

The Indian Animal Sciences Abstracts

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L01 Animal Husbandry

001. Arunachalam, S.; Ramesh, V. (Madras Veterinary College, Chennai (India). Livestock Production and Management Dept.). Quantification and classification of rural livestock farming and its income in certain parts of Tamil Nadu. Indian Veterinary Journal. (Aug 2003) v. 80(8) p. 787-790 KEYWORDS: LIVESTOCK FARMING; INCOME.

A study was conducted among 300 livestock farmers randomly selected in five regions of Tamil Nadu to quantify the livestock holding and classify them according to their livestock holding and its income in cattle unit (FAO, 1963). The livestock farmers holding livestock of 0 to 4.01, 4.02 to 4.87 and 4.88 and above cattle units are classified into small, medium and large livestock farm, in the study 54 per cent falls under the category of small livestock farming situation in the state is being done in large way by small farmers. The mean livestock income per cattle unit between farm size were significant (P0.05), which was higher (Rs.5639.0±489.0) in western zone of small farm size. Livestock hold income between regions and farm size were highly significant (P0.01). The higher overall livestock hold income of Rs.15,354.0 ±3689.0 observed in High rainfall region and with the lower income of Rs. 7056.0±161 0.0 in south region.

002. Paul, S.; Gupta, L.; Paul, N.; Panjabi, N.K. (Rajasthan College of Agriculture, Udaipur (India). Extension Education Dept.). A profilic study of knowledge and attitude of tribals regarding cross-bred cattle rearing in Udaipur district of Rajasthan. Indian Veterinary Journal. (Aug 2003) v. 80(8) p. 819-820 KEYWORDS: ANIMAL HUSBANDRY; CATTLE REARING.

003. Majumdar, S.; Bhanja, S.K.; Singh, R.P.; Agarwal, S.K. (Central Avian Research Institute, Izatnagar (India). Turkey Reserch Unit.). Performance of turkey pout at different cage density during summer. Indian Journal of Veterinary Research (India). (Jul-Dec 2003) v. 12(2) p. 26-33 KEYWORDS: TURKEYS; CAGES; DENSITY; SUMMER; CARCASSES COMPOSITION; PERFORMANCE TESTING.

Small variety turkey poults hatched in the month of April-2000 were randomly distributed in electrically operated battery brooders (6ft x 4ft) at three floor density (0.75, 1.0 and 1.5 ft²/bird) from day-old to 8th week of age. Each treatment group had 3 replicates They were provided turkey starter ration having 28 percent crude protein and 3000 Kcal/Kg ME ad lib. for the entire experimental period. No significant (P<0.05) difference was observed in the 8th week body weight of poults at those 3 floor densities. However, the poults reared at 1.5 ft² floor space recorded numerically higher body weight (1505g) as compared to those reared at 1.0 and 0.75 ft² (1482 and 1436g, respectively). The poults reared at lower floor spaces (1.0 sq ft) recorded significantly (P<0.01) lower feed intake and better feed conversion ratio (FCR) than

the poult at higher floor space (1.5 sq ft) during pre-starter period. However, during starter period the poult reared at lower floor space ate significantly (P0.01) less feed, but there was no significant difference in the FCR. The poult reared at lower floor spaces (1.0 sq ft) gave significantly better (P0.05) performance index only during pre-starter period and not at starter period. No definite mortality patterns in poult at different floor densities were observed during the entire experimental period. Different floor space did not influence most of the carcass characteristics. However, better carcass and breast yields were recorded in poult provided 1.5 ft floor space at 8th week of age.

004. Sakthivel, K.M.; Rajkamal, P.J. (College of Veterinary and Animal Sciences, Mannuthy (India)). Continuing veterinary education needs in clinical subjects to the veterinary surgeons of Kerala. Indian Journal of Veterinary Research (India).. (Jan-Jul 2004) v. 13(1) p. 42-52
KEYWORDS: VETERINARIANS; VETERINARY MEDICINE; EDUCATION; TRAINING. The veterinary surgeons of the Animal Husbandry Department of Kerala were studied and it revealed that the most felt continuing veterinary education needs to be modern diagnostic procedures, small animal surgery and embryo transfer technology respectively under the major clinical subjects Veterinary medicine, Veterinary surgery and Gynaecology. Majority preferred an institutional mode of training, in general, for all the subjects. Regarding resource persons, the emphasis was for those from outside the parent organization. For a short-term CVE programme the most preferred venue was the institutions of the state agricultural university whereas for a long-term CVE programme it was premier institutions outside the state.

L02 Animal Feeding

005. Shahardar, R.A. (S. University of Agricultural Sciences and Technology, Srinagar (India)); Narsapur, V.S. (Bombay Veterinary College, Mumbai (India)). Studies on host preferences and preferred feeding sites of ixodid ticks in bovines. Indian Veterinary Journal. (Aug 2003) v. 80(8) p. 736-738
KEYWORDS: HOSTS; FEEDING; FEEDING PREFERENCES; OXODIDAE; METASTIGMATA; BOVINAЕ.

Boophilus microplus and *Haemaphysalis intermedia* were found more on cattle than the buffaloes whereas *Hyalomma (a) anatolicum*, *H. marginatum isaaci*, *Ambiyomma mudaliari* and *Rhipicephalus haemaphysaloides* were found more on buffaloes than on cattle. *Boophilus microplus* and *H. intermedia* were found all over the body whereas *R. haemaphysaloides* was restricted to anterior portions of the body and *H. marginatum isaaci* was found only on tail switch. *Nosomma montrosium* was found to be specific to buffaloes and location specific (only on tail switch).

L10 Animal Genetics and Breeding

006. Das, S.; Singh, V.P.; Singh, V.P. (Indian Veterinary Research Institute, Izatnagar (India). Bacteriology and Mycology Dept.). Strain differentiation of *Mycoplasma mycoides* subsp. *mycoides* SC by rapid-PCR. Indian Veterinary Journal. (Aug 2003) v. 80(8) p. 727-729
KEYWORDS: BIOLOGICAL DIFFERENCES; MYCOPLASMA; MYCOPLASMA MYCOIDES; PCR.

A randomly amplified polymorphic DNA PCR was carried out to differentiate the Indian isolate of *M. mycoides* subsp. *mycoides* SC (MmmSC) from the standard strain. Using OPG10 primer, more or less similar RAPD pattern was obtained in both the strains. The bands of 1.48 kbp and 410 bp were present in Indian isolate (NCVP1/ 86) but not found in standard PG 1 strain of MmmSC. Similarly an approximately 360 bp product was found in PG1 strain, but absent in NCVP-1/86 strain. The prominent bands (500bp, 620bp and 920bp) were found in PG1 strain while 320bp, 920bp, 1.19kbp and 1.5kbp long intense bands were detected in case of NCVP-1/86 strain.

