

# ABSTRACT BOOK

International Livestock Dairy & Poultry Congress 2013



**Pakistan Veterinary Medical Association**

*In collaboration with*

**Livestock and Dairy Development Department Punjab**



**Edited by**

**Prof. Dr. Muhammad Ashraf**

**Dean/chairman**

Pharmacology and Toxicology

University of Veterinary and Animal Sciences Lahore

**Dr. Muhammad Adil Rasheed**

**Secretary Technical Committee**

International livestock dairy & poultry congress 2013

**Assistant professor**

Pharmacology and Toxicology

University of Veterinary and Animal Sciences Lahore

**Dr. Khalid Mahmood Shouq**

**Convener**

Press and Publication

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Editor in chief.

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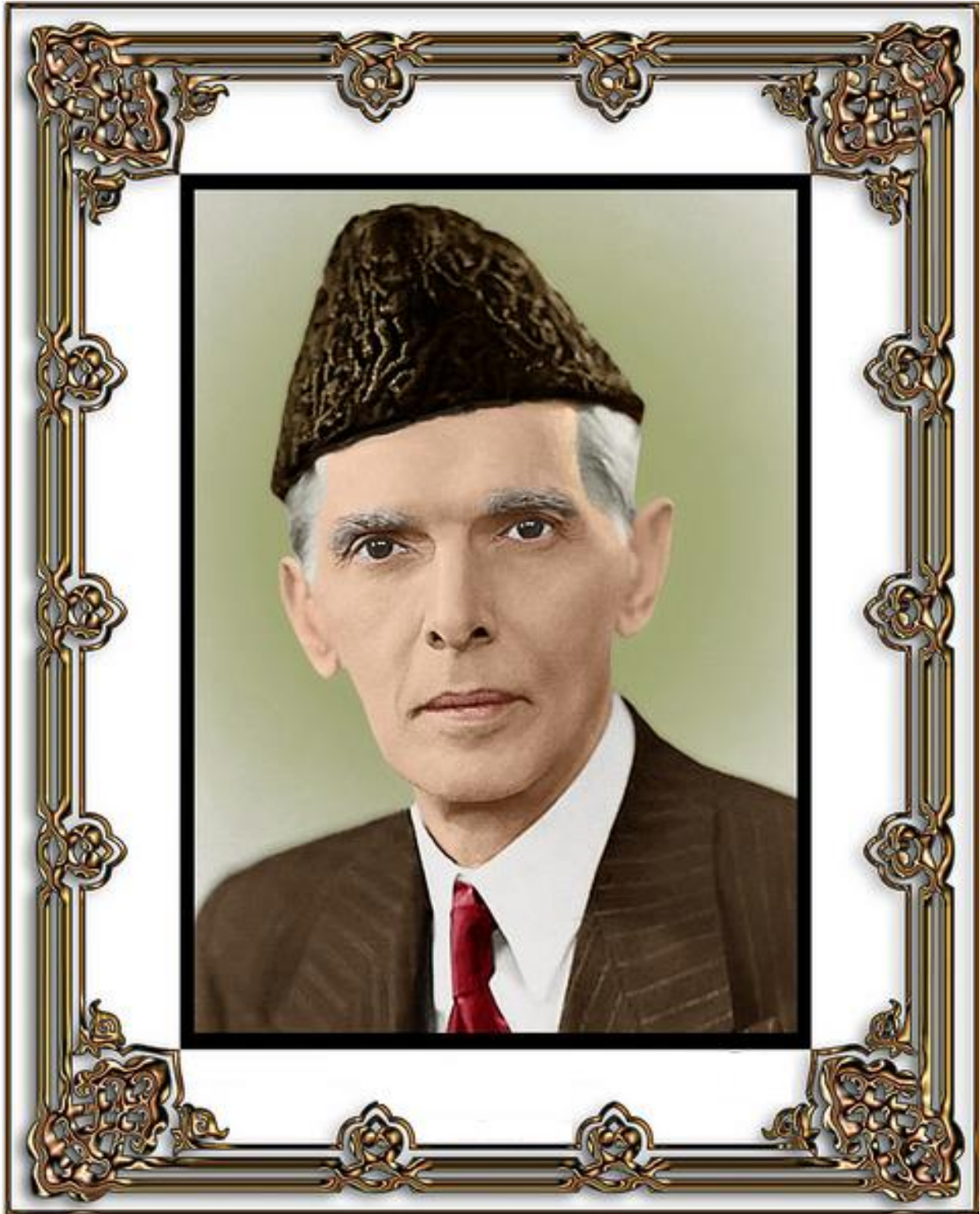
## TENTATIVE PROGRAMME

**April 17, 2013**

<b>Registration.....</b>	<b>08:00-09:00</b>
<b>Inaugural session.....</b>	<b>09:00-11:00</b>
<b>Tea break.....</b>	<b>11:00-11:30</b>
<b>Technical Session-I</b>	
Dairy development.....	11:30-13:00
<b>Prayer and lunch.....</b>	<b>13:00-14:00</b>
<b>Technical Session-II</b>	
Public private partnership.....	14:30-17:30
<b>Tea.....</b>	<b>17:30-18:00</b>

**April 18, 2013**

<b>Technical Session-III</b>	
Poultry development.....	09:30-11:00
<b>Tea.....</b>	<b>11:00-11:30</b>
<b>Technical Session-IV</b>	
Vety, Pharma industry development.....	11:30-13:30
<b>Prayer and lunch.....</b>	<b>13:30-14:30</b>
<b>Technical session-V</b>	
Woman participation in rural economy	
Environment / biotechnology.....	14:30-16:30
Recommendations and award distribution.....	16:30-19:30
<b>Tea.....</b>	<b>19:30-20:00</b>
<b>Cultural show.....</b>	<b>20:00-24:00</b>





## **Muhammad Irfan Elahi**

Patron Congress/Secretary  
Livestock & Dairy Development Department, Punjab

Livestock is increasingly becoming a very important sector of national economy, contributing even more than all the other agricultural crops combined. Livestock & Dairy Development Department strive harder to ensure growth and development of livestock sector in the province thus contributing to national food security, economic uplift, rural development, poverty alleviation, employment generation and foreign exchange earnings. This sector has shown growth rate of 3 to 4% over the last year despite the unfavorable conditions. This suggests that livestock is likely to emerge as an engine for economic growth and an effective tool for poverty alleviation in the country.

Livestock sector is recognized as a potential sector for export earnings and offering great economic opportunities which, however, remain largely untapped at the same time increased competition, resource constraints, disease threats, and new trade standard are exerting great pressure on the livestock sector. The need to increase productivity, manage sectorial complexity, combat diseases and compliance to food security and safety obligation has forced the livestock sector to adapt and change to these new challenges. The Punjab Livestock and Dairy Development Department has been carrying extensive reforms regarding policy framework, human resource development, revitalizing meat and dairy sectors and reshaping the overall strategic direction to achieve the new targets for livestock development.

It is heartiest to know that Pakistan Veterinary Medical Association is regularly organizing annual gathering which bring together relevant stakeholders for shaping new ideas and experiences and to suggest way forward. I hope that this congress will prove useful in highlighting the constraints and collate information for making smart recommendations towards preparation of strategic plan to develop the sector. I congratulate the efforts of organizers for holding such a memorable gathering and wish them a great success.

## **Dr. Muhammad Arshad**

Chairman Congress  
President PVMA/PALDO



It give me an immense pleasure to extend my heartiest congratulations and warm welcome to the participants of International Poultry, Livestock and Dairy Congress, 2013 at Aiwan-e-Iqbal Lahore who travelled long from all over Pakistan and from abroad. Livestock plays an important role in the economy of the country and is at the heart of the rural socioeconomic system. It is a major source of foreign exchange earnings contributing significantly in National GDP of the country. Most importantly, more than 8 million rural small and landless farmers raise livestock, making it an ideal sector for attacking rural poverty in the country. The demand for livestock and livestock products is continuing to increase due to the population growth, urbanization and increase in per capita income. Almighty Allah has blessed Pakistan with a large livestock population including the best dairy breeds of buffalo and cattle and other breeds of cattle, buffaloes, sheep and goats have good meat production potential. The poultry industry is one of the largest and fastest growing agro-industry in Pakistan. This industry had made a significant contribution towards the poverty alleviation and enhancement of food production. Human population growth, increasing urbanization and rising incomes are predicted to double the demand for, and production of, livestock, poultry and their products in Pakistan. Livestock and poultry production is thus growing faster than any other agricultural sub-sector. This year Pakistan Veterinary Medical Association has organized an International Livestock, Dairy and Poultry Congress, in collaboration with Livestock and Dairy Development Department, Punjab with the theme that Prosperity and Food Security in the country is associated with Livestock, Dairy and Poultry Development. The conference will bring together a large number of development and research practitioners from all parts of country to discuss the identified issues. During the technical sessions the speakers will share their experiences and discuss how to address the field problems. These events are very much needed to generate enthusiasm and interest among different stakeholder involved in livestock, dairy and poultry production, with the ultimate aim of increasing productivity from animals and alleviating poverty among livestock producers. I am quite hopeful that the deliberations of this congress shall prove beneficial to all the stakeholders involved in livestock production activities in Pakistan and also in other countries of the sub-continent. I send my best wishes for the grand success of this mega event.

