinary Pathology (India). (Jun 2012) v.36(1) p.57-59 KEYWORDS: ASPERGILLUS. BROILER CHICKENS. HISTOPATHOLOGY. MYCOSES.

Systemic mycoses (fungal granulomas) were diagnosed in commercial broiler chickens of 4 week age. Clinically, birds showed respiratory distress with 7% mortality over a period of two weeks (2 to 4 week) with

stunted growth. The gross lesions included nodules of varied sizes in lung, air sac and peritoneum in most cases, and liver, heart and.diffuse enlargement of kidneys in few cases. Histopathological examination of these (lung, liver, kidney, etc.) organs revealed classical granuloma with central caseous necrosis, mononuclear cell infiltration, epithelioid cells, giant cells and fibrosis. Section of lungs, kidneys and liver stained with Periodic Acid Schiff stain revealed pink coloured fungal hyphae. The flock was successfully treated with copper sulphate.

0331. Paul, A.; West Bengal University of Animal and Fishery Sciences, Kolkata (India). Department of Veterinary Pathology. Bhowmik, M.K.; West Bengal University of Animal and Fishery Sciences, Kolkata (India). Department of Veterinary Pathology. Patra, N.C.; West Bengal University of Animal and Fishery Sciences, Kolkata (India). Department of Veterinary Pathology. Etiopathology of leg weakness in broiler chickens due to joint diseases. Indian Journal of Veterinary Pathology (India). (Jun 2012) v.36(1) p.60-63 KEYWORDS: BROILER CHICKENS. LEG WEAKNESS. PATHOLOGY. SYNOVIAL FLUID.

Spontaneous leg weakness was observed in 2.37% broiler chickens of 3 to 6 weeks of age. Of these, infectious arthritis and tenosynovitis (0.77%), caused by coagulase - positive Staphylococcus aureus (23) and Escherichia coli (12) were identified and non-infectious arthritis (1.60%) causing leg weakness in chickens were confirmed based on microbiological and pathological studies. Synovial fluid (SF) of infected arthritic birds was yellowish and turbid appearance with varying amount of flocculent materials and clot formation, indicating exudative properties. Volume of SF was increased and mucinous precipitate quality was poor having small friable masses in turbid and yellow solution. Higher erythrocyte and leucocyte counts with increase of both heterophils and monocyte were observed in bacterial arthritic chickens. Pathological lesions of infectious arthritis and tenosynovitis consisted of degenerative or necrotic, chronic inflammatory and proliferative in nature. Joint lesions of articular gout featured foreig~ body granulomas with depos~~ion of urate crystals. 'In chondrodystrophy, pathological lesions suggestive of abnormalities in epipnyseal growth plates of tibia and 'metatarsal bones were observed.

0332. Jha, Dilip K; College of Veterinary Science & AHBAD, Ranchi (India). Department of Veterinary Pathology. Singh, KK; College of Veterinary Science & AHBAD, Ranchi (India). Department of Veterinary Pathology. Gupta , M.K; College of Veterinary Science & AHBAD, Ranchi (India). Department of Veterinary Pathology. Mahto, Dinesh; College of Veterinary Science & AHBAD, Ranchi (India). Department of Veterinary Pathology. Assessment of effect of antibiotic on intraphagocytic killing in phagocytic somatic cells of clinical mastitis milk. Indian Journal of Veterinary Pathology (India). (Jun 2012) v.36(1) p.80-83 KEYWORDS: MASTITIS. PHAGOCYTOSIS. CELLS. MILK. SAMPLING.

One hundred forty three mastitis milk samples were collected from organized dairy farms of different districts of Jharkhand. They were treated in vitro with levofloxacin, ceftriaxone, amikacin and ampicillin and thereafter a smear was prepared, dried and subjected to acridine orange staining. Quantitative analysis of effect of different antibacterial agents on bacterial phagocytosis and intracellular killing and degradation was done by acridine orange fluorescence technique. The counting of phagocytic cells in fluorescent microscope depict a true and real picture of interaction, between individual phagocyte and internalized organism, going on in milk in presence of antibiotics. From the present study it can be said that ceftriaxone and amikacin could prove to be a better medicine for parentral application due to their higher bactericidal and poor leucocidal property. Levofloxacin on the other hand will be betterdloice for intra mammary use beca1.l~e of its better leucocidal and bactericidal property. How~ver, there may be variation in this trend in individual cases'of mastitis whose assay will be helpful in appropriate selection of antibiotics.

0333. Shah, I.H.; Faculty of Veterinary Sciences and Animal Husbandry, SKUAST-K, Shuhama, Alusteng, Srinagar (India). Division of Veterinary Pathology. Darzi , M.M.; Faculty of Veterinary Sciences and Animal Husbandry, SKUAST-K, Shuhama, Alusteng, Srinagar (India). Division of Veterinary Pathology.Mir, M.S.; Faculty of Veterinary Sciences and Animal Husbandry, SKUAST-K, Shuhama, Alusteng, Srinagar(India). Division of

Veterinary Pathology. Pathological changes in paratuberculosis vis-a-vis serum micronutrient status in spontaneously affected goats. Indian Journal of Veterinary Pathology (India). (Jun 2012) v.36(1) p.88-91 KEYWORDS: GOATS. PARATUBERCULOSIS. IMMUNOENZYME TECHNIQUES. TRACE ELEMENTS. HISTOPATHOLOGY.

The present study was undertaken to evaluate histological and histochemical alterations in paratuberculous lesions vis-a-vis the serum micronutrient status in spontaneously affected goats. Pathological studies, using routine and special staining techniques, were carried out in 8 paratuberculous morbid goats. Serum samples from 10 infected and 10 uninfected goats were used for comparing micronutrient status. Pathological studies revealed wide spectrum of lesions varying from paucibacillary to multibacillary types. Histopathologically, the multibacillary lesions in the intestines and MLNs were characterized by extensive infiltration of epithelioid macrophages containing numerous acid fast bacilli (AFB) while the paucibacillary lesions were characterized by small macrophage granulomas with a few AFB, surrounded by numerous lymphocytes. Histochemically, the multibacillary paratuberculosis showed abundant calct~m and iron deposits, positivity for acid mucopolysaccharides was in the areas with severe inflammat~, zones, however, no variation was noted in copper deposition in tissue sections in uninfected and affected goats. The mean serum iron level in the infected goats was lower and differed significantly (P0.05) from the uninfected controls. The mean values of the other minerals viz: zinc, copper, manganese and copper did not differ significantly. The study revealed a positive correlation of mycobacterial load to tissue iron levels, and a negative .correlation with serum iron levels.

0334. Gupta, Amita; Veterinary University, Mathura-(India). Department of Pathology. Srivastava, A.K.; Veterinary University, Mathura(India). Department of Pathology. Effect of cow urine against experimental E. coli infection in rats: A histopathogical study. Indian Journal of Veterinary Pathology (India). (Jun 2012) v,36(1) p.107-109 KEYWORDS: COWS. URINE. ESCHERICHIA COLI. HISTOPATHOLOGY. RATS.

The work was conducted on experimental rats which were fed cow urine and challenged with E.coli infection. Pathomorphological examination of rats succumbed to infection revealed changes of acute non-suppurative hepatitis characterized by paracentral/centrilobular necrosis with infiltration of neutrophils and macrophages; thickening of alveolar septa due to congestion of blood vessels with peribronchial lymphoid cuffing; congestion of myocardial blood vessels and at places separation of myofibres with degeneration myocardium; slightly swollen, dark brown kidneys showing congested corticomedullary junction with increased cellularity and vacuolization of glomerular loops along with tubular degeneration and thickened intestinal wall with congestion along with presence of catarrhal to haemorrhagic exudates. The above pathomorhpolgical changes in various organs were more severe in the rats of control group as compared to the rats of urine treated group.

0335. Rajkhowa, T.K.; Central Agricultural University, Selesih, Aizawl, Mizoram (India). College of Veterinary Sciences and Animal Husbandry, Department of Veterinary Pathology. Deka, Devajani; Medicine College of Veterinary Sciences and Animal Husbandry, Central Agricultural UniversitySelesih, Aizawl, Mizoram (India). Department of Veterinary Public Health & Epidemiology,Singh , Y. Damodar; Central Agricultural University, Selesih, Aizawl, Mizoram (India). College of Veterinary Sciences and Animal Husbandry, Department of Veterinary Pathology. Mukherjee, S.; Central Agricultural University, Selesih, Aizawl, Mizoram (India). .College of Veterinary Sciences and Animal Husbandry, Department of Veterinary Medicine. Intestinal coccidiosis with intussusception in Giriraj a chicken: A pathological study. Indian Journal of Veterinary Pathology (India). (Jun 2012) v,36(1) p.112-113 KEYWORDS: COCCIDIOSIS. EIMERIA NECATRIX. INTESTINAL DISEASES. CHICKENS.

Clinical, gross and histopathological studies were conducted to investigate mortality in Giriraja chicken from a small poultry farm in the Aizawl district, Mizoram. Clinically, the affected birds of 5 - 6 weeks age showed loss of appetite, unthriftiness and bloody diarrhoea with mucus. Necropsy examination revealed anaemic pale musculature, distended small intestine and petechial haemorrhages in small intestine, at a few

places of the large intestine. Necropsy of one bird showed intussusception of the ileum. Histopathological examination showed severe haemorrhagic enteritis with necrosis and disintegration of glandular epitheliah:ells. Several schizonts were visible.~ the epithelial cells along with merozoites and infiltrating heterophils and eosinophils. Mucosal scraping examination showed numerous oocyst of Eimeria spp.

0336. Shilpa, V.T.; Bannerghatta Biological Park, Bangalore (India). Chittiappat, H.C.; Bannerghatta Biological Park, Bangalore (India). Giridhar, P.; Institute of Animal Health and Veterinary Biologicals, Hebbal, Bangalore (India). Renukaprasad, C.; Institute of Animal Health and Veterinary Biologicals, Bangalore (India). Muniyellappaand, H.K.; Institute of Animal Health and Veterinary Biologicals, Bangalore (India). Gajendragad, M.R; PD _ADMAS, Bangalore (India). An outbreak of salmonellosis in tigers at Bannerghatta Biological Park, Bangalore. Indian Journal of Veterinary Pathology (India). (Jun 2012) v,36(1) p.122-123 KEYWORDS: GASTROENTERITIS. SALMONELLOSIS. TIGERS.