007. Vinoo, R.; Rao, K.B. (Cattle Project, Guntur (India)). Morphometry and performance of ongole cattle in the breeding community. *Indian Veterinary Journal*. (Aug 2003) v. 80(8) p. 749-751 KEYWORDS: CATTLE; SEXUAL REPRODUCTION; BREEDING METHODS; PREGNANCY. Surveying of Ongole cattle in its breeding community (Guntur, Prakasam and Nellore districts) was undertaken during the period from 1997-2000. Information on a total of 8742 cattle was recorded of which 55.84 percent and 44.16 percent were males and females respectively. The average body length, height and chest girth at 60 months and above age were 144.11 cm, 147.47 cm and 173.49 cm for males and 139.55 cm, 143.94 cm and 165.29 cm for females respectively. Observations on age at first oestrus, age at first calving, calving interval, service period, gestation length and milk yield with fat and SNF content were also recorded.

008. Sonmez, G. (University of Uludag, Bursa (Turkey). Pathology Dept.); Seyrek-Intas, K. (University of Uludag, Bursa (Turkey). Obstertrics and Gynaecology Dept.); Ulgen, M. (University of Uludag, Bursa (Turkey). Clinical microbiological and pathological findings in the genital tract of infertile mares. *Indian Veterinary Journal*. (Aug 2003) v. 80(8) p. 752-757 The aim of this study was to report and compare the clinical examination results with the post-mortem, microbiological and pathological findings in the genital tracts of eight infertile mares. Clinical, microbiological, cytological, gross and histopathological examinations were performed in a routine manner. It was found that combined clinical and microbiological examination results from the uteri in four mares showed no evidence of pathology, whereas histological examination revealed pathologies of different degrees in all mares. It was concluded, that especially degenerative changes cannot be diagnosed with clinical and microbiological examinations alone.

009. Baruah, C.K. (Nartap State Veterinary Dispensary, Kamrup (India)). Effect of glycerol equilibration periods on quality of frozen semen in Beetal X Assam local crossbred goats. *Indian Veterinary Journal*. (Aug 2003) v. 80(8) p. 763-765 KEYWORDS: GOATS; SEMEN PRESERVATION.

A total of 36 pooled ejaculates collected from four adult crossbred (Beetal x Assam local) goats were included in the study. Seminal ejaculates were divided equally and extended in Tris-egg yolk-citric acid-glycerol extender containing either fructose, sucrose or lactose and frozen in liquid nitrogen using French medium straw after allowing glycerol equilibration period of either 1 ½, 1 or ½ hour before freezing. The study revealed that the mean per cent sperm motility and intact sperm acrosome after glycerol equilibration and after freezing did not differ significantly between the different glycerol equilibration periods studied. Present findings

might suggest that out of the three glycerol equilibration periods used, any convenient one could be adopted for freezing of goat semen without affecting the quality of frozen semen.

010. Khan, P.M. (Indian Veterinary Research Institute, Izatnagar (India)). Genetic study of growth traits in a broiler line. Indian Veterinary Journal. (Aug 2003) v. 80(8) p. 778-781
KEYWORDS: BROILER CHICKENS; GENETICS; GENETIC IMPROVEMENT.

Existence of considerable additive genetic variation suggests that mass selection would be highly effective in bringing about improvement of juvenile body weight. The low heritability of ADG during 4-6 week and 4-7 week indicated that environmental influences are having highly significant effects on ADG and the existed genetic differences if any are masked by environmental effects. The body weight at 0 day cannot be used as a criterion for selection for improving market weight. Contribution of environmental correlations to the total phenotypic correlations was smaller than that of genetic correlations. Selection for increased three week body weight would also bring genetic improvement in market weight.

012. Singh, N.; Singh, R.P.; Sangwan, S.; Malik, B.S. (CCS Haryana Agricultural University, Hisar (India). Animal Breeding Dept.). Genetic and phenotypic relationships among some economic traits of cross and pure bred egg type chickens. Indian Journal of Veterinary Research (India).. (Jul-Dec 2003) v. 12(2) p. 19-25
KEYWORDS: PHENOTYPES; GENOTYPES; CHICKEN; CROSSBREDS; PURE LINES; GENETIC CORRELATION; EGG CHARACTERS.

The data on performance traits of 9924 pullets born to 612 sires of two purebred strains (H and C) and their reciprocal crosses raised in multiple hatches over 6 generations (1994-2000) of crossbred selection program were analyzed. The traits studied were body weights at 20 and 40 weeks of age, age at first egg, egg number up to 40 weeks of age and egg weight during 39-40 weeks of age. Genetic correlation (\pm SE) among performance traits of purebreds (P) and crossbreds (C) estimated from sire component of variances and covariances. Genetic correlation pooled over generations between 20 weeks body weight and egg production up to 40 weeks of age was found to be negative both in purebreds (-0.250 ± 0.043) and crossbreds (-0.228 ± 0.088) The corresponding pooled phenotypic correlation was -0.231 ± 0.011 and 0.010 ± 0.012 , respectively. The genetic correlation between age at first egg with egg number was found to be negative for both purebreds and crossbreds. The corresponding phenotypic correlation was -0.137 ± 0.011 and 0.242 ± 0.011 . Negative genetic and phenotypic correlation between egg weight and egg number was found in both purebreds and crossbreds, respectively Present results showed that body weight, age at first egg and egg number are negatively correlated with each other. The egg weight was positively correlated with body weight and negatively with egg number. In general, standard errors of genetic correlation were large indicating that estimates are extremely variable, possibly due to inadequate population sizes The magnitude of genetic correlations among the traits was similar for purebreds and crossbreds barring few exceptions. Phenotypic correlation among the traits were low in magnitude as compared to respective genetic correlation but in same direction except correlation between age at first egg and egg weight. .

013. Singh, N.; Dahiya, S.P.; Dalal, D.S.; Sangwan, S. (CCS Haryana Agricultural University, Hisar (India). Animal Breeding Dept.). Effectiveness of different selection indices for genetic

advancement in Sahiwal cattle. Indian Journal of Veterinary Research (India).. (Jul-Dec 2003) v. 12(2) p. 34-38 KEYWORDS: SELECTION INDEX; GENETIC GAIN; CATTLE; LACTATION.

Data on first lactation traits on 462 Sahiwal cows born to 30 sires spread over the period from 1981 to 1996, maintained at Government Livestock farm. Hisar were utilized for this investigation. Twenty-six selection indices were constructed incorporating age at first calving (AFC), first lactation milk yield (FLMY) first lactation length (FLL), first dry period (FDP) and first service period (FSP) in various combinations. The aggregate genotype (H) comprises of age at first calving (AFC) and production efficiency (PE) which is milk yield per day of calving interval. On the basis of availability of information in various traits, the index incorporating AFC, FDP and FSP was recommended for genetic advancement in Sahiwal cattle.

014. Ali, S.S.; Ali, S.Z.; Kuralkar, S.V. (Post Graduate Institute of Veterinary and Animal Sciences, Akola (India). Animal Genetics and Breeding Dept.). Comparison of different sire evaluation methods for HF and Jersey sires. Indian Journal of Veterinary Research (India).. (Jan-Jul 2004) v. 13(1) p. 8-12 KEYWORDS: SIRE EVALUATION; BREEDING VALUE; METHODS; PARTURITION; FATHERS.

