AKZO NOBEL

The Blue Cross Book

For the Veterinary Profession

23

ISSN 0972-4680

intervet

"The integrity of men is to be measured by their conduct, not by their professions".

- Anon

"Hope the best, but prepare for the worst".

- English Proverb

"We do not deal much in facts when we are comtemplating ourselves".

- Mark Twain

"Every man is the architect of his own".

- Kelluzy

"Let us fear God and we shall cease to fear man".

- Mahatma Gandhi

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PREFACE

Dear Readers,

This is the last edition of '***The Blue Cross Book***' in 2004. Looking back to 2004, it was an eventful year but also difficult for many of our colleagues in the poultry industry.

The poultry industry is slowly recovering from the losses earlier this year due to the AI-scare. This once again demonstrates that there is still a major gap between scientifc knowledge and public perception. The outlook for the poultry industry for 2005 and later is more positive but also depends on many structural factors like efficient after-farming-process and availability of internationally accepted technology and products.

The dairy industry is growing fast but we also see increasing milk collection costs. Since petrol costs are not expected to go down soon, we see a new challenge in increasing milk yield per animal, per farm, per village and per district.

The increased public awareness about food safety and public health is expected to continue. The impact of WTO is getting visible in many segments of the Indian Economy. International bench marking will increase and compliance to WTO standards is the need of the hour. Intervet has various programs for farmers and veterinarians to support them in these improvement process, like CLEAN MILK PRODUCTION and SALMONELLA MANAGEMENT.

In general, we see various new challenges for 2005 for scientists and industry.
We are confident that with combined efforts, we can meet these challenges by technology, e.g. the synergy between science and management.

We wish you and your family a peace full and health 2005.

Yours sincerely,

Victor van Solinge
Managing Director

THE VETERINARY COLLEGE IN INDIA

ACHARYA N.G. RANGA AGRICULTURAL UNIVERSITY, HYDERABAD

The college of veterinary science, Rajendranagar, Hyderabad, AP was established in the year of 1946 as a constituent college of the Osmania University. Later, the college started functioning under the Andhra Pradesh Agricultural University in the year 1964. Further it was shifted to Rajendranagar, located 10 km away from the Hyderabad city in the year 1968. The university was renamed as Acharya N.G. Ranga Agricultural University in the year 1996.

Objectives:

- To impart veterinary education at the under-graduate and post-graduate levels, leading to B.V.Sc. & A.H., M.V.Sc. and doctoral degrees.
- To conduct need based research in the veterinary and animal husbandry areas.
- To actively conduct and involve in the various extension programmes for the benefit of the farming community of the region.

Building and Other Facilities:

The college of veterinary science is functioning, from its main campus Rajendranagar, with its administrative office, college library and address hall. A total of 7 departments are functioning from the main campus. The other 11 departments including the livestock farms and teaching veterinary hospital are operating from off the campus. There are three hostels, two for boys and one for girls, having accommodation facilities for about 300 boys and girls students. There is a separate university sports complex, which has the facilities for indoor and outdoor games and a modern gymnasium. The college also runs two teaching veterinary hospitals, one in the city and the other in the rural area.

Library:

The college has a separate library apart from the central library of the university with a full time librarian and supporting staff. The library is provided with approximately 4250 technical books and 86 journals and periodicals catering to the needs of the students and teaching staffs.

Farm Facilities:

The college is spread in an area of approximately one acre of land in the main campus and 350 acres out side the campus, where other all livestock research units of dairy, poultry, sheep goat and rabbit, etc., are also located.

Achievements:

Teaching:

The college introduced trimester pattern of veterinary education in the year 1964 and semester pattern in the year 1975-76. The internship programme in collaboration with Animal Husbandry department was started in the year 1975. The restructured ICAR pattern of veterinary curriculum was implemented in the year 1979. The college introduced VCI pattern of curriculum for the education of under-

graduates in the year 1994. The post-graduate programme in M.V.Sc. in the major disciplines was introduced in the year 1967, followed by introduction of Ph.D. programmes in the major disciplines in the year 1976. The M.V.Sc. in bio-technology was introducted in 2001. Recently, the college has introduced practical manuals in various under-graduate courses for effective practical instructions for the students.

Research:

A number of research projects/schemes were successfully completed and few are in progress. These projects are funded by various national and international agencies, like ICAR, AP-CESS, NATP, NABARD, IDRC, ILRI, ICRISAT, (AP) and the Netherlands project, etc. The teaching and research staff of the college have, so far, published nearly 1250 research and 650 popular articles in the reputed national and international journals. A total of 948 research theses on various disciplines had been successfully submitted for M.V.Sc. and Ph.D. programmes.

Extension:

The college is actively involved in the extension programmes, organized at the university, state and national level. A few number of short and long term training programmes were conducted for rural farm-women, farmers and personnel of various developmental agencies. The introduction of NSS programmes as a part of under-graduate curriculum are regularly organized. The 'earn while you learn' programme in poultry and livestock products and village adoption programme near the campus were successfully carried out by the college. The teaching staffs and students are in the mass media programmes, like Radio, TV talks, Kisan melas, etc., The distant education programmes of the university through private TV channel for the benefit of the livestock farmers of the region was a successful one. Teaching staffs are also involved in the experts team constituted by the Government for assisting different developmental works, organised by the Animal Husbandry department.

Other Activities:

- Introduction of NCC (horse riding) as a part of the curriculum brought laurels in the various equestrian events organized at state, national republic days and international level by the under-graduate students.
- Introduction of ambulatory clinics for the junior and final year B.V.Sc. & A.H. students.
- Introduction of user changes in the teaching veterinary hospitals.
- A number of teachers have been awarded with the university, state and national awards for their contributions in the field of their specializations.
- A number of teachers were trained for short term overseas training courses under AHRD programme in different recognized veterinary institutions at abroad.
- The college was beneficiary of massive and under AHRD programme which has strengthened the teaching facilities.

" Freedom from birth is possible only when there is no tracce of desire. Otherwise, nothing else is of any avail. If one does not get rid of desires, what will one gain, even if their be one's last birth in this world. "

- The Holy Mother, Saradamani

Hormonal and Bio-chemical Changes During Stress Period in Birds

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Stress generally arises from the action of a stressor, which could be internal or external in bird. Stresses could originate from the environmental factors, like high or low temperature, managemental factors, disease and therapeutic or prophylactic treatment. An attempt is made to review the present situation on the stress and the role of hormones.

Hormonal Changes:

Adrenal cortical tissue is reported to increases in heart stress. Arad *et al.*, (1980) reported an increase in plasma corticostrerone levels in chikens after either 1 or 2 hours of heat stress. It is also demonstrated that in chickens having low adrenal response to adrenocorticotropin had increased the heat tolerance. The responses to stressors described as general adaptation syndrome (GAS) and classified the response into three stages:

Stage - I: Acute stress causes nervous stimulation of the adrenal medulle resulting in the release of the catecholamine adrenaline and noradrenaline which increase heart rate, respiration and elevation of blood glucose and body temperature level. This is manifested by the feather raising in birds which is generally a ransient stage and recovery occurs.

Stage – II: In this stage, the hypothalamic stimulation causes release of ACTH, resulting in the release of corticosterone, a gluco corticoid hormones, which is responsible for gluconeogenesis. It also stablises rybosomes within the cells, thereby cell damage and autolysis are reduced. Other effects of gluco-corticoids are reduced feed intake, lowered body temperature, lowered gonadal activity, reduced immune response and increased susceptibility to most viral diseases.

Stage – III: It is characterised by adrenal insufficiency, inspite of the adrenal hypertrophy, and the corticosterone produced in adequate to maintain life. It leads to a progressive deterioration and death. The general adaptation syndrome (GAS) hypothesis is supported by extensive evidence. However, it has been recently discovered that all puntative stresses do not elicit an adrenal response.

Role of Hormones:

A number of studies suggested that thyroid activity is affected by the environmental temperature and found lowest in warm seasons in chicken. The thyroid hormone metabolism is an important factor to respond during heat stress. The exogenous thyroid hormones shorten survival time during heat stress (Fox, 1980, May, 1982 and Bowen, *et al.*, 1984). The Tri-iodothyronine (T_3) is the principal metabolically active thyroid hormone in chicken and its reduction in heat production at 40°C and decrease in T_3 production is attributed reducing in feed intake. The response to a stressor need not involve increased adrenocortical activity alone (Williamson, *et al.*, 1989). The studies conducted by Sinurat *et al.* (1987) indicated that the plasma concentration of tetra-iodothyronine (T_4) increases and tri-iodothyronine (T_3) decreases in broillers during exposure to high temperature.

According to Donoghue *et al.* (1980), cirulating levels of luteinizing hormone (LH) were reduced in hens exposed to 24 hours of actue heat stress (35°C) as against with control hens, kept at 23°C.

Mechanism:

There is considerable evidence to show that the thyroid gland in birds deceased in size and

activity during high environmental temperature (Iqbal *et al.*, 1970) noticed a constant decease in plasma thyroxine (T_4) in great caturnix quails, subjected to warm environmental temperature. The plasma tri-iodothyronine (T3) concentration was significantly greater when exposes to a warm temperature.

The evidence of a direct relationship between thyroid function and heat tolerance in chickens was first reported by Bowen *et al.* (1984). Previously, Fox (1980) reported an increase in heat stress survival time in adult chickens treated with thioracil and a decrease in survival time in adult birds, treated with DI-thyroxine for three consequtitive days, May, *et al.*, (1986) found that broilers fed with T4 had shorter heat stress survival times than non-treated controls. A significant reduction in heat stress survival time was observed when T4 was injected 12,18, or 24 hours before heat stress but not 6 hours before. Tri-iodothronine (T_3) reduced heat stress survival time when administered 12-14 hours before the stress but not when given 6 hours before chickens made hypothyroid by radio-thyroidectomy had significantly longer heat stress survival times than controls. Likewise, chickens fed a diet containing 2% thioracil 10 days before heat stress at 28°C had significantly longer survival times than control birds.

The thermal polypnoea associated with heat stress in birds increases evaporative cooling but over ventilasation reduces arterial carbon dioxide partial pressure (PCO_2) and H^+ concentration, producing an acid-base disturbance termed as respiratory alkalosis (Recee *et al.*, 1972). Compensation for respiratory alkalosis involves bicarbonate excretion by the kidneys and increased production of lactate and other organic acids in response to elevated tissue pH (Beers, *et al.*, 1988).

The departures from normal acid-base balance, such as that occuring during heat stress, can affect normal growth and reproduction in mammals and birds (Marrison & Mc. Millan, 1986).

The chronic heat-stressed broilier chicks suffer from intermittent respiratory alkalosis during panting. With acute heat stress, chicks pant continuously and suffer from alkalosis. The blood pH is greater in heat-stressed panting birds (7.395) than non-panting (7.28) birds at 24°C. The acute thermostress elevating temperature from 32°C to 41°C over a period of 20 minutes further elevated blood pH 7.521 (Kampen, 1984).

Control Measures:

Reduction of the Heat Stress in Poultry (Broilers):

To reduce the effect of radiation of sunlight, the roof and side walls may be insulated. Water may be sprinkled over the roof, inside the pen as aerosol. The house may be constructed to facilitate adequate cross ventilation.

1. The birds are to be kept as calm as possible.
2. The birds are to be provided with an ample supply of cool water (birds will not drink water, hotter than air temperature). The water consumption of broilers is closely related to the environmental temperature, higher temperature was shown more consumption of water. During summer, providing cool drinking water, has been found to improve in feed intake, therefore, it is necessary to place the water tanks out of direct sunlight or shade may be provided and the water pipes may be insulated to prevent getting warm water for drinking.
3. The humidity factor is to be kept low to increase the ventilation in the house.

   To reduce the humidity in the house, the walls may be ventilated, wet litter may be prevented and the density may be reduced to about 10%. Reduced humidity will enable the broilers to dissipate more heat by resorting to panting.
4. During the day temperature, feeding of the birds is predicated to be lethal.

5. The intermittent light during feed at night is to be provided.

During summer, feeding of broilers invites more attention to maintain a maximum growth rate. Inspite of reduced feed intake, the broilers must continue to take adequate quantity of required nutrients. Broilers feed consumption depend on age, nutritional value of the feed and ambient temperature. High environmental temperatures cause heat stress, since the broilers are not able to dissipate all the heat they produce. Broiler heat production is regulated by different physiological functions such as body thermo-regulation, growth and activity. For all these activities, the broilers derive energy from the feed they take. Energy in the broiler feed is mainly used for broiler growth but as they grow, more of feed energy is diverted for body maintenance and activity i.e. day-old chick utilises about 70% of metabolizable energy (ME) of the feed for its growth and 30% for its maintenance and activity whereas broilers at 8 weeks use 60% for growth and 40% for maintenance and activity.

