AKZO NOBEL

The Blue Cross Book

For the Veterinary Profession

16

intervet

Dear Readers,

"We are glad to inform you that, the initial proof reading and valuable suggestions on technical aspects on this issue was provided by ***Dr. K. R. Krishnan,*** *M.V.Sc., Ph.D., 14-3-31, Amaravati Nathi, M. G. Road, Madurai - 625 014.*

We are thankful to Dr. Krishnan for his kind help".

- Editor

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"A bone to the dog is not charity.
Charity is the bone shared with the dog,
when you are just as hungry as the dog."

- Jack London

"Admit your errors before
someone else exaggerates them."

- Andrew Mason

PREFACE

Wolf-Jochen Bader
Intervet (India) Pvt. Ltd.

Dear Readers,

I recall - my first 'Preface' letter to you, in the January, 1997 Issue of *"The Blue Cross Book"*-8 after I joined India as Managing Director from the UK operation.

I take this opportunity to inform you that, I will be leaving India shortly to join our corporate office at Boxmeer. I am convinced that the professionalism of the Editor and the Editorial Board shown throughout from the 8th to 16th Issue of the *"The Blue Cross Book"*, will go a long way to establish closer relation between Intervet and our Vet friends in the country.

I sincerely thank all the scientists in the veterinary profession and our esteemed Readers as well, for their immense interest and valuable suggestions, which was instrumental for success of *"The Blue Cross Book"*.

It's my pleasure to introduce here, Dr. Hervè Laberthe, who will now be heading Intervet's operation in India as Managing Director. Dr. Laberthe is a veterinarian and specialist in Vet Virology (Biologicals). He has vast experience in the field of production of biologicals and product development.

Lastly, I wish the Editorial Board all success for the future issues of this publication. Though I will be away, I will keep touch with the Editorial Board of *"The Blue Cross Book"*.

With best regards,

Wolf-Jochen Bader

"Mr. W.-J. Bader as a patron of "The Blue Cross Book", during the 8th issue (1996) to 16th issue (2000), has played an important role in its success. Mr. Bader showed keen interest in publication of case reports of the field Vets and paid lot of attention to the feedback received from the readers on each and every issue.

On behalf of the Editorial Board, I thank you Mr. Bader, for showing immense interest and patronizing "The Blue Cross Book", not only in its impeccable presentation but also in its proper distribution to all concerned, as marketing aid of this techno-commercial publication. I assure you, Mr. Bader, we shall try our utmost to maintain these new heights, attained by "The Blue Cross Book" publication". We all wish you success in your new assignment.

- Editor

PREFACE

Dr. Hervé Laberthe
Managing Director
Intervet (India) Pvt. Ltd.

Dear Readers,

It really gives me immense pleasure to hand over the 16th issue of *"The Blue Cross Book* to you. I hope you will like this issue.

As discussed with the Editor, I understood that the real usefulness of *"The Blue Cross Book"* is now firmly established amongst the field veterinarians and academicians in different veterinary institutions all over the country.

I am also happy to note that now-a-days all technical articles (even from universities abroad) are being sent directly to the Editor's desk for publication. This is a good news to us as this indicates acceptance of the journal in relation to its technical aspect in general.

I am glad to inform you, that the Vice-presidents of Sales & Marketing of Intervet, India, Dr. R. C. Sikka and Dr. L. M. Chobe will be our new Editorial Board members. They will be replacing Dr. A. Madhusudhan. I hope, you will render more support to our Editorial Board for the publication of better issues.

Lastly, I would also request you to send your valuable technical articles or case reports for publication, which may kindly be addressed to -

Dr. A. K. Datta,
Editor, *"The Blue Cross Book"*
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Best Regards,

Dr. Hervé Laberthe

Dr. Hervé Laberthe

"Dr. Hervé Laberthe obtained a degree in Veterinary Medicine in the year 1990 from LYON, France and subsequently he submitted his doctoral thesis in the same University on "The

development of live vaccine against Swollen Head Syndrome (SHS) for broiler chicken".

From 1991 - 1993, Dr. Laberthe was in Southern Africa in the Botswana Vaccine Institute, Gaborone, Botswana as the incharge of the Quality Control & Diagnostic Department of Merial, for Foot and Mouth Disease Vaccine and field isolates.

In 1994, he joined Intervet International bv, Boxmeer, the Netherlands and was heading among others the R&D project on Angara Disease Vaccine. In 1997, he moved to Intervet operation at Mexico, Santiago Tianguistenco to head the production department of tissue culture vaccine. In Mexico, he was instrumental in technology transfer from Boxmeer and the USA. He was also liaisoning with different Veterinary Universisties for isolation of strains and registration.

In the beginning of 1999, Dr. Laberthe joined Intervet India's manufacturing unit at Gaganpahad (Hyderabad) as Chief of Manufacturing Operations. Following the worldwide amalgamation between Intervet and Hoechst in the next year, Intervet (India) is now operating from two manufacturing sites, Wagholi (Pune) and Gaganpahad (Hyderabad) with the aim to develop and manufacture veterinary biologicals and pharma products for expanding its business activities. Dr. H. Laberthe is now heading Intervet (India) Pvt. Ltd., as Managing Director with effect from 1st January, 2001.

On behalf of the Editorial Board, I welcome you, Dr. Laberthe as our new patron of "The Blue Cross Book".

- Editor

"What is vision?
It is a compelling image of an achievable future."

- Laura Berman Fortgang

"Any activity becomes creative when
the doer cares about doing it right, or better."

- John Updike

THE PREMIER VETERINARY INSTITUTE IN INDIA 6

COLLEGE OF VETERINARY & ANIMAL SCIENCES HIMACHAL PRADESH KRISHI VISHVAVIDALAYA, PALAMPUR

The Himachal Pradesh Krishi Vishvavidalaya was established on November 1, 1978 and was having the department of animal sciences / animal production under the College of Agriculture which was responsible to provide academic and research support in animal production and animal health including disease investigation programme in the state.

The College of Veterinary & Animal Sciences came into existence in 1986 with the approval of the State Government and Indian Council of Agriculture Research (ICAR), New Delhi. Within a span of 13 years this college has made rapid strides in the development of needed infrastructure and in attaining high standard of professional education of B.V.Sc. & A.H. This college is the first to adopt the Veterinary Council of India minimum standard of B.V.Sc. & A.H. degree since 1994-95 academic session. It has now 18 departments including the department of fisheries alongwith a veterinary clinical complex and livestock farm as independent units.

To begin with, the college was started with the following six departments :

1. Animal Production,
2. Veterinary Anatomy and Histology,
3. Veterinary Physiology and Pharmacology
4. Veterinary Microbiology, Pathology and Parasitology
5. Veterinary Medicine and Clinic
6. Veterinary Surgery and Gynaecology.

At present, the following departments have been established in the college :

1. Veterinary Anatomy and Histology
2. Veterinary Physiology
3. Veterinary Biochemistry
4. Veterinary Pharmacology and Toxicology
5. Veterinary Parasitology
6. Veterinary Microbiology
7. Veterinary Pathology
8. Veterinary Public Health
9. Animal Nutrition
10. Animal Breeding and Genetics including Biostatistics
11. Livestock Production and Management
12. Livestock Products Technology
13. Animal Reproduction, Gynaecology and Obstetrics
14. Veterinary Surgery and Radiology
15. Veterinary Clinical Medicine including Ethics and Jurisprudence
16. Veterinary Epidemiology and Preventive Medicine
17. Veterinary and Animal Husbandry Extension
18. Fisheries

Independent Units :

1. Livestock Farm
2. Veterinary Clinic

Scope :

The objective of the teaching curriculum is to train veterinary graduates for:

a) providing clinical treatment to ailing livestock b) prevention and control of infectious diseases c) intensive extension activities concerning improved livestock production d) specialised service in regard to breeding, feeding, management and disease control to progressive livestock farmers and organised sectors e) paramedical services like meat inspection, maintaining disease free animals for experimental purposes, public health and zoonosis f) on the spot diagnosis of various diseases.

The college has a well developed Veterinary Clinic that works day and night and renders facilities of disease diagnosis as well as treatment at the farmer's door steps through its Ambulatory Clinic facility. The services of specialities of different disciplines are made available to the farmers, free of cost as and when required.

The disease investigation centre of the college has rendered service to the livestock population of the state by the way of attending to the various disease outbreaks, monitoring and forecasting of the diseases including epidemiology survey of different livestock and poultry diseases in the different parts of the state.

Veterinary Clinic :

The Veterinary Clinic is an independent unit of the college which provides a platform for teaching of undergraduate and post graduate students in the field of veterinary Clinical Medicine, Surgery, Gynaecology, Preventive Medicine and Epidemiology and to some extent in the field of Veterinary Pathology, Microbiology, Parasitology and Clinical Bio-chemistry. It is also a nodal referral veterinary hospital of the state for the diagnosis and treatment of ailing animals.

Artificial Insemination :

The clinics also provides facilities for the artificial insemination of cows and buffaloes using frozen semen.

Clinical Camps :

The experts from clinic and other departments attended the clinical camps, organised in the different parts of Himachal Pradesh. Animals, suffering from different ailments, were attended to in these clinical camps. On the spot, treatment was provided to these patients including surgical facilities, like medical patellar desmotormy, castration, tail amputation, radical surgery of tumors and repair of hernias.

Clinical Diagnostic Activities :

The Veterinary Clinic has a referral clinical diagnostic laboratory which routinely carries out faecal, blood, urine, milk and skin scrapping examination.

Ambulatory Clinical Practice :

The faculty members of clinical departments regularly attend the ambulatory clinical practice with 4th and 5th year under-graduate students in different veterinary hospitals of the state.

Wildlife Service :

Many ailments in Lions, Leopord, Bear, Sambhar, Deer, Peacock and birds were attended to in the Veterinary Clinic and in sanctuaries at Gopalpur Zoo and Renuka, Nahan as well.

Emergency and Consultancy Service :

Emergency services were provided to the farmers at their doorsteps as well as in the clinics during odd hours. Many emergency cases were attended in the night. The clinics also remained open on all Sundays / Holidays. Consultancy was provided to the owners as and when it is demanded.

Courtesy : **Dr. P. K. Pal**, Zonal Manager - Marketing (Delhi), Intervet (India) Pvt. Ltd.