Out of total 44 captive tigers at Bannerghatta Biological Park, Bangalore, 4 adults and 1 cub had anorexia, pyrexia and acute reddish brown diarrhoea with mucus. Hematological analysis revealed leucocytosis with neutrophilia. All the affected animals were treated with antibiotics and parenteral fluid therapy. All the animals showed signs of recovery except for one adult tigress (Divya), and a cub and a cub which initially showed signs of recovery but a week later became dull, off feed and died. On postmortem examination, severe lesions of acute gastroenteritis and necrotic hepatitis were observed. During the same period, similar signs were observed in more tigers. Salmonella Typhimurium organisms were isolated from faecal samples and tissues coliecteCl during postmortem examination. The gross and bacteriological studies confirmed the case of salmonellosis in tigers. The source of the infection was suspected to be chickens fed to tigers.

0337. Bhardwaj, R.K.; Guru Angad Dev University of Veterinary and Animal Sciences, Ludhiana (India). Randhawa, C.S.; Guru Angad Dev University of Veterinary and Animal Sciences, Ludhiana (India). Randhawa, S.S.; Guru Angad Dev University of Veterinary and Animal Sciences, Ludhiana (India). Singla, V.K.; Guru Angad Dev University of Veterinary and Animal Sciences, Ludhiana (India). Haematobiochemical profiles of cows shedding acid-fast bacilli vis-à-vis normal cows. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 19-22 KEYWORDS: COWS. PARATUBERCULOSIS. BLOOD COMPOSITION. DIARRHOEA.

The present study was undertaken to assess haematobiochemical alterations in 45 crossbred cows tested positive for JD in Johnin test and acid-fast bacilli in rectal pinch. The blood samples were collected from all cows under study to estimate haematobiochemical parameters. Hemoglobin and PCV was low in 53.3 and 64.4% of AFB shedding cows, respectively. Chronic diarrhoea was present in 42.2% of AFB shedding cows. The prevalence rate of anemia was high (64%) in diarrhoeic compared to non-diarrhoeic AFB shedding cows (36%). Anemia was of normocytic-normochromic type and of mild to moderate degree. Normal plasma iron and TIBC was seen in 48.8% of AFB shedding cows. Hypoproteinemia and hypoalbuminemia were observed in 15.5% of AFB shedding cows. Correlation coefficients between Hb-albumin and PCV-albumin were negative and nonsignificant. Low A: G ratio was observed in 15.5% and TPP: Fib. ratio was low in 40% of cows. Mean concentrations of plasma urea nitrogen and total plasma cholesterol was significantly low in cows shedding AFB. The study concluded that anemia was more prevalent in clinically JD cows. Anemia was of normocytic-normochromic type. Biochemical parameters, viz. plasma iron, TIBC, TPP, albumin, plasma urea nitrogen and total cholesterol were significantly low in JD cows.

0338. Nehra, Vikas; CCS Haryana Agricultural University, Hisar (India). Gupta, R.P.; CCS Haryana Agricultural University, Hisar (India). Biochemical and haematological parameters in experimentally hydro-pericardium syndrome infected broiler chickens supplemented with vitamin E. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81(2) p. 133-136 KEYWORDS: BROILER CHICKENS. BLOOD. BIOCHEMISTRY. VITAMIN E. SUPPLEMENTS.

Hydropericardium syndrome (HPS) was induced experimentally in broiler chickens to assess the role of vitamin E (vit E) supplementation on biochemical and haematological parameters. Serum biochemical studies revealed a significant reduction in serum total protein concentration in both the HPS infected groups but reduction was lower in magnitude in vit E supplemented HPS infected group as compared to HPS infected without vit E supplemented group. Significant reduction in serum albumin concentration was observed in HPS infected without vit E supplemented group. Significant increase in the serum alanine transaminase (ALT) activity was noticed in both the infected groups but was of lower magnitude in vit E supplemented HPS infected group. A significant increase in serum creatine phosphokinase (CPK) activity was observed in HPS infected without vit E supplemented chickens. Haematological studies revealed a significant reduction in haemoglobin (Hb) and packed cell volume (PCV) in HPS infected without vit E supplemented chickens from days 4 to 6 PI. Mean corpuscular volume (MCV) and mean corpuscular haemoglobin concentration (MCHC) values were indicating microcytic normochromic anemia. It is concluded that supplementation of vit E 150 mg/kg of feed showed improvement in anemia along with protective effect on biochemical functions of various organs particularly liver and heart.

0339. Shome, R.; Project Directorate on Animal Disease Monitoring and Surveillance, Bangalore (India). Gangadar, N.L.; Project Directorate on Animal Disease Monitoring and Surveillance, Bangalore (India). Narayana Rao, K.; Project Directorate on Animal Disease Monitoring and Surveillance, Bangalore (India). Shome, B.R.; Project Directorate on Animal Disease Monitoring and Surveillance, Bangalore (India). Prabhudas, K.; Project Directorate on Animal Disease Monitoring and Surveillance, Bangalore (India). Diagnosis of brucellosis in the equines by serological tests and PCR: A clinical report. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81 (2) p. 137-139 KEYWORDS: BRUCELLOSIS. EQUIDAE. DIAGNOSIS. PCR. IMMUNOLOGICAL TECHNIQUES. IMMUNOLOGY.

In the present study, in the absence of samples for isolation, serological and PCR tests were utilized for the diagnosis. The different approaches for diagnosis of brucellosis in horses used in the present study are of value as both anti Brucella antibodies and antigen were detected in horses confirming the disease in the stud farm. As the test values of protein G based iELISA showed 100% agreement with conventional tests and PCR, the test which is under validation for livestock species and humans in the laboratory, the same test can be utilized for diagnosis of brucellosis in horses.

0340. Rana, N.; Central Institute for Research on Buffaloes, Hisar (India). Manuja, A.; Central Institute for Research on Buffaloes, Hisar (India). Raut, A.A.; Central Institute for Research on Buffaloes, Hisar (India). Khanna, S.; Central Institute for Research on Buffaloes, Hisar (India). Mehrara, K.L.; Central Institute for Research on Buffaloes, Hisar (India). Leptospiral abortions in Nili-Ravi buffaloes in Punjab state of India. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81 (2) p. 143-145 KEYWORDS: WATER BUFFALOES. LEPTOSPIROSIS. ABORTION. PUNJAB. ELISA.

Leptospirosis is an anthropozoonosis with a ubiquitous distribution. Several states in India are endemic for leptospirosis with abortions, repeat breeding and reproductive problems being common sequalae of this infection in farm animals. Investigations were carried out in Nabha subdivision of Patiala district in Punjab state to ascertain the cause of abortions in Nili-Ravi buffaloes in the gestation periods ranging from 6 months to term. Thirteen out of 28 sera samples (65.00%) were found positive for L. hardjo antibodies in ELISA. L. hardjo encountered in the investigation in the Punjab region probably constitutes first report of this infection in Nili-Ravi buffaloes.

0341. Divya, K.C.; Tamil Nadu University of Veterinary and Animal Sciences, Chennai (India). Jamuna Rani, A.; Tamil Nadu University of Veterinary and Animal Sciences, Chennai (India). Parthiban, M.; Tamil Nadu University of Veterinary and Animal Sciences, Chennai (India). Saranya, R.; Tamil Nadu University of Veterinary and Animal Sciences, Chennai (India). Molecular detection of cell culture mycoplasmal

contaminants in bovine serum. Indian Journal of Animal Sciences (India). (Feb 2011) v. 81 (2) p. 146-148 KEYWORDS: BOVINAE. BLOOD SERUM. BLOOD. MYCOPLASMA. MYCOPLASMOSES.

Present study aimed to detect common (Mycoplasma arginini, M. orale, M. hyorhinis and M. fermentans) cell culture contaminants using PCR. The method was sufficient for the discrimination of mycoplasma contamination from other probable contaminants, including E. coli and S. aureus.

0342. Kurunchi, C. Divya; Tamil Nadu Animal and Veterinary Sciences University, Chennai (India). Parthiban, M.; Tamil Nadu Animal and Veterinary Sciences University, Chennai (India). Sathish, G.; Tamil Nadu Animal and Veterinary Sciences University, Chennai (India). Kumanan, K.; Tamil Nadu Animal and Veterinary Sciences University, Chennai (India). Mohan, B.; Tamil Nadu Animal and Veterinary Sciences University, Chennai (India). Detection of oncogenic strains of MDV serotype 1 in Tamil Nadu by duplex PCR. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 6-8 KEYWORDS: CHICKENS. MAREK'S DISEASE VIRUS. PCR. TAMIL NADU.

The present study was to increase the diagnostic sensitivity of PCR, duplex PCR for detection of Meq gene, and 132 bp repeat sequence of Marek’s disease virus (MDV) serotype 1 was used. Out of 60 samples collected from different suspected areas in Tamil Nadu, 8 samples showed the presence of amplified products of 1.06 kb (Meq gene) and 434bp (tandem repeats), whereas no amplification was observed in a virulent vaccine strain (serotype 3). Sequence homology of meq gene of these strains were confirmed with published sequences. These results clearly indicated that the detection of oncogenic strains of MDV serotype 1 in Tamil Nadu poultry populations.

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0343. Jadon, N.S.; G.B.Pant University of Agriculture and Technology, College of Veterinary and Animal Sciences, Pantnagar (India). Department of Surgery and Radiology. Tiwari, A.K.; Indian Veterinary Research Institute, Izatnagar, Bareilly (India). Animal Biotechnology Division.Pandey, Priyanka; G.B.Pant University of Agriculture and Technology, College of Veterinary and Animal Sciences, Pantnagar (India). .Singh, G.K.; G.B.Pant University of Agriculture and Technology, College of Veterinary and Animal Sciences, Pantnagar (India). Cancer cell cultivation: A review. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.81-89 KEYWORDS: CANCER (GENUS). CELLS. CULTIVATION.