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## WELFARE ISSUES OF LAYING HENS KEPT IN CAGES

*Shakeel Ahmad<sup>1</sup>, Ifrah Raza<sup>1</sup>, Shahzadi Aslam<sup>1</sup>, Hikmat Fatima<sup>1</sup>, Aqsa Imtiaz<sup>1</sup> and Najma Tofique<sup>1</sup>*

*<sup>1</sup>University College of Veterinary and Animal Sciences, The Islamia University of Bahawalpur-63100, Pakistan.*

### ABSTRACT

Although, about 80 percent of egg production comes from the caged layers worldwide, this housing system for laying hens has become a debate in the present scenario of animal welfare. Cages improve hygiene and aid management but affects the behavior and hence welfare of laying hens negatively. Laying hens housed in the cages are confronted by a number of potentially provocative welfare challenges. Cages may adversely affect the welfare of laying hens by limiting space per bird. Restricted hen's innate behaviors and activities like running, jumping, wing-flapping, roosting, foraging, nesting, perching and dust bathing are detrimental to the welfare of laying hens. Confinement and reduced expression of their behavioral needs clearly indicate stress along with aggression. Laying hens exhibit abnormal behavior i.e. feather and vent pecking and cannibalism leading towards mortality. Excessive restriction in locomotion also thwarts hens from obtaining normal amounts of exercise in the cage which, in turn, leads to poor skeletal strength and other abnormalities. Laying hens in the cages have more broken and fragile bones, abnormalities of foot and claw, feather damage, and an increased anxiety as compared to non-caged birds. It is suggested that the behavioral demands of the laying hens, which are not fulfilled in the conventional cages, should be emphasized on. In this regard, the modification in the conventional cages with the provision of the adequate space, nests and perches along with the freedom of movement can address, to some extent, the welfare related issues of the laying hens.

**Keywords:** Laying Hen, Egg production, Welfare, Cages, Behavior.

# ANTIBIOTIC MISUSE BY VETS IS FUELLING RISE OF SUPERBUGS

*Muhammad Ashraf<sup>1</sup> and Muhammad Adil Rasheed<sup>1</sup>*

*<sup>1</sup>Department of Pharmacology and Toxicology; University of Veterinary and Animal Sciences  
Lahore, Punjab, Pakistan*

## ABSTRACT

Antibiotics have been widely used for last 70 years to treat infectious diseases. Since the 1940s, these drugs have greatly reduced illness and death from infectious diseases. Antibiotic use has been beneficial and, when prescribed and taken correctly, their value in treating the infection is enormous. In veterinary practice when there is an outbreak of infectious organism, the whole groups of animals is treated, even those that are not infected. This is especially true with dealing with broiler chickens, cattle, sheep and goats. Sub-therapeutic levels of antibiotics are also given to animals to prevent bacterial infections, often without prescription, to compensate poor hygienic conditions. These are frequently added to animal feed to promote growth in livestock whether it be in the production of broiler chickens, sheep, goat or feedlot cattle. This is particularly problematic as these antibiotic growth promoters are used without veterinary prescription and administered to whole groups of animals at sub-therapeutic concentrations over long periods of time. The misuse or overuse of antibiotics is a contributing factor in the creation of multidrug-resistant bacteria, informally called "super bugs": relatively harmless bacteria that can develop resistance to multiple antibiotics and cause life-threatening infections. Consumption of antibiotic residues represents a potential threat to human health as it may trigger allergies, alter bacterial flora present in the human digestive tract and contribute to the selection of resistant bacteria. To safeguard humans from exposure to antibiotics in food, a withholding period must be observed until the residues are no longer detected before the animal or animal products can be sold for consumption.

**Keywords:** Antibiotics, Resistance, Infectious diseases, Growth promoters.

## THE THEME OF WHITE REVOLUTION

*Shakeel Ahmad<sup>1</sup> and Zahid Kamran<sup>1</sup>*

*<sup>1</sup>University College of Veterinary & Animal Sciences, The Islamia University of Bahawalpur, 63100, Pakistan.*

### ABSTRACT

Livestock is the most important part of agriculture sector and Values 11.5 % of National GDP and 55.1 % of agriculture. It is the back bone of rural economy. Although Pakistan is the 4<sup>th</sup> largest milk producer of the world with an annual production of 46.44 billion liters but facing a milk shortage due to the ever increasing human population. According to a survey, the dairy industry would be able to fulfill the nation's requirements of milk in 2040 providing the problems associated with industry are being solved on immediate basis. The current problem areas of dairy industry are low production per animal, small farm size, inappropriate housing, fodder shortage, poor health management, adulteration and lack of technical knowledge at farmer level, formal marketing channels, cold chain to protect milk quality, processing facilities and access to well trained support service staff. These problems have to be addressed if we want to bring white revolution i.e. the increase in milk production up to the level of self sufficiency and then for export. The aim should be to make the dairy business profitable, first there is need to increase the milk production instead of increase in number of animals. Establishment of new processing plants and increase in the capacity of existing plants are prerequisites to achieve this goal. The genetic potential of native breeds of cow and buffalo have to be improved by performing continuous selection. Cross breeding with exotic breeds should be adopted only in nondescript animals. Fodder preservation in the form of silage and hay is a good option to manage the fodder shortage. Use of non-conventional feed resources/crop residues should be increased. For optimum production, feeding of total mixed ration (TMR) is a better choice to fulfill nutrient requirements of the herd. Farm mechanization is another tool to increase the efficiency of workings at farm. For better milk quality, the role of middle men, and sale of raw milk should be discouraged. Quality assurance labs should be established at Tehsil level. The production of value added milk products should be increased.

**Keywords:** White revolution, Milk production, Milk processing plants, Cross bred animals.

**IN VITRO EVALUATION OF ANTIVIRAL AND CYTOTOXIC ACTIVITY OF  
GINSENG ROOT, LEAVES OF TULSI AND ALOE VERA AGAINST PESTE DES  
PETITS RUMINANTS VIRUS.**

*Misbah afzal<sup>1</sup>, M. Ashraf<sup>1</sup>, M. Adil Rasheed<sup>1</sup>, Aqeel Javeed<sup>1</sup>, Imran Altaf<sup>2</sup>*

<sup>1</sup>*Department of Pharmacology and Toxicology; <sup>2</sup>Quality Operational Laboratory, University of  
Veterinary and Animal Sciences Lahore, Punjab, Pakistan*

**ABSTRACT**

The antiviral activity of *Aloe Vera* (leaves), *Panax ginseng* (root), *Ocimum sanctum* (leaves) was evaluated against *Peste Des Petits Virus (PPRV)* in this study. Ethanolic and aqueous extraction of these plants was carried out by using soxhlet apparatus and extracts were dried by using rotary evaporator.. Dilutions of these extracts were applied in triplicate manner on VERO cells that were confluent in 96 well cell culture plates. These plates were incubated for four days after which viability of cells was determined by MTT calorimetric assay. Positive and negative controls were also kept along these. The cytotoxic activity of above mentioned three plants was carried out by treating the cells with different dilutions used in antiviral assay and incubating the 96 well plates for 4 days and cell survival percentage was calculated. These were compared by using ANOVA and T-test. Aqueous and ethanolic extract of *Aloe vera* showed antiviral effects in dose range of 500µg/ml to 2000µg/ml and showed no toxicity in this range. Aqueous and ethanolic extracts of *Ocimum sanctum* leaves were effective in the dose range of 50µg/ml to 1000µg/ml but cytotoxic at higher concentrations (4000µg/ml and 8000µ/ml). Aqueous and ethanolic extract of *Panax ginseng* showed their antiviral activity in range of 10µg/ml to 100µg/ml but were cytotoxic above these concentrations.

**Keywords:** Antiviral, Cytotoxic, Petits Ruminants Virus, *Aloe Vera*, *Panax ginseng*.

## CHEMOTHERAPEUTIC TRIALS AGAINST HYPODERMOSIS IN DISTRICT RAJANPUR

*Muhammad Zahid<sup>1</sup> and Aneela Zameer Durrani<sup>1</sup>*

*<sup>1</sup>Department of Clinical Medicine UVAS, Lahore*

### ABSTRACT

Study was carried out in district Rajanpur from February, 2011 to April, 2011 to study chemotherapeutic trails against warble fly infestation in cattle. In each tehsil cattle were examined and selected on basis of clinical signs of Hypodermosis. For treatment of affected animals, drug trail were done with Trichlorphon (Tagafon Star, Pakistan) and Ivermectin 1% (Imec, SJG, Pakistan) subcutaneously @ 0.2mg/kg body weight. The comparison of different chemotherapeutic trails against Hypodermosis in cattle were observed and recorded. Three groups of cattle were made for trails against Hypodermosis. Application of Tagafon in two different groups of cattle was carried out to evaluate its efficacy. In one group Tagafon (5% solution) was applied with cotton gauzes by swabbing and spraying method. In second group Tagafon was given by drenching method with 2% solution at a dose rate of 0.2ml/kg body weight. In third group Inj. Imec, at dose rate of 0.2mg/kg body weight subcutaneous injection was carried out to evaluate its efficacy. Ivermectin1% was found to be 100% effective. Trichlorphon was found 90% effective by swabbing and spraying method with 5% solution and Trichlorphon by drenching method with 2% solution was found 85% effective against warble fly infestation in cattle in the study area. The data was analyzed statistically and found significant.