The sires were ranked simultaneously for age at first calving, first lactation milk yield and first lactation length using Simple Daughter Average, Herdmate Comparison, Least Square, Simplified Regressed Least Square and BLUP values. Based on these ranking cumulative ranking, average ranking and final ranking for each sire fix all the three characteristics were calculated. The results revealed that any of the method preferably simple daughter average, least square. simplified regressed least square and BLUP for first lactation traits preferably first lactation milk yield may serve the purpose of sire evaluation as the sire ranking with respect to top sire did not change in different methods for different characteristics simultaneously.

015. Patel, M.; Das, N.; Pandey, H.N.; Yadav, M.C.; Girish, P.S. (Indian Veterinary Research Institute, Izatnagar (India). Livestock Production and Management Div.). Mating behaviour of rams in acceptance and late acceptance stage. Indian Journal of Veterinary Research (India).. (Jan-Jul 2004) v. 13(1) p. 35-41 KEYWORDS: SEXUAL BEHAVIOUR; EJACULATION; COPULATION; RAMS.

This study aimed to study the sexual behaviour of ram when exposed to ewe in early and late acceptance stage of oestrus under pen mating system. Overectomized ewes were brought into oestrus artificially by using exogenous hormone. Oestrus period was divided into three stages i.e. early acceptance, late acceptance and acceptance stage based on time of oestrogen injection and reaction of ewe. Vocalization was the most predominant courtship activity.

016. Singh, N.S.; Kumar, S.; Mujumdar, S. (Central Avian Research Institute, Izatnagar (India). Moleccular Genetics Laboratory). Genetics of growth traits in black turkey line selected for high humoral immune response. Indian Journal of Veterinary Research (India).. (Jul-Dec 2004) v. 13(2) p. 19-28 KEYWORDS: GENETICS; TURKEYS; HUMORAL IMMUNITY; GENETIC CORRELATION; HERITABILITY; SELECTION.

Growth performance of 108 poults belonging to the first generation of black turkey variety selected for high antibody titre against SRBC antigen, obtained in 2 hatches, maintained at this Institute were recorded for body weights from 0 to 12 weeks of age at biweekly intervals and

then at 16 weeks. The data were analyzed by least squares analysis of variance using mixed model wherein sire was taken as random and hatch and sex as fixed effects. Paternal half sib correlation was used for estimation of genetic and phenotypic parameters. Least squares means of body weight at hatch was 40.03 ± 0.44 g, which crossed 1000 g by 16 weeks of age. Hatch effect was non-significant on body weights at all ages except at 12 and 16 weeks of age. Males were significantly heavier than the females from 2 weeks onward. The h^2 estimates of the body weights at hatch, 12 and 16 weeks of age were very low but moderate (0.280 ± 0.320 to 0.419 ± 0.403) at other ages exhibiting the presence of additive genetic variance. The k values ranged from 23.049 to 24.537. The phenotypic correlations (r_p) among body weights at different ages were positive, high and significant ($P < 0.05$ or 0.01) except between hatch weight and body weights at 8, 12 or 16 weeks. Most of the genetic correlations (r_G) among body weights were positive and more than unity. The r_p had smaller magnitudes as compared to their corresponding r_G . The finding suggested that 4 or 8 weeks body weights might be used as selection criterion for improvement of body weights at later ages.

017. Trivedi, R. (North Gujrat University, Patan (India); Patel, R.K.; Rana, S.K.; Sharma, G.K.; Patel, S.M. (National Dairy Development Board, Anand (India)). Cytogenetic study of MDBK and BHK-21 cell lines. Indian Journal of Veterinary Research (India).. (Jul-Dec 2004) v. 13(2) p. 33-37 KEYWORDS: CYTOGENETICS; KIDNEYS; CHROMOSOME; CELL CULTURE; IN VITRO. The established cell lines, Madian Darby Bovine Kidney (MDBK) and Baby Hamster Kidney (BHK-21) were used to find out the transformation of the chromosome numbers using G-banding, if any, in these cell lines which could be related to the number of passages given to the cell lines.

L40 Animal Structure

018. Kurtul, I.; Cevik, A.; Bozkurt, E.U.; Dursun, N. (Ankara University, Ankara (Turkey). Anatomy Dept.). Blood supply to the hip joint with emphasis on intraarticular space on the head of the femur in dog. Indian Veterinary Journal. (Aug 2003) v. 80(8) p. 795-799 KEYWORDS: DOGS; HIP JOINTS; BLOOD SUPPLY; BONES; FEMUR.

The hip joint was dissected dogs, to determine the blood supply of the intra- and extraarticular area. The branches related to the supply of the joint arise from the following arteries: the caudal gluteal artery, the lateral circumflex femoral artery from the cranial femoral artery, and the medial circumflex femoral artery from the deep femoral artery. Of these, the branches from the medial and lateral femoral arteries were observed perforating the joint capsule, thus supplying the periosteum of the head of the femur

019. Bozkurt, E.U.; Kurtul, I.; Cevik, A.; Dursun, N. (Ankara University, Ankara (Turkey). Anatomy Dept.). Origin, course and distribution of the major and minor splanchnic nerves in the dog. Indian Veterinary Journal. (Aug 2003) v. 80(8) p. 800-803 KEYWORDS: DOGS; SPLANCHNIC NERVES; ANIMAL ANATOMY.

The greater and lesser splanchnic nerves in eight medium to large dogs of different breeds, regardless of their sexes, raised in Turkey, and obtained from a dog center owned by Ankara Municipality, were dissected for the present study. Their existences, origins, patterns, and

endings were observed. The results show that the greater splanchnic nerves of both sides in all the cadavers dissected leave the sympathetic thoracic trunk at the thirteenth thoracic ganglion, and terminate to the adrenal and celiacomesenteric ganglia and plexuses.. likewise, the lesser splanchnic nerves of both sides in all the cadavers dissected are present, leaving the sympathetic thoracic trunk at the first lumbar ganglion, and end in the adrenal, celiacomesenteric, and renal ganglia and plexuses.

L50 Animal Physiology and Biochemistry

020. Galhotra, M.M. (College of Animal Sciences, CCS Haryana Agricultural University, Hisar (India). Animal Production Physiology Dept.); Weinbauer, G.F.; Nieschlag, E. (Institute of Reproductive Medicine of the UNiv, Muenster (Germany)). Long term effect of single intratesticular injection of glycerol on testicular weight and gonadotropins feed back mechanisms in rats. Indian Journal of Veterinary Research (India).. (Jul-Dec 2004) v. 13(2) p. 1-8 KEYWORDS: INJECTION; GLYCEROL; TESTES; GPMADOTROPINS; RABBITS; RATS; FSH; LH. Single intratesticular injection of 1,2,3 trihydroxypropane (glycerol) has been reported to arrest spermatogenesis without altering the gonadotropic hormones. These studies were designed to evaluate the feasibility of this approach for reversible inhibition of testicular function in rats and rabbits. Adult rats and rabbits received a single intratesticular injection of 200 µl and 600 µl of hyperosmotic glycerol, respectively, in both testes. Control animals received distilled water. Rats were studied 4, 8, 16, 32 and 52 weeks after glycerol injection. Testicular weight decreased by 65 percent and remained low. Weekly analysis of serum FSH levels showed about 13-fold increase over control values. Serum FSH levels were also elevated 1 week after glycerol injection with a maximum mean rise of 49 percent one week after injection and remained elevated. The glycerol injected rabbits showed a transient decline in the sperm number and motility 3-4 weeks after injection.