Cancer development is a multi-step process gradually started from a normal to a malignant phenotype. Molecules that regulate tumour cell survival are an essential prerequisite for development of targeted approaches to cancer treatment. Such targeted approaches use tumour/cancer cells cultivated in vitro or as xenografts. In vitro cultivation of cancer cells produced cell lines, have beenused in study of cancer biology, because they are easy to handle and can be grown almost in infinite quantities. Fresh tumour tissue in highly proliferating form is the first requisite to establish a new cancer cell line. It is widely accepted that cancerous cells are immortal and it is difficult to establish new cancer cell line. Evidence from experiments demonstrated that this difficulty has a genetic origin, as primary cancer cells did not completely lose their tumour suppressor pathways, which are expressed during cell cultivation. Other difficulties are also noticed during establishment of long-term or permanent cultivation of cancerous cells from fresh surgical tumour samples. Therefore, new techniques are needed to overcome these problems. In vitro model,using organ culture or xenograft can bea suitable tool for cancer research. Although this approach benefits if the epithelial / endothelial cells are cultured in a relatively physiologically normal microenvironment, the culture period during which theorgan remains viable is limited. Further more, obtaining starting material is a major obstacle particularly if the tissueis of human origin. Animal models are widely used in research and have the advantage that experimental procedures may be carried out in living organisms. In this review, we have summarised pros and cons of cancer cell cultivation.

0344. Pandey, Priyanka; G.B.Pant University of Agriculture and Technology, College of Veterinary and Animal Sciences, Pantnagar (India). .Jadon, N.S.; G.B.Pant University of Agriculture and Technology, College of Veterinary and Animal Sciences, Pantnagar (India). Chauhan, U.K.; APS University, Rewa (India). Centre for Biotechnology. Tiwari, A.K.; Indian Veterinary Research Institute, Izatnagar, Bareilly (India). Division of Animal Biotechnology. Singh, G.K.; G.B.Pant University of Agriculture and Technology, College of Veterinary and Animal Sciences, Pantnagar (India). Singh, Himanshu; G.B.Pant University of Agriculture and Technology, College of Veterinary and Animal Sciences, Pantnagar (India). effect of Chicken Anemia Virus VP3 gene cultured in "In-vitro" malignant tumour cells. Indian Journal of Veterinary Anti-neoplastic Surgery (India). (Dec 2011) v.32(2) p.90-93 KEYWORDS: CHICKENS. ANAEMIA. VIRUSES. GENES. IN VITRO. IN VITRO CULTURE. MALIGNANT COURSE. CYTOKINES. CELLS.

This study comprised of the anti-neoplastic effect of Chicken Anemia Virus (CAV) Viral protein 3 in cultured malignant tumour cells of bovines. The VP3 gene of chicken anemia virus was cloned in Plasmid DNA 3.1 (PcDNA 3.1) eukaryotic expression vector and in vitro expression of recombinant PcDNA.CAV.VP3 was confirmed. Twenty bovine tumour cases of horn and eye cancer were subjected to this study. All the animals were subjected to surgical intervention for the removal of the tumour growth under the ideal anaesthetic combination. Biopsy samples were aseptically collected for cell culture and histopathological studies. The histopathological studies of the lesions revealed squamous cell carcinoma and fibroma. The cell culture of malignant tumour was performed using standard protocol. An in-vitro study confirmed that recombinant VP3 gene induced apoptosis in cultured malignant bovine tumour cells. The result of the present study revealed that recombinant VP3 gene (also known as Apoptin) had anti-neoplastic effect and further improvements in the dose, delivery methods and delivery frequency of VP3 gene expressing recombinant vector may help to develop recombinant VP3gene/apoptin as an anti-neoplastic drug.

0345. Parrah, J.D.; S.K. University of Agricultural Sciences and Technology-K,Shuhama, Alsteing, Srinagar (India). Hussain, S.S.; S.K. University of Agricultural Sciences and Technology-K, Srinagar (India). Moulvi, B.A.; S.K. University of Agricultural Sciences and Technology-K, Srinagar (India). Makhdoomi, D.M.;S.K. University of Agricultural Sciences and Technology-K, Srinagar (India). Division of Veterinary Surgery and Radiology. Buchoo, B.A.; S.K. University of Agricultural Sciences and Technology-K, Srinagar (India). .Malik, H.U.; S.K. University of Agricultural Sciences and Technology-K,Shuhama, Alsteing, Srinagar (India). Ultrasonographic diagnosis of obstructive urolithiasis in calves. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.117-120 KEYWORDS: CATTLE. ULTRASONICS. UROLITHIASIS. URINARY TRACT.

Ultrasonographic diagnosis was performed in 25 cow calves suffering from complete obstructive urolithiasis. Ultrasonography was found accurate in diagnosing cystitis, uroperitoneums,erosalerosion of cystic wall and urocystoliths. However,ultrasonography was not found effective in diagnosing the affections/lesions of urethra including urethritis (40%),urourethroliths (30%) and rupture in urethra (33%). Ultrasonography was thus found a valuable aid in deciding themodeof treatment and predicting the prognosis.

0346. Purohit, S.; U.P.Pt. Deen Dayal Upadhyay Veterinary University Evam Go Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Surgery and Radiology. Malik, V.; U.P.Pt. Deen Dayal Upadhyay Veterinary University Evam Go Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Surgery and Radiology.Kumar, Sanjiv; U.P.Pt. Deen Dayal Upadhyay Veterinary University Evam Go Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Veterinary Pathology.Kumar, G.; U.P.Pt. Deen Dayal Upadhyay Veterinary University Evam Go Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Surgery and Radiology.Kumar, D.; U.P.Pt. Deen Dayal Upadhyay Veterinary University Evam Go Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Surgery and Radiology.Katiyar, P.; U.P.Pt. Deen Dayal Upadhyay Veterinary University Evam Go Anusandhan Sansthan, College of Veterinary Science and Animal

Husbandry, Mathura (India). Department of Surgery and Radiology.Pandey, R.P.; U.P.Pt. Deen Dayal Upadhyay Veterinary University Evam Go Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Surgery and Radiology.Singh, B.; U.P.Pt. Deen Dayal Upadhyay Veterinary University Evam Go Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Surgery and Radiology. Enucleation of eyelid cyst in a dog. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.148 KEYWORDS: ENUCLEATION. EYES. CYSTS. DOGS.

Infection and obstruction of the oil glands of the eyelid are the most commonly reported causes of the eyelid cyst. An inflammation and blockage of these oil glands are referred as chalazion or meiborilian cyst. Multiple cystic periocular masses in the cats were reported.

0347. Purohit, S.; U.P. Pt. Deen Dayal Upadhyay Veterinary University Evam Go Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Surgery and Radiology. Kumar, G.; U.P. Pt. Deen Dayal Upadhyay Veterinary University Evam Go Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Surgery and Radiology.Katiyar, P.; U.P. Pt. Deen Dayal Upadhyay Veterinary University Evam Go Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Surgery and Radiology.Malik, V.; U.P. Pt. Deen Dayal Upadhyay Veterinary University Evam Go Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Surgery and Radiology.Kumar, D.; U.P. Pt. Deen Dayal Upadhyay Veterinary University Evam Go Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Surgery and Radiology.Pandey, R P.; U.P. Pt. Deen Dayal Upadhyay Veterinary University Evam Go Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Surgery and Radiology.Singh, B.; U.P. Pt. Deen Dayal Upadhyay Veterinary University Evam Go Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Surgery and Radiology.Varshneya, V.; U.P. Pt. Deen Dayal Upadhyay Veterinary University Evam Go Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Surgery and Radiology. Retrieval of gastric foreign body in two dogs. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.149 KEYWORDS: DOGS.

Two dogs, aged 6 month and 3 year were presented to Kothari Veterinary Hospital with the history of swallowing of a sock 4 hr and 5 days ago, respectively. The first case showed the distended abdomen with colic signs. The second case was completely off feed and made futile attempts to drink water. Dehydration was also observed in second case. The foreign body was not diagnosed on abdominal palpation. The radiographic and sonographic observations confirmed the foreign body in the stomach.

0348. Kumar, Deepesh; U.P.Pt. Deen Dayal Upadhayaya Pashu Chikitsa Vigyan Vishvidyalaya Evam Go-Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Surgery and Radiology. Pandey, R. P.; U.P.Pt. Deen Dayal Upadhayaya Pashu Chikitsa Vigyan Vishvidyalaya Evam Go- Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Surgery and Radiology. Gautam, Kuldeep Singh; U.P.Pt. Deen Dayal Upadhayaya Pashu Chikitsa Vigyan Vishvidyalaya Evam Go- Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Surgery and Radiology.Kumar, Sanjiv; U.P.Pt. Deen Dayal Upadhayaya Pashu Chikitsa Vigyan Vishvidyalaya Evam Go- Anusandhan Sansthan, College of Veterinary Science and Animal Husbandry, Mathura (India). Department of Pathology. Diverticula of urinary bladder and cryptorchid testicular tumour in a dog. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.150 KEYWORDS: BLADDER. CRYPTORCHIDISM. MALE GENITAL DISEASES. CYTOKINES. DOGS.

Two long tortuous blood vessels supplying the tumour, metastatic lesions in the prostate and one large unusual diverticulum at the urinary bladder neck were noticed. Similar type of diverticulum has been reported by Audrey et al.in a dog. The urinary bladder was divided in such a manner that the true bladder lumen and the diverticulum were connected through a small opening.

0349. Dabas, V.S.; Navsari Agricultural University, Vanbandhu Veterinary College, Navsari (India). Department of TVCC. vsdabasahoo.co.inBhatt, RH.; Navsari Agricultural University, Vanbandhu Veterinary College, Navsari (India). Department of Veterinary Surgery and Radiology.Suthar, D.N.; Navsari Agricultural University, Vanbandhu Veterinary College, Navsari (India). Department of Veterinary Surgery and Radiology.Jhala, S.K.; Navsari Agricultural University, Vanbandhu Veterinary College, Navsari (India). Department of Veterinary Surgery and Radiology.Patel, D.C.; Navsari Agricultural University, Vanbandhu Veterinary College, Navsari (India). Department of TVCC.Vihol, P.D.; Navsari Agricultural University, Vanbandhu Veterinary College, Navsari (India). Department of Veterinary Pathology. Melanoma at right fetlock joint in a cow. Indian Journal of Veterinary Surgery (India). (Dec 2011) v.32(2) p.151 KEYWORDS: MELANOMA. JOINT DISEASES. COWS.

Melanoma, the benign tumour of melanoblasts present in the basal layer of the epidermis accounts for 5-6% of all turn ours in bovine. These are solitary grey to black masses, raised as nodules on the surface and contain black brown pigment in the dermis or subcutis.In India, melanomas are mostly seen in dark coloured cattle.