Persistence of Foot and Mouth Disease Virus in Meat, Milk, and their Products : A Review

S. Nandi
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Foot and Mouth Disease (FMD) is one of the most devastating diseases of farm animals. Cattle, Sheep, Pigs, Goats and a variety of wild animals are all affected. The clinical and economic severity of the disease is exacerbated by its extraordinary ability to spread. Although the disease rarely leads to death, productivity losses are usually estimated to be as high as 25%. In addition, indirect losses due to infertility, sterility and impaired work ability, This can have profound effect on a country's economy,. Epizootics cause enormous economic looses in the production and marketing of meat, dairy products, wool, hides and related commodities as well as the lingering effects on subsequent productivity.

FMD may be a great hindrance on the way of earning sizable amount of foreign money as most of the countries where the disease is not prevalent have imposed ban on importing meat and meat products, milk and milk products from the countries where it is endemic. It also limits the improvement of indigenous breeds of livestock with exotic ones. In India, FMD is endemic and there are lot of outbreaks throughout the year in every state of the country causing a great concern. A potent, efficacious and inactivated vaccine is destined for immunization of domestic animals against the disease. However, FMD is still reported because of several reasons. The persistence of FMD in meat and meat products, milk and milk products play a pivotal role in the perpetuation and dissemination of the disease and become a bottle neck to export these commodities to countries free from FMD. FMD virus free status is to be ensured to restore the international trade of these commodities.

Meat and Meat Products :

India exports substantial quantity of meat and meat products to many countries of the world and acquire tangible amount of foreign currencies to strengthen its economy. However, as India is not free from FMD, meat and meat products free from FMD virus is to be ensured while exporting to countries free from FMD. Treating meat to get rid of virus is not only expensive but also frequently results in a second rate product and unwelcome to the consumers.

The conditions under which FMD virus survives in animal tissues are of fundamental interest to all concerned with the prevention and control of the disease. During FMD infection, the virus is distributed throughout the body of the animal. After death, survival of the virus is dependent on the stage of the disease at the time of slaughter, on the characteristics of the strain of virus and on the environmental factor surrounding the carcass, especially temperature and hydrogen ion concentration.

The virus in muscle is inactivated within 24-72 hours after slaughter, due to the reduced pH. Again the virus may survive for weeks or months in refrigerated internal organs, bone marrow, lymph nodes, glands and residual blood. Lymph nodes, bone marrow and large blood clots provide chemical barriers conducive to survival of the virus. Quick freezing suspends acid formation, hence the desirability of allowing the carcass to remain above the freezing for 24 hours.

Thawing of quick frozen meat initiates the suspended acid formation at an accelerated rate and quickly produces a medium unsuitable for virus survival. Again, if the meat products are cooked to 93°C, it ensures that FMD virus is not present.

Milk and Milk Product :

The presence of FMD virus in milk and milk products which may be a source of spreading FMD. During FMD virus infection of a bovine or swine, large quantities of FMD virus may be found in milk sometimes before the development of clinical signs of the disease. Virus in milk disappears with the development of neutralizing antibody and milk contains significant level of antibody. FMD virus in milk may survive pasteutrization probably because the virus is attached to or contained within cell debris, where the virus is protected from the heat of short or long pasteurization. However, either method reduces the titre of FMD virus significantly. The Ultra High Temperature (UHT) processing is sufficient to inactivate FMD virus in milk including virus contained in fat or cellular debris. FMD virus survives processing of casein or caseinates. But the processing of either product reduces virus titre and after 30 days storage, infectivity could not be demonstrated. The FMD virus survives the processing of certain cheeses. Again the infectivity remaining after processing disappears during aging or ripening. Cheese production would be a good option for disposing of milk collected during an outbreak. In countries, where cattle are immunized against FMD, milk contains large amount of antibody which neutralized FMD virus in milk collected from infected animal while pooled in a large container. Lastly, it is cautioned that milk from infected animals should not be fed to livestock, nor used for the processing of products which are then fed to livestock, such as dry milk, powder, casein, caseinates or whey unless such milk is UHT processed or otherwise sterlized. They may be a potential source of FMD virus and would be responsible for causing an outbreak.

Conclusion :

FMD is a disease of enormous importance because of its ease transmission, clinical severity and devastating economic consequences. In India, every year, huge quantity of money is being spent due to mass immunization programme and substantial amount is lost due to impaired international trade of meat, meat products, milk and milk products. Although some of the effective measures to treat the meat, milk and their products are available, a disease free state is often desirable because of reluctant attitude of the disease free countries to import meat, milk and their products from the disease prevalent countries. Further, there should be some easy diagnostic tests to detect promptly the presence of FMD virus in milk and meat product. The knowledge of persistence of the FMD virus in milk and meat products and how to treat them to acquire virus free state would be of great help to the researchers, farmers and diagnosticians which in turn halt the dissemination and perpetuation of the disease. This practice of treating the meat and milk products would definitely aid in the diminution of the disease outbreaks in India.

"Education is the vaccine for violence"

- Edward James Olmos

Efficacy of Panacur®-SC 2.5% (Fenbendazole along with Selenium and Cobalt) in Cattle

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Introduction :

There are quite a large number of problems related to management of parasitic infestations in animals (Armour, 1980). Clinical or sub-clinical form of helminthiasis leads to anemia as a result of continuous suckling of blood by parasites. Clinically animal show partial or complete anorexia, diarrhoea, dehydration, loss of weight and alteration in body micro-elements particularly blood Selenium resulting into immunosuppression in animals. It is therefore, advisable to go for strategic treatment (Herd, 1987).

It is evident from the publication from several workers that specific dietary deficiencies contribute to a heavy worm load. The direct or indirect effect of these deficiencies in special reference to Cobalt, Selenium and Phosphorus may lead to cause of higher worm load, than the balanced feed and also responsible to lowering the general resistance power (Radostits *et al.*, 1994).

Selenium along with Vitamin E deficiency causes muscular dystrophy (White muscle disease) leading to stiffness in walking, recumbency, inability to rise without any neurological finding to account for recumbency. Pathogenesis of selenium deficiency is not known, however, deficiency adversely affects the reproductive function of domestic animals. The disease is most common in rapidly growing calves 2-4 months of age. Selenium deficient animals are more susceptible to infectious diseases but there is no available evidence to indicate that naturally occurring Selenium and Vitamin E deficiencies are associated with an increase in the incidence or severity of different diseases.

Various broad-spectrum anthelmintic drugs are available to check the effect of endoparasitism of the livestock. The reducing effect on worm burden is also dependable on the quality and frequency of anthelmintic administration (Rothwell, 1989). However, **Panacur®-SC 2.5%** is only the drug, which takes care of blood Selenium and parasitic anemia resulting from helminthiasis. It is a unique combination of drugs that maintained the blood level of Selenium and Cobalt and prevent the animal from anaemia or deficiency condition. Present investigation was aimed to evaluate the efficacy of **Panacur®-SC 2.5%** against helminthiasis in different age group of animals on account of their blood Selenium, EPG and hematological estimation.

Materials and Methods :

A. Experimental Animals : Total of 20 animals irrespective of their age and sex were identified by screening all dairy animals for presence of helminthic infection by studying EPG value of faeces by Stroll's methods. These animals were divided into 4 groups, containing 5 animals each.

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A.	Group of Animals	No. of Animals
1.	Calves below the age of 6 months	5
2.	Animals between the age group of 6 –24 months	5
3.	Animals above the age of 24 months	5
4.	Animals negative for helminthiasis	5

B. Drug Treatment : Panacur®-SC 2.5% (Intervet) administered once orally by drenching @ 5 mg/Kg body weight once.

C. Parameters Studied : Laboratory Investigation

1.	Faecal samples	:	Egg Per Gram (EPG) by stroll's method
2.	Blood samples	:	Haemoglobin (HB) Pack Cell Volume (PCV) Total Leukocyte Count (TLC) Total Erythrocyte Count (TEC) Differential Leukocyte Count (DLC)
3.	Serum sample	:	Serum Selenium

All the laboratory investigations were undertaken prior to initiation (0 day) of the experiment and subsequently on the 15th and 30th day of post-treatment.

B. Statistical Analysis : Data were analysed statistically by complete randomised block design with factorial treatment.

Results and Discussion :

Results are dipicted in the Tables, I to IV.

The incidence of parasitic diseases varies greatly between areas depending on the relative importance of many factors like climate, nutritional deficiency, pasture management, barn management and immunity. Increase in worm burden results into low productivity in cattle. Helminthic infection in cattle induces excretion of their ova into faeces which indicate the worm load in animals. The infection of helminthic parasite always predict from the egg voided in faeces. This count is made on the basis of gram faeces i.e. egg per gram (EPG) of faeces. If the condition goes untreated, it damages more of tissue, reduces milk production, body weight gain and strength of animals. Identification of parasitic infection is not always possible under field condition. Therefore, it is better to use the broad spectrum antihelminthic drug known to eradicate the parasite infection in animals.

Panacur®-SC 2.5% is one of the choice of drug to overcome the mixed helminthic infection in cattle. **Panacur®-SC 2.5%** when used to control the parasitic load found to have better efficacy. It reduces the average EPG count from 320.00+42.42 to 20.00 + 17.89 within 15 days of after treatment in animals below the age group of 6 months. While in animals between the age group of 6 – 24 months the EPG count reduces from 1220.00 + 390.07 to 60.00+35.78 after 30 days of post-treatment. In adult animals (above 24 months age) single dose of **Panacur®-SC 2.5%** reduces the worm load from 2480.00 + 111.00 to 60.00 + 21.90 after 15 days of post-treatment. This study indicates that **Panacur®-SC 2.5%** is effectively eradicates the mixed helminthic

infection in animals irrespective of their age.

Hematological studies (Hb. PCV. TLC and TEC) indicate no significant differences at before and after treatment period might be because of low intensity of infection. However, differential leukotytic count indicates significant differences of lymphocytes in young animals (group 2nd) and in adult animals (group 3rd) might be a reaction to defence mechanism, also indicates by eosinophilic count.

Serum Selenium (Table IV) level, in all the animals irrespective of their age indicate increase at 15 days post-treatment period which was subsequently decreased at 30 days post-treatment period. However, in adult animals (above age of 24 months) the serum Selenium level was maintained higher even after 30 days of post-treatment period. This study indicated that increase in serum Selenium level in animals below the age of 6 months (group I) and between the age of 6-24 months (group II) increased at 15 days of post-treatment period which was subsequently decline to a normal level is a transient increase in serum Selenium in these animals, while in adult animals, it was maintained in increased trend throughout the experiment period indicating that the supplementation of Selenium is required in adult animals than younger.

The above observation indicates that **Panacur®-SC 2.5%** reduced the internal parasitis load in animal body and restore the serum Selenium level within normal rang and also reduces the chances of anaemic condition in animals and help to restore the normal health of animals.