**Keywords:** Chemotherapeutic agents, Clinical trials, Hypodermosis, Warble fly.

**MOLECULAR DETECTION AND ANTIBIOTIC SUSCEPTIBILITY PATTERN OF ENTEROHEMORRHAGIC *ESCHERICHIA COLI* (EHEC O157:H7) ISOLATED FROM DIFFERENT MEAT SOURCES IN DISTRICT KOHAT, PAKISTAN**

*Mubashir Hussain<sup>1\*</sup>, Samina Ashiq<sup>2</sup> And Muhammad Shahid<sup>3</sup>*

*<sup>1\*</sup>Department of Microbiology, Kohat University of Science & Technology, Kohat, Pakistan*

*<sup>2</sup>Centre of Biotechnology and Microbiology, University of Peshawar, Pakistan*

*<sup>3</sup>Veterinary Research Institute, Peshawar*

**ABSTRACT**

This study was conducted to develop molecular diagnosis of enterohemorrhagic *Escherichia coli* (EHEC) isolates and to investigate the contamination of meat from cattle and chicken slaughtered for human consumption with *E. coli* O157:H7 at Slaughter house and local meat shops in District Kohat, Pakistan.. Identification of EHEC O157:H7 was done by its growth on Sorbitol MacConky Agar and confirmed by direct Polymerase Chain Reaction (PCR) using Shiga like toxin gene (*Stx1*) primers. Out of 450 meat samples collected, the overall prevalence of EHEC O157:H7 in different type of meat (Beef, Mutton, Chicken) was 11.8 %. These isolates were resistant to Ampicillin (81 %), Cefotaxime (69 %), Cephadrine (43 %) Erythromycin (55 %), Ciprofloxacin (58 %), Gentamicin (71 %), Tetracycline (78 %) and Sparfloxacin (44 %). The highest percentage of resistance was found against Bacitracin (99 %). PCR was efficiently optimized and used for detection of EHEC directly from stool samples and from culture. Indiscriminate antibiotics usage in livestock predisposes meat consumers to risks of antibiotic resistant *Escherichia coli* O157:H7 in Kohat district. Proper control of antibiotics usage in livestock, meat and pharmaco-epidemiological surveillance is hereby recommended to ensure consumer safety.

**Keywords:** Gastroenteritis, Kohat, EHEC, poultry, Ciprofloxacin



# ARSENIC TOXICITY AND MALE REPRODUCTIVE SYSTEM FUNCTIONS

*M.Zubair<sup>1</sup> and Maqbool Ahmad<sup>1</sup>*

*<sup>1</sup>Department of Theriogenology University of Agriculture Faisalabad.*

## ABSTRACT

Arsenic is a widespread environmental contaminant with mutagenic, teratogenic, and carcinogenic effects. Arsenic is used as herbicide, fungicide and rodenticide and causes air, soil and water pollution. Drinking polluted water is a common cause of arsenic poisoning. Arsenic used as herbicides, insecticides and rodenticides are major intoxicants in domestic species. Arsenic binds thiol groups in tissue proteins and impairs the function of the proteins. Arsenic affects the mitochondrial enzymes and interrupts the production of energy. Oxidative stress and the generation of reactive oxygen species could also be a consequence of arsenic exposure. High Arsenic level may suppress the sensitivity of gonadotroph cells to GnRH as well as gonadotropin secretion by elevating plasma levels of glucocorticoids. These ultimately lead to the development of gonadal toxicity in experimental animals and cause the reduction in sperm number, sperm viability and motility. Massive degeneration of germ cells and alterations in the level of LH, FSH and testosterone are also reported in these animals. Thus keeping in view the persistent exposure of arsenic through drinking water and insecticides in livestock, there is needed to study its effects on male reproduction in ruminants and poultry.

**Key Words:** Arsenic, Drinking water and Male Reproductive system

# COMPARATIVE EVALUATION OF MUTAGENICITY AND CYTOTOXICITY OF ENDOSULFAN, LAMBDA-CYHALOTHRIN, ALPHA-CYPERMETHRIN AND IMIDACLOPRID.

*Umber saleem<sup>1</sup>, M. Ashraf<sup>1</sup>, Aqeel Javeed<sup>1</sup>, M. Adil Rasheed<sup>1</sup>, Imran Altaf<sup>2</sup>*

*<sup>1</sup>Department of Pharmacology and Toxicology; <sup>2</sup>Quality Operational Laboratory, University of Veterinary and Animal Sciences Lahore, Punjab, Pakistan*

## ABSTRACT

Pesticides are extensively used in agriculture throughout world to safeguard crops and grains from pests and different plant diseases. Lack of proper knowledge and unavailability of necessary protective equipment increases the susceptibility to toxic effects. Pesticides can affect DNA structure. Keeping in view these facts, cytotoxicity and mutagenic potential of 4 pesticides namely Endosulfan, Lambda-cyhalothrin, Imidacloprid, Alpha-cypermethrin and their three different combinations was investigated. Cytotoxicity of test chemicals was investigated through MTT colorimetric assay using BHK-21 cell lines. Mutagenicity was estimated by in vitro *Salmonella*/microsome assay using the plate incorporation method. Two Mutant strains of *Salmonella*, TA98 and TA100 were exposed to eight different concentrations of each chemical to check whether drug has reverted the mutation at given concentration. Test was performed with and without metabolic activation to evaluate the effects of metabolic activation on the mutagenicity of the tested chemical. Test chemical dilution, top agar, histidine-biotin solution and the *Salmonella* culture was poured on GM agar plates. Positive and negative control plates were also run along with the test plates. Number of revertant colonies were counted after appropriate incubation of the plates. Test chemicals were also tested in three combinations in the same way. Endosulfan, Lambda-cyhalothrin, Alpha-cypermethrin and Imidacloprid showed cytotoxicity at higher doses. Non cytotoxic concentrations of individual compounds proved to be cytotoxic when tested in different combination. Endosulfan and Imidacloprid tested positive for mutagenicity. While Lambda-cyhalothrin and Alpha-cypermethrin were not found mutagenic. Mutagenicity values increased when the chemicals were evaluated in different combinations and non mutagenic concentrations of individual chemicals showed mutagenic effects.

**Keywords:** Mutagenicity, Cytotoxicity, Endosulfan, Cyhalothrin, Cypermethrin, Imidacloprid.

# COMPARISON OF DIFFERENT DOSES OF MEDETOMIDINE HCL WITH XYLOCAINE HCL AS EPIDURAL ANALGESIA IN BUFFALO CALVES

Hamid Akbar<sup>1</sup>, M. Arif Khan<sup>1</sup>, S. G. Bokhari<sup>1</sup>, M. Sarwar Khan<sup>1</sup>, M. Athar Khan<sup>2</sup>, Sadaf  
Aslam<sup>1</sup>.

<sup>1</sup>*Department of Clinical Medicine and Surgery; University of Veterinary and Animal Sciences  
Lahore, Punjab, Pakistan*

<sup>2</sup>*Department of Epidemiology and Public Health; University of Veterinary and Animal Sciences  
Lahore, 54000, Pakistan*

## ABSTRACT

The efficacy of medetomidine HCl as epidural anesthetic was experimentally assessed in twenty-four healthy buffalo calves of either sex and body weights between 150-200 kg. The animals were randomly divided into 6 groups A, B and C (n=4). Group A was further subdivided into four subgroups A1, A2, A3 and A4; Medetomidine HCl was used at four different doses 15, 30, 45 and 60 µg/kg BW, respectively. Group B animals were administered with Lignocain HCl 2%, while 3ml normal saline (placebo) was used in the Control Group C. The onset and duration of analgesia were evaluated every 15 minutes, using the pin prick and pinch tests. The data was analyzed using analysis of variance followed by Dunnett's test. The onset of skin analgesia was dose dependent, higher and rapid with increase in dose; hence, analgesia was earlier in animals of group A as compared with group B. Significant change in the duration of analgesia was seen till 40 minutes after injection ( $P \leq 0.05$ ). The recovery pattern showed a similar trend. The sedation score showed a significant dose-dependent effect, becoming more pronounced with increase in dose of Medetomidine HCl. Group B animals showed very mild sedation, while in group C, no sedation was observed at any stage. In coordination in calves after epidural injection was highest and significant in group A4 ( $P < 0.050$ ) at 20 and 40 minutes. Conclusively, it was inferred that despite early induction and longer duration of analgesia, medetomidine is suitable for standing surgeries of hindquarters in buffalo calves.