0350. Srivastava , M.K.; Bombay Veterinary College, Parel, Mumbai (India). Department of Veterinary Nuclear Medicine. Gaikwad, R.Y.; Bombay Veterinary College, Parel, Mumbai (India). Department of Veterinary Nuclear Medicine. Samad, A.; Bombay Veterinary College, Parel, Mumbai (India). Department of Veterinary Nuclear Medicine.Srivastava, Ashish; Bombay Veterinary College, Parel, Mumbai (India). Department of Veterinary Nuclear Medicine. 99mTc-DMSA scintigraphy - An advance diagnostic modality for evaluating renal cortical function and scarring of kidney in dogs with pyelonephritis. Indian Journal of Veterinary Research (India). (Jan-Jun 2012) v. 21 (1) p.10-15 KEYWORDS: THINNING. SCINTIGRAPHY. DOGS. KIDNEYS.

This study compared the renal cortical function and relative kidney uptake in healthy and renal failure dogs. More than 2 mg/dl serum creatinine and chronicity of illness was the criterion for dogs to be included in renal failure group. The measured kidney length [mm]were 62.85 +-4.22 and 51.70+-5.7 mm for right kidney, whereas, for left kidney 61.26+-3.52, 50.1 +-7.23 mm in healthy and renal failure dogs.Kidney widths [mm]were 41.28+- 1.16,32.9+-3.92 and 38.52+-2.08, 31.9+-3.76 for right and left kidney of healthy and renal failure dogs respectively. Observed cortical thickness [mm] was 6.35 +- 0.64,3.73 +- 1.80 and 6.14 +- 0.28, 2.67 +- 1.68 for right and left kidney of healthy and renal failure dogs respectively. Cortical thinning was a sign of pyelonephritis in the dogs of group II. The relative kidney uptake [respective kidney count] [left+ right kidney count] were 49.66 +- 2.11 and 57.52 +- 3.80 for right kidney,whereas, for left kidney 49.34 +- 2.11, 41.99 +- 2.75 in healthy and renal failure dogs.

0351. Siddiqui, Mahtab Z.; Indian Institute of Natural Resins & Gums, Namkum, Ranchi (India). Proceesing and Product Development Division. Mazumde, Papiya M.; BIT Mesra,Ranchi (India). Department of Pharmaceutical Sciences. Anti-inflammatory Activity of Resinoids of Boswellia serrata in rats. Indian Journal of Veterinary Research (India). (Jan-Jun 2012) v. 21(1) p.22-28 KEYWORDS: ANTIINFLAMMATORY AGENTS. SERRATIA. RATS. FRANKLINIELLA.

The present study was undertaken to assess the anti-inflammatory activity of the resinoids of Boswellia serrata in inbred Wistar rats. Exudates of Boswellia serrata were collected from our different States of India i.e. Andhra Pradesh, Chhattisgarh, Gujarat and Madhya Pradesh and their resinoids prepared in two solvents i.e. ethylacetate (moderately non-polar) and ethyl alcohol (highly polar). Physico-chemical characterization of these resinoids was carried out to determine their appearance, yield %, moisture %, ash %, acid value (mg/KOH/g), saponification value (mg/KOH/g), ester value and iodine value (gig). The ethylacetate resinoids of Boswellia serrato ITomAndhra Pradesh (CO & Madhya Pradesh (C3) as also Commiphora mukul (C7) from Madhya Pradesh showed significant anti-inflammatory activities as compared with the control group, even better than that of the standard drug Shallaki, in rats. The resinoids of Boswellia

serrato and Commiphora mukul which showed significant anti-inflammatory activity have low acid value and no ash content.

0352. Kumar, Mukesh; College of Veterinary Science and Animal Husbandry, Anjora, Durg (India). Veterinary Physiology and Biochemistry Department. Roy, Manju; College of Veterinary Science and Animal Husbandry, Anjora, Durg (India). Veterinary Physiology and Biochemistry Department. Roy, Sushovan; College of Veterinary Science and Animal Husbandry, Anjora, Durg (India). Veterinary Physiology and Biochemistry Department. Hypolipidemic potential of Oscimum sanctum in induced arsenic toxicity. Indian Journal of Veterinary Research (India). (Jan-Jun 2012) v. 21(1) p.29-32 KEYWORDS: HYPERLIPIDAEMIA. RATS.

The study evaluated the ameliorative potential of hydro methanolic extract of Oscimum sanctum leaves against sodium arsenate induced hyperlipidemia in experimental rats. Animals were divided into five groups of 15 rats in each. Control group exposed to arsenic tree distilled water and 4 treatment group (II, lIllY, V) exposed to the arsenic (NaAsO2)(20mg/kg b.wt) through drinking water.Group III to Vwere administered a daily oral dose of HAEO (Hydro alcoholicextract of Oscimum sanctum) 0,100 and 200mg/kg b.wt. orally daily for a period of 45 days. Blood samples were collected fort he estimation of lipid profile, after every 15 days interval till the completion of the trial. Arsenic exposure resulted in significant (P0.05) rise in total and LDL-cholesterol whereas decreased HDL cholesterol was observed. Blood triglyceride levels were found increased inarsenic intoxicated animals as compared to control animals. Treatment with HAEO100 and HAEO200 significantly restored level of lipid profiles.

0353. Karle, A.S.; Anand Agricultural University, Anand (India). Department of Veterinary Surgery and Radiology, College of Veterinary Sciences and Animal Husbandry. Tank, P.H.; Anand Agricultural University, Anand (India). Department of Veterinary Surgery and Radiology, College of Veterinary Sciences and Animal Husbandry. Vedpathak, H.S.; Anand Agricultural University, Anand (India). Department of Veterinary Surgery and Radiology, College of Veterinary Sciences and Animal Husbandry. Bhatia, A.; Anand Agricultural University, Anand (India). Department of Veterinary Surgery and Radiology, College of Veterinary Sciences and Animal Husbandry. Clinical studies on preputial prolapse and its management in Gir bulls. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.39-41 KEYWORDS: BOVINAE. BULLOCKS. AMPUTATION. SURGICAL OPERATIONS.

A clinical study on preputial prolapse and its management was carried out in 11 Gir bulls and a bullock. Twelve animals were divided into two groups of six animals each based on surgical technique employed, circumcision method in group I and reefing/ conservative resection technique in group II. Postoperative inflammatory swelling was observed in five animals (41.67%); three cases of group I and two cases of group II. Out of 12 cases, seven animals had wound dehiscence (58.34%) at surgical site; four cases of group I and three cases of group II. Three bulls operated by circumcision technique had stricture formation at preputial orifice, which did not return to breeding work. Rest of the three bulls recovered uneventfully and have started to give normal services. Out of five bulls and a bullock subjected to reefing/conservative resection, four recovered satisfactorily (66.67%) and the bulls have started giving normal service, except a bull which had right lateral deviation of penis. Results of the present study indicated that the postoperative stricture formation was a more common complication following circumcision than that of conservative resection technique; thus the conservative resection technique was found better than the circumcision method for amputation of preputial prolapse.

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0354. Kumar, Adarsh; CSK Himachal Pradesh Agriculture University, Palampur (India). Dr. G.C.Negi College of Veterinary and Animal Sciences. Department of Veterinary Surgery and Radiology. Tyagi, S.P.; CSK Himachal Pradesh Agriculture University, Palampur (India). Dr. G.C.Negi College of Veterinary and Animal Sciences. Department of Veterinary Surgery and Radiology. Sharma, S.K.; CSK Himachal Pradesh Agriculture

University, Palampur (India). Dr. G.C.Negi College of Veterinary and Animal Sciences. Department of Veterinary Surgery and Radiolog. Sharma, Arvind; CSK Himachal Pradesh Agriculture University, Palampur (India). Dr. G.C.Negi College of Veterinary and Animal Sciences. Department of Veterinary Surgery and Radiology. Kanwar, M.S.; CSK Himachal Pradesh Agriculture University, Palampur (India). Dr. G.C.Negi College of Veterinary and Animal Sciences. Department of Veterinary Surgery and Radiology. Investigations on trauma induced abdominal muscle defects in draught horses. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.45-47 KEYWORDS: ABDOMEN. HORSES. MUSCULAR DISEASES. LESIONS.

Seven draught horses aged 7-12 yr were presented with trauma induced large abdominal defects in flank muscles. The consistent evidence of rupture of same group of muscles of lower abdomen in all the animals was investigated in relation to predisposing factors, methods of diagnosis, therapeutic options and prognosis of the cases. Recognition of predisposing factors like poor managemental conditions, heavy parasitic load, poor nutrition and negligible exercise were found to be associated significantly. Ultrasonography assisted in examination of different layers of muscles of abdomen, size and direction of the tear and extent of damage to muscles and their sheath thereby facilitating to decide the proposed incision on swelling while attempting for correction of defect. The bowline model of equine body was hypothesized to delineate the susceptibility of lateral abdominal muscle to tears. Treatment options included preparation of the animal for 4-6 weeks and primary closure of the rent and proper abdominal bandage support to encourage the success rate and improve prognosis.

0355. Singh, G.D.; IVRI, Izatnagar(India). Division of Surgery. Jadon, N.S.; G.B. Pant University of Agriculture and Technology, Pantnagar (India). College of Veterinary Sciences. Department of Surgery and Radiology. Sharma, V.K.; G.B. Pant University of Agriculture and Technology, Pantnagar (India). College of Veterinary Sciences. Department of Surgery and Radiology. Pathophysiological alterations in acute abdomen due to intestinal obstruction in dogs. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.48-50 KEYWORDS: ABDOMEN. DIGESTIVE DISORDERS. PATHOLOGY. PHYSIOLOGICAL FUNCTIONS.

The dogs having acute abdomen due to lodgement of foreign bodies and anatomical anomalies were used in this study. Pathophysiological alterations were studied by assessing the clinicophysiological and haematobiochemical parameters, which included behaviour of animal, sitting posture, extent of appetite, extent of vomiting, diarrhoea, heart rate, respiratory rate, body temperature and electrocardiography. The haematobiochemical parameters included haemoglobin (Hb), packed cell volume (PCV), total erythrocyte count (TEC), differential leucocyte count (DLC), total protein, albumin, glucose, blood urea nitrogen, creatinine, alanine amino transferase (ALT), aspartate amino transferase (AST), gamma glutamyl transferase (GGT) and electrolytes included Na+ and K+. Heart and respiratory rates were comparatively higher in acute abdomen patients and the mean values of cardiac output were slightly lower. The values of Hb, PCV, TEC, and neutrophil count were significantly higher. Significant increase in the total protein, albumin and glucose levels was observed in the acute abdomen patients. Significantly higher levels of serum urea nitrogen, creatinine, ALT, AST and GGT were observed and a significant decrease in the levels of serum sodium, potassium and calcium were observed.