Conclusion :

1. Based upon EPG count, **Panacur®-SC 2.5%** is found to be effective in reducing the mixed parasitic infection within the 15 days period in all the animals irrespective of their age.
2. Supplimentation of Selenium with Fenbendazole maintained the normal serum Selenium level and protect the animal from muscular dystrophy and immunosuppression.

Table I : Shows Count of EPG before (0 Day) and after (15th & 30th Day) Treatment

Group	Period			Treatment mean
	0 Day	15th Day	30th Day	
I	320. 0 [b] ± 43.82	20.00 [a] ± 17.89	40.00 [a] ±21.19	126.67 [a] ±79.16
II	1220.00 [c] ±309.07	120.00 [a] ±52.15	60.00 [a] ±35.78	466.67 [b] ±308.24
III	2480.00[d] ±111.00	60.00[a] ±21.90	80.00 [a] ±33.47	873.33 [c] ±655.71
IV	0.00[a] ±0.00	0.00[a] ±0.00	0.00[a] ±0.00	0.00[a] ±0.00
Period mean	1005.00 [b] ±480.96	50.00 [a] ±22.91	45.00 [a] ±14.79	366.67 ±169.33

a = Significantly at par

b and c = Significantly differ from normal group.

Table II : Showing Haematological (Hb, PCV, TLC, TEC) Parameter Before (0 Day) and After (15th & 30th Day) Treatment

Haemoglobin (Hb) :

Group	Period			Treatment mean
	0 Day	15th Day	30th Day	
I	10.68 ±0.66[a]	11.20±0.60 [a]	11.14±0.41 [a]	11.01±0.30 [a]
II	9.18±0.76 [b]	9.60±0.39 [b]	9.88±0.23 [a]	9.55±0.17
III	9.00±0.34 [c]	9.92±0.17 [a]	9.72±0.13 [b]	9.55±0.23 [c]
IV	10.36±0.20 [a]	10.48±0.41 [a]	10.66±0.28 [a]	10.50±0.07 [a]
Period mean	9.80±0.36 [a]	10.30±0.30 [a]	10.35±0.29 [a]	10.15

Packed Cell Volume (PCV) :

Group	Period			Treatment mean
	0 Day	15th Day	30th Day	
I	34.60±1.15	33.80±1.07	33.60±1.28	34.00±0.25
II	31.00±1.65	33.80±1.88	33.40±1.43	32.73±0.17
III	30.00±1.17	31.00±0.80	31.20±0.77	30.73±0.30
IV	35.80±0.71	32.20±0.59	33.20±1.24	33.73±0.88
Period mean	32.85±1.21	32.7±0.59	32.85±0.48	32.8

Total Leucocyte Count (TLC) :

Group	Period			Treatment mean
	0 Day	15th Day	30th Day	
I	12.27±0.29	8.01±0.23	8.12±0.34	9.47±1.15
II	10.31±1.57	9.94±0.90	9.48±0.48	9.91±0.20
III	9.26±0.34	9.04±0.37	8.74±0.44	9.01±0.12
IV	9.75±0.52	9.12±0.30	9.28±0.33	9.38±0.15
Period mean	10.40±0.57	9.03±0.34	8.90±0.26	9.44

Total Erythromycin Count (TEC) :

Group	Period			Treatment mean
	0 Day	15th Day	30th Day	
I	10.53±0.17	10.48±0.20	10.42±0.24	10.58±0.09
II	8.78±1.33	9.70±1.13	8.98±0.61	9.15±0.23
III	11.25±0.66	10.93±0.40	9.68±0.51	10.62±0.39
IV	11.29±0.30	11.27±0.72	10.24±0.25	10.93±0.28
Period mean	10.46±0.51	10.67±0.29	9.83±0.28	10.32

a = Significantly at par

b and c = Significantly differ from normal group

Table III : Showing Differential Leucocyte Count During Treatment and Observation Period Neutrophil :

Group	Period			Treatment mean
	0 Day	15th Day	30th Day	
I	44.60 +2.04	48.40+1.08 [a]	45.20+1.24 [a]	46.07+0.96 [a]
II	46.20+2.50	49.20+1.90	49.60+1.93	48.33+0.88
III	43.40+1.76	50.40+1.04	47.80+1.93	47.20+1.67
IV	44.40+1.80	44.00+1.79	48.80+2.32	45.73+1.26
Period mean	44.65+0.50	48.00+1.21	47.85+0.83+	46.83

Lymphocyte :

Group	Period			Treatment mean
	0 Day	15th Day	30th Day	
I	52.20+1.42	47.80+1.31	53.20+1.24	51.07+1.35
II	50.00+1.57	46.20+1.88	46.60+1.93	47.60+0.98
III	52.00+0.40	45.60+1.19	49.00+2.02	48.87+1.51
IV	52.20+1.21	50.80+1.03	47.60+2.41	50.20+1.11
Period mean	51.60+0.46	47.60+1.01	49.10+1.26	49.43

Eosinophil :

Group	Period			Treatment mean
	0 Day	15th Day	30th Day	
I	2.60+0.46	1.20+0.18	1.40+0.61	1.73+0.36
II	4.60+0.36	2.00+0.40	1.20+0.33	2.60+0.84
III	5.80+0.33	1.40+0.22	1.60+0.36	2.93+1.17
IV	3.20+1.03	0.80+0.33	1.40+0.36	1.80+0.59
Period mean	4.05+0.62	1.35+0.22	1.40+0.07	2.27

Monocyte :

Group	Period			Treatment mean
	0 Day	15th Day	30th Day	
I	0.60±0.22	2.60±0.22	2.20±0.33	1.80±0.50
II	0.40±0.22	2.80±0.18	2.60±0.36	1.93±0.63
III	0.80±0.18	2.40±0.36	1.60±0.22	1.60±0.38
IV	0.40±0.22	2.40±0.22	2.20±0.33	1.67±0.12
Period mean	0.55±0.08	2.55±0.08	2.15±0.18	1.75±0.06

Table IV : Showing Serum Selenium Estimation Before (0 Day) and After (15th & 30th Day) Treatment with Panacur® SC 2.5%

Group	Period			Treatment mean
	0 Day	15th Day	30th Day	
I	13.06 ±1.62	16.38 [a] ±2.98	10.00 [a] ±0.00	13.15 [a] ±1.50
II	10.47 ±0.37	12.98 [a] ±1.51	10.00 [a] ±0.00	11.13 [a] ±0.76
III	10.96 ±0.52	18.28 [a] ±3.39	16.78 [b] ±3.18	15.34 [a] ±1.82
IV	10.14 ±0.12	18.18 [a] ±3.10	10.00 [a] ±0.00	12.77 [a] ±2.21
Period mean	11.14[a] ±0.57	16.45 [b] ±1.06	11.69 [a] ±1.47	13.10 ±1.38

a = Significantly at par

b = Significantly differ from normal group

3. Cobalt in **Panacur®-SC 2.5%** helps to maintain the haemobiogram within normal range and improved the defence mechanism of animal body.

It is concluded from the above investigation that haematological indices and serum Selenium level have been maintained within the normal range by drenching a single dose of **Panacur®-SC 2.5%** @ 5 mg/kg b.w. orally and restore the animal health by improving defence mechanism evidenced by decreased worm infection, increased neutrophil, restored normal Hb and PCV and serum Selenium level. Treatment with **Panacur®-SC 2.5%** reduces the chances of immuno-deficiency and anaemic condition in animals.

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Possessing knowledge has two advantages :
you judge less, and you judge better
- G. J. Arts

Bionomics of Infective Larvae of Common Nematodes of Domestic Ruminants and Viability

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Introduction :

Studies on the survivality of larvae were carried out by many workers in pasture and in laboratory in different environment, temperature and climatic conditions. But studies on viability of infective larvae of nematodes of different animals in water under room temperature are not properly known so far. The present study deals with the viability of infective larvae of common nematodes of domestic ruminants viz. cattle, buffaloes and goats in water under room temperature.

Materials and Methods :

Faecal samples from cattle, buffaloes and goats found positive for gastro-intestinal nematode infections on coprological examination were cultured by the modified Veglia's method (Sathianesan & Peter, 1970). After seven or eight days, the larvae were washed out with aquarium water from culture bottles and washings were transferred into petri dish or cavity dish and kept closed to reduce evaporation, under room temperature. The larvae were examined daily and their activity was observed. To replace the evaporated water, sufficient quantity of filtered aquarium water was added whenever required. The observations were continued till all the larvae were found dead and thus the longevity or viability of the larvae was determined.

Results and Discussion :

The results are presented in the Table, indicating the period of viability and percentage of viability respectively. The longest viability (114 days) was noticed in winter. The longest viable larvae were that of *Oesophagostomum Spp.* (95 – 110 days) closely followed by that of *Haemonchus Spp* (86 – 99 days). The shortest viability was noticed for the nude *Strongyloides papillosus* larvae irrespective of the seasons.

In the present study, infective larvae of *H. contortus* of cattle, buffalo and goat origin were found to remain viable for 68 – 102 days in water under room temperature. This finding coroborates with that of previous workers like Sathianesan (1968), Tripathi (1977), Misra (1978), Boag & Thomas (1985) and Harbinder Singh *et al.*, (1994) who also found the larvae to be viable for more or less the same period. But Daskalov (1965), Todd *et al.*, (1976) and Tripathi (1969) found the larvae to be viable for a shorter period of 40-64 days while Jehan & Gupta (1974) and Sood & Charanjit Kaur (1975) reported a longer period of viability (110 – 120 days).

Viability of infective larvae of *Oesophagostomum radiatum* was found to be 65 – 97 days in present study which was in conformity with the observations of Altaev (1961). But Delgado (1983) in Cuba reported a long period of 26 weeks.

Oesophagostomum columbianum infective larvae in the present study remained alive for 91-114 days. Almost the same period of viability was observed by Premwati & Lal (1961), Agarwal (1966) and Sathianesan (1968). But shorter periods of 55 days and 2 months were observed by Chhabra & Singh

Table : Showing Period of Viability of Infective Lervae

Sr. No.	Species of Animals	Species of Infective larvae	Viability (Days) Winter	Average	Summer	Average
	Cattle					
01		*Haemonchus contortus*	80-90	85	75-82	79
02		*Oesophagostomum radiatum*	85-94	90	65-75	70
03		*Trichostrogylus colunriformis*	75-82	79	67-74	71
04		*Trichostrogylus axei*	70-80	75	63-72	68
05		*Cooperia punctata*	65-73	69	54-62	58
06		*Bunostomum phlebotomum*	34-42	39	28-32	30
07		*Strongyloides papillosus*	16-18	17	14-16	15
	Buffalo					
01		*Haemonchus contortus*	72-86	79	68-77	73
02		*Oesophagostomum radiatum*	86-97	72	75-84	80
03		*Trichostrogylus colubriformis*	67-82	75	56-70	63
04		*Strongyloides papillosus*	17-19	18	13-17	15
	Goat					
01		*Haemonchus controtus*	95-102	99	80-92	86
02		*Oesphagostomum columbianum*	105-114	110	91-98	95
03		*Oesophagostomum asperum*	84-97	91	62-78	70
04		*Trichostrogylus colubriformis*	72-86	79	66-74	70
05		*Trichostrogylus axei*	72-80	76	60-70	65
06		*Bunostomum phlebotomum*	37-46	42	30-35	33
07		*Strongyloides papillosus*	17-20	19	10-14	12

(1965) and Tripathi (1969) respectively and longer periods of 220 days and 12 months were noticed by Daskalov (1965) and Zhidkov (1965) respectively.