**Key-words:** buffalo calves, Epidural Analgesia, medetomidine, Lidocaine, Normal saline

## **CHEMICAL COMPOSITION OF MARKETED MILK SOLD AT TEHSIL PAHARPUR DISTRICT DERA ISMAIL KHAN**

*Sajid.Khan<sup>1</sup>, Atta-Ur-Rehman<sup>1</sup>, T.A.Khattak<sup>1</sup>, K.Kaleem<sup>1</sup>, Zia-Ur-Rehman<sup>1</sup>, Israr Uddin<sup>1</sup> And  
Akhter Ali<sup>1</sup>*

*<sup>1</sup>Livestock Research and Development Station Paharpur, D.I.KHAN*

### **ABSTRACT**

The present study was conducted to evaluate the milk quality at different milk marketing channel at Teshil Paharpur, D.I.KHAN. The samples were divided into five groups' i.e. Gwala, milk collection center, hotel, producer and LR&DS dairy farm. A total of 125 samples were collected where each groups contain 25 samples. All the milk samples were analyzed for chemical composition i.e Fat%, SNF%, Lactose%, Protein%, Ash% and pH by Lacto-Scan (Milk Analyzer) in Dairy Technology laboratory of LR&DS. Fat % in milk sample were  $3.84\pm 0.67$ ,  $3.40\pm 0.70$ ,  $4.35\pm 1.17$ ,  $3.40\pm 0.79$  and  $5.64\pm 1.03$  in Gwala, Milk collection center, hotel, producer and LR&DS Dairy farm groups respectively. The fat % in LR&DS group were significantly higher ( $P<0.05$ ) than all groups. The SNF% was  $5.85\pm 1.08$ ,  $4.08\pm 1.05$ ,  $5.23\pm 1.11$ ,  $5.58\pm 0.67$  &  $7.02\pm 0.91$  in Gwala, Milk collection center, hotel, producer and LR&DS Dairy farm groups respectively SNF% is significantly higher at dairy farm groups . Mean value Lactose% was  $3.09\pm 0.57$ ,  $2.15\pm 0.55$ ,  $2.76\pm 0.58$ ,  $2.96\pm 0.35$  and  $3.70\pm 0.49$  in Gwala, Milk collection center, hotel, producer and LR&DS Dairy farm groups respectively. Protein% was  $2.18\pm 0.40$ ,  $1.52\pm 0.38$ ,  $1.96\pm 0.41$ ,  $2.07\pm 0.25$  and  $2.61\pm 0.33$  in Gwala, Milk collection center, hotel, producer and LR&DS Dairy farm groups where Dairy farm LR&DS were higher mean value. Ash was  $0.56\pm 0.10$ ,  $0.40\pm 0.09$ ,  $0.51\pm 0.11$ ,  $0.53\pm 0.06$  and  $0.69\pm 0.08$  respectively in Gwala, Milk collection center, hotel, producer and LR&DS Dairy farm groups. The pH value was  $6.60\pm 0.02$ ,  $6.64\pm 0.06$ ,  $6.59\pm 0.08$ ,  $6.57\pm 0.04$  and  $6.67\pm 0.04$  respectively in Gwala, Milk collection center, hotel, producer and LR&DS Dairy farm groups. It is investigated that chemical quality of milk at four market points is less significant ( $P>0.05$ ) than LR & DS dairy farm. It is suggested that chemical composition is use as key tool at milk marketing channel to ensure the quality milk to consumer.

**Key words:** Milk, Quality, Marketing Channel, Milk composition

**PREVALENCE OF TICK BORNE HAEMOTROPIC PARASITES IN CLINICALLY AFFECTED DAIRY CATTLE IN THE RIVER RAVI REGION, LAHORE (PAKISTAN)**

*Muhammad Ijaz<sup>1</sup>, Sadaqat Ali<sup>1</sup> and Muhammad Muddassir Ali<sup>1</sup>*

*<sup>1</sup>Department of Clinical Medicine and Surgery; University of Veterinary and Animal Sciences  
Lahore, 54000, Punjab, Pakistan*

**ABSTRACT**

The study was carried out to find the prevalence of tick borne haemotropic parasites in clinically affected dairy cattle from the River Ravi region of Lahore. A total of 212 blood samples were collected from clinically affected dairy cattle and examined microscopically; 76(35.85%) were positive for tick borne haemotropic parasites. Overall prevalence of theileriosis was 52(24.53%) while in purebred (*Holstein Friesian*) 30(57.69%), crossbred (*Holstein Friesian* with local animals) 14(26.92%) and in local cattle 8(15.38%). Similarly in babesiosis overall prevalence was 16(7.55%) whereas in purebred, crossbred and local cattle were 08(50.00%), 06(37.50%), 02(12.50%), respectively. Lowest prevalence of anaplasmosis 8(3.77%) was recorded and it was 04(50.00%) in purebred, 03(37.5%) in crossbred and 01(12.50%) in local cattle. It is concluded that purebred are highly susceptible ( $p < 0.05$ ) for tick borne haemotropic parasites followed by crossbred and local animals.

**Keywords:** Cattle / Theileriosis / Babesiosis / Anaplasmosis / Pakistan

# DAIRY VALUE CHAIN DEVELOPMENT; A STRATEGY FOR MANAGING MILK LOSS IN PAKISTAN

*Muhammad Junaid<sup>1</sup>, Imran Javed<sup>1</sup>, Muhammad Abdullah<sup>2</sup>, Muhammad Gulzar<sup>1</sup>, Ishtiaque Ahmad<sup>1</sup>, Muhammad Ayaz<sup>1</sup>, Umair Younas<sup>2</sup>, Yasir Zahoor<sup>3</sup>*

<sup>1</sup>*Department of Dairy Technology, University of Veterinary & Animal Sciences, Lahore.*

<sup>2</sup>*Department of Livestock Management, University of Veterinary & Animal Sciences, Lahore.*

<sup>3</sup>*Institute of Biochemistry and Biotechnology, University of Veterinary & Animal Sciences, Lahore.*

## ABSTRACT

Livestock is a major source of employment for the poor of rural communities in Pakistan. Two major products from livestock include milk and meat. Pakistan is the 4<sup>th</sup> largest milk producing country in the world with annual milk production of 47.951 million tons. A major concern in Pakistan is the loss of more than 15% of produced milk during transportation (Economic Survey of Pakistan, 2011-12). Adding the value to milk by converting it into value-added products will decrease such milk losses. Rural farmers do not have cold storage facility for milk and are not trained enough technically to add value to milk and convert it into value-added dairy products like yoghurt (flavoured), butter, desi ghee and cheese. Also, there is a need for the value chain development for the dairy products produced from the farmer to the end consumer. Value chain development in return will increase the income of the farmer and open the new avenues of research to widen milk products range. Poor farmers and the end consumers of milk products are the major stakeholder who want to see the change happening. Value chain development benefits the easy delivery of the product from the farmer to the retailer and the end consumer. Value-added dairy products benefit the consumer in improving their health economic status. Decrease in milk losses with increase in the sale volume of value-added dairy products along with the income and profit of the farmers will be the key performance indicators of the success. Sustained farmer approach towards value chain development and bridging up the gap of farmer community with retail market will in turn improve the livelihood of the poor farmer due to this change.

**Keywords:** Dairy value chain, Value addition, Management.

# **PATHOLOGICAL RESPONSES OF HENS, CHICKS AND CHICKEN EMBRYOS TO OCHRATOXICOSIS DUE TO OCHRATOXIN A (OTA)**

*Umair Ahsan<sup>1</sup>, Ifrah Raza, Haroon Rasheed Chaudhry<sup>1</sup>, Hassan Riaz<sup>1</sup>*

*<sup>1</sup>University College of Veterinary and Animal Sciences, The Islamia University of Bahawalpur, Bahawalpur-63100, Pakistan*

## **ABSTRACT**

Ochratoxins, a class of mycotoxins are known to be the major contaminants of feeds and feed ingredients around the globe. Among the ochratoxins, ochratoxin A (OTA) is thought to be most toxic. This review article aims to highlight the gross and histopathological changes occurring in various organs of hens as well as in chicks in response to OTA contaminated diets and teratogenic effects of OTA in chicken embryos. The consumption of OTA contaminated feed reduces feed intake and body weight in hens and chicks. It has been observed that OTA is nephrotoxic, hepatotoxic, and immunotoxic in nature. Depending upon the quantity, OTA present in contaminated feeds causes mild to severe gross and histopathological changes in liver, kidneys, spleen and bursa of Fabricius in breeder hens and chicks. Various experiments also reveal dose dependent pathological responses of these organs. Residues of OTA can be observed in eggs laid by hens which cause teratogenic effects in progeny. A series of experiments have shown that *in ovo* inoculation of OTA in eggs leads to various degenerative changes in chicken embryos. Teratogenic effects of OTA in experimentally inoculated eggs are very severe even causing embryonic mortalities thereby affecting hatchability percentage and chicks hatched from these eggs are observed to be immunocompromised. OTA is highly potent toxin as evident from gross and histological abnormalities in various organs and embryos. Its presence in feeds may lead to a very tragic situation.