L51 Animal physiology – Nutrition

021. Singh, P.K.; Ganai, T.A.S.; Sarkar, T.K.; Khan, H.M. (Sheep Research Station, Sher-e Kashmir University of Agricultural sciences & technology, Srinagar (India)). Effect of feed quality and sex on the growth performance of Corriedale lambs. Indian Journal of Veterinary Research (India). (Jul-Dec 2004) v. 13(2) p. 38-40 KEYWORDS: FEEDS; GROWTH; LAMBS; SEX; WOOL.

The study was done to assess the influence of farm made concentrate and commercial pelleted feed on their quality of feed and sex performance of Corriedale lambs.

L53 Animal physiology – Reproduction

022. Uysal, O.; Akcay, E.; Tekin, N. (Ankara University, Ankara (Turkiye). Reproduction and Artificial Insemination Dept.). Effects of glutathione and superoxide dismutase on invitro

maturation, fertilization and culture of bovine oocytes. Indian Veterinary Journal. (Aug 2003) v. 80(8) p. 758-762

In this study, a total of 1494 cumulus compact oocytes were collected from 421 ovaries. Improvements in proportion of morulae and blastocyst development of embryos were achieved when GSH was added to medium. The addition of combined GSH and SOD to IVM or IVMFC medium improved development of bovine embryos to morulae/ blastocyst stage, but there was no differences among groups statistically ($P < 0.005$). This data suggest that bovine oocytes are sensitive to oxidative stress and that medium supplementation with reduced glutathione or combined GSH and SOD can improve embryo development in vitro.

023. Chakurkar, E.B.; Deopurkar, V.L.; Bakshi, S.A.; Chauba, S.A. (Bombay Veterinary College, Mumbai (India)). Embryo recovery in Gir and its crosses with different Gonadotropins. Indian Journal of Veterinary Research (India).. (Jan-Jul 2004) v. 13(1) p. 13-17 KEYWORDS: IMMOBILIZATION; GONADOTROPINS; SEX HORMONES; SUPEROVULATION; FSH; EMBRYONIC DEVELOPMENT.

The sires were ranked simultaneously for age at first calving, first lactation milk yield and first lactation length using Simple Daughter Average, Herdmate Comparison, Least Square, Simplified Regressed Least Square and BLUP values. Based on these ranking cumulative ranking, average ranking and final ranking for each sire fix all the three characteristics were calculated. The results revealed that any of the method preferably simple daughter average, least square. simplified regressed least square and BLUP for first lactation traits preferably first lactation milk yield may serve the purpose of sire evaluation as the sire ranking with respect to top sire did not change in different methods for different characteristics simultaneously.

024. Lallianchhungam M.C.; Mangle, N.S.; Gakare, M.; Charjan, Prajakta (Post Graduate Institute of Veterinary and Animal Sciences, Akola (India). Physiology and Biochemistry Dept.) . Changes in concentration of triglycerides in milk creatinine and ketone bodies in whey associated with udder health status of goat. Indian Journal of Veterinary Research (India). (Jan-Jul 2004) v. 13(1) p. 18-22 KEYWORDS: CONCENTRATES; EXTRACS; TRIGLYCERIDES; MILK; CREATININE; KETONES; KETOSES; CARBONYL COMPOUNDS; ORGANIC COMPOUNDS; WHEY; CURD; ANIMAL HEALTH; MAMMARY GLANDS.

Sixty (60) milk samples from udder halves of goats were analyzed. On the basis of clinical examination of udder and the score of California Mastitis Test (CMT) the samples were grouped as normal, subclinical 1+, subclinical 2+, subclinical 3+ and clinical. The average values of triglycerides, creatinine and ketone bodies differed significantly ($P < 0.01$) among various udder health status. The concentration of triglycerides decreased by 0.10 g/100 ml and 0.01 g/100 ml, respectively, for each unit increase in CMT score and somatic cell count (SCC) of milk. The level of creatinine in whey increased by 0.75 mg/100 ml and 0.07 mg/100 ml, respectively, with unit increase in CMT score and SCC of milk, whereas, the value of ketone bodies decreased by 0.10 mg/100 ml and 0.01 mg/100 ml, respectively, for each unit increase in CMT score and SCC of milk. As such the levels of triglycerides, creatinine and ketone bodies in milk could be used to judge the health status of goat udders.

025. Tuli, R.K.; Rohilla, R.K.; Goyal, R.L.; Singh, P. (CCS Haryana Agricultural University, Hisar (India). Animal Production Physiology Dept.). Freeze preservation of buffalo bull semen using different concentration of ethylene glycol. Indian Journal of Veterinary Research (India). (Jul-Dec 2004) v. 13(2) p. 41-45 KEYWORDS: SEMEN PRESERVATION; WATER BUFFALOES; ETHYLENE GLYCOL

L70 Veterinary science and hygiene

026. Prakash, N. (Veterinary College, Bidar (India). Pharmacology and Toxicology Dept.). Pharmacokinetics of pefloxacin after single intravenous administration in buffalo calves. Indian Veterinary Journal. (Aug 2003) v. 80(8) p. 746-748 KEYWORDS: MEDICINAL PROPERTIES; INFECTION; CALVES; BODY WEIGHT.

Disposition kinetics of pefloxacin was studied in pre-pubertal buffalo calves after single intravenous administration at the rate 5 mg/kg body weight. The plasma concentration time profile was best described by a two-compartment open model. The apparent volume of distribution into periphery (V_d area) was 4.62 ± 0.04 L/g and the estimate of total body clearance (Cl_B) was 20.69 ± 2.21 ml/kg/min. The plasma half-life and rate constant for elimination were 155.93 ± 17.33 min and 0.038 min⁻¹ respectively. The area under the curve (AUC) was 243.22 ± 25.08 µg/ml/min and the volume of distribution at steady state (V_{dss}) was 4.07 ± 0.37 L/kg. The mean residence time (MRT) calculated as the ratio of AUMC: AUC was 3.34 ± 0.35 h. In order to maintain a satisfactory therapeutic level, it is necessary to administer pefloxacin at the rate of 7.5 mg/kg (IV) body weight repeated . at 12 h interval in buffalo calves.