Broilers under heat stress have low metabolic as well as physical activity resulting in reduced feed consumption. Research has shown that broilers after 4 weeks of age housed in cool and moderate environment grow better than housed in hot environment i.e., 27°C or higher. High temperature increases respiration rate resulting in panting which also requires extra energy from the feed. Aged and heavier broilers are more sensitive to high temperature than young broilers.

6. Broiler feed consumption during ambient temperature can be promoted by feeding pellet or coarse mash. Frequency of feeding may be increase, especially, during night to encourage broilers to eat more. Each feeding stimulates, the broilers to take fresh feed and this has been found to increase body weight. The metabolizable energy (ME) content of the feed may be increased to about 2900 k cal so as to provide required energy for broilers due to reduced feed intake in hot weather.

7. Treatment:

Administering some anti-stress vitamins as Vitamin A and C, etc., has been found to alleviate heat stress in broilers to a great extent. Supplementing the 1% NH_4CI diet of the birds subjected to chronic heat stress with 0.5% $NaHCO_3$ increased weight gains, an additional 9% and manipulating sodium chloride increased body weight gain by 8% and slightly reduced severity of alkalosis in heat stressed broilers. The birds, fed with Nicarbazin medicated feeds, exhibit higher mortality during heat stress. Therefore, use of the coccidiostat, Nicarbazin should be restricted during periods of high environmental temperature.

Conclusion:

It must also be noted, estimating stress by hormonal profiling is potentially inaccurate, since hormonal levels are subjected to wide range of individual, diurnal, seasonal, cyclic, age related and sex influenced variations even in so called in normal birds.

It is important to be able to quantitatively measure or determine stress, as only an objective measure would enable us to prove the existence of stress in birds and more importantly, compared to the effects of different stressors and their damage potentials. Grading or classifying stressors according to their potential to cause harm or loss is more important to the livestock managers. Since stressors and stress are a part of life-individuals, continuously encounter stressors and adopt to them, though beyond a particular level they cannot adapt without undergoing harmful effects in their systemic make up and productive potential. It is the limit which needs to be determined for various stressors. Although variation exist, a clear cut of level can be computed based on economics of production. Another indicator could be the so-called stress proteins. These substances are released by animals when they are in stress. However, their exact role and Fox,

function await more detailed investigation. In conclusion, it may be inferred that our knowledge of stress as a concept is at best incomplete. The real progress in understanding stress can only be made when a reliable indicator must not only show that the bird is stressed but also the indicate the stressors capacity to cause economic loss. Until then, stress will remain more of a hypothesis or fantasy, rather a physiologic fact.

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" The watchman can see with a dark lantern (bull's-eye) everyone on whom he throws its rays, but no one can see him so long as he does not turn the light upon himself. So does God see everyone but no one sees Him until the Lord reveals Himself to him in His mercy."

- Sri Ramakrishna Paramhansa

" The survival of the fittest is the ageless law of nature, but the fittest are rarely the strong. The fittest are those endowed with the qualifications for adaptation, the ability to accept the inevitable and conform to the unavoidable, to harmonize the existing or changing conditions "

- Smalley

Antigenic Diversity of Bovine Group of Rotaviruses

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The rotaviruses are classified as genus *Rotavirus* under the family *Reoviridae* and are characterised by the presence of 11 double stranded (DS) RNA and a triple layered protein shell enclosing the genome (Estes & Cohen, 1989). The inner most protein layer consist of VP2 enclosing a few copies of protein VP1 and VP3 and the viral genome. The middle protein layer (inner capsid) is composed of the most abundant component of virion VP6 protein. Group specificity of the virus resides in the VP6 protein and based on it, rotaviruses were classified into seven groups (A through G). The outer most protein layer is composed of VP4 and VP7.

The group A rotavirus (ARV) is the major etiologic agents of acute non-bacterial gastro-enteritis of the young in a wide variety of many mammalian and avian species (Estes, 1996). For cattle alone the impact is great. Annual loses of approximately US$ 9.5 million are attributed to neonatal calf diarrhoea worldwide (Jindal *et al.*, 2000). Calf death rates due to neonatal calf diarrhoea range from 5% to more than 20% in the USA and economic costs in North America resulting from these deaths have been estimated to be at least $500 million annually (Conner *et al.*, 1994). Similarly in Germany, these viruses account for 40% of diarrhoeal diseases in calves during first three weeks of life (Otto, *et al.*, 1997).

Neutralization epitopes are present on the outer capsid proteins, namely VP7 encoded by gene segment 7, 8, or 9 (depending on the strain) and VP4 encoded by gene segment 4 (Estes, 1996). ARV is classified according to its combination of two kinds of serotypes, namely G (glycoprotein) serotype decided by VP7 antigenicity and P (protease-sensitive protein) serotype associated with VP4 antigenicity (Estes, 1996). The specificities of virus strains have been defined by the independent neutralizing activities of antibodies to outer capsid proteins VP7 and VP4, which characterize the G and P serotypes, respectively (Estes & Cohen 1989). Previously, serological assays, such as virus neutralization assay, or ELISAs with monoclonal antibodies, had been widely used for classification of G and P serotypes of rotavirus strains. Nevertheless, large-scale application of these methods is hampered by technical difficulties, including the availability of complete panel of monoclonal antibodies. Molecular methods that use type specific PCR primers (Isegawa *et al.*, 1993) have been shown to be a solution to disadvantages encountered by serological methods and, in recent years, have largely been used in G and P typing of rotaviruses worldwide and the types identified by those methods were termed as G and P genotypes. The G genotypes are numbered dependently from G serotypes. On the other hand, the P genotypes were numbered independently from P serotypes. Thus, a P serotype is denoted by an open number and genotype is indicated by closed brackets (Estes, 1996).

Determination of serotype specificity is important for both epidemiological study as well as for development of efficacious rotavirus vaccine. The existence of multiple serotypes and genetic reassortment among rotavirus strains has raised several important questions about the antigenic diversity of clinical significance. For vaccine strategy, it has become important to know: (1) what is the countrywide and yearly distribution of these serotypes, (2) whether

these serotypes are antigenically stable, (3) whether differences in age- specific attack rates or clinical outcome of infections with specific serotypes exist, (4) what is the host range of different serotypes of the viruses and (5) whether cross protective immunity among different serogroups exist or not.

The distribution of the G and P types of ARV has been frequently investigated throughout the world. On the basis of G types, at least 15 G and 21 P genotypes of group A rotaviruses have been described in humans and animals (Das, *et al.,* 2002). At present, at least 8 G (G1 – G3, G6-G8, G10, G11) and 3 P (P [1], P [5], P [11]) types have been reported among bovine rotavirus (BRV) strains with G6, G10, P [5] and P [11] predominating (Hussein, *et al.,* 1993).

Few workers from UK used a monoclonal antibody based (Mab)-based ELISA for G typing and reported that 66% of isolates were G6, while as only 7.4 % were G10. (Snodgrass 1990, personal communication) Parwani *et al.* (1993) used PCR-generated G type specific cDNA probes and reported that 36.3 % of bovine rotavirus strains tested were G6 and 19.8 % were G10. Lucchelli *et al.* (1994) from USA also used a Mab-based ELISA and demonstrated that 54 % were G6 and only 14 % were G10. Hurtado *et al.* (1995) analysed 159 bovine group A rotavirus strains using G1, G2 and G3 Mabs and confirmed the presence of G1, G2 and G3 serotypes i.e other than G6 and G10 serotypes in bovine population in North America. Chang *et al.* (1996) subjected, 86 bovine rotavirus strains collected from 5 states of USA, to G and P typing by PCR and restriction fragment length polymorphism (RFLP). G6P [5] was most prevalent and accounted for 46.7% of the samples, 12.8% were G10P [11], 7% were G10P [5] and an equal number were G6Sp [11]. For VP7, four RFLP profiles were observed: designated as G6, G6s, G8 and G10, while as for VP4, three RFLP profiles were observed: designated as P [1], P [5] and P [11].

Fukai *et al.* (1998) studied distribution of g serotypes and P genotypes of bovine group A rotavirus strains in Japan. Most prevalent combination of G and P types were G6P [5] (89.3%), G6P [11] (7.1%) and G10P [11] (3.6%). Fukai *et al.* (1999) provided evidence that G8 bovine group A rotaviruses was the most predominant serotype in calves between 1995 - 96 in Japan.

In Italy, Falcone *et al.* (1999) analysed 149 rotavirus strains from diarrhoeic calves for G and P types by nested PCR. Various combinations of G and P genotypes were observed, the most frequent being G6P [5] (38.3%), G10P [11](31.5%) and G6P [11] (15.4%).

Again, Fukai *et al.* (2002) reported dramatic shift of the most predominant type during 1997 -1998 when G6P [5] was most common in Japan, and suggested that serotypes prevailing in certain areas change periodically.

In India, though the occurrence of bovine rotavirus (BRV) related diarrhoea has been well documented but there is meagre reports available about the distribution of G and P type. Four of the Indian isolates were typed by Dr. Osamu Nakagomi. Three of these isolates belonged to G10 P8 [11] and one isolate was typed as G6P6 [1] (personal communication). Gulati et al (1999) typed 36 rotavirus positive faecal samples from buffalo and cow calves under 1 month of age to find the relative frequencies of G and P types of Indian bovine rotaviruses. As to G types, G10 was predominant (83%), followed by G6 (6%). The majority (94%) BRVS has P8 [11] and only one isolate possessed P6 [1]. The most common combination of G & P types was G10P8 [11] (81%) followed by G6P [1] (3%) and G6P8 [11] (3%). The high prevalence of BRVs possessing P8 [11] VP4s strongly supported the hypothesis that BRVs may cross the host species barrier to human neonates as there is high prevalence of this P type in Indian human neonates and infants. The interpretation of this study is limited to by small sample size and sample collection in restricted regions of India. Very recently, Wani et al. 2004 typed some of the

BRVs as G10. Information about G and P typing of animal rotaviruses circulating in India is lacking due to the lack of reagents to do so.

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" Can religion really accomplish anything ? It can.
It brings to man eternal life. It has made man what he is and
will make of this human animal, a God. That is what religion can do.
The ideal of all religions, all sects, is the same - the attaining of liberty, the cessation of mistery"

- Swami Vivekananda

Utilization of Some Commonly Available Medicinal Herbs by Small Ruminants Grazing in Saline Region of West Bengal

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Abstract:

Consumption of some known medicinal plants by Garole sheep along side their normal forage has been discussed in this article. The medicinal plants preferred by the sheep are known to possess diuretic, carminative and anti-microbial / antibacterial property.

Introduction:

The Garole is a breed of microsheep renowned for its prolificacy and its ability to tolerate most of the endo-parasites, eg., liver flukes (*Fasiola* sp.), nematode's (*Ascaris* sp.), etc. They are also highly resistant to foot rot and fleece rot (Banerjee & Banerjee, 2000). The present study was under taken to observe consumption of commonly available medicinal hearts by small ruminanty, grazing in the saline region of West Bengal *vis-a-vis* studies on their health during the grazing period.

Method and Materials:

A flock of Garole sheep belonging to both the sexes were allowed to graze in plots containing both medicinal and aromatic plants. These medicinal plants are being cultivated at the research farm of Indian Society of Bio-sciences and Environment (Eastern regional Station) situated within the premises of Bio-dervise farming Pvt. Ltd., Vill- Tona, and 24 Parganas (South). The sheep were allowed to graze through all the plots the day around. The farm contains about 60 varieties of medicinal and 6 aromatic plants; cultivated in separate plots. Observations on the grazing behaviour of the sheep were carried out five times a day for a period of at least, fifteen minutes per cycle it was ensured that the animals are not disturbed while grazing. The number of plants consumed per square meter area accessed the quantity of medicinal herbs grazed.

Results and Discussion

The plants cultivated at the farm are also widely available at Sunderban region of West Bengal. The medicinal preferred by the sheep are presented in the Table.

The medicinal plant, *Phyllanthus niruri* was mostly preferred and is known as curative for stomach ache (colic), diarrhoea dysentery and several urino-genital disorders. (Thakur *et al.*, 1989, Umrao Singh *et al.*, 1990 and Kumar *et al.*, 2000). The incidences of gastro-intestinal disorders increased significantly during the monsoon months in West Bengal, which is primarily due to poor sanitary conditions, prevailing in the villages (Shyamsunder *et al.*, 1985). The Plant, *Phyllanthus niruri* also possesses anti-hepatotoxic activities. The other medicinal plants, *Boerhaavia diffusa* and *Acalypha indica* were preferred next. *The Boerhaavia diffusa* possesses diuretic properties and also helpful in arresting various pulmonary disorders (Thakur *et al.*,1989 and Umrao Singh *et al.*, 1990). The *Acalypha indica* plant is known to possess curative properties against various pulmonary disorders and even rheumatism (Umrao Singh *et al.*, 1990). The saline coastal region of the state forced these animals to drink salty water almost all the year round. Therefore, it is expected that the vegetation on which the animals are grazing too have a high average salt content. In order to get rid of the excess water retention (due to excess salt consumed by these animals), the medicinal plants with diuretic property may be of immense help.