**Key Words:** ochratoxin A, hepatotoxic, nephrotoxic, immunotoxic, chicken embryos.

# EFFECT OF DIETARY POLYUNSATURATED FATTY ACIDS ON PERFORMANCE OF LAYING HENS

*Umair Ahsan<sup>1</sup>, Ifrah Raza, Haroon Rasheed Chaudhry<sup>1</sup>, Hassan Riaz<sup>1</sup>, Adeel Sajid<sup>1</sup>*

*<sup>1</sup>University College of Veterinary and Animal Sciences, The Islamia University of Bahawalpur, Bahawalpur-63100, Pakistan*

## ABSTRACT

Lipids are used as energy sources in poultry diets. These energy sources increase either saturated or unsaturated fatty acids in poultry products. Awareness among the general public has increased the demand of products enriched with polyunsaturated fatty (PUFA) acids especially n-3 PUFA as they are beneficial for health. Meat and eggs enriched in PUFA are serving for this purpose. The purpose of this review is to investigate the effect of PUFA on performance of laying birds through various parameters. Usually, the egg production is not affected by the diets having PUFA at different inclusion levels. However, its decrease is associated with lowered feed intake. Such diets are not unpalatable and reduction in feed intake is not common at all. Dietary lipids consist of saturated and unsaturated fatty acids. The feed stuffs enriched in PUFA when consumed by birds reduce the LDL and VLDL and increase HDL. Blood triglycerides are also observed to be decreased following consumption of PUFA while fatty acid deposition in eggs depends upon the type of PUFA used in diet. PUFA enriched diets lead to production of eggs enriched with various essential fatty acids (such as EPA, DPA, DHA, LNA, and LA). Dietary PUFA are essential for humans and they must be provided by the production of PUFA enriched eggs commercially.

**Key words:** PUFA; blood triglycerides; fat deposition; cholesterol metabolism; essential fatty acids



# **EXPOSED OR CONCEALED ANTIGENS FOR DEVELOPING ANTI-TICK VACCINE?**

**(A – REVIEW)**

*Umair Ahsan<sup>1</sup>, Haroon Rasheed Chaudhry<sup>1</sup>, Hassan Riaz<sup>1</sup>, Abdul Qayyum<sup>1</sup>, Wasim Babar<sup>1</sup>, Ifrah Raza<sup>1</sup>, Shehzadi Aslam<sup>1</sup>*

*University College of Veterinary and Animal Sciences, The Islamia University of Bahawalpur, Bahawalpur-63100, Pakistan*

## **ABSTRACT**

Ticks are blood sucking parasites that transmit a wide range of pathogens associated with tick borne diseases (TBDs) in addition to heavy economic losses. Control strategies have been failed due to a number of reasons; therefore, a safe control method is required. It has been observed that tick infestation in animals initiates hypersensitivity reactions of two types either immediate or delayed. These reactions form the basis of resistance against ticks. Similarly, repeated infestations lead to immunization of host against these parasites. This idea was employed to constitute anti-tick vaccines. Antigens for constituting vaccines were defined as exposed or concealed. Crude extracts of various parts of ticks (saliva and digestive system) or whole ticks were used to immunize the animals and were referred to as exposed antigens. These antigens were effective against the transmission of TBDs but this technique was considered to be failed due to certain drawbacks. Therefore, concealed antigens were subjected to trials for developing anti-tick vaccines. Two commercial vaccines were produced using concealed antigens; however, the drawbacks (failure to prevent blood feeding, transmission of TBDs, and damage to hides and skin) were evident from the published trials. Since ticks being the vectors are notorious rather than as pests, one must be careful while using an antigen that whether the antigen provides protection against blood feeding, TBDs and other tick species of economic importance. Hence, exposed antigens would provide better results in comparison with concealed antigens.

**Key Words:** anti-tick vaccine, exposed antigens, concealed antigens, TBDs, tick

**APPLICATION OF BIOTECHNOLOGY AND STATUS OF LIVESTOCK  
IMPROVEMENT IN PAKISTAN**

*Hamid Mustafa<sup>1</sup>, Khalid Javed<sup>1</sup>, Imran Mohsin<sup>1</sup>, Nisar Ahmad<sup>1</sup> and Adeela Ajmal<sup>2</sup>*

*<sup>1</sup> Department of Livestock Production, <sup>2</sup>Department of Wild Life and Ecology, University of  
Veterinary and Animal Sciences, Ravi Campus, Pattoki*

**ABSTRACT**

Animal production and health is the most benefited sector from applied biotechnology among other agricultural fields in the present world. Despite having this magical science, developing Countries still facing challenges. Successful application of biotechnology has generally been limited to these countries. Specifically, there are hardly any success stories for the application of biotechnology in the improvement of livestock production in Pakistan. This paper reviews available biotechnologies with current and/or potential application in genetic improvement, characterization and/or conservation of domestic animal genetic resources and attempts to identify those technologies which have been, or may be, applied in developing countries.

**Keywords:** Animal Production, Biotechnology, Pakistan.

# **EFFECT OF GENDER AND BODY CONDITION SCORE ON MEAT QUALITY IN KUNDI BUFFALOES**

*Muhammad Usman Saleem<sup>1</sup>, Hafsa Zaneb<sup>1</sup>, Saima Masood<sup>1</sup>, Asim Aslam<sup>2</sup>*

*<sup>1</sup>Department of Anatomy and Histology, University of Veterinary and Animal Sciences, Lahore*

*<sup>2</sup>Department of Pathology, University of Veterinary and Animal Sciences, Lahore*

## **ABSTRACT**

Buffalo is a potential source of meat and has gained importance for having better export potential as compared to cattle meat. The objective of the current study was to compare effect of gender and body condition score (BCS) on certain meat quality parameters in Kundi buffaloes. Samples from trapezius cervicalis, longissimus dorsi and semitendinosus of forty Kundi buffaloes (n= 40) were selected to evaluate the sensory attributes of meat like pH, water holding capacity (WHC), muscle fiber number and muscle fiber diameter. Animals were divided into four groups on the basis of gender and BCS with each group having 10 animals. Tissue sections of 4µm thickness were used to calculate muscle fiber number and muscle fiber diameter by using a histomorphometric program whereas pH and WHC were measured with the help of a digital pH meter and Honikel's gravimetric bag method respectively. It was concluded that in every group longissimus dorsi had the best sensory attributes relating to tenderness among the selected skeletal muscles. Moreover meat from bulls of Kundi buffaloes and animals with BCS > 4 irrespective of gender had better quality characteristics and were suitable for consumption as larger chunks. However meat from female Kundi buffaloes and those with BCS of 1-4 irrespective of gender was of lesser quality and is better to be consumed in minced form. Therefore gender and BCS can be used as a tool in animal selection regarding meat quality.

**Keywords:** Kundi Buffalo, Meat Quality, Gender, Body condition.

**PREVALENCE OF TICK-BORNE HEMOPARASITIC DISEASES ALONG WITH ASSOCIATED RISK FACTORS IN INDIGENOUS DAIRY BUFFALOES OF SEMI-ARID AREA**

*Sadaqat Ali<sup>1</sup>, Muhammad Ijaz<sup>1</sup>, Aneela Zameer Durrani<sup>1</sup>, Azhar Maqbool<sup>2</sup>, Awais Masud and Muhammad Muddassir Ali<sup>1</sup>*

*Department of Clinical Medicine and Surgery<sup>1</sup>; Department of Parasitology<sup>2</sup>; University of Veterinary and Animal Sciences, Lahore (54000), Punjab, Pakistan*

**ABSTRACT**

A research was conducted to estimate the prevalence of tick-borne hemoparasitic diseases (TBHDs) in indigenous dairy buffaloes of the semi-arid climate of Lahore. A total of 532 dairy buffaloes were screened for TBHDs through microscopic examination of blood smears. Overall TBHDs prevalence was 281(52.82%), in which babesiosis was found 177(33.27%) most prevalent followed by anaplasmosis 69(12.97%), theileriosis 27(05.08%), and mixed infection 8(01.50%). Breed-wise data exposed Nili-Ravi 135(53.36%) out of 253 and non-descript 146(52.33%) out of 279, positive for TBHDs. In sex-wise prevalence, 242(55.38%) out of 437 females and 39(41.05%) out of 95 males were found TBHDs positive. Age-wise prevalence revealed that babesiosis and anaplasmosis were found more in young and adult stock as compared to calves and olds, while theileriosis was more common in calves as compared to others. Season-wise data showed that more TBHDs were reported in summer and autumn as compared to winter and spring. It is concluded that sex, age, and season significantly affect the prevalence of TBHDs in indigenous dairy buffaloes.

**Keywords:** Buffaloes, Babesiosis, Anaplasmosis, Theileriosis, Pakistan

# **UMBILICAL HERNIA: CASE REPORT OF TWO HOLSTEIN FRIESIEN CALVES OPERATED IN 2012.**

*Shehla Gul Bokhari<sup>1</sup> and Tanzeem-ul-Hassan<sup>1</sup>*

*<sup>1</sup>Dept. of Clinical Medicine & Surgery, Faculty of Veterinary Science,*

*University of Veterinary & Animal Sciences, Lahore, 54000*

## **ABSTRACT**

Despite a low occurrence, congenital umbilical hernias are more commonly encountered in the Holstein Friesian calves, as compared with other breeds. Affected animals are usually between 3-6 months of age, and in females, the prevalence is reportedly higher than in males. This report describes surgical intervention for umbilical hernia repair in two Holstein Friesian calves, brought to the Surgery Clinic, UVAS, during Feb-Dec, 2012. After aseptic preparation of the site, open herniorrhaphy was performed. The hernial contents were mainly the loops of the small intestine and the omentum. In one calf, severe adhesions had to be broken down before successful reduction of the hernia. The margins of the hernial pouch were resected and suturing was performed using #2 chromic catgut in simple interrupted fashion. The subcutaneous tissue and skin were sutured as per routine. No complication was reported post-surgery and the animals were found to have recovered excellently on follow-up examinations.