The longevity of infective larvae of *O. asperum* was found to be 62 – 97 days in the present study. But a slightly longer period of 12 – 15 weeks was the observation made by Sathianesan (1968). Contrary to this, Hariantha Rao & Venkataratnam (1977) noticed only very short period of 45 days.

The viability of infective larvae of *Trichostrongylus axei* and *T. colubriformis* were 60 – 80 days and 56 – 86 days respectively in the present study. The period reported by Sathianesan (1968), Tripathi (1969) and Boag & Thomas (1985) were also more or less the same. But the period of 7 months reported by Altaev (1967) was too long probably due to the difference in the climatic conditions prevailing in Russia and also due to the change of species which being *T. skrjabini*. Rose & Small (1984) reported a still longer period of 16 months for *T. vitrinus* in grass plot. Here also the conditions prevailed and species involved were different.

The infective larvae of *Cooperia punctata* found to thrive in water for 54 – 73 days in

the present findings. Ahluwalia (1974), Boag & Thomas (1985) also found the larvae to thrive in water for 52 days and 64 days respectively. But Delgado (1983), got a longer period of longevity, 22 weeks with which the present observation differs.

In the present study, infective larvae of *Bunostomum phlebotomum* and *B. trigonocephalum* were found to survive 28-43 days and 30-46 days respectively in water under room temperature. This observation is in agreement with that of Narain (1965) and Sathianesan (1968) who found that the infective larvae of *B. trigonocephalum* survived for 38 days and 4-5 weeks respectively. But Zhidkov (1965) and Delgado (1983) reported a longer period of 4 months and 10 weeks respectively and Deskalov (1965) reported a shorter period of 15 days.

Infective larvae of *Strongyloides papillosus* were found viable for 10-20 days in water under room temperature in the present study. This observation is in agreement with that of Nath (1977) and Verma *et al.*, (1986) who also found the larvae to be viable for 12 days and 17 days respectively.

Acknowledgements :

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Improvement of Pregnancy Rate with Progesterone Primed GnRH Therapy in Post-partum Anoestrus Buffaloes during Spring

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Introduction :

Buffaloes are seasonal breeders. Spring (Mid January & February) is more crucial for breeding in buffaloes and in the absence of conceptions during spring, the animals remain empty during and even beyond summer as there will be adverse stress of summer extending throughout the rainy season.

Prolonged post-partum anoestrus period limits production potential in buffaloes. Delayed ovarian rebound after calving resulting in postpartum anoestrus is a major cause of infertility in buffaloes. Use of GnRH therapy for induction of oestrus in postpartum anoestrus buffaloes is studied by Dhoble & Gupta (1986). Thakur *et al.*, (1993) , Reddy *et al.*, (1994). Present paper reports efficacy of progesterone primed GnRH therapy for induction of oestrus in postpartum anoestrus Murrah buffaloes during spring season.

Materials and Methods :

Twelve multiparous Murrah buffaloes having more than 100 days postpartum anoestrus period were selected for the present study during spring (February) season from Buffalo Unit of Veterinary College, Udgir. Selection of buffaloes was on the basis of history of no postpartum complications, optimum health score and ovarian inactivity diagnosed by per rectal palpations. The animals were maintained on optimum nutrition and routine managemental conditions throughout the experiment. Seven buffaloes were treated with intra-muscular injections of Proluton depot containing 250 mg hydroxy-progestrone on day 1 followed by **Receptal®** injectction (Intervet), containing Buserelin acetate 0.01 mg, on day 10 of the experiment. Five animals were kept as untreated controls. All the animals were monitored for assessment of reproductive events by regular rectal examinations. Buffaloes in oestrus were bred by good quality semen. The response of the treatment was recorded and analysed.

Results :

Progesterone primed GnRH therapy was found effective for induction of oestrus in all the seven (100%) post-partum anoestrus buffaloes as against 20 % in untreated control group. The oestrus response was recorded within 81.06 + 3.84 hours of treatment. The intermediate type of oestrus was exhibited and the duration of induced oestrus was found to be 20.00 + 2.00 hours All the responded animals showed mature developed corpora lutea on the 10th day of induced oestrus on rectal examination indicative of ovulations. Three animals conceived at induced oestrus, whereas two each settled to second and third oestrus indicating overall conception rate as 71.43 percent with 1.6 services per conception. Remaining two animals failed to continue cyclicity beyond two cycles as there was advancement of summer period and heat stress might have inhibited the ovarian cyclicity. In control group, only one animal exhibited ovulatory oestrus on the 16th day of the experiment and conceived subsequently which may be because of regular stimulus of per rectal ovarian examinations.

Discussion :

Use of only GnRH therapy of **Receptal®** injection is reported with various degrees of efficacy in induction of post-partum oestrus in buffaloes. Dhoble & Gupta (1986) reported 47 % efficacy, and Reddy *et al.*, (1994) reported 50 % efficacy. Whereas Thakur *et al.*, (1993) reported 75 % efficacy. These findings are much lower than the present report.

In the present study, the exogenous GnRH therapy was useful in initiation of folliculogenesis as Buserelin acetate, **Receptal®** being a synthetic analogue of GnRH, could signal sustained release of gonadotrphins.

Progestrone inhibits folliculogenesis but the progestrone withdrawal effect stimulates recruitment of the preantral follicles. Simultaneous administration of exogenous GnRH (**Receptal®**) has beneficial effect for boosting the final maturation and ovulation of already recruited follicles. This mechanism and pattern of events might have increased the response of induction of oestrus in buffaloes under present studies.

Conclusion :

Exogenous GnRH (**Receptal®**) administration with progesterone priming has proved beneficial effect on initial of ovarian rebound in post-partum anoetrous murrah buffaloes during crucial spring season.

Progestrone primed GnRH (**Receptal®**) therapy during spring for augumenting fertility potential in buffaloes was proved successful in induction of oestrus (100 %) as well as in getting high conception rate (71.43%).

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In-vitro Sensitivity of Bacterial Pathogens to Enrofloxacin

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Introduction :

Enrofloxacin is a new fluoroquinolone antimicrobial agent developed exclusively for use in animals and birds. It acts effectively on bacteria that are even resistant to other common antimicrobial agents by blocking the DNA gyrase enzyme. The efficacy of the enrofloxacin has been tried widely in clinical cases. The present report is the antibiotic sensitivity pattern of different bacterial spp. recovered from clinically affected domestic as well as wild birds and animals.

Materials and Methods :

Animals and birds suffering from various disease conditions were attended and clinical samples (blood, milk, fecal samples) were collected aseptically. In case of dead carcass, post mortem examinations was done and the organs showing typical lesions (spleen, liver, lymph nodes, piece of intestine, lungs, heart and blood) were collected in sterile vials for bacteriiological examination. Samples were streaked on blood agar and McConkey's lactose agar plates and incubated at 37° C aerobically for 24 hours. Well separated and isolated colonies were picked up, washed and identified on the basis of their morphological, cultural and biochemical characteristics (Ellner, 1978). All isolates were tested *in-vitro* against Enrofloxacin by disc diffusion method (Ellner, 1978).

Results and Discussion :

Various species of bacteria, isolated from ailing birds and animals are presented in the Table. Different serogroups of *Escherichia coli* (47), *Salmonella typhimurium* (18), *Salmonella enteritidis* (11), *Salmonella* spp. (21) were isolated from poultry as well as from captive birds. An elephant calf suffered from diarrhoea revealed the presence of *E. coli* (1) in rectal swab. *Salmonella choleraesuis* (5) was isolated from heart blood, mesenteric lymph nodes, intestinal content of weaned pigs that suffered from septicaemia. Bacterial examination of mastitic milk samples revealed the presence of *Staphylococcus* spp. (20), *Streptococcus* spp. (10) and *Corynebacterium* spp. (5).

Results of *in-vitro* sensitivity test are shown in Table-1. *E.coli* isolates recovered from birds and elephant calves showed 100 % (48/48) sensitivity. Out of 55 isolates of *Salmonella* spp, 50 isolates (9 %) were resistant. All resisitant isolates of *Salmonella* spp. were isolated from commercial poultry. *Staphylococcus* spp. isolated from mastitic milk showed 90 % (19/20) sensitivity and 10% (2/20) resistant. The isolates showing resistance to Enrofloxacin, were recovered from the cows treated for long period with various antibiotics. Other isolates of *Streptococcus* spp. and *Corynebacterium* spp. recovered from the milk were found 100% sensitive.

The *in-vitro* sensitivity test conducted on 138 bacterial isolates of various origin showed 94.9% sensitivity and 5 % resistance against Enrofloxacin. Because of non-specific reason, certain bacteria developed resistance against Enrofloxacin (Semjen & Blasko, 1994; Medders *et al.*, 1998). However, judicious use of antibiotics can minimize the emergence of resistant bacterial strains.

Table : Showing Results of *in-vitro* Sensitivity Pattern of Enrofloxacin.

Bacterial Isolate	Source	Disease condition	No.of isolates	No. of isolates	
				Sensitive (%)	Resistant (%)
Escherichia coli	Zoo birds (Barheaded goose, Kakatoo, Budgerigar, Kite, Macaw)	Enteritis	47	47 (100)	--
	Elephant calf	Diarrhoea	1	1 (100)	--
Salmonella typhimurium	Zoo birds, poultry	Septicaemia	18	17 (94.4)	1 (55)
Salmonella enteritis	Zoobirds, Poultry	Septicaemia enteritis	11	9 (81.8)	2 (18.1)
Salmonella spp.	Poultry	Septicaemia	21	19 (90.4)	2 (9.5)
Salmonella choleraesuis	Pigs	Septicaemia	5	5 (100)	--
Staphylococcus spp.	Cow milk	Mastitis	20	18 (90.0)	2 (10.0)
Streptococcus spp	Cow milk	Mastitis	10	10 (100)	--
Corynebacterium spp.	Cow milk	Mastitis	5	5 (100)	--
Total isolates			138	131 (94.9)	7 (5.0)

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"There is no curing a sick man who believes himself in health"

- Amiel

Case Reoprt : Use of Prednisolone Acetate in Corneal Opacity of Bovine

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Department of Pharmacology & Toxicology, Ranchi Veterinary College, Kanke, Ranchi - 7

More than thousand cases of corneal opacity were treated with Prednisolone Acetate in the last twenty five years with more than 95% recovery (Goodman Gilman, 1996). Non-recovery was mainly due to delay in treatment causing Keratocoele and Keratohelcosis.