Table: Showing the observation on the medicinal plants preferred by the Garole sheep during grazing

Sl. No.	Scientific name of the Medicinal Plants	Local Common name	Intensity of grazing Preference
1.	*Terminalia chebula*	Harara	+++
2.	*Terminalia bellirica*	Bahera	+++
3.	*Boerhaavia diffusa*	Punarnava	++++
4.	*Phyllanthus niruri*	Jaramla	+++++
5.	*Rauvolfia serpentina*	Sarpgandha	++
6.	*Withania somnifera*	Asgand	+++
7.	*Acalypha indica*	Khokali	++++
8.	*Sida cordifolia*	Kungyi	+++
9.	*Hygrophila auriculata*	Talmakhana	+++

The hot and humid climate of West Bengal makes the animals wet throughout the day, especially during the long monsoon months. Pulmonary disorders too are common due to poorly ventilated and damp housing of the animals. The plants, *Terminalia chebula* are known to possess laxative, stomach ache and purgative properties. The other one, *Terminalia bellirica* possess purgative properties, and the plant is a curative agent against non-specific diarrohea and dropsy while the fruits of this plant have anti-microbial activity against a wide variety of micro-organisms. (Thakur *et al.,* 1984 and Umrao Singh *et al.,* 1990). The plants of *Withania somnifera* are known to possess narcotic properties and are said to cure weakness, rheumatism and also possess diuretic property and thus, promote urination. There are plants reported to possess antimicrobial properties too, (Thakur *et al.,* 1989 and Umrao Singh *et al.,* 1990). The sheep also consume adequate amount of *Hygrophila auriculata.* The plants (leaves, seeds & roots) are used as diuretic and also for the treatment of jaundice, dropsy, rheumatism and diseases of urino-genital tract.

The plants of *Seda cordifolia* possess laxative properties and are used in bowel complaints, (Umrao Singh *et al.,* 1990). *Rauvolfia serpentina* plants are consumed but are least preferred (of all the plants consumed) and the sheep preferred only the small tender plants. These tender plants are said to possess cure against fever and colic. (Umrao Singh *et al.,* 1990).

From the above observations, the following inference can be drawn -

a) Plants, known to possess diuretic property, are preferred by the sheep, which might be beneficial to get rid off the excess water retained due to saline conditions prevailing in the Sunderban area.

b) Plants are also preferred, known to cure pulmonary disorders, various gastro-intestinal disorders and have carminative properties and antimicrobial properties.

It is here may be concluded that the cultivation of the above plants alongside pasture grasses may be helpful in keeping the sheep healthy the year round both in commercial and research establishments. This will also help in rearing of animals under zero-chemical / organic farming systems.

Acknowledgement:

Help rendered by the Director, Indian Society of Bio-sciences and Environment (Eastern region) and the Directors of Bio-diverse Farming Pvt. Ltd. are duly acknowledged.

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" The efficient person will always be asking and responding to such questions as: Is this necessary ? How can this be improved ? Need this be done this way ? How can this waste be avoided or used ? Is there an alternative method, route, material or process ?"

- Robert J. Lumsden

" To have a purpose that is worth while, and that is steadily being accomplished, that is one of the secrets of a life that is worth the living."

- Herbert Casson

" Ordinary human love results in misery,
Love for God brings in blessedness."

- The Holy Mother, Saradamani

" Declare war on all negative feelings, attitudes and expressions. Think and speak only of that which you wish to experience. You can never expect to express health if you constantly think of sickness."

- Victor Diamond

Efficacy of Fenbendazole (Panacur® 2.5% Suspension) Against Ascariasis in Rural Buffalo Calves of Gujarat State

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Abstract:
Panacur® 2.5% suspension (from Intervet) was administered orally to 60 buffalo-calves of below six months of age and of either sex. The drug was given orally once at the dose rate of 7.5mg/kg body weight. The qualitative and quantitative aspect of the drug in relation to parasitic load was studied in this study. The drug Fenbendazole (**Panacur®** 2.5% from Intervet) was found effective in eliminating the parasites on the 9th day with complete clinical recovery.

Introduction:
The impact of helminthiasis posses a great threat to calf survivability, livestock production and causes heavy economic loss in India. In a tropical country like India, ascariasis have been focused as a major factor to cause heavy losses in dairy buffalo-calves (Soulsby, 1986). Several compounds have been tried clinically to control ascariasis in buffalo-calves (Robert, 1992). In the present study, the effect of fenbendazol (**Panacur®**from Intervet) is discussed and presented.

Materials and Methods:
A total of 120 buffalo-calves, surveyed from the rural areas of Gujarat state, were having a history of off feed, poor growth rate and passing of loose faeces. The buffalo-calves were examined clinically as well as the faecal samples were examined microscopically for estimating the worm burden as per standard techniques as described by Soulsby (1986).
Out of these buffalo-calves, 60 animals were found positive for *Neoscaris vitulorum* (ascaries) ova microscopically. These animals to prevent recontamination of the environment by treating were selected for the present study. Fenbebdazole (**Panacur®** 2.5% oral solution from Intervet) was given at the dose rate of 7.5-mg/kg body weight, orally to all the buffalo-calves on the 16th day after birth. Faecal samples were examined for the presence of parasitic ova and faecal egg count.

Results and Discussion:
Anthelmintic efficacy was estimated on the basis of reduction of the faecal egg count on the 1st, 3rd., 6th and 9th post-treatment days, which revealed no parasitic ova with **Panacur®** 2.5% suspension treatment. The average reduction in egg count revealed no ova on microscopical examination on the 1st, 3rd, 6th and 9th post-treatment days.
Several anthelmintic dosage schedules including Fenbendazole have been administered for treating mature Ascardia infestation (Dev *et al.*, 1994 and Anwar *et al.*, 1996). The short duration of the transmission of larvae from the mother to calve makes it possible to effectively eliminate infection to prevent recontamination of the environment by treating immature parasites (Roberts, 1993). It is, therefore, advisable to use **Panacur®** 2.5% suspension in second week i.e. on the 16th day after birth with no adverse effect. The general condition of treated animals improved with gaining weight gradually after treatment.

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Evaluation of Taktic® and Herbal Medicines for the Treatment of Canine Demodicosis

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Abstract:

The efficacy of **Taktic®** (from Intervet) in combination with herbal medicine Erina (antibacterial, antidandruff and antipruritic) and Immunol (an immuno-modulator) were evaluated against canine demodicosis. **Taktic®** and Erina showed complete recovery by thirty five days, but **Taktic®**, Erina and Immunol combination therapy showed better efficacy in terms of earlier recovery and absence of recurrence.

Introduction:

Demodectic mange is a constant problem in canine, causing severe dermatitis and pruritis manifested by itching. In case of prolonged illness, the dog becomes emaciated and may die due to cachexia. Various drugs were tried in the treatment of this condition with encouraging results, but the affected dogs get reinfested, even after clinical cure as the demodectic mites (*Demodex* spp.) are part of normal fauna of the skin (Chatterjee, 1989). On the other hand, there are ample chances of development of insecticidal resistance (Nolan, 1987). Information on individual efficacy of Amitraz among dog is available (Roy *et al.*, 2000). Considering importance of demodecosis in canines, an attempt has been made to ascertain the efficacy and safety of **Taktic®** (12.5% amitraz, emmulsified concentration from Intervet) as well as the herbal medicine Immunol and Erina as combination therapy against both generalized and localized demodecosis in dogs.

Materials and Methods:

For this study, a total of twenty six dogs of different breeds and ages of both sexes suffering from localized (16) and generalized (10) demodecosis were selected. The demodectic mange was diagnosed clinically and confirmed by microscopically by skin scraping examination. The twenty six dogs were divided at random into three groups namely, A (10 dogs), B (10 dogs) and C (6 dogs). The dogs of group A, having 10 dogs (6 localized and 4 generalized) were treated topically with **Taktic®** (from Intervet) at the dose rate of 4ml/liter of water at weekly interval, till complete recovery. Before application of **Taktic®**, a hair cleanser (Erina) was applied at the dose rate of 15 ml in 30 ml water over the coat and washed with water after 5 minutes. The Dogs of group B, having 10 dogs (6 localized and 4 generalized) were treated with **Taktic®** and Erina and Immunol. The **Taktic®** and Erina were given at the same dose rate of Group A schedule. The Immunol was prescribed one tablet twice daily till complete recovery. The dogs of Group C (generalized 4 and localized 2) served as untreated control which were later (on completion of the trial) treated successfully with **Taktic®**, Erina and Immunol as per group B dose schedule. The response of the treatment was evaluated on the basis of clinical improvement and disappearance of mites on the skin by scrapings, progressive healing of lesions and regrowth of hairs, which were studied before and after the treatment. All the experimental animals of group A and B were observed regularly at weekly interval for 12 weeks and were examined clinically and microscopically to assess the effects of the drug and any side effects in comparison to control group C (6 dogs) without any topical treatment.

Results and Discussion:

The animals of group A and B did not show

appreciable improvement clinically even after 2 weeks of treatment. There was a progressive decrease in the number of mites, found in the scrapings from day 14 onwords in both the treated groups. In the dogs of group A, improvement in the appearance of lesions was observed and there was marked reduction of pyoderma and keratinisation but the complete recovery was noticed on the 35 days post-treatment. The dogs of group B showed complete recovery on the day 28 with complete healing of the lesion. There was considerable hair growth almost the entire body. The skin became glossy and regained normal colour. All the dogs of group C did not show any tendency of clinical improvement and the lesions remained as it is active throughout. After six months of observations, recurrence was observed in one dog of group A, while it was absent in all dogs of group B. Roy *et al.* (2000) treated cases of localized and generalized demodicosis with amitraz (**Taktic®**) which is having miticidal effect against *Demodex canis.* Erina containing *Azadirachta India and Anelthum sowa* possessed to have a good anti-bacterial, anti-dandruff and anti-pruritic effects in cases where secondary bacterial infection leads to pus formation.

In group B dogs, no recurrence was observed as immunol containing *Tinospora cordifolia, Withania somnifera* and *Asparagus racemosus* potentiates immune status and help in faster recovery (Chandrapuria & Bhargava, 1991). No adverse drug reaction was noticed during this experiment. In the present study, **Taktic®**. Erina and Immunol showed better efficacy.

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"As wet wood put on a furnace, loses its moisture gradually, so the mositure of worldliness dries away of itself from the man who has taken refuge in God and repeats His holy name. He who intends to think of God, after his attachment to things has ceased, will never be able to do so; for that time will never come"

- Sri Ramakrishna Paramahansa

"Every thing depends upon one's mind. Nothing can be achieved without purity of mind. It is said, "The aspirant might have received the grace of the Guru, the Lord and His devotees ; but he comes to grief without the grace of 'one'. That 'one' is the mind. The mind of the aspirant must be gracious to him."

- Swami Vivekananda

Aural Haematoma in Canines : A Comparative Study with Different Techniques

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Abstract :

Aural haematoma is being oftenly encountered disease condition in canines. The present trial is the comparative studies of different techniques, which have been advocated for its repairment. A total of 27 cases were divided into three groups. The homeopathy drugs were utilized for the treatment of animals in Group A, while Group B was treated with surgical technique and the Group C was treated with allopathic drugs. It was observed that the treatment with allopathic medicine is most suitable to cure aural haematoma in dogs.

Introduction :

Aural haematoma is frequently encountered problem in the canines. Wilson (1983), Narwade & Diwan (1992), Sobti *et al.,* (1994), Reddy *et al.,*(1992) and Aithal *et al.,* (2000) had tried different techniques earlier to make this problem cured. Among these different techniques, the present trial was attempted to explore and ensure the most suitable technique in the treatment of aural haematoma.

Material and Methods :

This study has been carried by three established techniques i.e. by homeopathy,by surgical and by alopathic treatments. A total of 27 cases reported sofar, in the clinic, 10 cases were tried with homeopathy drugs (Group A), 10 cases were tried by surgical technique (Group B) and the 7 cases were treated with allopathic drugs (Group C). i.e. combination of injections of Dexamethasone and Gentamycin.

In the homeopathy trial (Group A) all the animals were treated with Hammalis, Bufo and Arnica with the potency of 30 X at the dose rate of six globules of each drug were mixed and used thrice in a day till the disappearance of swelling. Approximately , it took 3 weeks to cure the problems.

In Group B animals, the surgical technique was employed under general anaesthesia with the drug thiopentone sodium at the dose rate of 20 mg / kg. body weight, with all necessary aseptic precautions.

A longitudinal incision, followed on the concave surface of the affected ear. Fluid was drained out and the space between cartilage and skin was washed with solution. Wounds were dressed regularly upto fifth post-operative day. A combination of amoxycillin and cloxacillin were used. Removed the suture on the 12th post-operative day and the wound was dressed till healing.