**Keywords:** Umbilical Hernia, Holstein Friesian calves, surgical intervention, Hernia.

# **PREVALENCE AND CHEMOTHERAPY OF GASTRO-INTESTINAL PARASITES IN DEER IN PUNJAB, PAKISTAN.**

*R. Aslam<sup>1</sup>, J. A. Khan<sup>1</sup>, M. H. Saleem<sup>1</sup>, N. Ahmad<sup>1</sup>*

*<sup>1</sup>Dept. of Clinical Medicine & Surgery, Faculty of Veterinary Science,*

*University of Veterinary & Animal Sciences, Lahore, 54000*

## **ABSTRACT**

The parasitic load on deer affects them badly and eventually leads to death. In the present study a total of 100 fecal samples were collected from deer and were examined in the Clinical Medicine Laboratory, department of CMS, University of Veterinary and Animal Sciences, Lahore. The prevalence of the cestodes, trematodes, nematode and mixed infection was 12%, 12%, 6% and 8% respectively. For the chemotherapeutic trails thirty positive animals and 10 healthy animals were divided into four groups A, B, C and D with 10 animals in each. The animals of group A was treated with albendazole @ 7.5mg/kg orally. Those of group B was treated with the ivermectin @ 1ml/ 50kg orally. The group C animals were kept as positive control and group D were kept as negative control. The fecal samples were collected on the 0 day (pre-treatment), 7<sup>th</sup>, 14<sup>th</sup> and 21<sup>st</sup> day (post-treatment). The efficacy of the drugs were calculated on the basis of reduction of the eggs count from the fecal samples on the respective days. The efficacy of albendazole 42.59 %, 71.3% and 87.96% against cestodes, 33.33%, 60.3% and 82.88% against nematodes and 40.18%, 68.22% and 89.72% against trematodes at day 7, 14 and 21 respectively.. The efficacies of ivermectin were 42.59 %, 73.15% and 88.88% against cestodes, 51.78%, 76% and 91.07% against nematode while 42.85%, 64.28% and 85.71% against trematodes at day 7, 14 and 21 respectively. It is thus concluded that the ivermectin is more effective drug than albendazole as it caused more reduction of the egg count than albendazole.

**Key words:** Parasite, Deer, Ivermectin, Albendazole

## **CLINICO-EPIDEMIOLOGICAL AND THERAPEUTICAL STUDIES ON COCCIDIOSIS (*ISOSPORA*) IN DOGS IN AND AROUND LAHORE**

*Awais Younas<sup>1</sup>, Muhammad Sarwar Khan<sup>1</sup>, Muhammad Ijaz<sup>1</sup>, Kamran Ashraf<sup>2</sup>*

*<sup>1</sup>Dept. of Clinical Medicine & Surgery, <sup>2</sup>Dept. of Parasitology, Faculty of Veterinary Science, University of Veterinary & Animal Sciences, Lahore, 54000.*

### **ABSTRACT**

The present project was designed to find out the prevalence of coccidiosis (Isosporiosis), to evaluate the comparative efficacy of Sulfadimethoxine and Furazolidone and to study the effect of Coccidiosis on blood parameters. Out of three hundred dogs, forty nine were found positive for coccidiosis, showing the prevalence of 16.33%. For the chemotherapeutical trials, forty five naturally infected and fifteen non-infected were selected and divided randomly into four groups having fifteen dogs in each group wise A, B, C and D. Group A was treated with Sulfadimethoxine at the dose rate of 60 mg/kg (orally). Group B was treated with Furazolidone at the dose rate of 20 mg/kg (orally). Group C was kept as infected non-medicated control. Group D was kept as non-medicated and non-infected control. The faecal samples of experimental dogs were examined for OPG (oocyst per gram) counts on zero day (pre-medication), 3<sup>rd</sup> day, 7<sup>th</sup> day, and 14<sup>th</sup> day medication and percentage reduction of ocysts was calculated. Sulfadimethoxine showed 66.69%, 90.89% and 98.29% efficacy and Furazolidone showed 63.95%, 88.78% and 96.64% efficacy on 3<sup>rd</sup>, 7<sup>th</sup> and 14<sup>th</sup> day, respectively. As a result of treatment in group A and B, the values of haemoglobin, packed cell volume and total erythrocyte gradually increased while that of total leucocyte count gradually decrease on day 3<sup>rd</sup>, 7<sup>th</sup> and 14<sup>th</sup> post-medication. It has been observed during the present study that sulfadimethoxine and Furazolidone showed their effect on blood parameters as a result of coccidiosis.

**Key words:** coccidiosis, dogs, Sulfadimethoxine and Furazolidone

# PREVALENCE & COMPARATIVE EFFICACY OF VARIOUS DRUGS IN IODINE DEFICIENT PREGNANT GOATS

Waseem Yaqub<sup>1</sup>, Muhammad Sarwar Khan<sup>1</sup>, Asim Aslam<sup>2</sup>, Muhammad Ijaz<sup>1</sup>

<sup>1</sup>Dept. of Clinical Medicine & Surgery, <sup>2</sup>Dept. of Pathology, Faculty of Veterinary Science, University of Veterinary & Animal Sciences, Lahore, 54000.

## ABSTRACT

Iodine is one of them which is important for the body for its two major function the first one is that it help the normal cell of the body to metabolize the food and energy is conserved the second one of the important function of the body is the production of the two hormone of body, secreted by the thyroid hormone which is thyroxin (T4) and tri-iodotyrosine (T3). In this study 300 pregnant goat plasma samples were collected aseptically from the outdoor of the University of Veterinary and Animal Sciences in Lahore. These plasma samples were processed through ELISA technique in the University's Diagnostic Lab for the determination of T3 and T4 hormones. After processing of the plasma samples, out of 300 samples there were 84 samples which had the low levels of T3 and T4 hormone than the standard value in pregnant goat. Thus, the overall prevalence of iodine deficiency (goiter) is 28% in and around the Lahore. In the second part of the study a drug trial is performed on 24 pregnant goats, these 24 goats were divided into three groups A, B & C and 8 pregnant goats were put in each group. Group A was given thyroxin at dose rate of 0.2mg/20kg B.W, OD, PO for 15 days. Group B was given the mineral mixture at the dose rate 50g/animal OD, PO, for 15 days again Group C was used as the control group. After 15 days of treatment, the plasma samples were again processed in lab and their T3 and T4 hormone levels in the body were measured. In Group A pregnant goats showed significant increase in the both T3 and T4 hormones which is  $P < 0.05$  and birth of normal kids. Group B pregnant goats also showed significant increase in both T3 and T4 hormones which is  $P < 0.05$  and birth of normal birth of kids. Group C showed the non significant  $P > 0.05$  results of the T3 and T4 hormones and pregnant goats gave birth to five kids with goiter and 3 abortion were observed without term completion. Thus, it can be concluded that, the mineral mixture is more effective than thyroxin in treating iodine deficiency of pregnant goats.

**Key words:** Goiter, Goats, Iodine deficiency, ELISA.



# EFFECT OF ZINC SUPPLEMENTATION ON HEALTH BIOMARKERS OF SPENT LAYERS

*Musadiq Idris<sup>1</sup>, Zia-Ur-Rahman<sup>2</sup>, TanweerKhaliq<sup>2</sup>and FaqirMuhammad<sup>2</sup>*

<sup>1</sup>*UniversityCollege of Veterinary and Animal Sciences, Islamia UniversityBahawalpur, Pakistan.*

<sup>2</sup>*Department of Physiology and Pharmacology, Faculty of Veterinary Science, University of Agriculture, Faisalabad-38040, Pakistan.*

## ABSTRACT

Zinc is the most important micronutrient and enhances overall body performance of the laying hens. Three hundred commercial white leghorn birds of 67 week age were procured from market. The laying hens were supplemented with ZnO (3g/kg) for consecutive three weeks. The body and organs weight of all the spent layers was recorded before and after ZnO supplementation. Total oxidant status (TOS) and total antioxidant capacity (TAC) in the serum, spleen, liver, heart, kidney and muscle while homocysteine (Hcy), ceruloplasmin, paraoxonase, arylesterase and cortisol in serum were studied in the spent layers at the time of each sampling. Total oxidant status (TOS) of liver, heart and kidney significantly increased while total antioxidant capacity (TAC) of tissues heart, kidney and muscle decreased significantly after zinc supplementation as compared to the birds before zinc supplementation. Total antioxidant capacity (TAC) of serum in spent layers supplemented with dietary zinc oxide increased significantly as compared to the birds before supplementation. The serum homocysteine concentration increased significantly while the paraoxonase and arylesterase activity decreased significantly after zinc supplementation as compared to the birds before supplementation. In the spent layers supplemented with dietary zinc oxide serum cortisol concentration increased significantly as compared to the spent layers before supplementation. In conclusion, zinc supplementation increased overall oxidative stress in the spent layers.