Case Report :

History of photophobia, lacrymation, blepharospasms and cloudiness of cornea confirmed a case of corneal opacity. The treatment was aimed primarily to clean the eye with cold tea infusion to remove dirt, dust and lacrymal discharges from the eye. Taking aseptic precaution 0.5ml of **Prednisolone Acetate** (Intervet) was injected sub-conjunctivally. Injection was repeated at weekly interval once or twice if recovery is not complete. After injection the eye was flooded with any of the eye drops eg. Sofracort, Betnesol-N, Genticin-HC, Cifran only once. Zinc sulphate powder is to be fed @ 5g / animal per day for 10 days (Deb, 1996). Vitamin AD3 feed supplement @ 2g/Animal per day for 15 days to one month was also given.

Instillation of eye drops. in large animals twice or thrice in a day is very difficult due to handling problem. The drug after instillation does not stay in the eye for longer period. Therefore, the need for subconjunctival administration is very appropriate. This requires expertise which has to be developed by our veterinarians by doing. The upper eye lid is everted with the help of left thumb inside and left index finger outside. The injection is given with 2ml disposable syringe using 24 G needle and piercing the conjunctive from inner canthus in right eye and outer canthus in the left eye. The drug is deposited very slowly. The point pierced should be sealed by applying pressure by left thumb to prevent leakage of drug and oozing of blood. The drug so deposited is transported to the site of action slowly. Zinc sulphate plays an important role in nutrition of eye as it catalyses the processes going on in the eye. Vitamin AD3 work as a raw material for repair of cornea.

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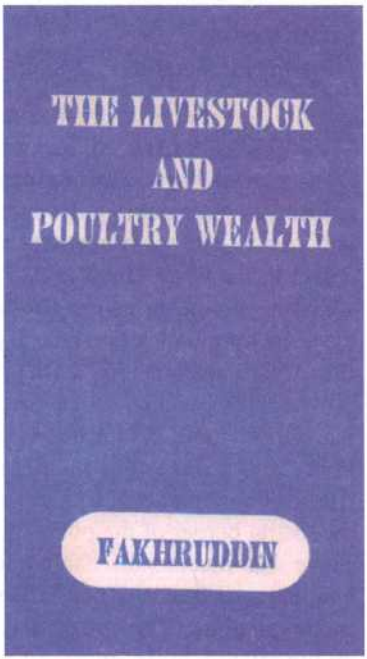
"In any contest between power and patience, bet on patience"

- John Vance Cheney

Book Review :



'The Livestock and Poultry Wealth'
by -
Dr. Haji Fakhruddin
B.Sc., Adeed Kamil, B.V.Sc.&A.H.,
M.V.Sc. (Veterinary Medicine)

Published By -
NBS Publishers and Distributors, Bikaner - 334 001

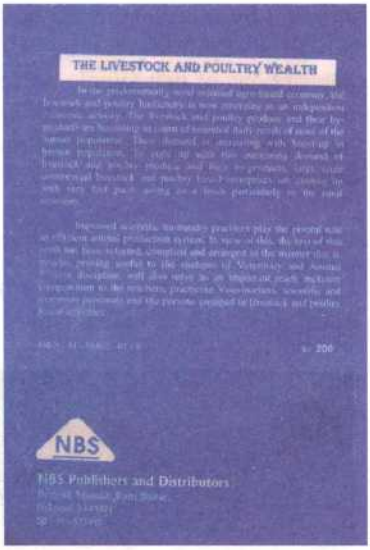
Price : Rs. 200/-

This book could have been renamed as Encyclopedia of Livestock Management. The skill and depth of knowledge, shown by Dr. Haji Fakhruddin, is applaudable, in terms of constructive depiction of the status of Animal Husbandry in India, the zoological placements of various animal, reproductive management, production and disease management and database. This kind of Bible is really required by the veterinary profession in the country.

This book also carries an in-depth study of Rajasthan's livestock wealth and can be useful for long term dairy development for the state.

To our opinion, a detailed chapter focussing the impact of GATT/ WTO and its post-effect scenario, in terms of livestock product business in the coming year, could have been an added attraction to this publication. We hope, author will consider to incorporate this in the next edition.

This goes without saying that "The Livestock and Poultry Wealth" is an asset and it must find a place in the academic curriculum of all B.V.Sc. & A.H. students and leading library of veterinary books. The entrepreneurs in large animal and poultry field also may find this book interesting and informative. In a nutshell, this book covers almost all angles of Livestock information for better practical usage.



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Case Report : Heterotopic Polyodontia in a Horse

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Introduction :

Dentigerous cysts, more appropriately referred as heterotopic polyodontia, although uncommon, are easily recognised congenital defect in the horse (Jubb *et al.*, 1985). They are also referred to as ear fistulas, temporal cysts or temporal teratomas. By definition, the cyst associated with heterotopic polyodontia contains all or part of a tooth. An ectopic tooth is attached to the temporal bone, and a secreting membrane forms a fistulous tract that lead to a sinus opening on the rostral border of the pinna. Although they cause sero-mucous discharge and matting of hair, they are basically non-inflammatory and inconspicuous. The tooth may form as a pedunculated mass enclosed by skin and attached by a pedicle to the head, or it may be intra- cranial (Baker, 1981). Other descriptions of heterotopic polyodontia have been limited to case reports or brief textbook descriptions (Baker, 1982, Watrous, 1980 and John, 1988).

Clinical Examination Findings :

Clinical recognition of the condition was aided by knowledge of its typical appearance. Sticky sero-mucous discharge stained the parotid region. Pressure over the base of the ear increased the discharge. A flexible lead probe was used to explore the sinus opening and fistulous tract (Fig. 1).

Treatment :

Surgical treatment included complete removal of the aberrant tissues and preservation of the scutiform cartilage and auricular muscles.

Chloral hydrate deep narcosis with local infiltration of 2 % Xylocain and aseptic technique were used. Careful probing of the fistulous tract and deep palpation at the base of the ear helped to establish the required length and direction of incision and the depth to the extent of dissection.

The dissection plane was oriented towards the cyst membrane to minimize hemorrhage, to reduce the chance of auricular muscle damage, and also to avoid damage of rostral auricular artery and auriculopalpebral nerve. The individual auricular muscles were not readily identifiable during surgery, because they are generally ribbon like structures and are surrounded by facial components and capillary hemorrhage. The tooth was

Fig. 1 : Showing Heterotopic Polydonlia in a Horse.

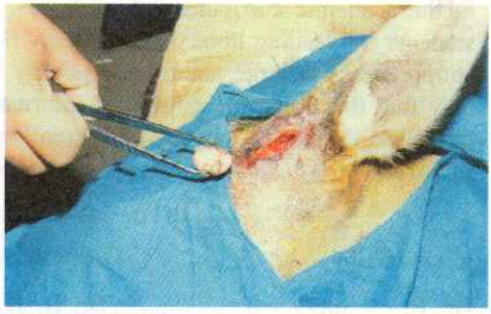

Fig. 2 : Showing Removal of Molar Tooth After Surgery.

molar-like with a complete alveolus (Fig. 2).

Auricular muscles, deep fascia, subcutaneous tissue, were opposed with No. 2-0 Dexon, and skin was opposed with No.2 silk with simple interrupted sutures. The horse received antibiotics for 5 days after surgery.

Results and Discussion :

Healing was satisfactory and the wound showed primary healing after surgery. Skin sutures were removed on the 10th day of post-operation, without any complications

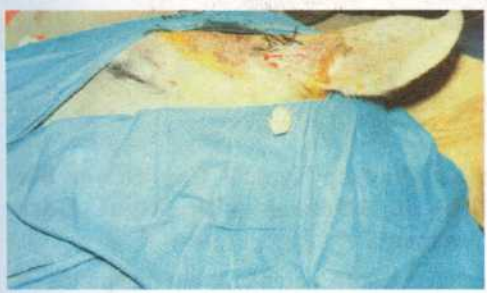

Fig. 3 : Showing Normal Healthy 10th day Post-operation.

(Fig. 3).

Recognizing the congenital nature of heterotopic polyodontia should help the veterinarians to avoid error in diagnosis and unsuccessful attempts to surgery. Embryologically, the aberrant enamel component was derived from tooth germ, which is displaced towards the ear with the first branchial cleft (Jubb *et al.*, 1985 and John, 1988). The cyst developed from cutaneous type of ectodermal tissue and result in failure closure of the first branchial arch. However, it is not a fistula, but a defective closure.

These cysts are identifiable soon after birth. However, the horse was examined after two years. Because of the benign signs, it is not uncommon for owners to delay attention.

The differential diagnosis may include extaneous foreign bodies, abscesses, and similar problems of the temporal region. Resultant lesion are usually inflammatory and painful, and can be differentiated from heterotopic polyodontia by the history and clinical signs (Cannon *et al.*, 1976 and Vaughan & Bartels, 1968).

Summary :

A two year old male horse with heterotopic polyodontia, was examined and treated surgically. Chloral hydrate deep narcosis, aseptic technique were observed for the removal of all aberrant tissue and the wound suture for primary healing appeared to be essential for preserving ear function and otaining an effective treatment.

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Case Report : Horn Cancer in Cattle Bullocks

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Horn cancer is sporadic, malignant, widely prevalent and economically important disease affecting the horn core epithelium is predominantly seen in aged Zebu bullocks and less commonly in cows and rarely in buffaloes (Somvanshi, 1991, Ramesh Kumar & Thelagar. 2000). Kaul & Karla (1973) observed more cancer cases in the age group of 5 – 10 years. The present study reports two extensive cases of horn cancer in cattle bullocks, which were successfully corrected surgically.

Case History :

Two cross bred cattle bullocks aging between 8 to 9 years were brought to the Department of Surgery and Radiology, Veterinary College Anjora, Durg (Chhattisgarh) with history of abnormal curvature, with pain, softness and foul smelling discharge from the base of the left horns of both the cattle bullocks. Both bullocks were treated by the veterinary field assistant with parenteral antibiotics and local antiseptic dressing without any success.