In the Group C animals, the aural haematoma was drained with the help of sterile 16 gauge hypodermic needle. The puncture was made on the concave surface of the ear. The cavity was throughly washed with normal saline so that clots and debris are removed from the affected ear. A combination of the injections of Dexametamicine (0.25mg per kg body weight) and Gentamycin (1mg/kg body weight) was administered into the cavity through the same puncture route by the needle. The solution was spread up by gentle manage. The pinna was left free and no pressure bandage was applied as suggest by Aithal *et al.,* (2000) and the animals were cured within 7-10 days.

Results and Discussion :

The three groups were compared for its different techniques and time period for the treatment of aural haematoma. The technique of alopathic treatment which was suggested by Aithal *et al.,* (2000), proved to be most suitable and practicable.The group C treatment was less expensive. Dogs were come to normalcy in a very short span (7-10days) of treatment compered to lengthy time (approximately three weeks) of Group A & B, respectively. No abnormalities with structure of pinna was noticed.

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"You cannot get butter by crying yourself hoarse, 'There is butter in the milk'! If you wish to make butter, you must turn the milk into curds, and churn it well. Then alone you can get butter. So if you long to see God, practice spiritual exercise"

- Sri Ramakrishna Paramhansa

Case Report - Homeopathic Treatment of Multiple Oral Papilloma in a Dog

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Abstract :

Successful treatment of canine multiple oral Papillomatosis with Thuja 200 C- a homeopathic drug - is reported.

Introduction :

Papillomatosis is generally caused by virus species all over the world. This disease has been reported in all most all animals (Radostitis, 1995). The oral papillomas are common in dogs and are esthetically unattractive because of its persistent halitosis. This paper reports the homeopathic treatment of oral papillomatosis in a dog.

Case History :

About two years old spitz female dog was presented with the history of growth in oral commisures and palate, gradual reduction in condition, body weight and appetite for about three months and now mostly on liquid diet.

Examination of oral cavity revealed, halitosis, multiple nodular pedunculated cauliflower like growth in oral commisures, upper palate, pharynx found to be almost closing the pharyngeal canal. The extension of growth in the oral cavity limited the surgical attempt.

Treatment :

The dog was orally administered daily with 20 drops of Thuja 200 C and complete disappearance of papilloma was noticed after 30 days. The condition of the dog was found to be improved tremendously. There was no recurrence even after 21 months.

Discussion :

Usually surgical removal of one or two warts are recommended at a time. On the other hand, surgical intervention and vaccination may increase the size of residual warts and prolong the course of the disease (Veena, 2001). Previous workers (Medrewar, 1996 and Veena, 2001) reported good efficacy of homeopathy drug in papillomatosis cases in cattle. In the present case, Thuja 200 C was found to be effective in dog.

Acknowledgement :

The author thanks Dr. J.V. Krishnamoorthy, Director, Department of Veterinary services, Tamilnadu for the facility provided and Dr. E. Madan Mohan, Kollipara, Andra Pradesh for providing the various literatures on veterinary homeopathy medicines.

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Case Report: Generalised Sub-cutaneous Emphysema in a Cow

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Abstract:

A generalised sub-cutaneous emphysema, following trocarization of rumen in a cow, a rare case of occurrence, is put on record through this paper.

Introduction:

The sub-cutaneous emphysema is a common complication of punctured wounds of the respiratory tract, axilla and groin (O'Connor, 1985). It may also arise as a result of emergency trocarization of the rumen (Horney, 1984).

Case History:

A six-year old crossbred jersey cow, suffering from bloat for past 24 hours, was brought for the treatment. There was a history of needle puncture in left para-lumbar fossa to evacuate the rumen gases. However, it did not relieve the tympany and got aggravated.

On clinical examination, the animal was found anxious and restless. The heart rate and respiratory rate was increased. There was soft painless and crepitant swelling over the entire body surface, except head, neck and appendages. The further examination revealed a punctured wound in the center of the left para-lumbar fossa. The left para-lumbar fossa was highly distended. On application of slight pressure on the left para-lumbar fossa could force expulsion of gases through the punctured wound. Hence, a case of generalised sub-cutaneous emphysema due to sub-cutaneous infiltration of ruminal gases was diagnosed. Since the bloat had not responded to the conventional therapy, it was suspected a presence of foreign body in the rumen. Therefore, it was decided to undertake the exploratory laparo-rumenotomy.

Under para-vertebral nerve block, the cutaneous wound in the left flank was enlarged dorso-ventrally. Abdominal wall was compressed to force out sub-cutaneously infiltrated ruminal gases through the enlarged wound. Rumenotomy was performed as per standard procedure (Oehme & Prier, 1974). On opening the rumen, numerous bales of inter-woven plastic ropes were recovered from rumeno- reticulum. Post-operatively, the animal was given antibiotic cover and pain killers for five days. Dressing of the wound was done on the alternate days with tincture iodine. The sutures were removed on the 10th day post-operation. Animal recovered uneventfully.

Discussion:

Plastic ropes due to churning motions of the rumen are made into bales (Singh & Sobti, 1998). These bales in the present case hampered the eructation of gases by obstructing the cardia and the reticulo-omasal orifice resulting into bloat formation, thus confirming the findings of Rao *et al* (2001). Surgery was resorted immediately to avoid mortality as has been advocated by Singh & Sobti (1998). Sub-cutaneous infiltration of the ruminal gases did not produce any adverse affects, as these gases are sterile (Chakrabarti, 1994).

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Case Report: Surgical Treatment of Haematocele in a Bullock

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Abstract:

The term haematocele is generally indicated an accumulation of blood tinged fluid into the layers of tunica vaginalis, resulted in the progressive increase of shape of the scrotum. It was the cause of lower working capacity in a bullock. The present paper describes an incidence of haematocele and its successful surgical treatment in a bullock.

Introduction:

Haematocele is the condition where non-inflammatory blood tinged fluid collects into the layers of tunica vaginalis (O'Connor, 1930). The collected fluid could not be reabsorbed. It might have caused an atrophy of the testicle in the result of pressure exerted by the fluid (Venugopalan, 1999). The present case dealt with the same, which was an evident of discomfort and was also a hurdle for the normal working capacity. While considering its importance, the surgical management of the same has been taken into note.

History:

A bullock of four years of age was presented to the Nagpur Municipal Corporation Veterinary Dispensary, Mahal, Nagpur. The owner of the bullock informed that since purchase, a couple of months ago, the shape of the scrotum was continuously increasing (Fig.1). The case was diagnosed as bilateral haematocele. While working in the field, due to haematocele the bullock had limited working capacity. As the bullock was not for breeding purpose, surgical removal of the testicles was preferred by the owner.

Surgical Treatment:

The animal was prevented from taking food and water for eighteen hours before the operation. Aseptically the site for surgical intervention was prepared. The animal was sedated with the injection of Xylazine hydrochloride. Transverse skin incision of sufficient length made over the neck of the scrotum and took out the testicles from the scrotal pouch. Blood tinged non-were

Fig.1. Showing increased shape of Scrotum

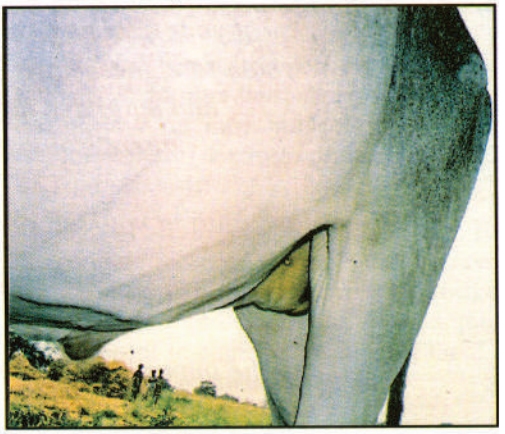

Fig.2. Showing healed and corroded haematocele in a bullock

inflammatory fluid was released from the tunica vaginalis. The spermatic cord was separated, lighted and was cut. Spermatic vessels and the vas deferens were separated, cut and knot with each other. The tunica vaginalis was severed possibly from the removal of another testicle. The skin incision of the scrotum was closed with all aseptic precautions and the course of antibiotics and anti-inflammatory drugs were advised for six post-operative days.

Results and Discussions:

Aspiration and administration of an irritants into the cavity, where the fluid accumulates, may be one of the treatments of haematocele. To expand the possibilities of recurrence of haematocele, removal of testicles and the tunica vaginalis was attempted in the present report, which was also suggested by Venugopalan (1999). The bullock was given cefataxime at the dose rate of 3g bid for six days. The sutures were removed on the seventh day. The wound was found completely healed (Fig. 2)

In regard to the etiology of the haematocele, various factors such as testicular disease or interference with venous drainage (Singh, 1985) and chronic inflammation of tunica vaginalis reported earlier (Mouli, 1989). In temperate climatic condition, most human cases of hydrocele have produced a relation with infection, tumors of trauma (Shore *et al.,* 1995). In the present findings, bilateral haematocele might be attributed to the previously attempted faulty castration which is in agreement with the findings of Singh & Singh (1999).

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"If you have faith in the three hundred and thirty millions of your mytholigical Gods, and is all Gods which foreigners have introduced into your midst and still have no faith in yourselves, there is no salvation for you.

Have faith in yourselves and stand up for that faith "

- Swami Vivekananda

" Even the impossible becomes possible through devotion"

- The Holy Mother, Saradamani

Case Report: Canine Ehrlichiosis and its Treatment with Doxycycline

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Abstract:

A case of canine ehrlichiosis successfully treated with doxycycline is reported. The clinical signs observed have been discussed in relation to diagnosis of possible zoonotic agents. The complete treatment regimen and associated response is presented in the present article.

Introduction:

Canine ehrlichiosis is a tick bome infections disease caused by the rickettsial organism *Ehrlichieae*. The *Ehrlichieae* are obligate intra-cellular organisms which infect leukocytes of specific mammalian host (Smitha, 2002). In India, the brown dog tick, *Rhipicephalus singuineus* acts as mechanical vector and is ubiquitous irrespective of age and breed of host and climatic variation. Hence, propagation of *Rickettisia sp.* from infected to clean dog is rapid and prevalence is increasing with time (Mallapur, 2002)

The most common clinical symptoms in canine ehrlichosis are lymphadenopathy, vommition, pyrexia, anorexia, congested mucus membrane, epistaxis, diarrhoea, petechiae and ecchymosis and tick infection (Chandrasekar *et al., 2002).* The present article refers to therapeutic uses of doxycycline against canine ehrlichiosis.

History and Clinical Examination:

A male German shepherd dog, aged three years, was brought in the 'Dog Health Clinic' with a history of sudden illness, inappetance and vommition for last three days. The other clinical signs were congested mucous membrane, lethargy, pyrexia and coughing. The temperature was recorded 105^0 F. The dog was heavily infested with ticks, mainly with *Rhipicephalus sanguineus.*

Treatment:

The dog was treated symptomatically with the intra-muscular injections of 2 ml of **Vetalgin®** (from Intervet), 2ml of **Avil®** (from Intervet), and ampicillin & cloxacillin combination at the dose rate of 20 mg/kg body weight. The dog showed temporary relief of vomition on the 2nd day post-treatment but continued to be lethargic with congested mucous membrane, coughing and total aversion to food along with hyperpyrexia.

The decision to examine the peripherial blood smear was taken for the possibility of haemo-protozoa babesiosis, which quite prevalent in dogs in Nagpur. The peripheral blood smear was examined after staining with Giemsa and revealed the presence of *Ehrlichia canis* in monocytes and lymphocytes.

The dog was prescribed with doxycycline at the dose rate of 100 mg bid at an interval of 2 hours before and after meal. The present treatment was supported with the injection **Vetalgin®** (from Intervet) at the dose rate of 2ml intra-muscularly, injection **Avil®** (from Intervet) 2 ml intra-muscularly and injection Perinorm 2 ml intra-muscularly after the administration of dextrose normal saline of 200 ml intra-venously.

The animal became normal on the 3rd day. The temperature recorded 101.6^0 F and observed normal intake of feed with pinkish conjunctiva. Administration of doxycycline showed quick improvement in clinical condition of the dog and advised to continue for 10 days.

Results and Discussion:

The clinical signs exhibited as congested mucous membrane, lethargy, pyrexia, coughing

and inappetance in the present case were similar to the findings, observed by Thriunavukkarasu *et al.* (1994) in 64 dogs belonging to Madras city and Chandrasekhar *et al.* (2002) in 720 dogs in Chennai but diarrhoea and epistaxis were not seen in the present case.

The efficacy of doxycycline for the treatment of *Ehrlichia canis* have also reported by Tarello (2003) who described some unusual symptoms such as pyoderma intertigo, erythemia, apparent blindness and oral papillomatosis.

Acknowledgement:

The authors acknowledge the co-operation rendered by the parasitology department of the department of Veterinary Parasitology, Nagpur Veterinary College, Nagpur for diagnosis of Ehrlichiosis.

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" When you go to bed at night, have your pillow for three things - Love, Hope and Forgiveness. And you will be awaken in the morning with a song in your heart "

- Victor Hugo

"If you seek your own salvation, you will go to hell. It is the salvation of others that you must seek : and even if you have to go hell in working for others, that is worth more in working for others, that is worth more than to gain heaven by seeking your own salvation."