027. Tas, A.; Aslan, L.; Altug, M.E. (Yuzuncu Yil University, Van (Turkey). Surgery Dept.); Atasoy, N. (Ataturk University, Erzurum (Turkey). Surgery Dept.); Ceylan, E. (Yuzuncu Yil University, Van (Turkey). Internal Medicine Dept.); Ozbek, H. (Ataturk University, Erzurum (Turkey). Pharmacology Dept.). The assessment of effects of atracurium and mivacurium using TOF guard device in dogs. Indian Veterinary Journal. (Aug 2003) v. 80(8) p. 768-771 KEYWORDS: DOGS; MUSCLE RELAXANTS.

To compare the effects of atracurium and mivacurium as muscle relaxants, 40 dogs were treated with different doses of these drugs. The onset time of action was shorter but the time of action was longer in mivacurium group than the atracurium groups. Therefore, it was concluded that on occasions when immediate intubation and long term muscle relaxation was required, mivacurium should be used. On the other hand if short term muscle relaxation was required, atracurium could be used. These commonly used human muscle relaxants could be safely used in dogs too.

028. Doiphode, P.V.; Aher, V.D. (College of Veterinary and Animal Sciences, Parbhani (India). Surgery and Radiology Dept.). Clinical and physiological effects of neuroleptanalgesia with xylazine and pentazocine in bovine. Indian Veterinary Journal. (Aug 2003) v. 80(8) p. 772-774 KEYWORDS: BOVINES; XYLAZINE; ANALGESICS; NEUROLEPTICS.

Neuroleptanalgesia with xylazine, pentazocine alone and in combination was induced in bovine and its effect on clinical and physiological parameter were studied. Significant decrease

in heart rate and respiration rate was noticed after xylazine and pentazocine injection given in combination. No change in rectal temperature was noticed. The combination of xylazine and pentazocine for neuroleptanalgesia was found suitable for majority of surgical interventions requiring sedation, analgesia in bovine.

029. Doiphode, P.V.; Aher, V.D. (College of Veterinary and Animal Sciences, Parbhani (India). Veterinary Surgery and Radiology Dept.). Haematological and bio-chemical effects of neuroleptanalgesia with xylazine and pentazocine in bovine. Indian Veterinary Journal. (Aug 2003) v. 80(8) p. 775-777 KEYWORDS: BOVINES; NEUROLEPTICS; XYLAZINE; HAEMATOLOGY; BIOCHEMISTRY.

Haematological and biochemical changes after xylazine, pentazocine alone and in combination induced neuroleptanalgesia in bovines was studied. Nonsignificant decrease in Hb, PCV and TEC was observed after xylazine and pentazocine neuroleptanalgesia. Significant increase in blood glucose was recorded during maximum sedation and anaesthesia. The blood urea nitrogen, SGOT and SGPT showed no significant change.

030. Tagore, V.R.N. (Veterinary Dispensary, Konakanamitla (India)); Sreenu, M. (Veterinary Clinical Complex, NTR C.V. Sc. Gannavaram (India)); Kumar, R.V.S. (Acharya N.G. Ranga Agricultural University, Tirupathi (india)); Rao, T.S.C. (Acharya N.G. Ranga Agricultural University, Tirupathi (India). Anatomy and Histology Dept.). Efficacy of peritoneal and mesenteric onlay grafting for intestinal anastomosis in calves. Indian Veterinary Journal. (Aug 2003) v. 80(8) p. 782-786 KEYWORDS: CALVES; INTESTINES; SURGURY.

End to end enteroanastomosis with simple continuous followed by inversion technique (control) and onlay grafting of anastomotic site with autogenous peritoneum and mesentery were (group II and III) performed. The calves in control group were dull initially for 4 days and showed symptoms of colic where as in onlay grafted groups the calves were active. A significant elevation of rectal temperature. respiratory rate and pulse rate values were observed in all the groups in the initial stages. The mean percentage of luminal stenosis was less in peritoneal onlay grafted group followed by mesenteric onlay grafted and control groups. The bursting pressure values recorded at different intervals clearly indicated an increase of bursting pressure as the time progresses. The onlay grafted groups showed higher bursting pressures than control group at all intervals studied.

031. Bhattacharya, D.K.; Rahman, H.; Murugkar, H.V. (Assam Agricultural University, Khanapara (India)). Prevalence of salmonella in Poultry in Northeastern India. Indian Journal of Veterinary Research (India). (Jan-Jul 2004) v. 13(1) p. 1-7 KEYWORDS: INDIA; POULTRY; SALMONELLA; ISOLATION; YIELDS; MORTALITY; IN VITRO; DRUGS.

032. Kumar, A.; Singh, J.; Peshin, P.K.; Singh, S. (College of Veterinary Sciences, Chaudhary Charan Singh Haryana Agricultural University, Hisar (India). Veterinary Surgery & Radiology Dept.). Clinical use of detomidine-pentazocine induced neuroleptanalgesia in buffaloes. Indian Journal of Veterinary Research (India).. (Jan-Jul 2004) v. 13(1) p. 50-52 KEYWORDS: WATER BUFFALLOES; ANALGESICS; NEUROLEPTICS; SURGICAL OPERATIONS

L72 Pests of Animals

033. Tutuncu, M. (Y.Y.U. Health Services Vocational College, Van (Turkey)); Akkan, H.A.; Karaca, M.; Agaogly, Z. (Yuzucu Yil University, Van (Turkey). Internal Medicine Dept.); Berktaş, M. (Yuzucu Yil University, Van (Turkey). Microbiology Dept.) . Prevalence of Toxoplasmosis in Van cats in Turkey. *Indian Veterinary Journal*. (Aug 2003) v. 80(8) p. 730-732 KEYWORDS: TOXOPLASMOSIS; CATS; HAEMAGGLUTINATION TESTS; ZYGOTES. In this study, the prevalence of *Toxoplasma* in Turkish Van cats was investigated in serum by indirect hemagglutination (IHA) method and by demonstration of oocysts in faeces. Sixty two Turkish Van cats at different ages and sexes were used in this study. Blood and faeces samples were collected with routine methods. In the study, Toxocell IHA kit (Biokit, sa Spain) was used. For determination of total antibody titers, tests were judged to be positive (+) or negative (-) according to the presence or absence of hemagglutination at 1/64 dilution. Five of the samples were found to be positive (+) while 57 were negative (-). No oocyst was detected in faecal samples. As a conclusion 8.06 percent of the Van cats included in this study were found to be seropositive for toxoplasma although no oocytes were detected in their faeces.

034. Soundararajan, C. (Livestock Research Station, Kattupakkam (India)); Kumar, R.A.; Lyue, M. (Tamil Nadu Veterinary and Animal Sciences University, Sandynallah (India)). Comparative efficacy of ivermectin and deltamethrin, against *Otobius megnini* on sheep. *Indian Veterinary Journal*. (Aug 2003) v. 80(8) p. 733-735 KEYWORDS: IVERMECTIN; DELTAMETHRIN; INSECTICIDES; OTOBIUS MEGNINI; SHEEP; CONCENTRATES; CONCENTRATING; LARVAE; NYMPHS.