0356. Gupta, Pankaj; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). College of Veterinary and Animal Sciences. Department of Veterinary Surgery and Radiology. Raghunath, M.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). College of Veterinary and Animal Sciences. Department of Veterinary Surgery and Radiology. Sood, N.K.; Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (India). College of Veterinary and Animal Sciences. Department of Veterinary Pathology. Evaluation of regional lymph node aspiration cytology in detecting metastasis of canine mammary tumours. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.59-60 KEYWORDS: DOGS. MAMMARY GLANDS. CYTOKINES. CYTOLOGY.

The present communication reports the use of fine needle aspiration biopsy (FNAB) of lymph node in diagnosing metastasis in three canine mammary neoplasm (CMN) affected bitches. In two cases FNAB was

obtained from superficial inguinal lymph nodes and in one case from axillary lymph node. The results of fine-needle aspiration cytology of tumour and lymph nodes, and histopathology of tumour were compared. The results showed 100% sensitivity of FNAB in diagnosis of metastasis of CMN in regional lymph nodes.

0357. Veena, P.; Sri Venkateswara Veterinary University, Tirupati (India). College of Veterinary Science. Department of Veterinary Surgery and Radiology. Sankar, P.; Sri Venkateswara Veterinary University, Tirupati (India). College of Veterinary Science. Department of Veterinary Surgery and Radiology. Kumar, R.V. Suresh; Sri Venkateswara Veterinary University, Tirupati (India). College of Veterinary Science. Department of Veterinary Surgery and Radiology. Dhana Lakshmi, N.; Sri Venkateswara Veterinary University, Tirupati (India). College of Veterinary Science. Department of Veterinary Surgery and Radiology. Srilatha, Ch.; Sri Venkateswara Veterinary University, Tirupati (India). College of Veterinary Science. Department of Veterinary Surgery and Radiology. Pathology,Kokila, S.; Sri Venkateswara Veterinary University, Tirupati (India). College of Veterinary Science. Department of Veterinary Surgery and Radiology. Mast cell tumour in a bullock. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.74 KEYWORDS: MAST CELLS. CYTOKINES. BULLOCKS.

The neoplastic proliferation of mast cells, referred to as mast cell tumour is occasionally arising in horses, cattle and pigs. The present paper reports a rare case of cutaneous mast cell tumour in a bullock and its surgical management. A 6-year-old bullock was presented to the college clinics with a 5.0 cm diameter growth at the base of the left horn (Fig.). The growth was oval and semisolid. It was decided to perform surgery. Under xylazine hydrochloride sedation and local infiltration analgesia near the base of the horn, the mass was excised surgically. Histopathological examination of the mass revealed round oval cells with metachromatic granules arranged loosely and uniform in size suggestive of mast cell tumour

0358. Kumar, Mithilesh; Rajendra Agricultural University, Samastipur, Patna (India). Department of Veterinary Surgery and Radiology. Kumari, Premlata; Rajendra Agricultural University, Samastipur, Patna (India). Bihar Veterinary College. Department of Veterinary Parasitology. Atresia ani in a dog. Indian Journal of Veterinary Surgery (India). (Jun 2011) v.32(1) p.77 KEYWORDS: DOGS. GENETIC DISORDERS.

Congenital anomalies of the rectum and anus are rare in dogs. The most frequently reported anomaly is atresia ani. Surgical repair is treatment of choice, but postoperative complications can occur, including faecal incontinence and colonic atony secondary to prolonged preoperative distention (Vienna et al. 2005). Puppies and kittens affected with atresia ani are often stunted, anorectic and have abdominal enlargement due to secondary megacolon. A Pomeranian male dog weighing about 1 kg aged one month was presented to the department suffering from atresia ani. The main clinical sign was tenesmus resulting in swelling over closed anus area and abdominal distention. Animal was anaesthesized with xylazine 1 mg/kg b.wt and ketamine 5 mg/kg b.wt along with atropine sulphate 0.04 mg/kg. Perineal area was aseptically prepared. A cross incision was given on the anus area and a piece of skin removed from the wound edge. Blind end rectum incised and edges of rectum sutured with skin using four to five interrupted sutures with non-absorbable suture material. Large amount of gases along with faeces passed immediately after incising the rectum. Postoperative therapy included antibiotic, analgesic and regular dressing with betadine. Animal recovered uneventfully.

0359. Mondal, M.; Indira Gandhi Agricultural University, Anjora, Durg (India). College of Veterinary Science and Animal Husbandry. Department of Veterinary Pathology. Bhowmik, M.K.; West Bengal University of Animal and Fishery Sciences, Kolkata (India). Department of Pathology. Pathological studies on experimentally induced chronic nitrate toxicity in goats. Indian Journal of Veterinary Pathology (India). (June 2012) v.36(1) p.19-21 KEYWORDS: CHRONIC TOXICITY. GOATS. NITRATES. PATHOLOGY.

Chronic toxicity of nitrate was induced in female Black Bengal goats by oral drenching of one tenth of acute lethal dose 50 (ALD 50) of potassium nitrate (120 mg kg−1 body weight) daily for 60 days. The gross and histopathological changes in the different visceral organs and tissues were investigated. Grossly pathological

changes of nitrate induced goats comprised brownish discolouration of subcutaneous tissues, lungs, haemorrhages and necrotic changes in lungs, liver, intestine and atrophy of the thyroid glands. Toxicity produced histophological changes suggestive of haemorrhagic and degenerative or necrotic lesions in the liver, intestines, lymph nodes, spleen and kidneys. In addition, lesions of hyperplastic goitre were observed in the induced goats depicting the goitrogenic effect of nitrate.

0360. Jangir, Babu Lal; Maharashtra. Animal and Fishery Sciences University, Nagpur (India). Nagpur Veterinary College. Department of Veterinary Pathology. Raut,Jaya; Maharashtra. Animal and Fishery Sciences University, Nagpur (India). Nagpur Veterinary College. Department of Animal Reproduction. Rahangadale, Santosh; Maharashtra. Animal and Fishery Sciences University, Nagpur (India). Nagpur Veterinary College. Department of Veterinary Pathology. Patil, Manoj; Maharashtra. Animal and Fishery Sciences University, Nagpur (India). Nagpur Veterinary College. Department of Animal Reproduction. Bhandarkar , Arun; Maharashtra. Animal and Fishery Sciences University, Nagpur (India). Nagpur Veterinary College. Department of Veterinary Pathology. Kurkure, Nitin; Maharashtra. Animal and Fishery Sciences University, Nagpur (India). Nagpur Veterinary College. Department of Veterinary Pathology. Effect of acrylamide toxicity on male reproductive system of Wistar rats. Indian Journal of Veterinary Pathology (India). (Jun 2012) v.36(1) p.37-40 KEYWORDS: ACRYLAMIDE. STRESS. RATS. TESTES. TOXICITY.

The aim of the study was to detennine the effect of acrylamide toxicity on male reproductive system and its correlation with histological changes in testes of rats. Twenty four adult male Wistar rats were divided in four equal groups and received 0, 10, 15 and 20 mgt kg b.w. acrylamide daily as oral gavage for 28 days. It was observed that acrylamide reduced the testes weights in intoxicated rats. There was dose dependent decrease in total sperm count and increase in dead sperm count of rats from toxicated groups. Histopathological changes in testes of acrylamide treated animals included destruction of seminiferous tubules with detachment of spermatogonial cells observed at periphery of seminiferous tubules. Atrophy of seminiferous tubules was a constant finding. Some sections of testes of rats in high dose groups showed vacuolar degenerative changes in germinal epithelium. It was concluded that pathological alterations in testes were responsible for reduced spermatogenesis in rats.

0361. Swathi, B.; Sri Venkateswara Veterinary University, Tirupati (India). College of Veterinary Science. Department of Veterinary Pathology. Kumar, A. Anand; Sri Venkateswara Veterinary University, Tirupati (India). College of Veterinary Science. Department of Veterinary Pathology. Reddy, M.R.; Sri Venkateswara Veterinary University, Tirupati (India). Project Directorate on Poultry. Histological and molecular diagnosis of poultry tumours. Indian Journal of Veterinary Pathology (India). (Jun 2012) v.36(1) p.41-48 KEYWORDS: HISTOPATHOLOGY. LEUKOSIS. LYMPH. MAREK'S DISEASE.

A total of 189 different tissues, from 72 cases of poultry, were collected to investigate the organ-wise incidence of tumours by various diagnostic methods. Grossly, 25% of 72 cases were suspected for Marek's disease (MD), 62.5% for lymphoid leucosis (LL), 9.72% for fibromas and 2.78% for haemangioma. Histopathologically, of 189 tissue samples 120 (63.49%) were confirmed as Marek's disease, 55 (29.10%) as LL and 14 (7.41%) as other neoplastic conditions which included cases of adenoma, hepatoma, haemangioma, fibroma, nephroblastoma, chondroma, granulosa cell tumour, endothelioma and osteofibroma. Fifty nine tissue samples confirmed for MD and LL were subjected for PCR analysis and 30(50.85%) of the samples were positive for MD, 25(42.37%) of the samples were positive for ALV. DNA of 4(6.78%) samples was neither amplified for MDV nor for ALV with either of the primers. The above study indicated that the incidence of Marek's disease was found to be more followed by lymphoid leucosis. Gross examination of tumours was found to be an aid in diagnosing the type of tumours in poultry. PCR was established as the quick method to diagnose MD and ALV infections. Histopathology was found to be the best and reliable method for diagnosis of the type of tumour.

0362. Sujatha, V.; GB Pant University of Agriculture and Technology, Pantnagar (India). College of Veterinary and Animal Sciences,Department of Veterinary Physiology. Korde, J.P.; GB Pant University of Agriculture and Technology, Pantnagar (India). College of Veterinary and Animal Sciences, Department of Veterinary Physiology. Batra, Munish; GB Pant University of Agriculture and Technology, Pantnagar (India). College of Veterinary and Animal Sciences, Department of Veterinary Pathology. Madan , A.K.; GB Pant University of Agriculture and Technology, Pantnagar (India). College of Veterinary and Animal Sciences, Department of Veterinary Physiology. Rastogi, S.K.; GB Pant University of Agriculture and Technology, Pantnagar (India). College of Veterinary and Animal Sciences, Department of Veterinary Physiology. Comparative evaluation of anti-stress potential of some herbal agents in heat stressed broilers. Indian Journal of Veterinary Pathology (India). (Jun 2012) v.36(1) p.54-56 KEYWORDS: BROILER CHICKENS. HERBACEOUS PLANTS. STRESS.