- Swami Vivekananda

"All happy families resemble one another :
every unhappy family in its own way"

- Tolstoy

"Clever men are good, but they are not the best"

- Carlyle

Case Report: Airgun Pellet Injury in a Dog

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Abstract:

A case of airgun pellet injury and its surgical removal in a dog is reported.

Introduction:

Gun shot injuries in animals are rare but not uncommon due to accidental or malicious shooting of dogs and cause extensive tissue destruction accompanied by hemorrhage (Vatistas *et al.*, 1995). Very often people aim airguns at domestic pets in order to scare them away without intending to do any damage. The present paper communicates a case of airgun pellet injury and its surgical management in a dog.

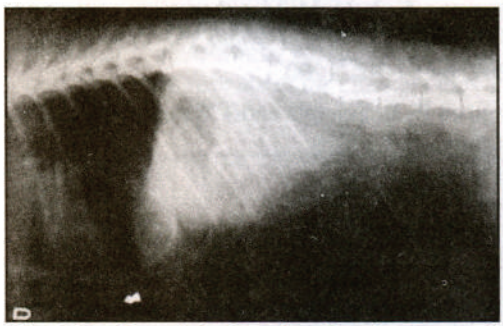

Fig. 1 Radiograph showing the airgun pellet in the thoracic cavity

Case History and Treatment:

A male pomeranian dog, aged 2 years was presented to the veterinary polyclinic, Madurai, Tamilnadu with a history of having been multiple shots accidentally, 24 hours before with an airgun by a small boy while playing. The animal was in pain with swollen right hind-leg. Clinical examination of the animal revealed pain in the right mid lower chest wall and right caudal thigh region. A possible airgun pellet could be felt in the deeper tissues of the right mid lower chest wall on palpation. Painful swellings at the site of injuries were noticed and blood tinged fluid was oozing out. Radiographs of the thoracic cavity (Fig.1) and right hind-limb (Fig.2) were taken to assess the extent of penetration and the location of the airgun pellets. The radiographs showed no damage of bones and confirmed the presence of the airgun in the muscles, lateral to the costo-chondrial junction of the 9th rib in the right side and caudal thigh region (Figs. 1 and 2). The area from the mid thoracic region to the costo-chondrial junction and the right caudal thigh region were shaved and the dog was prepared for aseptic surgery. After shaving, the entry points of airgun pellets

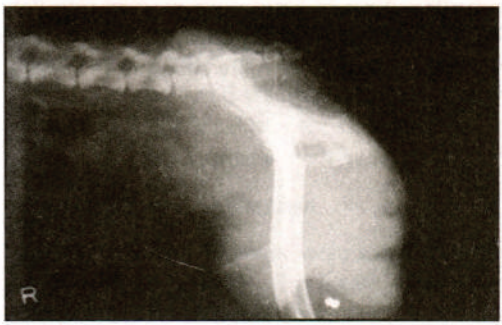

Fig. 2 Radiograph showing the airgun pellet in the right hind-limb.

were appreciated as discrete round holes. Under general anaesthesia with Diazepam, Xylazine and Ketamine anaesthetic combination, small stab incisions on the skin at the point of entries of airgun pellets were made and the airgun pellets embedded in the muscles were removed by separating the muscles carefully. The point of entries of the pellets were cauterized with tincture iodine.

* Veterinary Polyclinic, Madurai, TN

The muscles were sutured with simple interrupted sutures using No: 1/0 chromic catgut and the skin was approximated with simple interrupted sutures using No: 1/0 black braided silk. Post-operatively the animal was given 250 mg of ampicillin and cloxacillin intra-muscularly twice daily for 5 days along with alternate day wound dressing. Skin sutures were removed on the 8th day and there was complete healing of the wound.

Discussion:

Gun shot injuries are usually accompanied by dispersal of tissue debris leading to cavitation (Cooper & Ryan, 1990). The quantity of skeletal muscle that requires excision to extract the embedded pellets may be too much, as it has been observed that areas surrounding the gun shot injury are contused and devitalized (Payne *et al.*, 1993). George *et al.* (2000) reported apparently normal and clinically stable dog after gun shot injury with pellets of gypsy's gun since none of them were entered into the deeper structures. Stiff tissues, such as muscle and bone, can protect more susceptible tissues from injury.

The resulting tissue displacements can be much larger if the bones were not there (Janzon *et al,* 1988). In the present case, the animal appeared clinically stable after injury since the damage to the tissues was not severe enough as the dog was struck by low- powered airgun pellets and the animal seemed to have been shot at from a distance, wherein the velocity of the pellet was not sufficient to penetrate the thoracic cavity and the ribs also had done their job well preventing the pellet penetrating into the chest cavity.

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"Through these spiritual disciplines the ties of past 'Karma' are cut 'Asunder'. But the realization of God cannot be acheived without ecstatic love for Him."

- Holy Mother, Saradamani

Case Report: Haematological and Therapeutic Aspects of Contagious Ecthyma in Lambs and Goats

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Abstract:

Contagious ecthyma is a viral disease, similar to goat pox. The present paper communicates the clinical, haematological and therapeutic aspects of contagious ecthyma during an outbreak in a private backyard goat flock.

Introduction:

Contagious ecthyma, also termed as sore mouth, is a highly infectious and contagious viral disease of sheep and goats with high morbidity (90%) and low mortality (10%), characterized by the formation of papules & pustules and piling up of thick crusts or scabs (Radostits *et al.,* 1994). The disease is caused by a dermatotrophic ungulate pox virus which is antigenically similar to goat pox virus (Dubey & Sawhney, 1979). Though the condition is common in sheep and goat, published literature about the clinical cases are not readily available.

Fig. 1. Showing lesson on the udder and teats with secondary mastitis

History and Observations:

A total thirteen lambs (aged between 2-5 months) and nine goats (aged between 2-3 years) were presented to the Teaching Veterinary Clinical Complex, College of Veterinary Science, Rajendranagar with the history of oral lesion and off feed since three days. Detailed clinical examination revealed normal temperature (102.4 0- 103.2F), pulse (82-86/min) and respiration (20-28/min) with thick tenacious scabs covering a raised area of ulceration, granulation and inflammation of the lips, muzzle and commisures (Fig.1). The lesions were also noticed at the udder more particularly on the teats of lactating ewes (Fig.2). The lesions were discrete, thick crusts, packed close together as a continuous plaque with few pustules and were also noticed on the hands of the person who presented these cases to the hospital. Blood samples were collected randomly both before and after therapy to study hematological parameters viz., haemoglobin (Hb), total red blood cells count (TRBC), total leukocyte count (TLC) and differential leukocyte count (DLC). Based on the clinical observation of typical lesions, the condition was diagnosed as contagious ecthyma.

Treatment and Discussion:

All the affected animals were treated on the similar line. Initially, the loose scabs were removed, as far as possible with minimum pain to the animal. Later, povidine iodine ointment

Fig. 2. Showing dry, granulommatous scabby lessons on the entire lips

was pasted over the lesions liberally at every 6 hourly interval. **Floxidin®** (from Intervet) at the dose rate of 2.5mg / kg bw and meloxicam (0.3mg / kg bw) were administered intra-musularly for 3-5 days. Surprisingly, the lesions started healing with sloughing of scabs from the day 2 of the treatment. Subsequently, all the animals returned to normal (with disappearance of lesions) within a week. Blood parameter viz., Hb and TRBC were found within normal range, but there was slight increase rate of leucocytes and lymphocytes in some of the severely affected ones. However, the abnormal values of TLC and DLC were also returned to normal after the therapy.

Contagious ecthyma is characteristically a disease of lambs, occurring in the range areas when the lambs are between three to six months old but rarely to the lambs of 1-2 weeks of age. The adult animals can also be severely affected (Radostits *et al.,* 1994). Outbreaks may occur at any time, but they are most common in dry conditions when the sheep are on the pasture and also during dry season, as the skin abrasions by dry feed may provide a ready portal of entry for infection. Radostits *et al.* (1994) and Hadleigh Marsh (1958) reported similar types of clinico-haematological findings and lesions among contagious echyma affected sheep and goat. Unless there is a secondary infection resulting deep ulcerations or infested with maggots, the lesions may be treated with tincture iodine or vaseline containing 3% phenol (Hadleigh Marsh, 1958).

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"Starting out to make money is the greatest mistake in life. Do what you feel or have a flair for doing, and if you are good enough at it money will come "

- Sir William Rooter

" Pray to Him in any way you will. He is sure to hear you, for He hears even the foot fall of an ant"

- Sri Ramakrishna Paramhansa

" Do not complain that the rose bush has thorns. Rejoice that the thorn bush bears roses "

- Arabian Proverb

" Think big. A little confidence breeds more confidence, and the more you stand up to things the more you will."

- James Alexander

Case Report: Syncephalus Tetrapus Tetrabrachus Monster in Kashmir Favorella Chicken

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Abstract:

A dead monster chick was encountered in a shell while investigating the embryonic mortality pattern in *desi* chicken, following artificial incubation. The monster was a diplopagus characterized by a single head with duplicated ear lobes and partially, duplicated cerebrum (Syncephalus) and symmetrically duplicated axial skeleton with tetrabrachus and tetrapus presentation. Heart was single (monocardus) but other viscera were symmetrically duplicated. Anatomical development of viscera in general was not complete. The present communication describes a rare case of syncephalus, monocardus, tetrapus and tetrabrachus monster in Kashmir favorella chicken.

Fig.1. Radiograph of a monster chick (Kashmir favorella) revealing duplication of axial skeleton.

Fig. 2. Kashmir favourella monster chick with single head, tetrapus and tetrabrachus condition and presence of two bodies at an acute angle.

Introduction:

Disturbed embryonic development resulting in a monster is rare in poultry. The monstrosities described in chicken include tetrabrachus (Sandhu & Brah, 1983), tetrapus (Vyas *et al.*, 1998), diprosopus (Saini *et al.*, 1993) and dicephalus with doubling of neck, thorax and wings (Raju & Rao, 2001).

Observations:

The monster was encountered as dead in shell while investigating embryonic mortality pattern

in Kashmir *desi* chicken (Kashmir favorella) following artificial incubation. It presented features of a conjoined twin characterized by a single head and symmetrical duplication of other components (diplopagus) except for heart. Examination of the head using magnifying lens revealed presence of four ear lobes, two on each side lying collaterally. The brain presented partial duplication with the cerebrum divided by a transverse fissure into the anterior, grossly normal hemispheres and the posterior, anterio-posteriorly compressed and relatively smaller parts. Grossly, no duplication of cerebellum was evident. Such cephalic anomaly is referred as syncephalus (Grewar *et al.*, 1990).The body of twin consisted of a completely and symmetrically duplicated axial skeleton with four legs (tetrapus) and a common, continuous integument (Fig.1). The two cervical vertebral columns run collaterally within the common integument giving external appearance of a single common neck with a prominent bulging at the cranial end where the actual duplication started. Posterior to the cervical region the two vertebral columns were present at almost right angle to each other and made an obtuse angle to their respective cervical region (Fig.2) .The angle a diversion was marked dorsally by a prominent muscular band formed by crossing over of the muscle fibres from the two sides to follow separately the individual vertebral columns distally.

Examination of the internal organs revealed symmetrical duplication of viscera except for heart which was single (monocardus). However, all the organs including the heart were underdeveloped. The trachea and bronchi were thin, fibre-like in appearance and lungs were barely discernible on susperticial examination. The heart was small and elongated with incompletely developed inter-ventriculoar septum. The blood vessels entering into and emerging from the heart were fibre-thin and supplied to the viscera of either of the twins. The two livers were one behind the other with their ventral (viscera) surfaces facing each other. Cardiac impression was present on the dorsal surface of the cranial liver. The anatomical differentiation of the liver lobes was incomplete and marked only by superficial notches.

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"Just surrender yourself to Him;
you will then feel His grace."

- The Holy Mother, Saradamani

" There is something worse than a difficulty. It is inertia.
If you try to escape difficulties, you decay."

- Herbert Casson

Case Report: Urinary Calculi in a Calf and Its Treatment

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Abstract:

Urethral obstruction is a serious condition, frequently encountered in the male due to long penis, sigmoid flexure and gradual narrowing of urethra towards the end. This is characterised clinically by frequent unsuccessful attempts to urinate. The complete retention of urine and distension of bladder resulting high mortality if surgery is not performed immeadiality (Blood *et al.*, 1994). The present paper reports a clinical case of urilithiasis in a calf and its successful surgical intervention.

Introduction:

Urinary calculi or urolithiasis has been considered to be a major complication of the conditions affecting urinary tract. It is more common in Western Rajasthan due to deep water level, which is obviously rich in florine, oxalates of calcium and other salts. Urinary caliculi arises due to the deposition of these crystals in any part of the urinary tract.