On clinical examination, the left horns of both the bullocks had a septic sinus wound at the base and they were loosely attached with abnormal downward curvature. There was discharge with foul smelling from the right nostril. In one of the cases, typical cauliflower like growth with bleeding tendency was observed (Fig.). The left horn of both the bullocks was normal. The general condition of the animals was poor with symptoms of weakness, inappetence and anaemia.

Surgical Treatment :

The general condition of the animals was

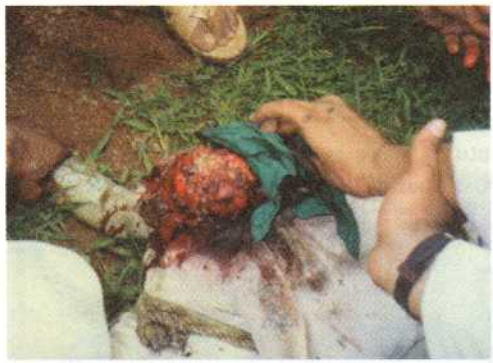

Fig.: Showing Typical Cauliflower like Growth Affected with Right Horn Carcinoma

stabilised with parenteral administration of dextrose 5% intra-venously and antibiotics. The bullocks were tranquilised with Siquil injection and ligation of cornual vessels was performed before amputation of horn. The right horn was amputated from the base using wire saw under cornual nerve block using 2 % linocaine hydrochloride. Bleeding was controlled by ligating the blood vessels using suture material. The amputated horn sinus showed foul smelling friable necrotic tissue. There was mild involvement into the frontal sinus. The necrotic tissue and bone was trimmed with the help of chisel and hammer and then dressed with Povidone iodine solution, antibiotic powder and parenteral antibiotic viz. **Floxidin®** (Intervet) administered daily for 5 days. Both the animals were clinically recovered after one and half months of surgical treatment.

Result and Discussion :

The symptoms noticed are similar to that observed by Kulkarni (1947), Nayak and

Rao (1974), Dingra, *et al.*, (1982), Somvanshi (1991) and Ramesh Kumar & Thilagar (2000). Re-occurrence was not eminent in a follow up period of one year in both the cases. In both the cases the initial cause was injury to the horns. Antineoplastic drugs were not used in the present study as the owner could not afford it. Thus both the cases made uneventful recovery only by radical surgery.

Summary :

Two cross bred cattle bullocks aging between 8 to 9 years affected with unilateral horn cancer and its successfull treatment has been reported.

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A Micro - dot Enzyme Linked Immunosorbent Assay for the Detection of Antigen and Antibodies against Goat Pox Virus.

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A visual micro-dot enzyme immuno assay (Dot EIA) based on detection of antigen and antibodies of goat pox virus (GPV) was developed: The antigen was spotted on a nitrocellulose dip stick. The unsaturated sites was blocked with blocking agents and incubated with test sera followed by incubation with Horse Radish Peroxidase (HRPO) antigoat conjugate. Enzymic activity was detected by using the substrate. A positive reaction produced a red brown spot. The sensitivity of the assay was better comparable to the plate Enzyme Linked Immunosorbent Assay (ELISA), Counter Immuno Electrophoresis (CIE) and Agar Gel Precipatation Test (AGPT). The method is rapid and the test could be performed within two hours, if antigen sensitised and problocked sticks are used. This test can be used in field conditions for the detection of antigen and antibodies.

Materials and Methods :

a) Antigen :

(1) The viral antigen MDBK, VERO and BHK21 cell line adapted goat Pox Virus, Sambalpur (Orissa) strain.

(2) Lamb testicle (LT) adapted Sambalpur, Mukuteshwar and Uttar Kashi strains virus and goat tissue antigens (viral antigens) were obtained from Pox Virus Disease Laboratory, Mukteshwar. These antigens were earlier confirmed by AGPT and CIE tests .

(3). Control antigens consisted of healthy goat skin; VERO, MDBK and BHK21 cells and lamb testide primary cell culture cells.

b) Serum :

(1) 40 serum samples from vaccinated hyperimmunized goats and rabbits as well as healthy goats were collected and detected with AGPT and CIE tests.

(2) Control sera consisted of 40 samples of healthy Pashmina goat and Deshi goats of Livestock Production Research Unit (LPR unit) without any history of goat pox.

c) DIP Sticks :

Nitrocellulose paper dip sticks, MID 0.2um pore size (advanced Microdevices, Ambala) was used in this assay.

d) Blocking Agents :

The unsaturated sites of dip sticks were blocked with :-

1 % skimmed milk solution

1 % gelatin solution.

3 % Bovine Serum Albumin (BSA)

e) Conjugates :

HRPO antigoat conjugate was prepared. Rabbit antigoat IgG-HRPO conjugate was prepared as per standard laboratory method.

f) Antigen Preparation :

Cell culture fluid / supernatant cell debris, three times frozen and thawed goat skin scabs as well as healthy goat skin were used as antigen. The

supernatant was collected after centrifugation at 400C. The protein content of the supernatant was determined (Aoalkha *et al.*, 1970 & Sharma *et al.*, 1988) All the antigens were stored, frozen at -20°C in aliquots and diluted in Phosphate Buffer saline (PBS).

g) Reagents and Solution :

Skimmed milk (Lipton India Ltd.), BSA (Sigma Chemicals) and Horse Radish Peroxidase (HRPO) type VI (Sigma Chemicals) were used.

h) Substrate OPD and DAB

Hydrogen Peroxide (H_2O_2, 30 %) of (British Drug House, the U.K) was used.

i) Test Procedure (Doting of Antigen) :

2µl of viral antigen was spotted on dip sticks with hamilton syringe and incubated at 37° C for 30 minutes. The unsaturated sites were blocked with 1% skimmed milk, 3% BSA and 1% gelatin solution. The dip sticks were air dried at room temperature for 20 minutes. The sticks were rinsed with FBS Tween 20 and air dried. The test sera and reference sera sticks were air dried and rinsed with FBS Tween 20 and air dried again. The sticks were incubated with rabbit antigoat. Immunoglobulin G (IgG) HRPO conjugated 1:100 for 20 minutes, which was followed by 3 washing and air dried. The enzyme and substrate reaction - the enzyme bound to sticks as a result of the above mentioned procedure was visualised by incubating the sticks with OPD (4mg / 10ml of Tris HCl buffer) C-phenylene diamins dehydro chloride (Sigma Chemicals). Hydrogen Peroxide added at a final concentration of 1µ /ml. This solution was prepared fresh before use. The reaction was allowed to proceed for 10 to 15 minutes and then terminated by washing with tap or distilled water solution.

Result :

The samples were treated for goat pox antigen and antibodies as well as for cell line adapted GPV antigen. In dot ELISA, positive reactions were scored as a clearly visible brownish red dot against and almost colourless background. Control antigens did not show any colour at the site of antigen application.

Comparison of dot ELISA with AGPT and CIE Test :

Dot ELISA test was standardised for the detection of GPV antigen. Antibodies also detected by this test in sera samples collected

Details of tests Results :

Sera samples collected post-vaccination	Dot ELISA	ELISA CIE	AGPT
7 days	+	-	-
14 days	++	+	-
21 days	++	++	+

from the vaccinated goats at 7, 14 and 21 days post-inoculation.

Discussion :

The dot ELISA described in this study is comparable in sensitivity as well as specificity with CIE and AGPT tests. This test could detect 100 % of positive cases for goat pox antigen. Dot ELISA seems to be relatively more sensitive for diagnosis of pox and can be used in place of plate ELISA which is time consuming and costly.

The assay is very rapid and the whole procedure can be performed within 2-3 hours. If precoated antigen or antibody sticks used which is an important consideration for use under field condition. This test has greater applicability, especially under field conditions for epidemiological studies.

Acknowledgements :

The authors wish to thank Director and staff of IVRI (Mukteshwar) for offering the necessary laboratory facilites and cooperation to complete this study respectively.

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Observations on the Incidence of Worm Infestation in Dogs and Efficacy of Different Methods in its Detection

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The harmful effects of helminth parasites on dogs and the public health importance of some of these worms are well known. There are only three reports on the occurrence of gastrointestinal parasites of dogs in Bangalore over a period of time based on samples collected from cases brought to the different hospitals for treatment or postmortem examination (Malaki, 1966 and Hegde & Jagannath, 1974). Considering the large population of housed and stray dogs in Bangalore, a random survey was undertaken to study the incidence of worm infections in dogs and to note the efficacy of different methods in detection of the eggs in the fecal samples.

Materials and Methods :

Faecal samples were collected from one hundred non-descript stray dogs from different parts of Bangalore City representing two groups viz, 1 to 4 months of age and the rest comprising 1-6 years of age. The samples were examined first by direct smear and then processed by sedimentation method, formal ether method (Faler & Faler 1984), Nigrosine methylene blue method (Vinayak & Seghgal, 1976) and also by floatation with sucrose and sodium chloride solutions (Soulsby, 1982). In addition to these qualitative techniques, the worm burden was also assessed by Stoll's dilution method and the McMasters technique (Soulsby, 1982) and the results were subjected to analysis of variance (Snedecor & Cochran 1967).

Results and Discussion :

Out of the faecal samples screened, 42 were from pups (1-4 month old), of which *Ancylostoma sp.* and *Toxocara* sp. ova were observed in 22 and 20 pups respectively. The remaining 58 adult dogs (1-6 years age) revealed infection of *Ancylostoma* sp. and *Toxocara* sp. in 16 and 14 animals respectively. *Isospora* sp. oocysts were found in two of the adult dogs (Table I).

It was apparent that the occurrence of *Ancylostoma* sp. and *Toxocara* sp. in pups was approximately double in percentage when compared with adult dogs.

Among the quantitative methods McMaster's technique could detect (14.82 % on an average) more number of eggs when compared with Stoll's method. The EPG of *Toxocara* sp. and *Ancylostoma* sp. ranged

Table I : Occurrence of *Ancylostoma* sp., *Toxocara* sp. and *Isospora* sp. Ova in Stray Dogs of Bangalore City Area

Age Group	No. of Samples screened	No. of positive cases (%)		
		Ancylostoma sp. Ova	*Toxocara* sp. Ova	*Isospora* sp. Ova
1 - 4 months	42	52.38	47.61	-
1 - 6 years	58	27.58	24.13	3.44

Table II : Efficacy of Different Methods of Faecal Examination in Ova Detection of *Ancylostoma* sp. and *Toxocara* sp.