The present study was conducted to know the pathological changes in heat stressed broilers supplemented with various herbal agents in the diet. Pathological changes, both gross and histopathological observed in liver, lung, kidney, heart, bursa of Fabricius, spleen and breast muscles in birds of various groups were mainly vascular in nature i.e. congestion and hemorrhages, depletion of lymphoid cells in bursa and edema, fragmentation of muscles of heart and breast. It was concluded from the present study and our earlier studies that Stresroak has the highest anti stress potential in heat stressed broilers.

0363. Mondal , Narayani M.; Indira Gandhi Agricultural University, Anjora, Durg (India). College of Veterinary Science and Animal Husbandry, Department of Veterinary Pathology. Ghosh, R.C.; Indira Gandhi Agricultural University, Anjora, Durg (India). College of Veterinary Science and Animal Husbandry, Department of Veterinary Pathology. Pathomorphological changes of induced acute alphamethrin toxicity in broiler chicks. Indian Journal of Veterinary Pathology (India). (Jun 2012) v.36(1) p.69-72 KEYWORDS: ACUTE TOXICITY. BROILER CHICKENS. PATHOLOGY.

The present investigation was undertaken to study the acute toxicity of alphamethrin in broiler chicks and establish the approximate lethal dose (ALD) of alphamethrin by oral route in broiler chicks. Acute toxicity study of alphamethrin in broiler chicks was determined by approximate lethal dose method. Initially different arbitrary doses (200, 300, 450, 675, 1013 mg/kg body weight) of alphamethrin were given to a single broiler chick until the lowest lethal dose was obtained. The approximate lethal dose (ALD) of alphamethrin by oral route in broiler chicks was determined as 1013 mg/ kg body weight. During acute toxicity the treated chicks manifested extreme dullness, depression, anorexia, open mouth breathing, incoordination in movement, resting the head on support, lacrimation followed by tremors, convulsion, coma and death within 25 minutes of administration. Grossly, there were congestion in most of the organs like liver, lungs, kidneys, heart, thigh muscle and spleen. Histopathologically, treated birds showed severe depletion of lymphocyte population from lymphoid organs, severe congestion in brain, degenerative and necrotic changes along with mononuclear cell infiltration in liver, congestion and haemmorhage in lungs and congestion, degeneration and necrosis in kidneys.

0364. Kurian, Arun; Department of Animal Husbandry, Chailazhikathu, Kollam (India). Francis, Josephine; Massey University, Pamerston North, New Zealand. Animal Sciences Dept. Job, Jiss; Massey University, Pamerston North, New Zealand. Animal Sciences Dept. Ameloblastic fibrosarcoma in a cow. Indian Journal of Veterinary Pathology (India). (Jun 2012) v.36(1) p.84-85 KEYWORDS: SARCOMA. COWS.

A 6-year old Gir crossbred cow was presented for the evaluation of an anterior mandibular-gingival mass. On clinical examination, a firm solid mass of growth was found on the anterior part of the mandible. The tumour mass was composed of numerous islands of odontogenic epithelium enclosed in a loose connective tissue matrix. The odontogenic epithelia were separated by a stroma which showed hypercellularity with plump fibroblast like cells showing a moderate degree of nuclear pleomorphism. The cells revealed occasional mitotic activity. Ameloblastic fibrosarcoma was diagnosed by histopathological examination of biopsy specimen. The animal was given a poor prognosis due to the malignant nature of the tumour.

0365. Moinoddin, Pathan Muqtar Ahmed; College of Veterinary &Animal Sciences, Udgir (India). Department of Pathology. U.B. Kumbhar,; College of Veterinary & Animal Sciences, Udgir (India). Department of Animal Reproduction and Obstetrics. Dandopant, M.S.; College of Veterinary & Animal Sciences, Udgir (India). Department of Pathology. Patil, A.D.; College of Veterinary & Animal Sciences, Udgir (India). Department of Animal Reproduction and Obstetrics. Khan, Minhajali; College of Veterinary & Animal Sciences, Udgir (India). Department of Pathology. More, R.M.; College of Veterinary & Animal Sciences, Udgir (India). Department of Animal Reproduction and Obstetrics. Dicephalus tetrapus tetrabrachius tricaudatus ischiopagus . A conjoined twin calf. Indian Journal of Veterinary Pathology (India). (Jun 2012) v.36(1) p.86-87 KEYWORDS: CALVES. SIBLINGS.

The present case was a non descript Ischiopagus twin calf born to HF cross mated with non descript bull. The twin has two heads (Dicephalus), four forelegs (Tetrapus) four hind legs (Tetrabrachius) and fused at pelvic region (Ischiopagus) with an additional finding of three tails (Tricaudatus).

0366. Julie, B.; District Veterinary Centre, Kalpetta, (India). Abraham, Swapna Susan; Chief Disease Investigation Office, Palode, (India). Jayesh, V.; District Veterinary Centre, Kalpetta, Wayanad, (India). Nagasindhu; District Veterinary Centre, Kalpetta, Wayanad, (India). Raghavan, K.S.; District Veterinary Centre, Kalpetta, Wayanad, (India). Pathological observations on liposarcoma in a dog. Indian Journal of Veterinary Pathology (India). (Jun 2012) v.36(1)p.97-98 KEYWORDS: SARCOMA. DOGS.

A case of liposarcoma in a four year old dog was successfully managed by surgical intervention. The gross, cytological and histolOgical features have been described. Its unusual association with microfilaria has been discussed.

0367. Prasad, M.C.; Jai Research Foundation, Vapi (India). Department of Toxicology. Pathology Section. Brahmankar, M.G.; Jai Research Foundation, Vapi (India). Department of Toxicology. Pathology Section. Lonkar, P.S.; Jai Research Foundation, Vapi (India). Department of Toxicology. Pathology Section. Kapurkar, U.M.; Jai Research Foundation, Vapi (India). Department of Toxicology. Pathology Section. Adak, A.; Jai Research Foundation, Vapi (India). Department of Toxicology. Pathology Section. M.V. Patel; Jai Research Foundation, Vapi (India). Department of Toxicology. Pathology Section,. lntussusception with rettal prolapse in a New Zealand White rabbit. Indian Journal of Veterinary Pathology (India). (Jun 2012) v,36(1) p.105-106 KEYWORDS: INTESTINAL DISEASES. RABBITS. DIGESTIVE SYSTEM DISEASES.

A rare case of intussusception with rectal prolapse has been reported in a 12 months old female New Zealand White rabbit out of about one thousand rabbit necropsies conducted. The rabbit was off fed since a week. Rectal prolapse developed three days before sacrifice. Gross and histomorphology has been described. Dietetic error considered to increase intestinal peristalsis leading to intussusception.

0368. Amaravathf, P.; College of Veterinary Science, Tirupati (India). Department of Veterinary Pathology. Srilatha, Ch.; College of Veterinary Science, Tirupati (India). Department of Veterinary Pathology. Sujatha , K.; College of Veterinary Science, Tirupati (India). Department of Veterinary Pathology. Sailaja, N.; College of Veterinary Science, Tirupati (India). Department of Veterinary Pathology,. Histopathological and immunohistochemical study of hemangiosarcoma in lions. Indian Journal of Veterinary Pathology (India). (Jun 2012) v,36(1) p.120-121 KEYWORDS: BLOOD. SARCOMA. LIONS. LIVER.

Two cases of hemangiosarcoma were recorded in lion during postmortem examination. Grossly, multiple variable sized reddish black hemorrhagic foci were noticed in the liver and spleen parenchyma. Histopathologically foci of liver and spleen revealed necrosed and numerous blood filled areas. Immature, plump endothelial cells forming vascular spaces and irregular vascular spaces containing variable amounts of blood were noticed. Immunohistochernicaliy there was increased expression of vascular endothelial growth factor in endothelial cells.

0369. Bhar, A.; West Bengal University of Animal and Fishery Sciences, Kolkata (India). Ghosh. C.K.; West Bengal University of Animal and Fishery Sciences, Kolkata (India). Bandyopadhyay, S.; West Bengal University of Animal and Fishery Sciences, Kolkata (India). Sarkar, S.; West Bengal University of Animal and Fishery Sciences, Kolkata (India). Chakrabarti, A.; West Bengal University of Animal and Fishery Sciences, Kolkata (India). Datta, G.; West Bengal University of Animal and Fishery Sciences, Kolkata (India). Auddy, B.; West Bengal University of Animal and Fishery Sciences, Kolkata (India). Debnath, P.K.; West Bengal University of Animal and Fishery Sciences, Kolkata (India). Ameliorative effect of Jibanti (Desmotrichum fimbriatum Bl) on clinical, haematobiochemical and oxidative profiles of Geriatric dogs. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 23-25 KEYWORDS: DOGS. HEALTH PROTECTION. ELDERLY. ORCHIDACEAE.

The present study was conducted to explore the ameliorative effect of ethanolic extract of Jibanti on the geriatric dogs. There was significant clinical recovery and improvement of haematobiochemical and oxidative profile of the dogs following administration of Jibanti. The present investigation indicated the efficacy of the extract to protect the aged dogs from oxidative injuries induced by aging.

0370. Umeshwori, N.; CSK Himachal Pradesh Krishi Vishvvidyalya, Palampur (India). Adarsh Kumar; CSK Himachal Pradesh Krishi Vishvvidyalya, Palampur (India). Tyagi, S.P.; CSK Himachal Pradesh Krishi Vishvvidyalya, Palampur (India). Kurade, N.P.; CSK Himachal Pradesh Krishi Vishvvidyalya, Palampur (India). Incidence and management of neoplasms in dogs of Himachal Pradesh. Indian Journal of Animal Sciences (India). (Jan 2011) v. 81(1) p. 26-28 KEYWORDS: DOGS. NEOPLASMS. HIMACHAL PRADESH.