Case History and Clinical Examination:

A calf, 6 months of age, having history of anuria and difficulty in normal micturition, was brought to the clinic. On clinical observation, it revealed of dry muzzle, sunken and anaemic eyes. The abdomen was bilaterally distended with a noticeable fluid thrill throughout the abdomen. Exploratory puncture of ventral abdomen revealed of urine like fluid.

Treatment:

It was operated under epidural anesthesia with 2% Lignocaine hydrocholride after pre-medication with Triflupromazine hyderochloride at the dose rate of 0.1-0.2 mg per Kg body weight and injection of DNS 5% (500ml) with 2 ml of Dexona through slow intra-venous route. Before cystorrhaphy, post-scrotal urethrotomy was performed with standard method recommended by Sharma & Singh (1996). Polythene catheter was inserted into the urethra (Fig.). The urethral wound was sutured with #1 catgut and skin was sutured with silk by using simple interrupted sutures. The cystorrhaphies were done by closing the bladder wall with chromic catgut # 2 using a simple continuous patterns with a blind approach. The laparotomy wounds were closed in usual manner.

The post-operative treatment with **Floxidin®** Vet 10% injection (from Intervet) at the dose rate of 1ml per 20 Kg body weight and 3 ml of diclofenac sodium were given intra-muscular route for 5 days and wound was dressed daily with povidine iodine. The skin sutures were removed after 10 days and the calf was totally cured.

Results and Discussion:

The animal recovered uneventfully and was passing urine normally. The appetite of the

Fig. Figure showing polythene catheter inserted into urethra

animal was restored after 24 hours. The cystorrhaphy through ventral abdomen region is an advantage because of comparatively easy access to the bladder of the calf. The technique used here of blind repair of blade by Frank (1955).

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"If a man is worth knowing at all, he is worth knowing well"

- Alexander Smith

"An individual can make no greater investment in his business of living than to be consistently reliable and cooperative. The important job is almost always turned over to the dependable man. Dependability is as simple as that, but it is one of the rarest of assets."

- Doglas Lurton

"What the mind can conceive and believe, the mind can achieve"

- W. Clement Stone

"When I was child, my mother said to me -' If you become a soldier, you'll be a general. If you become a monk, you'll end up as the pope. Instead, I become a painter and wound up as Picasso"

- Pablo Picasso

Native Drug Therapy for Omasal Impaction in Cattle

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Omasal impaction can occur due to dehydration, coarse fibrous feeds such as scrub, blady grass together with sand that may pre-dispose to the condition [Hunger Ford, 1990, Mc Donald & Witzel, 1968, Umakanthan, 1996 and Umakanthan, 1997]. The present article describes a successful treatment of omasal impaction with native drugs.

In a period of two and half years, 16 acute and chronic omasal impaction cases were recorded. The 16 cases included 12 cows, 3 bullocks and 1 buffalo. The clinical symptoms noticed were, anorexia, moderate to severe dehydration, congestion of mucus membrane, engorgement of capillaries of eyeball, mild jugular pulse, dry muzzle and reduced yield. The body temperature was recorded 37.5-40^{0}C. There was no abdominal distension, no palpable abnormality of the intestine. The rectum was empty and cessation of defecation. Deep palpation between right 7th and 9th rib at the omasal area evidenced pain, mourring and grunting of the teeth in some animals and some laid down while deep pressure was given with fingers at the omasal area. Chronic cases showed greenish yellow regurgitation fluid from nostrils.

Table : Showing different ingredients of the nalise drug

Sr.No.	English Name	Dose
1	GALANGAL, THE LESSER	5 g
2	GARLIC	50 g
3	CHINNOMUM BARK	5 g
4	THE ROUND ZEODRY	15 g
5	CLOVES	10 g
6	ASOFOETIDA	10 g
7	BLACK CUMIN (OR) SMALL FENNEL	15
8	TAIL PEPPER (OR) CUBEBS	30
9	DRIED GINGER	5
10	NEEM OIL	500 ml
11	NUTMEO	2 Nos.

The all animals were orally treated with the following combination of native drugs (Table). The native drugs though are having many properties, particularly of superior laxatives and stomachics (Murugesa Mudaliar, 1998, Nudkarni, 1908 and Somasundaram, 1997).

The all ingrediants, except garlic were fried mildly and pulverased. Garlic was minced and mixed with the above powder. Neem oil was warmed and the powder was mixed adding small quarterly at with the oil by stirring. The oil was poured into 3 liters of warm water and very

carefully drenched twice daily at 12 hours of interval for one to two days. The animals were given only dry fodder and water *ad libitum*. The drug administration was stopped when the animals started purgation or passing dung.

It was noticed that between 15 to 24 hours post-treatment, all the animals started purgation, intermittently mixed with solid, hard dung with very offensive smell. Examination of the dung revealed sand, paddy husk, coarse paddy, cholam straw, etc. Only eleven animals required two doses, 2 animals required three doses and another two animal's four doses. But all the animals started passing dung between 2nd and 3rd dose. The feeding habits gradually improved. All the animals resumed the normal yield and work.

Acknowledgement:

The author thanks Dr. J.V. Krishnamoorthy, the Director, Department of Veterinary Service, Tamilnadu for the study facility provided. The author also thanks Dr. P.G. Jagathesan and Dr. K. Kannan for their help during the study.

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Influenza Disease of Animals - A Matter of Concern to Human Health

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Influenza is worldwide in distribution and affects millions of people. Outbreaks of influenza type 'A' occur virtually every year. Major epidemics occur at intervals of 2-3 years and pandemics at intervals of 10-15 years. The most severe pandemic occurred in 1918-1919 which affected 50 million of people and killed more than 20-40 million. In India alone, over 6 million people died due to this pandemic which was caused by what is now known as swine influenza virus (WHO, 1979). In India, more than 400 million peoples suffer from influenza every year without much remedial care and 900 million working hours are lost, on the other hand, there is a threat to livestock and poultry industry due to imposition of ban on export of livestock and poultry from China and other Asian countries, or from those, are under fear of the spread of disease.

Epidemology:

Transmission: Influenza is spread mainly by droplet infection or droplet nuclei. The root of entry of virus is respiratory tract. Influenza viruses are classified with the family orthomyxoviridae. The three viral sub-types, namely influenza type A, B and C are antigenically different. There is no cross immunity between them. The importance of the influenza A and B viruses is that both are responsible for epidemic of disease through out the world.

Reservoir of and Source of Infection: The major reservoir of influenza virus exists in animals & birds. Many influenza viruses have been isolated from a wide variety of animals & birds (e.g. Swine, horses, dogs, cats, domestic poultry, wild birds, etc.).

Age, Sex and Host Factors: Influenza affects all age and both sexes. The highest mortality occurs among old people over 65 years of age, children under 18 months and in persons with diabetes or chronic heart disease, kindney or ailments (WHO, 1985).

Environmental Factor:

Season : The season also plays an important role, epidemics usually occurring in warmer months in the Northern hemisphere and in the winter or rainy season in the Southern hemisphere. In India, epidemics have often noticed.

Antigenic Variation: The influenza type 'A' virus is unique among the viruses because it is frequently subjected to antigenic variation, both major and minor. When there is a sudden complete or major change, it is called a shift and when the antigenic change is gradual over a period of time, it is called a drift. Antigenic shift appears to result from genetic recombination of human with animal or avian virus, providing a major antigenic change. This can cause a major epidemic or pandemic involving most or all age groups. Antigenic drift involves "point mutation" in the gene owing to selection pressure by immunity in the host population. Antigenic changes occur to a lesser degree in the B group of influenza viruses. Influenza appears to be antigenically stable.

Pathogenesis and Clinical Features: The virus enters the respiratory tract and causes inflammation and necrosis of superficial epithelium of the tracheal and bronchial mucosa, followed by secondary bacterial invasion. There is no viraemia. The disease is characterised, by fever, chills, aches and pains, coughing and generalised weakness, followed by pneumonia.

Laboratory Diagnosis: Since clinical diagnosis is difficult, except during epidemics, laboratory methods are needed to confirm the diagnosis. These are: -

Virus Isolation: - Nasopharyngeal secretions are the best specimens for obtaining large amounts of virus – infected cells. The virus can be detected by the indirect fluorescent antibody techniques. However, egg inoculation is required for virus isolation and antigenic analysis.

Serology: A sero-diagnosis of influenza A or B can be made by the examination of two serum specimens from a patient, one taken within five days in acute phase of the disease and another taken 10 - 14 days after the onset i.e. the convalescent stage of illness. Four fold or greater rise in the titre detected by complement fixing (CF) test is considered diagnosis of infection (Douglas & Betts, 1979).

Hemagglutination Inhibition: It is a convenient and sensitive test for the serological diagnosis of influenza but presence of non-specific inhibitors in diagnosis sera, create hurdles in the test. Thus, sera suitably treated for the removal of inhibitors are diluted serially in Perspex hemagglutination plates and the influenza virus suspension containing 4 HA units added to each cup. Fowl red cells are then added. The highest dilution of serum that inhibits hemagglutination is its HI titre.

Serum Neutralization Test and ELISA can also be performed to diagnose the disease.

Control: Strict hygienic measures is the main key to prevent the spread of infection.

- The new animals from other countries should be isolated for sometime in a quarantine station before introduction. Since, many of the outbreaks have been noted, following transportation of animals from one country to other.
- The transporting vehicle should be thoroughly disinfected before loading and after unloading of animals. Vaccines if available, should be administered, based on serotype prevalent in that area.
- The vaccinated animals should be exported or imported.
- The animals are going for show, sales or any other gatherings, must be vaccinated prior to entry in such occasions.
- The public should be educated about the zoonotic aspect of spread of this disease.

References:

Douglas RG and R.F. Betts (1979). In Principles and Practices of Infectious Diseases, Mondell, GL; *et al* (eds), *John Wiley,* Newyork.

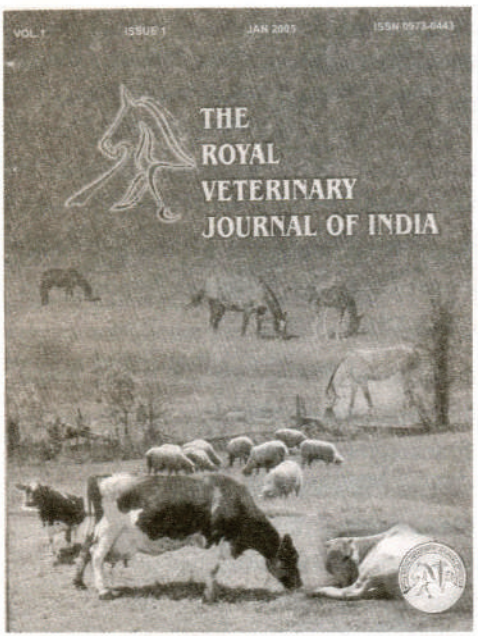
WHO (1979) WHO Chronicle, 33, pp.: 7- 8.

WHO (1985) Bull WHO, 63(1), p.:51.

News

'The Royal Veterinary Journal of India' launched by Vilashrao Deshmukh, the CM of Maharastra

The Chief Minister of Maharashtra, Mr. Vilasrao Deshmukh released the first issue of The Royal Veterinary Journal of India (RVJI) in presence of other dignitaries from the AH ministry of Maharastra and private sectors.



The Chief Minister of Maharastra, Mr. Vilashrao Deshmukh, (centre) released the RVJI, Mr. Anees Ahamed (3rd from left), the Minister of AH D and Fisheries, Dr. Lino Camponovo Director Sales & Marketing, Intervet (extreme right), Dr. Meshram Editor (2nd from right) and the EB members of RVJI (Dr. Ms. Kamble, Dr. Dalvi and Dr. Dhakate) are looking on.

In his inaugural speech, the CM congratulated Dr. Balwant Meshram, the Editor and the EB members of RVJI for accepting the task of publication, which would be a life long dedication and responsibilities for the veterinary community of India.

The Animal Husbandry, Dairy and Fishery Development minister of Maharashtra State, Mr. Anees Ahmed chaired the ceremony and told that veterinary science will be having a good technical journal, being published from this Nagpur region. The RVJI will be published half yearly.

The subscription per annum will be as follows:

Subscription per annum payable in advance for the year

Government and Public Institutions .....Rs. 200
Members of the Veterinary Profession .....Rs. 100
Individuals other than Members of the Veterinary Profession .....Rs. 100
Students of Veterinary Colleges and retired Veterinarians.....Rs. 100
Foreign subsciber.....U.S.$ 15

News

Dr. D. Dharamaraj has been awarded the prestigious Bharatiya Chikitsak Rattan Award with Gold Medal

Dr. D. Dharamaraj, B.V.Sc.,PGDBA, MS, Consulting Vet Surgeon, Tiruppur, Coimbatore, TN, has been awarded with the prestigious "Bhartiya Chikitsak Ratan Award with Gold Medal" in recognition for his dedication & technical contribution like Radio programs, publication in esteemed Journals & News papers in the field of veterinary medicine. The award was presented to him by Dr. G.V.G Krishnamoorthy, Former Chief Election Commissioner, during the 23rd National Seminar for Individual Achievements in National Economic Growth Development, held in Delhi, organized by Economic Growth Society of India. Our sincere hearty wishes for his endeavor in all walks of life.