Method	No. of faecal Samples screened	No. of samples positive		Mean values
		Ancylostoma sp.	*Toxocara* sp.	
Direct smear	100	8	8	8[c]
Sedimentation	100	32	28	30[a]
Formal ether method	100	32	34	32[a]
Nigrosine methylene blue	100	15	22	15[b]
Sucrose floatation	100	36	38	36[a]
Sodium chloride floatation	100	34	38	34[a]

Means with different superscripts indicate that they are significantly different at 5% level.

from 200 to 6400 and 100 to 9000 respectively and no statistical significance was noticed between McMaster's and Stoll's method. The egg load was more in adult dogs and pups in case of *Ancylostoma* sp. ova. In case of *Toxocara* sp. ova the adult dogs were found to have higher egg load. The other infected dogs showed very light infection with *Isospora* sp. oocyst.

Among the different techniques, sugar floatation revealed highest efficacy followed by sodium chloride floatation, formal ether method and sedimentation method (Table II).

However, no statistical difference was found between the above mentioned four methods discussed herewith. Direct smear method and Nigrosine methylene blue techniques were significantly from all other methods and were less useful.

Faecal samples found negative are no way conclusive in assessing parasitic incidence because of several factors like high specific gravity of some eggs, mild infection and seasonal as well as cyclical egg out put by some parasites which were not taken into consideration.

The results indicated a high degree of prevalence of *Ancylostoma* sp. which was similar to the observation of Chhabra & Mahajan (1978) and Das Gupta *et al.,* (1973) and the prevalence of *Toxocara* sp. appeared more frequent and serious in pups than in older dogs.

The over all prevalence of *Toxocara sp.* ova (23.08 %) in pet and stray dogs in Bareilly was reported (Samanta & Ghorui, 1998) with a higher infestation rate in stray dogs (53.73%) and young dogs below 6 months (45.38%). A higher incidence was observed in the present study in Bangalore in pups, compared to adults.

Sugar solution is one commonly used floatation fluid which is readily available, cheap, does not distort round worm eggs and

floats adequate percentage of eggs (Colvile, 1991). Sodium Chloride is another inexpensive and readily available chemical for floatation. In this study both Sugar and Sodium Chloride saturated solutions gave good result in floatation in Nematode eggs. The formal ether method is said to be a useful technique for detection of ova and cysts especially in Canine, Feline and Human faecal samples which are fatty in nature. It eliminates fat, mucous, decrease bulkiness of the faecal matter and improves clarity. In this study it was found to be a satisfactory method and was second in order of detectability after Sodium Chloride floatation, but better than the sedimentation technique although it was not statistically different. Therefore, it was concluded that Sugar or Sodium Chloride floatation is preferred since it is easy, involves less cost and is rapid for detecting roundworm or hookworm eggs. The high incidence of *Toxocara* sp. and *Ancylostoma* sp. infections in stray dogs at Bangalore as observed in this study was alarming in view of their zoonotic importance.

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

- Tolstoy

"A mind trouble by doubt
cannot focus on the course to victory"

- Arthur Golden

Isolation of *Escherichia coli,* Causing Enteritis in New Born Pigs and its Antibiogram Study

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Escherichia coli is known to cause acute and fatal enteritis in newborn pigs. It is more liable to produce deaths in individual pigs in the litter although all pigs may be affected. It can be diagnosed only by isolation of the organism. (Merchant & Barner, 1973). Among the main causes of neonatal mortality in piglets the gastro-enteropathies accounted for 2.8 % of the toal mortality of all piglets born in 17 herds (Nielsen, 1975). Colibacillosis of piglets accounted for approximately 50 % of the gastro-enteropathies encountered during the pre-weaning period (Svendsen, 1975). Enterotoxic colibacillosis (baby diarrhoea) is the most common form of colibacillosis in piglets and upto several days of age with a peak incidence at 3 days of age (Blood *et al.,* 1985). The present study deals with isolation of *E.coli* from unweaned piglets and its sensitivity to different antibiotics, available in the market.

Materials and Methods :

Collection of Samples : Ten number of faecal samples were collected from the affected 3 - 5 days old un-weaned piglets that were showing severe diarrhoea at district livestock farm, Hosur, during June 1999.

Faecal samples were subjected to culture and antibiotic sensitivity tests at the department of Microbiology, Veterianry College and Research Institute, Namakkal.

Culture Test : The fecal samples were streaked in Blood agar and McConkey agar plates and incubated at 37° C for 24 hours and the colony characters were studied.

Microscopic Examination : A single colony was taken in an inoculation loop smeared in a glass slide and stained with Gram stain.

Biochemical tests: Based on the microscopic examination motility test and various biochemical tests such as Indole, Methylred, Voges-proskauer, Citrate utilisation, H_2S production, Urease, Glucose fermentation, Catalase and Oxidase tests were carried out as per standard procedures to confirm the isolates.

Antibiotic Sensitivity Tests : Antibiogram was done for all the 10 isolates using Mueller - Hinton agar by paper disc diffusion method (Bauer *et al.,* 1966). Antibiotic discs Chloramphenicol (30 µg) Enrofloxacin (10 µg), Co-trimoxazole (25 µg), Penicillin (10 U), Ampicillin (10 µg), Pefloxacin (10 µg) and Neomycin (30 µg) were used.

Results and Discussion :

The culture tests of all the 10 samples showed discolouration around the growth in blood agar and large pink colour lactose fermenting colonies in McConkey agar. Microscopic examination of colonies revealed motile, gram-negative short rods suggestive of coliform bacteria. The results of the biochemical tests carried out to confirm the *E. coli* are presented in the Table.

Table : Showing Results of Biochemical Tests

S. No.	Tests Carried Out	Results
1.	Indole	+ Positive
2.	Methylred	+ Positive
3.	Voges-proskauer	- Negative
4.	Citrate utilization	- Negative
5.	H_2S production	- Negative
6.	Urease	- Negative
7.	Nitrate reduction	+ Positive
8.	Gelatin liquefaction	- Negative
9.	Glucose fermentation	Produced acid and gas
10.	Catalase	+ Negative
11.	Oxidase	- Negative

All the 10 isolates showed Indole positive, Methyl red positive, Voges-proskauer negative, Citrate negative, H_2S neagtive, Urease negative, reduced nitrate to nitrite, did not liquify gelatin, fermented glucose produced acid and gas, Catalase positive and Oxidase negative. The results of biochemical tests confirmed the isolates as *E.coli.*

The antibiotic sensitivity tests of all the 10 isolates showed that only Enrofloxacin and Pefloxacin were sensitive to these isolates whereas Neomycin, Oxytetracycline, Ampilicillin, Co-trimoxazole, Chloramphenicol and Penicillin were found to be resistant.

Summary :

An incidence of acute and fatal enteritis occurred in unweaned piglets of 3 to 5 days of age at the district livestock farm, Hosur during June 1999. The piglets were showing severe diarrhoea. *E.coli* was isolated and identified from the feces of 10 number of affected piglets that were examined. In antibiogram study, Enrofloxacin and Pefloxacin were found to be highly effective to all the samples tested.

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Case Report : Clinical Observations and Practical Measures on Control of Naturally Ocurring Johne's Disease in Sheep in Organized Farm.

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Johne's disease is one of the naturally occurring chronic debilitating infectious diseases mainly affecting sheep, cattle, goat and deer. The disease has got worldwide distribution and is wide spread where intensive methods of sheep farming are practiced. The slow spread and chronic course of disease result in a recurrent economic loss. Besides the losses due to emaciation and death, infected animals also suffer decreased productivity, increased infertility and increased susceptibility to other infections. (Blood *et al.*, 1983).

A battery of diagnostic tests such as allergic tests, cultural examination of faeces, serological tests, etc., are employed in individual or herd basis. Though they require expertise for conduct and interpretation, lack dependability. Under these circumstances, clinical observations along with the post-mortem findings in few cases are of great help in suspecting and diagnosing the Johne's disease in organised farm or in area to prevent further spread of infection to healthy animals.

Allergic Tests :

Allergic tests based on skin sensitivity are not useful in early and late stages of the disease. Still they are of great value if employed on herd basis or when the disease has been confirmed and test is repeatedly performed (Kelly, 1984).

In case of Johne's disease, sensitivity to Johnin appears after 8 weeks of infection and persists for six to eight months. The shedding of organisms *Mycobacterium paratuberculosis* in faeces starts after 12-14 months of infection (Karpinski & Zorawaskis, 1975).

Case Report :

In a study of affected sheep, 24 Johnin positive sheep were examined for six months, only 12 sheep were found to shed the organism in faeces and the shedding of organisms in faeces was not constant feature. (Jadhav *et al., 1993*).

Clinical Signs :

The clinical signs in the affected sheep were intermittent sub-mandibular edema, loose faeces, and gradual loss of body condition, wool shedding and mucopurulent nasal discharge. Their appetite remains normal through out the course of the disease. In this study, under identical management conditions, the reactor sheep showed 8.49 % body weight loss in contrast to 6.76 % gain in healthy sheep. Bottle jaw and loose feaces were the earliest clinical signs.

There was about 7 % reduction in haemoglobin and 11 % reduction in total erythrocyte count in contrast to 4 and 11 % rise in healthy sheep indicating gradual development of anaemia in the affected sheep. This may be due to non-absorption of nutrients for haematopoiesis. Under biochemical parameters, serum magnesium level was found to be significantly low when compared to healthy sheep.

It was observed that the progress of infection

is attended by a fall, howsoever slight in the mineral constituent in blood possibility due to some interference with their absorption or assimilation (Gilmour, 1976). The loss of body weight and bottle jaw condition is attributed to interference with protein and other nutrient absorption and steatorrhoea and subsequent development of hypoproteinemia.

No changes were recorded in respiration and heart rate and rectal temperature of affected sheep. Ruminal motility was found to cease only in advanced clinical cases or just prior to death. There was also cessation of diarrhoea and improvement in faecal consistency prior to death. Such animals on autopsy usually showed rumen full of ingesta while intestine either empty or with scanty faeces.

The wool shedding in Johne's disease is apparent only in clinical cases. Analysis of wool production of clinical cases of sheep during last two shearing preceding to development of clinical Johne's disease, it was found no significant changes in wool production.

Other workers made similar observations on clinical Johne's disease in sheep, (Ajey Kumar *et al.*, 1982, Baharsefat *et al.*, 1972, Gahlot *et al.*, 1982, Jadhav *et al.*, 1982 and Reddy *et al.*, 1982).

Post-mortem Findings : Examination of the carcasses died of Johne's disease showed rough body coat, generalised weakness and varying degree of wool shedding. Externally the gluteal and femoral muscle masses were exhausted.