**Keywords:** Zinc, Supplements, Layer, Body performance.

# ARE WE REALLY AWARE OF THE EMERGING PROBLEM IN THE LIVESTOCK & DAIRY INDUSTRY OF PAKISTAN

Haroon Akbar<sup>1</sup>, M. Imran Rashid<sup>1</sup>

<sup>1</sup>Department of Parasitology, Faculty of Veterinary Sciences, University of Veterinary and Animal Sciences, Lahore, 54000, Pakistan

## ABSTRACT

Livestock and dairy industry of Pakistan is expanding presently at a high pace at an industrial scale with the import of more and more high producing animals. The rapid expansion in this industry is the need of time in order to increase milk and meat production to fulfill the nutritional requirements of our exponentially increasing human population. In addition, it's one of the most important pillars of our economy as a large part of our population is linked with this profession for their livelihood. This industry is also having a huge potential to earn huge foreign reserves while increasing its share in the rapidly expanding international halal meat market. This industry can face number of problems some of which have their parasitic origin. One such example is a disease called as Neosporosis caused by a protozoan parasite called as *Neospora caninum*. This parasite can cause abortion in bovines resulting into huge economic losses. Few recent studies have found a high sero-prevalence of this infection in bovine population of Pakistan. In the present talk, there will be a sensitization about the different aspects of this parasitic pathogen in which we will discuss how this disease spreads among bovines, what are the methods with the help of which we can diagnose this infection and how we can prepare a strategy for its prevention to minimize its losses in our livestock and dairy industry.

**Keywords:** Livestock and Dairy sector of Pakistan, Emerging problems, Halal Meat, Parasitic diseases.

# EVALUATION OF FURAZOLIDONE, SULPHADIMIDINE AND AMPROLIUM TO TREAT COCCIDIOSIS IN GOATS UNDERFIELD CONDITIONS

Rashid G.<sup>1</sup>, M. Avais<sup>1\*</sup>, M. Ijaz<sup>1</sup>, M. A. Khan<sup>2</sup>, M. S. Jahanzaib<sup>1</sup>, J. A. Khan<sup>1</sup>

<sup>1</sup>Department of Clinical Medicine and Surgery, <sup>2</sup>Department of Epidemiology and Public Health, Faculty of Veterinary Science, University of Veterinary and Animal Sciences, Lahore, 54000, Pakistan

## ABSTRACT

The aim of present study was to evaluate the efficacies of Furazolidone, Sulphadimidine and Amprolium to treat coccidiosis in goats under field conditions. Twenty four goats naturally infected with coccidiosis wererandomly divided into four groups of 6 viz. A, B, C and D. A fifth group E comprised of 6 healthy goats. The goats in group A were treated orally with Furazolidone at 10 mg/kg/day for 7 days, whereas animals in group B were givenoral Sulphadimidine at 100 mg/kg/day for 7 days. The members in group C were orally administered withAmprolium at 55 mg/kg/day for 7 days. Goats in groups D and E served as positive control andnegative control, respectively. Oocyst per gram (OPG)of individual goat in each group was performed at day 0 (pre-treatment) and day 7, 14, 21 (post-treatment) using McMaster Technique. The efficacy of the drugs was determined on the basis of reduction in number of oocysts in feces. There was no significant difference ( $P<0.05$ ) in OPG values of goats in all groups at day 0. At day 7, 14 and 21 the OPG values decreasedsignificantly ( $P>0.05$ ) in groups A, B and C compared to group D.The efficacy of Furazolidon, Sulphadimidine and Amproliun was98.58, 98.03 and 99.55 percent, respectively at the end of the experiment (day 21).Statistically non-significant difference ( $P<0.05$ ) was observed among three drugs at different days in goats. In conclusion, Furazolidon, Sulphadimidine and Amproliun are well-tolerated by goats and may be recommended to effectively treat coccidiosis in goats under field conditions.

**Keywords:** Furazolidone, Sulphadimidine, Amprolium, Coccidiosis.

# HEMATOLOGICAL ALTERATIONS INDUCED IN GOATS BY COCCIDIOSIS AND THEIR REVERSAL WITH ANTICOCCIDIAL DRUGS

Rashid G<sup>1</sup>, M. Avais<sup>1</sup>, M. Ijaz<sup>1</sup>, M.A. Khan<sup>2</sup>, M. Ali<sup>1</sup>, M.S. Khan<sup>1</sup>

<sup>1</sup>Department of Clinical Medicine and Surgery, <sup>2</sup>Department of Epidemiology and Public Health, Faculty of Veterinary Science, University of Veterinary and Animal Sciences, Lahore, 54000, Pakistan

## ABSTRACT

This study describes the changes in blood parameters due to coccidiosis in goats and their reversal with anticoccidial drugs i.e. Furazolidone, Sulphadimidine and Amprolium. Goats naturally infected with coccidiosis were divided into groups A, B, C and D each having 6 animals. A fifth group E was formed comprising of 6 healthy goats. The goats in groups A, B and C were treated with Furazolidone, Sulphadimidine and Amprolium, respectively while the animals in groups C and D were positive control and negative control, respectively. Blood samples were drained from the jugular vein of goats in each group at day 0 (before treatment), and day 21(after treatment) for complete blood count. A significant decrease ( $P<0.05$ ) in erythrocyte count, hemoglobin concentration, PCV, MCV, MCH, MCHC, lymphocytes, and monocytes count was observed in all goats naturally infected with coccidiosis at day 0. On the other hand, white blood cell count was significantly ( $P<0.05$ ) increased in infected animals at day 0. All the blood parameters were within normal range in uninfected animals (group E). After treatment at day 21, all the blood parameters in groups A, B and C reversed within normal range but not in group D animals where changes in blood parameters were more sever compared to day 0. It was concluded that coccidiosis had deleterious effect on hemogram in goats, and Furazolidone, Sulphadimidine and Amprolium are equally effective in reversing these harmful effects.

**Keywords:** Hematological, Goats, Coccidiosis, Anticoccidial Drugs.

# **GROWTH PROMOTING ROLE OF MILK THISTLE (SILYBUM MARIANUM) AS FEED ADDITIVE AGAINST AFLATOXIN B1 IN BROILER CHICKS**

*Din muhammad<sup>1</sup>, Bacha jan<sup>2</sup>, Muhammad Mujtaba<sup>1</sup>, Muhammad Iqbal<sup>1</sup>, Zahid Ur Rehman<sup>3</sup>,  
Riaz Ahmad<sup>1</sup>, Zabita khan<sup>1</sup> and Kamran Farid<sup>1</sup>*

*<sup>1</sup> Directorate of Livestock Research and Development KPK, Peshawar, Pakistan*

*<sup>2</sup> Sarhad Rural SPaper support program Swat, Pakistan*

*<sup>3</sup> SB Pharma Peshawar, Pakistan*

## **ABSTRACT**

This research study was planned to investigate the growth promoting role of milk thistle as feed additive against aflatoxin B1 in broiler chicks. Two hundred and forty (240), day old chicks were randomly divided into four major groups A, B, C and D. Each group was sub divided into two sub groups. Each sub group carried three replicates(10 chicks/replicate).In each group, one sub group was vaccinated against ND,IBD and IB according to recommended schedule of vaccination. Chicks were reared in cages with an open sided house. Group A was kept as control having Aflatoxin free feed, Group B was fed with contaminated feed only ,Group C was raised on contaminated feed with Toxin binder@3g/kg of feed and Group D was provided contaminated feed along with Milk Thistle@10 g/kg of feed. Birds were fed aflatoxin contaminated feed for 5 weeks, starting from second week. Analysis of experimentally contaminated feed by TLC method showed that Aflatoxin B1 was present in the feed at the levels of 80-520 ug/kg of the feed. Mean body weight gain and dressing percentage were significantly higher( $p<0.05/1129.53\pm 14.70, 58.11\pm 0.92$ ) in group A, followed by D, C and B respectively. Feed intake, breast, thigh and leg weight were found significantly ( $p<0.05/2700.36 \pm 55.57, 275.60\pm 4.01, 72.91\pm 1.20, 57.21\pm 1.17$ ) higher in group A, followed by C,D and B, respectively. FCR value was significantly lowest in group D. Water intake was significantly ( $p<0.05/7705.14\pm 259.35$ ) higher in group D as compared to other groups. It is concluded that milk thistle @ 10 g/kg of feed could effectively be utilized as growth promoting in presence of growth depressant aflatoxin B1 in feed of Broiler chicks.