Dr. M.C. Sharma received recongisition award and Gold medal (Animal Science) from the National Academy of Agricultural Science (NAAS)

Prof. M.C. Sharma, National Fellow (ICAR), has made outstanding contributons in patenting herbal drug against animal skin diseases, specific mineral mixutre for combating macro and micro mineral deficiency in livestock and "IVRI Crystoscope" as a field tool for determining optimum time of fertile insemination. He has to his credit 6 technological patents and 3 are in process. He has also developed a recipe which is hepatoprotective in ruminants. Contributing to 18 National / International research projects, he has been ITEC Expert to Mauritius and Vietnam. He has published more than 200 research papers in journals of repute and authored 11 books and 13 chapters. His researches have been cited internationally. He has had key positions and is a Fellow in primary professional societies and presently he is the President of the Indian Society for Veterinary Medicine.

He is also a recipient of Vigyan Shree Uphadi 1996-97 and ICAR-Hari Om Trust Award 1995-96, besides others.

News

Dr. M.P. Yadav recieved Dr. P. Bhattacharya Memorial Award and Gold Medal from the National Academy of Agricultural Science (NAAS)

Dr. M.P. Yadav has contributed significantly towards the development of potent vaccins against equine influenza, goat pox, ILT & *E. coli*, colisepticaemia; identification of a number of new animal diseases for the first time in India; designing of rapid and sensitive biotech based diagnostic tools for a number of animal and poultry diseases; generating basic information on equine immunology; isolation of Q-fever agent from a number of animal species for the first time in India/world: control of EIA, equine influenza on national basis, characterization of mare Lactoferrin for its possible use as anti-microbial agent. He has published more than 134 research papers in journals of repute.

Dr. Yadav is a recipient of OIE International Meritorious Award 2000, ICAR Special Award 1998, Distinguished Veterinarian Award 2001, Major Malika IAAVR Award 2001, Lance Award 1996. Dr. Yadav has been associated with several Professional Societies in various capacities and, at present, is the President of IAVMI. Researchers, under Dr. Yadav's leadership as Director IVRI, have brought laurels to the Institute.

Dr. Tarun Kumar Bhattacharya received Young Scientists Award (Animal Sciences) and Gold Medal from the National Agricultural Sciences (NAAS)

Dr. T.K. Bhattacharya has made significant contribution towards DNA fingerpriting of indigenous breeds of cattle, buffaloes, sheep and goats. molecular characterization of different indigenous livestock; studies of cytokine and major histocompatibility complex genes with special emphasis to disease resistance in buffaloes and goats; growth related genes in livestock. He has published 29 research papers in journals of repute and 15 popular articles, besides a number of reviews and book chapters. He has 42 accession numbers pertaining to the submission of nucleotide sequence data to the EMBL, Genbank, USA to his credit submission of nucleotide sequence data to the EMBL, Genbank, USA to his credit. He has guided 4 M.V.Sc students.

Dr. Bhattacharya is also a recipient of Young Scientist Award 2001 of the Indian Science Congress Association and the IVRI Merit Award 2002.

News

Testimony of Salmonella Control in Saguna Poultry Farm

The Salmonella is an enteric pathogen causing disease in poultry and humans. Salmonellosis of humans is characterized by enteritis and diarrhoea and it's a food borm disease. Salmonellosis is one of the high economically important diseases.

The action for control of Salmonella has to be taken before the actual challenges i.e. the birds should be protected against Salmonella well in advance. An adequate monitoring program will provide the essential information on Salmonella status in the flocks. Feed raw materials should also be checked continuously for their microbiological quality, since they are most vulnerable sources of Salmonella.

As on date, the birds are facing a continuous challenge of Salmonella attack in the farm transmitted through contaminated feed, contaminated water, rodent population, etc. The feed ingredients act as an important source of Salmonella.

The disease prevention by vaccination plays a vital role, because the antibody titers are maintained in the flock and the breeding stock are protected against the disease. Moreover, the progeny they produce will have adequate immunity against Salmonella.

We monitor the flocks for the disease by regular screening of the birds with plate antigen test to identify the reactors and to control the disease. The disease incidence monitored by plate antigen test and culture examinations show 100% disease free status in our vaccinated blocks. After introduction of **Nobilis®** SG9R vaccine (from Intervet) in to our breeding stock, we have not experienced any incidence of Salmonellosis. Our commercial broiler operations spread over four regions (TamilNadu, Karnataka, AP and Maharastra) are also free from Salmonella problem. Production and maintenance of safe quality food is important for human consumption. Vaccinating breeding stock with **Nobilis®** SG9R against salmonellosis enabled us to produce safe food (broiler meat) for human consumption, free of Salmonella. The broiler meat, which is being exported, is 100% free of Salmonella by using **Nobilis®** SG 9R vaccine.

The incidence of Salmonella in human through poultry origin is very common. But we are successful in controlling & maintaining our flock free from Salmonella due to:

1. Strict bio-security measures
2. Regular vaccination with **Nobilis®** SG 9R (from Intervet)
3. Through check on feed contamination
4. Monitoring the disease with plate antigen test
5. Screening of droppings, cloacal swab samples and suspected organ culture tests

With the above mentioned measures, one can confidently say that the breeder and broiler flocks are free of Salmonella and the meat is safe for human consumption.

Dr. K. Udaysurinam, General Manager (Breeder),Saguna Poultry Farm Ltd., Coimbatore

Abstracts

Salmonella Control in Poultry

J. H. Breytenbach
Intervet International b.v., Wim de Körverstraat 35, 5830AA, Boxmeer, The Netherlands

Abstract :

Distinction is made between two categories of Salmonella infections in poultry; that have a direct negative impact on bird health (Fowl typhoid and Pullorum disease) and importance to public health *(Paratyphoid salmonellae)*.

The *Salmonellae* have a worldwide distribution and generally the goal is to rear poultry *Salmonella* spp. free. This has been achieved in most major poultry producing regions for the poultry specific *Salmonella* pathogens (*S. gallinarum* and *S. pullorum*);

However, the task to eliminate *Paratyphoid salmonellae* has proved more challenging. The *Paratyphoid salmonella* strains have a very wide host range resulting in a large and continuous source of infection to poultry. This requires a much broader approach to control.

Host Specific Salmonellae:

S. gallinarum and *S. pullorum* are host specific and *Salmonella* spp. primarily affecting chickens and turkeys. *S. pullorum* is the cause of Pullorum disease, an acute systemic disease of chicks and poults which results in mortality of up to 100%. The species *S. gallinarum* is the cause of Fowl typhoid, an acute or chronic septicaemic disease that most often affects mature birds, too causing high mortality. Both these diseases have in the past been responsible for serious economic losses to poultry producers.

The implementation of extensive testing and eradication programs have greatly reduced the impact of Fowl typhoid and Pullorum disease in commercial flocks. The pathogens do however, still circulate in backyard poultry flocks. As a result a low incidence of disease outbreaks, of especially of Fowl typhoid in commercial flocks is still reported from several European countries, Canada, Mexico, Central and South America, Africa and the Indian sub-continent.

The infected bird is by far the most important source of infection for Fowl typhoid and Pullorum disease. The bacteria is transmitted from generation to generation via egg, or transmitted from the infected to non-infected flocks by direct contact or mechanical transfer by people, contaminated equipment, water or feed. Recovered birds remain carriers perpetuating the disease, especially on multi-aged layer sites where there is a continuous introduction of susceptible pullets. Recovered cull birds or spent hens sold on live bird markets are another source for spread of the bacteria.

An outbreak of Fowl typhoid in layers is usually characterized by an acute onset of mortality. Treatment with the antibiotics (such as sulphonamides,tetracyclines, aminoglycosides, or quinolones) is successful in reducing mortality and clinical symptoms. However, no antibiotic treatment is capable of eliminating the infection from a flock.

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Paratyphoid salmonellae:

The *Paratyphoid salmonellae* can infect a wide variety of hosts, including humans. In most cases infections are asymptomatic. However, clinical disease in infants, the elderly or immune compromised individuals can be fatal. The contaminated poultry meat and eggs are among the most frequently implicated sources of human Salmonella outbreaks, thus controlling *Paratyphoid salmonellae* infections in poultry has become a public health issue.

The *S. enteritidis* and *S. typhimurium* are the two *Paratyphoid salmonellae* most commonly associated with poultry. The outcome of an infection in poultry is dependant on the initial challenge dose and the age of the bird, young chicks being far more susceptible than older birds. A low dose challenge in a mature bird is most likely to pass through the intestine with no consequence. At higher doses a consistent observation is intestinal colonisation and spread to internal organs, which may be accompanied by mild transient diarrhoea. During the first two weeks post-infection, Salmonellae generally can be isolated from the intestinal tract and faeces. The incidence of intestinal colonisation and faecal shedding steadily declines thereafter. However, some *S. enteritidis* strains have been shown to persist in the intestinal tract of laying hens for several months.

Because of the wide host range of *Paratyphoid salmonellae*, infection can be introduced into commercial poultry flocks from various sources. Poultry feeds, especially those containing animal protein, are considered a high risk infection source. However, wild birds, rats, pets and people can all be potential sources of infection.

Control Strategies:

The Salmonella is transmitted via the egg from parent to chick, thus an obvious starting point for any Salmonella control strategy is to ensure poultry breeding flocks are kept Salmonella free. There is a zero tolerance level to Salmonella infections in genetic stock (pure lines and grand parent flocks); positive flocks are culled and vaccination is not permitted. In many countries, however, the vaccination of breeder flocks and commercial layer flocks using approved live or inactivated salmonella vaccines is permitted.

The primary source of infection for *S. gallinarum* and *S. pullorum* is from other infected poultry; thus, introduction of these organisms into a poultry flock can be effectively controlled by standard bio-security measures. Minimise the risk of contact with infected flocks or people, equipment and other fomites that may have originated from an infected site. However, in high risk areas with no official eradication policy, vaccination with a live attenuated *S. gallinarum* vaccine presents an additional effective control measure.

The diversity of sources from which *Paratyphoid salmonellae* can be introduced into flocks requires a much broader control strategy. There is no one single control measure that can be implemented to successfully keep flocks Salmonella free. However, the additive

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effect of establishing specific critical control points to prevent infection greatly reduces the risk.

The first control point is monitoring. If there is no routine surveillance schedule the where abouts of the enemy is unknown, a dangerous situation considering *Paratyphoid salmonellae* seldom cause disease in a flock. Serological monitoring (ELISA or RSPA) is most commonly used as a screening test in unvaccinated flocks and bacteriological monitoring of the environment for vaccinated flocks. A clear strategy should be in place outlining actions to be taken if a flock is found Salmonella positive. The most desirable action is to cull infected flocks. However, if this is not financially feasible at least all possible measures should be taken to quarantine the flock, to minimise the risk of infection to other flocks and prevent the introduction of contaminated eggs or meat into the human food chain.

Secondly, we need to guard against the introduction of Salmonella from the environment. This, however, extends beyond a fence, a shower block and controlling the movement of people. The well cleaned poultry house should be a Salmonella free environment; everything introduced into the house is a potential source of infection. Day old chicks must be sourced from Salmonella free parents; this can be confirmed by bacteriological screening of chick box liners. Only pelleted feed or feed containing no animal protein, sourced from a reputable feed supplier, should be used to minimize the risk of introducing salmonella through contaminated feed. Water provided should come only from sources treated to ensure purity. Houses must be properly bird proofed and there must be an effective rodent control schedule.

Finally the bird's own resistance to Salmonella infection should be enhanced and vaccination has been found to effectively reduce the susceptibility of poultry to Salmonella infections reported on the efficacy and safety of a live attenuated *S. gallinarum* vaccine as used in a Dutch field trial. In the trial, 80 commercial layer flocks were vaccinated and placed on sites considered to have an increased risk for *S. enteritidis* infection (based on a previous flock history of Salmonella infections). Flocks were monitored for *S. enteritidis* infection and results compared with that of a nonvaccinated group of 1854 flocks hatched in the same period.

A couple of findings demonstrated that the proportion of *S. enteritidis* positive flocks in the non-vaccinated group (214/1854 = 11.5%) was significantly higher than in the vaccinated group (2/80 = 2.5%); thus, demonstrating the efficacy of a live *S. gallinarum* vaccine in providing cross protection to *S. enteritidis.* In addition, 450 pooled samples of eggs from the vaccinated flocks were tested for the presence of Salmonella. All egg samples tested negative on bacteriology confirming that the vaccine strain did not spread to the inner contents of the egg and was thus safe for use in commercial situations.