A study was carried out in 75 canine patients having neoplastic growth presented to Veterinary Clinic at the university during the period from December 2006 to April 2008. The overall tumour incidence noted was 5.03%. The different tumour incidence among dogs was mammary tumour (13.33%), genital tumours (33.33%) and other tumours comprising skin and bone tumours at 53.33%. The incidence of tumour as per the location on the body was head and neck (22.66%), chest (4%), abdomen (10.33%), external genitalia (33.33%), perineal region (10.66%), forelimb (2.66%) and hindlimb (13.33%). Malignant tumours diagnosed were 66.12% and benign tumours diagnosed in the study were 33.87%. Tumour management was depended upon the case as well as the stage of the tumour. Wide margin surgical resection in benign tumours, vincristine sulphate chemotherapy in venereal granuloma and combination of surgery and chemotherapy in metastatic mammary tumours prove to be effective in controlling the disease. As the stage of tumour increases, the treatment protocol should include chemotherapy or combination of surgery and chemotherapy. When the indicated therapy is not provided, there is recurrence or death of the patient. If the tumor resection is incomplete or if surgical treatment is provided as a sole measure for metastatic tumour, recurrence is inevitable.

0371. Singh, S.K.; Indian Veterinary Research Institute, Izatnagar (India). Mritunjay Kumar; Indian Veterinary Research Institute, Izatnagar (India). Jadhav, R.K.; Indian Veterinary Research Institute, Izatnagar (India). Saxena, S.K.; National Dairy Research Institute, Karnal (India). An update on therapeutic management of canine demodicosis. Veterinary World (India). (Jan 2011) v.4(1) p. 41-44 KEYWORDS: DEMODEX. MANGE MITES. DOGS.

Canine demodicosis is a common noncontagious parasitic dermatosis caused by different spp of Demodex mites including Demodex canis, Demodex injai and D. cornei. Generalized demodicosis can be one of the most frustrating skin diseases, one will ever treat. Conventional and newer miticidal therapies are available to veterinarian to treat this frustrating skin disease. All recognized Demodex mites in dogs appear to respond similarly to mite targeted therapy. Treatment for canine demodicosis includes amitraz, ivermectin, milbemicin oxime, moxidectin, and doramectin. The use of any glucocorticoid-containing products is contraindicated and could favour disease generalization. Conventional treatments will often appear to work however, but it relies heavily on a highly toxic method of treatment. Using natural remedies for mange, on the other hand, can enhance the dog’s immune system, so that the body can fight off the mange mite infection by itself.

0372. M. M. Pathan,; Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar (India). College of Veterinary Science & A.H. Siddiquee, G.M.; Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar (India). College of Veterinary Science & A. H.A. Latif, H. Das,; Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar (India). College of Veterinary Science & A. H.Md. J. Z. Khan; Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar (India). College of Veterinary Science & A. H.Shukla, M.K.; Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar (India). College of Veterinary Science & A. H. Eclampsia in the dog. Veterinary World (India). (Jan 2011) v.4(1) p. 45-47 KEYWORDS: PREGNANCY TOXAEMIA. DOGS. HYPOCALCAEMIA.

Eclampsia is an acute, life-threatening disease caused by low blood calcium levels (hypocalcaemia) in dogs and more rarely in cats. The causes of Eclampsia are poor nutrition, low blood level of albumin, excessive milk production and disease of parathyroid gland. Imbalance between the rates of in flow and out flow from the extra cellular fluid calcium because of the increased loss into the milk appears to be an important factor in the pathogenesis of puerperal tetany in the bitches. Normally the condition is diagnosed by careful investigation, recording proper history, correlating the clinical signs, response to therapy in most cases and confirming the condition with laboratory diagnosis. Generally, 5-10 ml of 10% calcium gluconate will provide sufficient calcium for a bitch weighing between five and ten Kg. Dietary supplements of calcium and vitamin D are useful in preventing relapse of the disease after treatment and prevention of the disease.

0373. Bajaj, G.; Guru Angad Dev University of Veterinary and Animal Sciences, Ludhiana (India). Department of Clinical Veterinary Medicine.Dhaliwal, P.S.; Guru Angad Dev University of Veterinary and Animal Sciences, Ludhiana (India). Department of Clinical Veterinary Medicine.Hundal, J.S.; Guru Angad Dev University of Veterinary and Animal Sciences, Ludhiana (India). Department of Veterinary & Animal Husbandry Extension.Choubey, M.; Guru Angad Dev University of Veterinary and Animal Sciences, Ludhiana (India). Department of Clinical Veterinary Medicine. Effect of Induced Oxalate Toxicity by ad libitum Feeding of Napier Grass (Pennisetum purpureum) on Health of Buffalo Calves. Animal Nutrition and Feed Technology (India). (Jul 2011) v. 11(2) p. 241-248 KEYWORDS: CALVES. OXALATES. TOXICITY. PENNISETUM PURPUREUM.

The present study was taken up to evaluate the effect of oxalate toxicity on health of male buffalo calves. Oxalate toxicity was experimentally induced by ad lib feeding of overgrown Napier grass (above 125 cm) with deprivation of water. The haemato-biochemical, physiological and ruminal parameters were recorded at zero day of experiment were taken as control values. The crude protein, neutral detergent fibre and total oxalate content of overgrown Napier grass were varied from 6.69% to 4.35%, 63.0% to 69.8% and 1.80% to 2.43% respectively. Feeding of overgrown Napier grass declined rumen protozoa concentration from ++++ to + and decreased ($P<0.01$) rumen motility (2.80/2 min to 0.00/2 min) on 44th day of experiment in addition to the altered body temperature, pulse rate and respiration rate. The leukocyte count of calves increased ($P<0.01$) from 9.68 to 16.92x10/mm3 with significantly decrease in packed cell volume from 31.80 to 26.67 and slight increase in haemoglobin from 10.47 to 10.92 g/dl. Rise ($P<0.01$) in plasma creatinine from 0.81 to 1.79 mg/dl and blood urea nitrogen from 8.90 to 12.88 mg/dl were also observed with slight increase in aspartate amino transferase enzyme activity at the peak of experiment. The significant ($P<0.01$) decrease in plasma calcium level from 9.13 to 6.19 mg/dl along with decrease in inorganic phosphorus level (from 5.72 to 3.94 mg/dl) lead to hypocalcaemia. Hence, it was concluded that oxalate toxicity decreases rumen protozoa concentration, plasma calcium and phosphorus level leading to hypocalcaemia resulted in significant reduction of rumen motility and consequently develops rumen impaction in calves.

0374. Sharma, N.; Sher-e-Kashmir University of Agricultural Science and Technology, Jammu (India). Pandey, V.; Sher-e-Kashmir University of Agricultural Science and Technology, Jammu (India). Comparative evaluation of three tests used for the screening of mastitis. Indian Journal of Animal Sciences (India). (Feb

2011) v. 81 (2) p. 140-142 KEYWORDS: MASTITIS. DIAGNOSIS. CULTURE TECHNIQUES. SOMATIC CELL COUNT. DAIRY COWS.

The present study was conducted on 325 milk samples to screen the dairy cows for mastitis by CMT, SLST and SCC. The 220 and 105 milk samples were CMT positive and negative respectively. Whereas, 253 and 175 milk samples were positive by SLST and SCC, respectively. Per cent accuracy of CMT, SLST and SCC were 75.69, 51.38 and 92.00%. In this study SCC was most reliable and closest to bacteriological culture indicating inflammatory condition of the udder. In summary, CMT was most accurate after SCC. CMT is the reliable diagnostic method in field conditions.

M12 Aquaculture Production and Management

0375. Gupta, A.; Guru Angad Dev University of Veterinary and Animal Sciences, Ludhiana (India). College of Fisheries. Sehga,l H.S; Guru Angad Dev University of Veterinary and Animal Sciences, Ludhiana (India). College of Fisheries. Sehgal, G.K.; Guru Angad Dev University of Veterinary and Animal Sciences, Ludhiana (India). College of Fisheries. Low-Cost Diet for Monoculture of Giant Macrobrachium Rosenbergii. Indian Journal of Animal Nutrition (India). (Mar 2011) v. 28(1) p. 54-63 KEYWORDS: MACROBRACHIUM ROSENBERGII. DIET. GROWTH RATE. GROWTH. ECONOMIC ANALYSIS.

A 135 days experiment was conducted in twelve experimental tanks (80 m2) with a view to develop new diets for giant freshwater prawn (Macrobrachium rosenbergii). Three experimental diets (35% CP) were formulated using different protein sources in different combinations and assigned to treatments D1, D2 and D3. A commercial prawn feed was assigned to CD (control diet). Juveniles M. rosenbergii (1.87±0.37 - 2.44±0.35 g) were stocked at the rate of 320 no./tank (40,000/ha). The tanks were provided with aeration using air pumps. The ranges of water quality parameters recorded in different tanks were: temperature 23.3–36.3°C, dissolved oxygen 5.86–10.85 mg/l, pH 8.06–9.31, visibility 14.3–48.0 cm and salinity 0.43–0.56 ppt. The results showed nonsignificant differences in the growth performance; however, survival ranged between 63.8 and 77.7% and it was significantly higher in prawns of D1 and CD treatments, respectively. The prawn yield on treatment D1, D2, D3 and CD was 599.5±173.2, 676.5±102.5, 633.8±136.6 and 721.9±161.5 kg/ha/135 days, respectively. Feeding of diet D2 generated maximum net profit of Rs. 83,687.3/ha, which was 45.31% more profitable than by feeding CD. These results indicated that a diet containing 10% fish meal and 40% soybean meal based diet D2 may be useful for profitable monoculture of M. rosenbergii.

0376. Paul, B.N.; Central Institute of Freshwater Aquaculture, Bhubaneswar (India). Datta, A.K.; Central Institute of Freshwater Aquaculture, Bhubaneswar (India). Giri, S.S; Central Institute of Freshwater Aquaculture, Bhubaneswar (India). Mohanty, S.N.; Central Institute of Freshwater Aquaculture, Bhubaneswar (India). Carbohydrate Requirement of Labeo bata. Indian Journal of Animal Nutrition (India). (Mar 2011) v. 28(1) p. 79-82 KEYWORDS: LABEO BATA. GROWTH RATE. CARBOHYDRATES.