The efficacy of ivermectin and deltamethrin in controlling the spinose ear tick. *Otobius megnini* in naturally infested sheep was tested. deltamethrin pour-on into ear canals at a concentration of 2 ml/litter of water has controlled the larvae and nymphs within 14 days after treatment whereas repeated treatment of ivermectin at the dose of rate of 0.02 ml/kg body weight given subcutaneously controlled the larvae and nymphs gradually with total eradication by 21 and 35 days after treatment respectively

L73 Animal Diseases

035. Kadam, M.; Jhala, M.K. (Veterinary College, Anand (India). Veterinary Microbiology Dept.). Comparison of serological tests for detection of infectious Bursal disease virus in Bursal samples. *Indian Veterinary Journal*. (Aug 2003) v. 80(8) p. 723-726 KEYWORDS: IMMUNOLOGICAL TECHNIQUES; INFECTION; VIRUSES; VIROSES.

Six groups of chicks of different breeds/lines viz. Aseel X Dahlem Red (AI), Kadaknath X Dahlem Red (KI), Naked Neck X Dahlem Red (NI). Frizzle X Dahlem Red (FI), commercial layer line of WLH (CLI) and commercial broiler line of WLH (CBI) were experimentally infected with IBDV. Pooled bursal samples were collected from each group at 2nd, 4th, 7th, 10th and 14th day PI. Total 30 samples were tested for the presence of IBDV antigen by AGID, CIEP and Dot ELISA

tests. The results of Dot ELISA and CIEP were similar. The sensitivity and specificity of Dot ELISA and CIEP were higher than that of AGID

036. Gonenci, R. (Mustafa Kemal University, Antakya (Turkey). Surgery Dept.); Durgut, R. (Mustafa Kemal University, Antakya (Turkey). Internal Medicine Dept.); Erdogan, S.; Celik, S. (Mustafa Kemal University, Antakya (India). Biochemistry Dept.); Bal, R. (Mustafa Kemal University, Antakya (India). Physiology Dept.). Subclinical fatty liver syndrome in damascus goats. *Indian Veterinary Journal*. (Aug 2003) v. 80(8) p. 739-742 KEYWORDS: LATENT INFECTIONS; FATTY LIVER; FATTY DEGENERATION; LIVER; SYMPTOMS; GOATS.

Eighty pure breed female Damascus goats were screened, using clinical, biochemical ultrasound examinations for fatty liver. Thirty goats (37.50 percent) were diagnosed as having subclinical fatty liver. The levels of cholesterol, AST, ALT, ALP and LDH were measured to be in reference ranges in all animals. Conjugated bilirubin, albumin, total protein and BUN concentrations were lower but GGT was significantly higher and triglyceride level significantly lower in goats with fatty liver than in those without fatty liver. The subclinical fatty liver was recognized ultrasonographically with an altered architecture or echogenicity shifting from isoechoic to hyperechoic. These results collectively suggest that subclinical fatty liver could be diagnosed by using the noninvasive ultrasound examination. This condition can also be correlated with the decrease in triglyceride level

037. Durgut, R. (Mustafa Kemal University, Antakya (Turkey). Internal Medicine Dept.); Borku, M.K.; Ozkok, S.; Peaya, S.; Guzel, M.; Ozkanlar, Y.E. (Ankara University, Ankara (Turkey). Internal Medicine Dept.). Kennel cough syndrome of dogs observed in Ankara province. *Indian Veterinary Journal*. (Aug 2003) v. 80(8) p.743-745 KEYWORDS: ANIMAL HOUSING; DOGS; COUGH; SYMPTOMS; ESCHERICHIA COLI; KLEBSIELLA PNEUMONIA; STREPTOCOCCUS. In this study, 55 dogs from different kennels showing clinical signs of kennel cough syndrome in the province of Ankara were used. The most prominent and obvious clinical sign of the animals was a persistent dry hacking cough or an intermittent cough elicited by palpation. They revealed neutrophilia (16-18 x 10⁶/ml) with a left shift and lymphopenia (0.2-0.4x10⁶/ml). All of the pharyngeal swabs and transtracheal aspirates yielded positive results in bacterial culture. *Pasteurella* spp., coagulase positive *Staphylococcus* spp., *Enterobacter* spp., *Escherichia coli*, *Klebsiella pneumonia* and *Streptococcus* spp. were isolated.

038. Singh, B.R. (Indian Veterinary Research Institute, Izatnagar (India). Bacteriology and Mycology Div.); Sharma, V.D. (College of Veterinary Science, Pantnagar (India). Microbiology Dept.) . Salmonella cytotoxins: in poultry. *Indian Journal of Veterinary Research (India)*. (Jul-Dec 2003) v. 12(2) p. 1-13 KEYWORDS: SALMONELLA; IMMUNITY; TOXICITY; ESTERASES; PATHOGENESIS; POULTRY; VACCINES.

Salmonella cytotoxins have been shown to be more important than other virulence factors during recent years. They have been produced by all pathogenic strains while many of the other virulence factors thought to be important earlier have less consistency in their occurrence and thus questioned many a time for their significance in pathogenesis. Studies have proved multiplicity of Salmonella cytotoxins explaining variations in disease conditions as has been reported during field outbreaks of salmonellosis. An outbreak strain of *S.*

Gallinarum has also been shown to produce 2 cytotoxins and 1 haemolysin (phospholipase C). The purified cytotoxin I and II of *S. Gallinarum* produced typical fowl typhoid lesions on parental inoculation in birds. The purified *Salmonella* cytotoxin I, II and III, reported recently appeared to be different from those reported earlier, however the difference may be due to level of purification. Recent studies on toxoid (formalized) vaccine in protecting poultry birds against experimental challenge and natural disease outbreak have paved the way for further development of *Salmonella* toxoid vaccines for other animals too.

039. Anukumar, B.; Verma, P.C.; Maurya, D.C.; Mishra, S.C. (Indian Veterinary Research Institute, Izatnagar (India). Biological Standardization Div.). Adjuvant effect of inactivated Infectious Bursal Disease Virus on Chicken immunized with rous sarcoma oncolysate. *Indian Journal of Veterinary Research (India)*. (Jul-Dec 2003) v. 12(2) p. 14-18 KEYWORDS: ADJUVANTS; INFECTIONS BURSAL DISEASE VIRUS; CHICKENS; IMMUNIZATION; ROUS SARCOMA VIRUS.

The glutaraldehyde inactivated IBDV (strain S394) infected Rous sarcoma tumor cells, infectious bursal disease-Rous sarcoma oncolysate (IBD-RSO), were found potent stimulator of both humoral and cellular immune system than inactivated Rous sarcoma tumor cells (RSC) alone. The ELISA antibody titre of IBD-RSO group was significantly higher on 14 day post inoculation sera as compared to glutaraldehyde inactivated RSC alone and uninoculated control group. The proliferative ability of peripheral mononuclear lymphocytes were also high on 3rd day when stimulated with tumor antigen purified by 3M KCl method. These results suggested that IBD viral antigen increased both humoral and cellular immunogenicity of weak tumor antigen.