Source : Salmonella website: www.safe-poultry.com

Abstracts

Vaccination Against Cestode Parasites: Anti-helminth vaccines that work and why

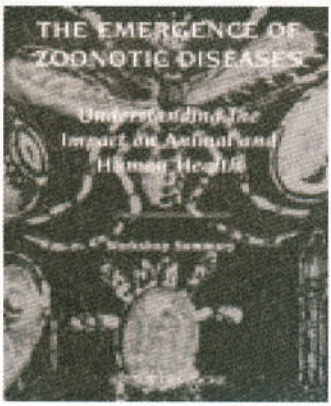
M. W. Lightowlers A. L. Colebrook, C. G. Gauci, S. M. Gauci, C. T. Kyngdon, J. L. Monkhouse, C. Vallejo Rodriquez, A. J. Read, R. A. Rolfe and C. Sato
The University of Melbourne, Veterinary Clinical Centre, Werribee, Vic. 3030.

Abstract:

Highly effective recombinant vaccines have been developed against the helminth parasites, *Taenia ovis*, *Taenia saginata* and *Echinococcus granulosus*. These vaccines indicate that it is possible to achieve a reliable, high level of protection against a complex metazoan parasite using defined recombinant antigens. However, the effectiveness of the vaccines against the taeniid cestodes stands in contrast to the more limited successes which characterise attempts to develop vaccines against other platyhelminth or nematode parasites. This review examines the features of the host–parasite relationships among the taeniid cestodes which have formed the basis for vaccine development. Particular consideration is given to the methodologies that have been used in making the cestode vaccines that might be of interest to researchers working on vaccination against other helminths. In developing the cestode vaccines, antigens from the parasites' infective larval stage contained within the egg (oncosphere) were identified as having the potential to induce high levels of protection in vaccinated hosts. A series of vaccination trials with antigen fractions, and associated immunological analyses, identified individual protective antigens or fractions. These were cloned from cDNA and the recombinant proteins expressed in *Escherichia coli*. This strategy was independently successful in developing vaccines against *T. ovis* and *E. granulosus*. Identification of protective antigens for these species enabled rapid identification, cloning and expression of their homologues in related species and thereby the development of effective vaccines against *T. saginata*, *E. multilocularis* and, more recently, *T. solium*. The *T. saginata* vaccine provides an excellent example of the use of two antigen components, each of which were not protective when used individually, but when combined they induce a reliable, high level of protection.

One important contributing factor to the success of vaccine development for the taeniid cestodes was the concentration on studies seeking to identify native host-protective antigens, before the adoption of recombinant methodologies. The cestode vaccines are being developed towards practical (commercial) application. The high level of efficacy of the vaccines against *T. solium* cysticercosis and hydatid disease suggests that they would be effective also if used directly in humans.

New Publication

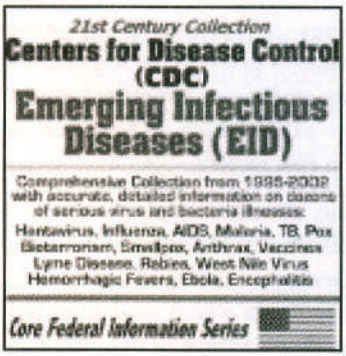


The Emergence of Zoonotic Diseases

Understanding the Impact on Animal and Human Health

Editors: Tom Burroughs, Stacey Knobler, Joshua Lederberg

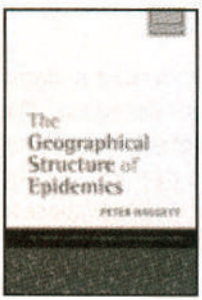
Zoonoses are defined by the WHO as "a disease or infection that can be naturally transmitted between vertebrate animals and man, with or without intermediate arthropod vectors". Worldwide, zoonotic diseases have a negative impact on commerce, travel and economies. This workshop summary covers a range of zoonosis topics including an evaluation of the relative importance of zoonotic diseases against the overall backdrop of emerging infections; research findings related to the current state of our understanding of zoonotic diseases; surveillance and response strategies to detect, prevent and mitigate the impact of zoonotic diseases on human health.



Emerging Infectious Diseases (EID) Mapping Epidemics: a Historical Atlas of Disease (Reference)

by Carter Smith, Brent H. Hoff, Charles H. Calisher

32 diseases, including HIV & Aids, *E. coli,* West Nile fever (introduced to to North America in 1999), Legionnaires' disease, syphilis, and tuberculosis are covered alphabetically. A fact-filled compendium which includes an introductory section on the impact and mechanisms of spread of infectious diseases in the world. A glossary of terms is included. **Coloured maps** give a clear and instant overview of where and when each disease developed. There is also information on current global distribution, causative agent, mode of spread, clinical symptoms, treatment, prevention and control. A historical chronology goes back 10,000 years.



The Geographical Structure of Epidemics

by Professor Peter Haggett, University of Bristol, U.K.

The Geographical Structure of Epidemics is an accessible and in-depth examination of the ways in which geographical and environmental concepts can enhance our knowledge of the ways in which epidemics spread through human populations, written by a leading expert with over 30 years' experience in the field.

New Publication

The Complete Holistic Dog Book :

Home Health Care for Our Canine Companions

by Ian Allegreffi and Katry Sommers

The authors of the complete Holistic Dog Book Home Health Care for the Canine companions have undertaken a monumental task in an attempt to educate potential owners before the acquisition of a dog and throughout the lifespan of their pet. The book is divided into 4 parts to achieve this purpose. The Part 1 discusses starting a dog with a holistic lifestyle, which introduces readers to topics such as diet choices and various complemetary modalities. The Part 2 discusses treatment of various syndromes by use of the previously described modalities. The Part 3 covers terminal illnesses, geriatric medicine, and cuthanasia. The Part 4 is a combination of 3 materia medicas (nutritional, herbal and homeopathic). Each part is subdivided into chapters, which include a list of recommended readings.

The Part 1 provides an extremely in-depth discussion of what to expect when the new family member comes homes. Topics covered include socialization, behavior problems, puppy training classes, routine health examinations performed by owners andprofessionals,and nutrition, to name a few. Extensive spaceis given to the importance of parasite control and vaccinations. However, the authors emphasize a minimal use of pesticides whenever applicable. The chapters on vaccines explain each disease, pets at risk, and recommendations for administration dependent on risk factors.

The Part 2 covers each body system and mentions various disorders, with a listing of possible treatments via complimentary methods. Each syndrome is, followed by specific suggestions for the use of nutrietns homeopathic remedies, herbs (a combination of western and Chinese), and acupressure. Most also have an other section in which modalities not addressed are also mentioned or when additional testing (eg. thyroid gland hormones) may be relevant.

The Part 3 is an in - depth look at aging pets or pets with a terminal illness. Again, diclary suggestions are made as well as incusion of homeopathic remedies and herbs. The Part 4 is a brief description of each ofthe afore mentioned herbs and remedies those considered to he some of the most common in both categories.

The authors have done a good job of organizing the information. As with most material written from a subjective point of view, the authors opinions are clear to readers. The Veterinarians who want to recommend this book to their clients for information regarding various complementary modalities should definitely read it first so that they are sure the opinions expressed are similar to their own beliefs in case a client returns with new ideas to discuss. Total 384 pages ; illustrated. Celestial Atrs. PO Box. 7123, Barkeley, CA 94707. ISBN 1-58761-144-9 2003, Price $24.95

READERS' COLUMN

Comments / Suggestions on *'The Blue Cross Book'* - 22 and Expected Articles for *'The Blue Cross Book'* - 24

1. **Dr. A. K. Mishra**

   Veterinary Officer, Lalganj, Mirzapur- 231 211, UP

   Tel. No. 05440-285575

   I convey my thanks from core of my heart for publication of ***'The Blue Cross Book'***. My suggestion is to include more and more technical oriented articles of the present days for those veterinarians who are working in the field so that, they can utilize this updated knowledge to take proper care and treatment of the animals in the rural areas. Thanks again. We are looking forward for the next issue.

2. **Dr. Rawasaheb Balwant Chougule**

   Kusum Nivas, Road No.2A- Dattanagar, Shriram Colony, Vishrambag, Sangli-416 415, MS

   Tel.No- 0233-2304420

   Read the ***'The Blue Cross Book'*** thoroughly. It is very useful for field veterinarians. This is a journal of practical oriented information, rather than the academic one. As far as possible, please incorporate coloured photographs in surgical interventions. I want to publish an article on 'The Thoracotomy Operation ' successfully carried out in the field. I have got coloured photographs. Please guide for publication.

3. **Dr. Prabir Kumar Mitra**

   38, Satyen Ghosh Lane, Narlia, P.O. Chandannagar- 712 136, Dist.-Nadia, WB

   Tel.No. 033-2683-7468

   Publication of more numbers of clinical articles and case reports are well appreciated. These are really useful for the field practitioners.

4. **Dr. Samuel Jones Rudy**

   41, Officers Colony, Puthur, Trichy- 620017, TN, Tel. No. 2792649

   I have, so far, not received any issue of ***'The Blue Cross Book'***. I am a private pracitioner now and this journal will be useful to me to follow up complicated cases in the field. Please enroll my name (Readers' Code) and send me the journal regularly.

5. **Dr. Pronay Agrawal**

   House No. N-6, P.O. Dairy Farm , Nagla, Distt- Udham Singh Nagar- 263 149

   Tel.No. 05944-233575

Comments / Suggestions on *'The Blue Cross Book'* - 22 and Expected Articles for *'The Blue Cross Book'* - 24

The journal is quite interesting and informative. Please try to include advance information on the various Seminars / Symposia / Conferences / Training programmes, etc., being held by various forums at national level.

6. Dr. K. Venu Gopal

Plot No.200, H. No.13-1227,Vasaui Colony, R.K.Puram, Saroor Nagar, Hyderabad-500 035, AP

Tel. No.-040 - 55705689

I will be eagerly waiting for the ***'The Blue Cross Book'***, which is attractive both externally and internally. I first go through the clinical articles then the remaining ones. College news is commendable. The Quotations of great people are like a silver living. Please kept it up.

7. Dr. Ramchandra Yadav

C/o. Shri Ghisaram, Vill- Punchhlawali, P.O. Neemkathana, Dist- Sikar- 332713, RS

Tel. No. 01574-232188

Add some articles and technical information on the reproductive disorders for improving reproductive efficiency in cattle and buffaloes.

8. Dr. N.C. Siddeswara

C/o. Annappa N. Teacher, Door No-1657. Horamane 5th Cross, Left side NMC. Distt-Bhadravathi Shimoga - 577 301

Tel. No. 08282- 662385

Case report on the 'Successful Management of Canine Babesiosis with **Berenil®** Vet 7% RTU' will be very useful for canine practioners. I have also used **Berenil®** successfully in few cases of Babesiosis in dogs.

9. Dr. Dhirendra Nath Sabharwal

CVO (Retd.), Kanpur Zoological Park, 112/354 Swarup Nagar, Kanpur- 208 002, UP

Tel.No.- 2210742 / 2541782

I am deeply impressed by the articles entitled, "Use of Prokinetics in Canine Medicine and Etiology and Management of Canine and Feline Ringworm". This issue has impressed me a lot. This will he benificial for the field veterinarians in the country. Please publish more clinical articles on canine diseases.

READERS' COLUMN

Comments / Suggestions on *'The Blue Cross Book'* - 22 and Expected Articles for *'The Blue Cross Book'* - 24

10. Dr. D.J. Ganguly

94/26, Nayapatty Road, Vivekananda Abasan, Kolkata- 700 055, WB

Tel .No. 033-2529-4860

It will surely be useful if the Reader's code No. is printed on the address sticker of each issue. Please arrange now onwards.

11. Dr. S.P. Mouli

Assistant Director, A. H. (Retd.), 8-5-125, 6th Line, Nehru Nagar, Guntur- 522 001, AP

Tel .No. 040- 2356289

The articles published in this issue are highly useful to the practitioners. Please give Readers code number to me. There is no code number on the sticker, issued to me. Thanks very much for your prompt reply to my letter, dated 02-03-2004. Many thanks to you for publishing my article in ***'The Blue Cross Book***.'

12. Dr. Ravindra Kavaloor

Veterinary Hospital, Mandya, Karnataka- 571 401, KS

Tel. No.- 08232-333978

This issue is more informative and interesting especially, the quotations in the boxes bottom of the few articles. The article on the ingestion of plastic materials by the cattle, is a good information for the city cow owners. I am working on the awarness on this issue in Mandya village area and conducted post-mortem studies on many cows, died due to this heavy ingestion.

13. Dr. Lt. Col. K.N. Yadav

Commanding Officer 1 (TN), Remount & Vety. SQN NCC, Madras Veterinary College, VEPERY, Chennai- 600 007, TN

Tel. No. 044-25382088(O)/ 25366125 (R)

Useful handy literature for updating professional skill. Publish more articles on equines.

14. Dr. R. Swaminathan

21- Ram Vilas Nagar, N.G.O 'R' Colony, Tirunelvelli - 627 007, TN

Tel.No. 0462- 2551434

I request to send the previous 20 issues also. I also request you spare same area for the lighter side of the veterinary profession.

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