**KEYWORDS:** Milk Thistle (Silybum Marianum), Aflatoxinis, broiler production, mycotoxins

## **EFFECT OF ASCORBIC ACID (VITAMIN.C) AS ANTIOXIDANT ON SEMEN QUALITY OF INDIGINOUS CHICKEN ASEEL.**

*Adnan Jabbar<sup>1</sup>, Amjad Riaz<sup>1</sup>, Abdul Sattar<sup>1</sup>, Waseem Abbas<sup>1</sup>, Muhammad Akram<sup>2</sup>  
<sup>1</sup>Department of Theriogenology, <sup>2</sup>Department of Poultry Production University of  
Veterinary and Animal Sciences Lahore.*

### **ABSTRACT**

Aseel, our native chicken breed, is very famous for the adaptation to the harsh environmental condition, valuable meat and as a game bird. Low egg production and poor fertility are major problem in this breed. This experiment was conducted to evaluate effect of different concentrations of Vitamin.C as antioxidant on semen quality of Aseel during liquid storage. Semen was collected from sixteen Aseel males and pooled. Modified Ringer solution was used to extend the semen and supplemented with different levels of Ascorbic acid (0%, 0.25%, 0.50%, 0.75%, 1.0%, 1.25%, 1.50%). The treatments were evaluated for motility, viability, morphological defects, and plasma membrane integrity test at 0, 6, 12 and 24 hrs after storage of semen at 4°C. Among one hundred females, fifty were inseminated by semen extended with Modified ringer solution and the remaining fifty with Modified ringer solution plus Ascorbic acid for the hatchability. The significantly higher ( $P < 0.05$ ) motility ( $60.5 \pm 3.4$ ), livability ( $81.0 \pm 1.5$ ) and plasma membrane integrity ( $71.7 \pm 2.3$ ) was obtained by addition of 1% Ascorbic acid than other groups. The morphological defects ( $16.5 \pm 4.5$ ) in 1% level was lower ( $P < 0.05$ ) than other groups. It is concluded that the use of 1% Vitamin.C may enhance the fertility during liquid storage of semen.

**Key Words:** Ascorbic acid (Vitamin.C), Aseel chicken, semen quality.

## **EFFECT OF BUTYLATED HYDROXYTOLUENE (BHT) AS ANTIOXIDANT ON SEMEN QUALITY OF NAKED NECK CHICKEN**

*Amjad Riaz<sup>1</sup>, Waseem Abbas<sup>1</sup>, Mushtaq Ahmad<sup>1</sup>, Adnan Jabbar<sup>1</sup>, Muhammad Akram<sup>2</sup>, Nasim Ahmad<sup>1</sup>*

*<sup>1</sup>Department of Theriogenology, <sup>2</sup>Department of Poultry Production University of Veterinary and Animal Sciences Lahore.*

### **ABSTRACT**

The quality of poultry semen during storage at 4 °C decreases due to lipid peroxidation which causes decline in fertility after insemination. The present study was conducted to check the effect of various levels of BHT as an antioxidant on semen quality of naked neck chicken during storage at 4 °C for 24h. The semen was collected through abdominal massage method from naked neck roosters (n=15) and pooled (seven replicates). The pooled semen was extended in modified ringer's solution with 1:3 and supplemented with different levels of BHT (0, 0.25, 0.5, 1, 1.5, 2, 3 mM). All treatments were evaluated for sperm motility, livability, morphological defect and plasma membrane integrity at 0, 6, 12, and 24 h after storage at 4°C. The hatchability was also estimated after insemination. The significantly (P<0.05) higher motility (54.64±3.39), livability (68.67±2.16), and plasma membrane integrity (65.57±2.81) was obtained by the addition of 1mM BHT than other treatment groups over time. The morphological defects (21.32±1.67) in 1mM BHT level was significantly (P<0.05) lower than other treatment groups over time. The hatchability of control and 1mM BHT groups (Control = 60% vs Treated =71%) did not differ significantly (P<0.05). According to the results of present study we conclude that, the 1mM BHT can be used for supplementation of extended semen of chicken in order to improve the sperm motility, livability and plasma membrane integrity along with reduction of morphological defects of the sperm up to 24 hours storage time at 4°C.

**Key Words:** Butylated hydroxytoluene , Poultry semen, Naked Neck chicken, liquid storage

# EFFECT OF PLUMAGE COLOR AND BODY WEIGHT ON SEMEN QUALITY OF NAKED NECK CHICKEN

Waseem Abbas<sup>1</sup>, Amjad Riaz<sup>1</sup>, Mushtaq Ahmad<sup>1</sup>, Adnan Jabbar<sup>1</sup>, Tariq Jamil<sup>2</sup>, Muhammad Akram<sup>3</sup>, Nasim Ahmad<sup>1</sup>

<sup>1</sup>Department of Theriogenology, <sup>2</sup>Department of Microbiology, <sup>3</sup>Department of Poultry Production University of Veterinary and Animal Sciences Lahore.

## ABSTRACT

This research was conducted to evaluate the possible effect of plumage color and body weight on semen quality of naked neck chicken, a local breed. The total 18 naked neck males with three plumage color (black=6, brown=6, white=6) and two body weight categories (heavy= >1700gm n=9 and light= <1500gm n=9) were used in this study. The semen was collected by abdominal massage technique from each male and further processed individually (four replicates). The volume, pH, concentration, motility, livability, plasma membrane integrity and morphological defects of each ejaculate were accessed. Among three plumage colors there was no significant (P<0.05) difference in motility, ph, concentration, livability, plasma membrane integrity and morphological defects. Semen volume was higher (P<0.05) in black color cock than brown color (black = 0.21±0.02 ml, white = 0.17±0.01 ml, brown = 0.16±0.01 ml). Body weight had no effect (P>0.05) on motility, pH, livability, plasma membrane integrity and morphological defects while semen volume was higher (P<0.05) in heavy body weight group than light weight group (heavy = 0.22±0.01 ml vs light = 0.14±0.007 ml). Similarly heavy weight group had significantly (P<0.05) higher sperm concentration than light weight group (heavy = 1.94x10<sup>9</sup>±0.04 vs light = 1.70x10<sup>9</sup>±0.02 per ml). It was concluded that heavy body weight rooster with black plumage color can be used to enhance fertility in naked neck chicken.

**Key Words:** Plumage color, Body Weight, Semen Quality, Naked Neck Chicken



# **EFFECT OF DIETARY SORGHUM TANNIN ON DYNAMICS OF SERUM ANTIBODY TITRE AGAINST NEWCASTLE DISEASE AND EGG DROP SYNDROME VACCINE IN CAGED HENS**

*Hassan Ali<sup>1</sup>, Sultan Mahmood<sup>2</sup> and Sajjad ur Rahma<sup>3</sup>*

*<sup>1,3</sup>University of Agriculture Faisalabad Sub Campus Toba Tek Singh*

*<sup>2</sup>Department of Poultry Sciences, University of Agriculture, Faisalabad, Pakistan*

*<sup>3</sup>Institute of Microbiology, University of Agriculture, Faisalabad, Pakistan*

**Corresponding Author:** e.mail: [hassanphd786@gmail.com](mailto:hassanphd786@gmail.com)

## **ABSTRACT**

The serological experiment was planned to investigate the effects of dietary sorghum tannins using white sorghum varieties on the serum antibody titre against Newcastle disease (ND) and Egg Drop Syndrome (EDS) vaccine. One Hundred & Twenty Single Combs, White Leghorn Hens, (19 week of age) were randomly divided into 4 experimental units with 10 birds in each. The units were allotted to four isocaloric and isonitrogenous experimental rations. Ration A was without tannin (control) whereas ration B, C and D contained 1, 2 and 3 percent sorghum tannins respectively. The antibody titre against ND and EDS vaccines was recorded at various stages of production (20<sup>th</sup>, 30<sup>th</sup> and 40<sup>th</sup> weeks of age). The calculated geometric titre (GMT) values showed that the birds consuming higher concentration of tannins in diet exhibited lower humoral antibody response.

**Key words:** Antibody Titer, Egg Drop Syndrome, Hens, Newcastle Disease, Tannins

## **THREATS INVOLVED AFFECTING THE PERFORMANCE OF RURAL POULTRY BIRDS**

*Z. Rehman<sup>1</sup>, M. Usman<sup>1</sup>, M. AslamMirza<sup>2</sup> and M. Fayaz<sup>3</sup>*

*<sup>1</sup>University of Agriculture Faisalabad Sub-Campus Toba Tek Singh.*

*<sup>2</sup>Institute of Animal Nutrition and Feed Technology, University of Agriculture Faisalabad*

*<sup>3</sup>Office of Poultry Production, Toba Tek Singh*

### **ABSTRACT**

The study was initiated to evaluate the threats involved affecting the performance of rural poultry in Toba Tek Singh, Pakistan. The total number of villages and poultry farmers under study were 35 and 302, respectively. The different threats studied were health and disease control, sanitation, predation, and marketing barriers were analyzed. The losses due to death and predation were also considered. The poultry farmers kept their birds on scavenging. Average annual death losses were Rs.173.38 ± 12.21 while losses due to predation were Rs. 49.93±5.27. The indications of diseases observed were less activity of the birds, off feed, loss of feathers, diarrhea, blood in feces and difficult breathing. Vaccination was done only for New Castle Disease. The measures adopted to protect the poultry birds are proper housing (64.9%), vaccination (72.6%), and proper nutrition (66.3%) while sanitation measures are not adopted by the farmers. The most prevalent predators were dog as the most dangerous predator, snake, rat, cat and foxes. The remedial measures adopted were proper housing and hunting. The marketing system was very poor and the farmers did not get premium prices for the poultry bird/ poultry products. The problems faced during marketing of poultry products were unstable prices prevailing in the market, irregular demand, lack of market place, role of middleman, costly transports and lack of capital. By curtailing the onset of different risk factors will improve the performance of poultry birds and losses can be minimized.

**Key words:** Threats, Poultry, Predation, Marketing barriers, Disease control.