040. Dharmadheeran, J.S.; Kumar, M.; Bhatt, M. (College of Veterinary and Animal Sciences, G.B. Pant University of Agriculture and Technology, Pantnagar (India)). Establishing experimental canine parvoviral infection in pups. *Indian Journal of Veterinary Research (India)*. (Jul-Dec 2004) v. 13(2) p. 9-12 KEYWORDS: INFECTION; PUPS; CANINE PARVOVIRUS; EXPERIMENTATION; ENTERITIS.

The present investigation was carried out with an aim to establish experimental parvovirus infection in pups. For it, 12 non-descript pups of 12-15 weeks of age were collected locally. These pups were divided randomly into three groups of 4 pups each. The pups of group I served as virus activation whereas group II served as infected and of group III as healthy control. The pups of groups I and II were injected subcutaneously as well as sprayed in pharynx with CPV-2 isolate. All the pups of group II manifested fatal canine parvoviral enteritis and none of the pups survived beyond 7 days. However all the pups of group III remained healthy throughout the study period.

041. Khurana, S.K.; Malik, P.; Srivastava, S.K.; Panisup, A.S. (National Research Centre on Equines, Hisar (India)). Isolation of *Acholeplasma* from indigenous equines. *Indian Journal of Veterinary Research (India)*. (Jul-Dec 2004) v. 13(2) p. 29-32 KEYWORDS: HORSES; ACHOLEPLASMA; MARES; EYES; NOSE.

Isolation of Mollicutes was attempted from healthy as well as diseased indigenous equines from villages located in the state of Haryana to assess their role and magnitude especially in

cases where role of conventional equine pathogens could not be articulate (10 isolates of *Acholeplasma* were obtained from 50 nasal swabs, 31 vaginal swabs, preputial swabs and 2 eye swabs. All the isolates were from diseased equines. 3 isolate were from nasal swabs of equines suffering from acute upper respiratory disease comprising *A. laidawii* (2), one each from a mare and stallion and *A. axanthum* (1) from a mare. isolates were obtained from vaginal swabs of repeat breeding mares including *A. laidawii* (5) and *A. oculi* (1). *A. oculi* (1) was isolated from eye swab of mare suffering from conjunctivitis. There was a higher percentage of *Acholeplasma* isolates from disease equines.

042. Warke, S.; Sakhare, P.S.; Patil, A.A.; Kalorey, D.R. (Nagpur Veterinary College, Nagpur (India). Microbiology Dept.). Bacteriological investigation of canine enteritis. *Indian Journal of Veterinary Research (India)*. (Jul-Dec 2004) v. 13(2) p. 50 KEYWORDS: CANIDAE; ENTERITIS; IN VITRO; BACTERIOLOGY.

L74 Miscellaneous Animal Disorders

043. Peer, F.; Fazili, M.R.; Makhdoomi, A.A. (Veterinary Clinical Complex, Shuhama Alusteng (India)). Clover poisoning of dairy cattle - A clinical study. *Indian Veterinary Journal*. (Aug 2003) v. 80(8) p. 804-805 KEYWORDS: CLOVER POISONING; DAIRY CATTLE; GRAZING. Pasture bloat in dairy cattle specific to clovers in the spring season was recorded. Bloat of moderate to severe degree was observed and the animals responded to the treatment satisfactorily

044. Sreenu, M. (Teaching Veterinary Clinical Service Complex, Gannavaram (India)); Veena, P. (Veterinary Hospital, Turupati (India)); Jayaprakash, T. (College of Veterinary Science, Tirupati (India). Surgery and Radiology Dept.). Cystoplasty and perineal urethrostomy for the management of urinary calculi in a dog.. *Indian Veterinary Journal*. (Aug 2003) v. 80(8) p. 806-808 KEYWORDS: URINARY CALCULI; DOGS; SURGERY.

A case of urinary obstruction due to cystic and multiple urethral calculi and its surgical management has been reported in a Doberman dog.

045. Senturk, S.; Kennerman, E.; Golcu, E.; Temizel, M. (Bursa (Turkey). Internal Medicine Dept.). Diabetes mellitus in a cow. *Indian Veterinary Journal*. (Aug 2003) v. 80(8) p. 809-810 KEYWORDS: COWS; DIABETES MELLITUS.

A 6 - year - old 500 - kg Holstein cow was diagnosed as diabetes mellitus. Hyperglycemia (220 mg/dl). increase of serum fructosamine (463 micromol/L). low concentration of serum insulin (0.1m U/ml) was determined. Urinalysis revealed aciduria (pH: 6), glucosuria (500 mg/dl. ++++) and ketonuria (50mg/dl, ++).

046. Umakanthan, T. (Veterinary Dispensary, Chiinnamanur (India)). A note on the management of caecal dilatation and torsion in cow. *Indian Veterinary Journal*. (Aug 2003) v. 80(8) p. 811-812 KEYWORDS: COWS; CAECAL DILATATION; TORSION.

Cecal dilatation and torsion in milch cows were successfully treated with oral drenching of ginger, sodium bicarbonate, common salt and magnesium sulphate in warm water combined with swimming.

047. Bhattachariya, M.K.; Banerjee, R. (West Bengal University of Animal and Fishery Sciences, Kolkata (India). Veterinary Anatomy Dept.). Hydronephrosis in a dog - A case report. Indian Veterinary Journal. (Aug 2003) v. 80(8) p. 815-816 KEYWORDS: DOGS; HYDRONEPHROSIS. Hydronephrosis in a dog due to solitary calculus and its successful treatment is reported.

048. Mahesh Kumar, M.J. (National Institute of Immunology, New Delhi (India)); Balasubramaniam, G.A. (Veterinary College and Research Institute, Namakkal (India). Pathology Dept.). Incidence of coccidiosis in goats in Namakkal. Indian Veterinary Journal. (Aug 2003) v. 80(8) p. 817-818 KEYWORDS: GOATS; COCCIDIOSIS.

049. Sharma, V.K.; Somvanshi, R. (Indian Veterinary Research Institute, Izatnagar (India). Pathology Div.). Clinicopathological effects of green and shade dried *Christella dentata* (Forssk) fern toxicity in Guinea pigs. Indian Journal of Veterinary Research (India).. (Jul-Dec 2003) v. 12(2) p. 39-45 KEYWORDS: CHRISTELLA DENTATA; PATHOLOGY; FERNS; GUINEA PIGS; TOXICITY.