A feeding experiment was conducted to evaluate the carbohydrate requirement of Labeo bata early fingerling (Av. wt. 2.53g). Four purified feeds having carbohydrate (Dextrin) levels at 12 (Feed 1), 18 (Feed 2), 24 (Feed 3) and 30% (Feed 4) were fed to the L. bata for a period of 45 days. The experiment was conducted in fibre reinforced plastic (FRP) tanks having flow through system. The net weight gain on feeds 1–4 was 0.26±0.10, 0.82±0.21, 1.95±0.15 and 0.72±0.51 g, respectively. Net weight gain was significantly ($P<0.05$) higher in fish fed with feed-3 vis-a-vis other groups. The lipid carcass composition of fish differed significantly ($P<0.05$) among the levels of dextrin. It was concluded that the L. bata required 24% carbohydrate in their diet for optimum growth.

Q02 Food Processing and Preservation

0377. Kumar, Pavan; S.K.U.A.S.T. of Jammu, R.S.Pura, Jammu (India). Division of L.P.T. Sharma, B.D.; Indian Veterinary Research Institute, Izatnagar (India). Division of Livestock Products Technology. Kumar, R. R.; Indian Veterinary Research Institute, Izatnagar (India). Division of Livestock Products Technology. Kumar, Arun; Indian Veterinary Research Institute, Izatnagar (India). Division of Livestock Products Technology. Optimization of the level of wheat gluten in analogue meat nuggets. Indian Journal of Veterinary Research (India). (Jan-Jun 2012) v. 21(1) p.54-59 KEYWORDS: MEAT SUBSTITUTES. TEXTURE. SOYBEANS. PROTEINS. WHEATS. GLUTEN.

Analogue meat nuggets were prepared as per basic formulation optimized for mushroom under standardized processing conditions with three different levels of wheat gluten viz. 10%, 14%and 18% replacing textured soy protein and assayed for physico-chemical and sensory attributes. Protein and fat percent decreased significantly (P<0.01) with subsequent increase in levels of wheat gluten. Cooking yield of analogue meat nuggets at 18% level was significantly higher (P<0.05) as compared to 10% and 14% levels. All the sensory attributes viz. general appearance, flavour, texture binding and overall acceptability were significantly higher (P<0.01) at 18% wheat gluten as compared to others except juiciness. However, sensory scores for almost all attributes at 10%and 14% wheat gluten were comparable. On the basis of sensory quality, 18% incorporation of wheat gluten was adjudged as optimum in analogue meat nuggets.

0378. Tyagi, A.; National Dairy Research Institute, Karnal (India). Dairy Cattle Nutrition Division.Tyagi, A.K.; National Dairy Research Institute, Karnal (India). Dairy Cattle Nutrition Division.Singh, R.R.B.; National Dairy Research Institute, Karnal (India). Dairy Cattle Nutrition Division. Hossain, S.A.; National Dairy Research Institute, Karnal (India). Dairy Cattle Nutrition Division. Designing Milk and Meat Products with Enhanced Conjugated Linoleic Acid (CLA) Content: A Review. Indian Journal of Animal Nutrition. (Mar 2011) v. 28(1) p.1-17 KEYWORDS: PROCESSED ANIMAL PRODUCTS. MEAT PRODUCTS. MILK PRODUCTS. LINOLEIC ACID.

Improvement in foods from ruminants such as milk and meat products in consequence of increasing demand of value addition has resulted in development of foods having high quality protein, essential minerals and vitamins often referred as functional foods. Increasing the level of saturated fatty acids (SFA) make these foods a cardio vascular risk while enhancement of unsaturated fatty acid (UFA) constituents such as Conjugated Linoleic Acid (CLA) not only avoids such risks but make them more suitable and acceptable for human consumption. CLA is a biohydrogenation intermediate which gets accumulated in the rumen as a result of reduction from Trans-11 Octadecenoic acid to Cis-9 Trans-11 CLA and is incorporated both into milk and body fats. Its availability in both milk and meat along with its health promoting functionality makes it an obvious choice of study for researchers. Several achievements have been witnessed in significant enhancement of this functional food component via modification of animal diet thereby increasing the ratio of UFA: SFA and decreasing the ratio of n-6:n-3 fatty acids. However, studies related to beneficial effects of CLA are largely based on animal trials and those with human perspective are few. The review gives an overview of CLA synthesis, its beneficial effects and its enhancement via careful diet modification and presses for further human trials to ascertain the facts.

Q52 Feed processing and preservation

0379. Sreehari, S.; CCS Haryana Agricultural University, Hisar (India). Department of Livestock Production and Management.Sharma, R.K.; CCS Haryana Agricultural University, Hisar (India). Department of Livestock Production and Management. Effect of ensiling broiler litter with fermented milk as inoculant. Veterinary World (India). (Jan 2011) v.4(1) p. 31-33 KEYWORDS: SILAGE. SILAGE MAKING. LITTER FOR ANIMALS. WHEAT STRAW. STRAW. RICE STRAW. BROILER CHICKENS.

Litter material was obtained from broiler birds, reared on chaffed straws of wheat (T1 to T4) and paddy (T5 to T8) at floor spaces of 0.15sq.m/bird (T1, T2, T5 & T6) and 0.18sq.m/bird (T3, T4, T7 & T8). The

litter material was then mixed with 10% molasses (DMB).The treatment groups (T2, T4, T6 & T8) were inoculated by 1% (v/w) fermented milk on fresh weight basis whereas control groups (T1, T3, T5 & T7) were not inoculated. All the stacks were covered with polythene sheet and ensiled for 21 days. Pooled over values of crude protein in the control groups, where fermented milk was not added, averaged 24.71 % before ensiling and it reduced to 20.57% after ensiling. The corresponding values in the treatment groups, where fermented milk was added, were 24.76 and 21.31 %, respectively, indicating significantly (P 0.05) lesser losses of crude protein when ensiled with fermented milk. The pH of silage reduced from 7.6 to 6.0 in control group, whereas it reduced from 7.8 to 5.6 in the stacks in which fermented milk was added. Reduction in pH of silage is due to higher production of volatile fatty acids in the ensiled material inoculated by fermented milk, thereby indicating beneficial effect of fermented milk in silage making.

Q54 Feed composition

0380. Singh, R.K.; Orissa University of Agriculture and Technology, Bhubaneswar (India). College of Veterinary Science and Animal Husbandry. Mishra, S.K.; Orissa University of Agriculture and Technology, Bhubaneswar (India). College of Veterinary Science and Animal Husbandry. Swain, R.K.; Orissa University of Agriculture and Technology, Bhubaneswar (India). College of Veterinary Science and Animal Husbandry. Dehuri, P.K.; Orissa University of Agriculture and Technology, Bhubaneswar (India). College of Veterinary Science and Animal Husbandry. Sahoo, G.R.; Orissa University of Agriculture and Technology, Bhubaneswar (India). College of Veterinary Science and Animal Husbandry. Mineral Profile of Feeds, Fodders and Animals in Mid-Central Table Land Zone of Orissa. Animal Nutrition and Feed Technology (India). (Jul 2011) v. 11(2) p. 177-184 KEYWORDS: FEEDS. FEED GRASSES. GRAIN FEED. GREEN FEED. ROUGHAGE. MINERAL CONTENT. ORISSA.

Sample of feeds and fodders and serum samples of cows in eight villages, two from each block and two blocks from each of the two districts namely Dhenkanal and Angul of mid-central table land zone (MCTLZ) of Orissa were collected and analysed for macro and micro mineral content. Among the fodders, paddy straw was found to be deficient in calcium, phosphorus and manganese. Deficiency of P was observed in most of the fodders. Most of the concentrate found to contained higher level of the analysed minerals. The average serum Ca, P, zinc, copper, Mn and iron content of cows in MCTLZ were found to be 6.91±0.13 mg/dl, 3.25±0.08 mg/dl, 0.78±0.02 ppm, 0.70±0.01 ppm, 0.29±0.01 ppm and 2.17±0.06 ppm, respectively. The percentage of animals deficient in serum Ca, P, Zn, Cu and Mn were observed to be 69.1, 83.3, 29.1, 44.1 and 8.3 percent, respectively. The serum mineral content of the animals of MCTLZ was found to be deficient in Ca, P, Zn and Cu. The serum glucose, cholesterol, protein, albumin and globulin content of the animals in MCTLZ were 38.06±1.08 mg/dl, 64.26 ±2.13 mg/dl, 4.42±0.10 g/dl, 2.26 ±0.06 g/dl and 2.16±0.07 g/dl, respectively. Based on the study, supplementation of deficient minerals viz Ca, P, Zn and Cu and protein and energy in the diet of cattle under existing feeding practices in MCTLZ of Orissa is imperative for better health and productivity.

0381. Das, A.; ICAR Research Complex for NEH Region, Gantok (India). Sikkim Centre. Katole, D.D.; ICAR Research Complex for NEH Region, Gantok (India). Sikkim Centre. Seasonal Variation in Eating Behaviour and Nutritive Value of Mixed Jungle Grass for Goats. Animal Nutrition and Feed Technology (India). (Jul 2011) v. 11(2) p. 195-202 KEYWORDS: GRASSES. NUTRITIVE VALUE.

Seasonal variation in biomass yield, herbal and chemical composition, samples of mixed jungle grass were assessed by conducting three digestibility trials during the month of August (monsoon), December (winter) and May (summer). During each period, 4 Sikkim local adult, non-producing does (body weight 19.1±1.8 kg) were stall fed with mixed jungle grass ad libitum. After a preliminary feeding period of 22 days a digestibility trial of 5-day collection period was conducted during each of the season mentioned. Biomass yield of the pasture of mid altitude location of Sikkim was maximum during monsoon, followed by winter and summer. DM and CF contents were significantly (P<0.01) less and CP content was significantly (P<0.01) more in samples collected during monsoon in comparison to those collected during winter and summer. The time

spent on rumination during summer month was higher (P<0.01) than monsoon Time spent on eating (min) per 100g DM was 42.40, 37.08 and 42.23 in summer, monsoon and winter, respectively. Time spent (min) on ruminating per 100g DM was higher (P<0.01) in summer months (124.75) as compared with monsoon (86.63) and winter (108.15). Dry matter intake and digestibility was significantly (P<0.01) higher in monsoon than summer and winter. Nutritive value of mixed jungle grass in terms of DCP and TDN content was found to be significantly (P<0.01) higher in monsoon season as compared to winter and summer. It was concluded that quality of pasture was superior during monsoon in comparison to winter and summer.

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