The study describes comparative clinicopathological toxic effects of fresh green and shade dried *Christella dentata* fern in guinea pigs. 25 young male guinea pigs were divided into three groups. In Group I - 7 animals were fed normal ration and green fodder and served as control, Group II - 9 animals were served normal ration and green *Christella dentata* fern 5g, Group III - 9 animals were served ration containing 30 percent shade dried *C. dentata* fern powder and green fodder. Experiment was completed on 90 days of post fern feeding. Gr. II guinea pigs showed significant ($p < 0.05$) loss of body weight 60 days post feeding and onwards and scattered distributed significantly higher (77.8 percent) mortality than Gr. III (11.1 percent) and Gr. I (0 percent). Urine samples of three animals of Gr. II was found positive for blood/erythrocytes. Hematology showed significant decrease in PCV and TLC values in Grs. II and III than I. Serum biochemistry revealed highly significant ($p < 0.01$) decreased values of ALP in Gr. II and Gr. III, while the values of creatinine were highly significantly ($p < 0.01$) increased in both fern fed groups. The findings suggested that fresh green *Christella dentata* fern was more toxic to guinea pigs as compared to shade dried.

050. Kaushik, R.; Khanna, A.S. (CCS Haryana Agricultural University, Hisar (India). Animal Breeding Dept.). Incidence and inheritance of some reproductive disorders in Haryana cattle. Indian Journal of Veterinary Research (India).. (Jan-Jul 2004) v. 13(1) p. 23-30 KEYWORDS: REPRODUCTIVE DISORDERS; CATTLE; MASTITIS; ENDOMETRITIS; LACTATION.

Present investigation was conducted to study the incidence and inheritance of mastitis, retention of placenta, metritis and calving abnormalities in a herd of Haryana cattle. The data on 729 cows spread over 27 years period were compiled from the Government livestock Farm, Hisar. The incidence of mastitis, retention of placenta, metritis and calving abnormalities were 12.65 percent, 3.85 percent, 2.61 percent and 4.53 percent in first lactation and 17.17 percent, 4.53 percent, 3.89 percent and 4.21 percent pooled overall lactation, respectively. Season and

period of calving did not affect significantly any of these traits for the first lactation, while for overall lactation their effect was significant ($P < 0.01$) for all the traits except the effect of season on incidence of mastitis and calving abnormalities. The lactation differences were significant for incidence of mastitis only. The incidence of mastitis was high in this herd which needs to be checked by all means. The moderate heritabilities as 0.28, 0.45, 1 and 0.56 for incidence of mastitis, retention of placenta, metritis and calving abnormalities, respectively indicated that there are chances for genetic improvement through selection for developing disease resistance.

051. Vasava, K.A.; Singh, B.R.; Verma, J.C. (Indian Veterinary Research Institute, Izatnagar (India). Veterinary Bacteriology & Mycology Dept.). Detection of cytotoxigenicity among strains of *Salmonella enterica* subspecies *enterica* serovar *Abortusequi* by an indirect ELISA. Indian Journal of Veterinary Research (India).. (Jan-Jul 2004) v. 13(1) p. 31-34 KEYWORDS: TOXICITY; SALMONELLA ABORTUS EQUI; ELISA.

Thirty three (33) field and five (05) reference strains of *Salmonella Abortusequi* available at National Salmonella Centre (Vety), IVR1, Izatnagar were screened for their cytotoxigenicity by an indirect ELISA. The Polymyxin -B extract of the strains was prepared and it was titrated with anti cytotoxin-I serum. All the strains showed a great variation in their cytotoxigenicity ranging from 15 ± 6.19 to 5120 ± 0.00 cytotoxin-1 ELISA units. The cytotoxicity titres increased with the passage of strain-E742 in mice. The virulent strains showed higher titres than milder strains of *S. Abortusequi*. Thus study revealed a strong correlation of cytotoxigenicity with the virulence of strains of *Salmonella Abortusequi* serovar.

052. Misra, S.N.; Patel, M.B.; Sardar, K.K.; Mishra, S.C.; Mohapatra, H.K.; Sahoo, N. (Orissa University of Agriculture and Technology, Bhubaneswar (India). Veterinary Sciences Faculty). Hepatoprotective effect of *Phyllanthus niruri* Linn, Against experimentally induced hepatotoxicity in broilers by CCl_4 . Indian Journal of Veterinary Research (India).. (Jul-Dec 2004) v. 13(2) p. 13-18 KEYWORDS: BROILER CHICKENS; TOXICITY; EXTRACTS; PHYLLANTHUS NIRURI; LIVER; BIOCHEMISTRY.

Effects of fresh leaf extract (4ml/kg body weight, orally) of *Phyllanthus niruri* were investigated in broiler chickens on carbon tetrachloride (CCl_4 , 1:1 in liquid (paraffin) 1.5 ml/kg body weight, induced hepatotoxicity. In the present study, CCl_4 induced hepatic damage significantly ($P < 0.05$) elevated the serum levels of liver function. marker enzymes like AST, ALT, ALP, ACP and also cholesterol and bilirubin. However no significant alteration could be detected in the levels of total serum protein. Tissue histopathology showed coagulative necrosis and disturbed architecture of liver induced by a single dose of CCl_4 which were improved significantly following treatment with *P. niruri* leaf extract (1 g in 10ml) 4 ml/kg body weight and liver histology was protected by regeneration of parenchymal cells. Oral administration of extract of this plant reduced significantly ($P < 0.05$) the elevated level of serum enzymes and bilirubin levels. Thus the results suggest a hepatoprotective effect of this medicinal plant.

053. Pamlata; Jain, S.K.; Punia, J.S. (CCS Haryana Agricultural University, Hisar (India). Pharmacology & Toxicology Dept.). Studies on some biochemical changes in subacute toxicity

of imidacloprid - a nitroguanidine insecticide. Indian Journal of Veterinary Research (India).. (Jul-Dec 2004) v. 13(2) p. 46-49 KEYWORDS: TOXICITY; BIOCHEMISTRY; IMIDACLOPRID; INSECTICIDES.

Q03

054. Raquib, M.; Borpuzari, T.; Choudhary, R.K.; Rahman, H. (College of Veterinary Science, Khanapara (India). Animal Production and Management Dept.).. Isolation and characterization of lactobacilli isolated from market sample of sour dohi. Indian Veterinary Journal. (Aug 2003) v. 80(8) p. 791-794 KEYWORDS: DAHI; LACTOBACILLI; BACTERIAL ISOLATION.

A total of 150 isolated lactobacilli strains were found to be gram positive rods or coccobacilli, catalase negative, nonspore former and nonmotile. Out of these 24 isolates were selected based on the acid production capacity and ability to reduce pH. of the 24 isolates, 8 belonged to thermobacteria and the remaining 16 were of betabacteria group. Sugar fermentation test of the isolates revealed *L. delbrueckii* ssp. *delbrueckii*, *L. delbrueckii* ssp. *bulgaricus*, *L. delbrueckii* ssp. *lactis*, *L. actdopilus* to and *L. casei* ssp. *tolerans*. The isolated strain of lactobacilli, *L. delbrueckii* ssp. *bulgaricus* LDb53 and *L. acidophilus* LA68 could be successfully used as a mixed culture for dahi production with improved organoleptic characteristics and enhanced therapeutic benefits.