On skinning, the carcasses were pale and anaemic. The intestinal lesions were varied from moderate to mild intestinal lesions extending from terminal part of ileum, caecum and colon. The lesions consisted of moderate edema in the intestine with creamy, slimy fluid. In less pronounced cases, there was only slight velvety thickening of the mucosa. However, there was no corelation between severity of intestinal lesions and age and condition of Johne's disease affected sheep. These findings were similar to observations by Doxey, 1971 and Ivanitskii, 1977.

Mesenteric lymphnodes were found to be enlarged and edematous with little cortico-medullary distinction. The smears prepared from the affected intestinal portions and cut surfaces of mesentric lymphnodes were utilised to detect the presence numerous acid fast bacilli. Ivanitskii (1977) reported that 21% sheep with latent infection of Johne's disease could be detected by histological examination only.

Generally it is believed that Johne's disease is difficult to eradicate once established in the farm. Therefore, in endemic areas, any emaciation and diarrhoea, not responding to treatment should be suspected for Johne's disease. Similarly, all the affected animals may or may not manifest diarrhoea or some animals with only loose faeces or intermittent bottle jaw condition should also be immediately isolated and corrective measures at the earliest to be taken in the farm.

Besides, this following measures should be adopted to control the disease on the farm.

1. About 6 inches of the kuchha flooring should be removed every year and area be allowed to be disinfected with sunlight, BHC and slacked lime mixture. Such sheds should be kept unlocked for some period rotationally.
2. There should be regular screening for Johne's disease and positive animals should be further subjected to battery of diagnostic tests. Confirmed positive and clinical cases should be isolated and culled at the earliest from the farm.

3. Proper disposal of faecal material is important. Liquid processing of faeces and disinffection by adding 20 % hydrated lime (w/v) is advocated. This produces lime stabilisation of faeces and destroys the bacillus. Alternatively the mannure should be inaccessible to the animals.

4. During regular autopsy examination, intestine and mesentric lymphnodes must be examined and tissue samples must be collected for histopathological examination to detect cases dying without clinical signs.

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"All power is within you :
you can do anything and everything.

Believe in that, do not believe that you are weak;
stand up and express the divinity within you."

- Swami Vivekananda

Case Report : Efficacy of Patented Human Placental Extract (HPE) in the Treatment of Infertile Animals

M. K. Tamuli and S. M. Tamuli
College of Veterinary Science, Assam Agricultural University Campus, Khanapara, Guwahati - 781 022

Human placental extract, (HPE) is a clear transparent solution prepared aseptically for the treatment of human beings as a biogenous stimulator due to immuno-stimulant activity (Ansari *et al.*, 1994) with nonspecific infertility in women. However, the reports were scarce about the use of human placenta extract which contains three releasing harmones viz. Gn-RH (Genadotropin Releasing Hormone), TsH-RH (Thyroid Stimulating Hermone - Releasing Hormone) and CRH (Corticotropin Releasing Hormone) (Gibbons *et al.*, Siler-Khor & Khodr, 1978; Khodr & Siler-Khodr, 1980; Lee *et al.*, 1981 and Shibasaki *et al.*, 1982) used in treating infertility problems in animals. In the present report, attempts were made to observe the efficacy of the drug in inducing in various cases of infertility in animals.

Treatment in Failure of Ovulation :

Cattle : In the first treatment schedule, altogether 23 heifers (>200 – 250 kg bw) and 240 cows of 3 – 5 lactation (>350 – 500 kg bw) belonged to different dairy farms which failed to conceive for more than three inseminations at appropriate time during three different oestruses were included for study. The cows and the heifers were of crossbred Jersey and Holstein Friesian character. Initially nine of these repeat breeding cows were injected with 10ml of HPE (2 ml/ampoule) intra-muscularly immediately after insemination within 16-18 hours from the onset of oestrus. But, all the nine cows exhibited oestrus again on 20th or 21st day of insemination. In the next attempt of treatment, these nine cows were merged with rest of the repeat breeding cows and heifers and were treated intra-venously with HPE immediately after insemination, using 10 ml dose for body weight up to 450 kg and 15 ml dose for body weight more than 450 kg. Following treatment, all heifers (100%) and 224 cows (97.4%) conceived with confirmation of pregnancy up to 97.6 % requiring 1.3 number of services per conception.

Goats : In the second case of treatment, a total of 361 does (she goats) inseminated within 30-40 hours from the onset of oestrus. But, eleven of these does between 3-5 lactation failed to conceive even after three consecutive oestruses. These does normally repeated oestrus cycles with 18-19 days and exhibited prolonged oestrus symptoms up to 4 days. As an effort for treatment of these does, each of them were inseminated within 30-32 hours from the time of onset of oestrus followed by an intra-venous injection of 6 ml HPE to stimulate release of optimum LH (Lutenising Hormone) surge for inducing ovulation. Following treatment, the does continued with pregnancy and kidded normally except one which aborted after 31st day of insemination.

Treatment in Cystic Ovarian Disease :

In another trial of treatment, two crossbred Jersey cows (300-325 kg body wt) of 4th and 5th lactation failed to conceive for their cystic ovarian conditions cows were inseminated twice at 6-8 hours interval with first insemination after 17- 18 hours from the

onset of oestrus. Each insemination was followed by an intra-venous injection of 10 ml HPE. After 8 hours from the second HPE injection, ovulation was confirmed per rectum in each animal with presence of crater like depression on the site of ovulated follicle. The cows were again supported with two doses of intra-venous HPE separately on 14th and 24th day after insemination to maintain sufficient LH secretion so that the growth and maintenance of corpus luteum in each cow would be maintained and thus avoid progesterone insufficiency. Later the cows calved after covering full length of pregnancy.

In all these efforts of treatment, ovulation was successfully induced with HPE as it proved to contain Gn-RH for LH (Gibbons *et al.*, 1975; Siler-Khodr and Khodr, 1978; Khodr and Siler-Khodr, 1980; Lee *et al.*, 1981) and can successfully be used in the treatment of repeat breeding, caused by an ovulation or cystic ovarian condition. Also, CRH present in the human placental extract (Shibasaki *et al.*, 1982) might have exerted its synergistic action along with Gn-RH for the release of more LH surge (Caraty *et al.*, 1997) and ultimately helped in ovulation. Thus, Human Placental Extract (HPE) may be recommended as a tool for regular practice through intra-venous route at the time of artificial insemination to improve conception rate and avoid possible infertility. Also, the cost involved for the treatment is very low in comparison to the treatment with other synthetic Gn-RH or HCG (Human Chrorionic Gonodotropin).

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"Nither is the mind to be distributed by vain arguments, for it is no more a question of argument; it is a question of fact."

- Swami Vivekananda

Case Report : The Efficacy of Receptal® (GnRH Analogue) on improvement of Conception Rate in Crossbred Cows

N. S. Sonwane, R. L. Dhoble, A. G. Sawale, S. T. Suryawanshi, N. P. Dherange and V. R. Wale

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Previous research indicated that apart from infection the possible causes of repeat breeding are delayed ovulation, inadequate luteal function and management errors which result either in fertilization failure or early embryonic mortality. The present study, therefore, has been designed to observe the effect of gonadotropin releasing hormone GnRH analogue, **Receptal®** (Intervet) on improvement of conception rate in crossbred cows.

Thirty five crossbred cows were selected for experiment from the surrounding region of the village Pal for the present study. Out of 35 crossbred cows, 20 crossbred Hostein Friesian (HF) cows were kept in treated group with 2.5 ml **Receptal®** (0.0105 mg GnRH analogue of Intervet) was given intra-muscularly in the neck region as a single dose treatment at the time of artificial insemination(AI) and 15 crossbred HF cows were kept in control group which were not treated and AI was done along with the treated group. All the crossbred cows were kept under close observation and repeat AI was carried out after 21 days of treatment. Per-rectal examination of experimental and control groups animals were conducted sixty days after the pregnancy diagnosis was carried out.

Observations :

Out of 20 treated HF crossbred cows 13 cows (65%) found to be pregnant. While 6 out of 15 HF repeat breeder cows (40%) were found to be pregnant from control group. The present finding, regarding the conception rate are in close agreement with Deen (1994) was reported 70 % conception rate from 15 cows injected with 10 mg of Buserelin (GnRH analogue). Rayos (1995) reported 70% and 50% conception rate respectively in treatment and control groups. Alan *et al.*, (1998) reported 66.66 % conception rate from 21 cows treated with 100 mg GnRH. El-Azab *et al.*, (1987) reported that 74 % and 39.3% conception rate given single intra-muscular injections of 2.5 ml **Receptal®**, the pregnancy rate was 73.33 %. Rao & Naidu (1987) reported the low conception rate (54%) in treatment group which was given 2.5 ml synthetic GnRH analogue (**Receptal®**) as compared to control group with 36.9%. Bon Burant *et al.*, (1991) reported low conception rate (43.2%) with GnRH injection and 39.5% in control group. Graves *et al.*, (1990) recorded 38 % conception rate after injecting 2 ml GnRH intra-muscularly. The result of GnRH treatment was effective and economically viable due to low economic cost of the drug. However, more systematic and controlled trials on large number of animals are necessary to substantiate and draw further conclusion.

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Case Report : Corneal Opacity Associated with *Setaria digitala* in the Aqueous Humour of a Buffalo

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Department of Epidemiology & Preventive Veterinary Medicine,
College of Veterinary & Animal Science, Bikaner - 334 001

Setaria sp. parasites are usually found in the peritoneal cavity of ungulates but aberrant migration might lead to the presence of both adult and immature forms in erratic location such as anterior chamber of eye (Raman & Senthivel, 1998). Larvae of parasites may reach the eye via blood stream. The parasites may cause corneal endothelial damage with the clouding of the cornea, Uveitis, Chorioretinitis and blindness (Hunger Ford, 1990). The present paper described an occurrence of *Setaria digitata* in the anterior chamber of eye of a she-buffalo.

An eight year old Murrah she-buffalo in her third lactation was examined because the animal had partial corneal opacity of the right eye and had lacrimation for the last one month. This animal used to keep its affected eye partially closed and also keep its head high. On close examination of the affected eye, it was found that a milky white thread - like small worm was moving in the anterior chamber of the right eye. The conjunctiva was congested. It was decided to remove the worm surgically from the anterior chamber of the eye. Animal was sedated with 3 ml of Xyalazine intra-muscularly and restrained in lateral recmbency.

Under infra-orbital nerve block using 2% Xylocaine, 4 mm incision was made at 90 ° angle at corneo scleral junction on dorsal aspect. The worm came out automatically from the anterior chamber from the incision site. No suture was applied. Chloramphenical eye drop was instilled three times a day for seven days. Ampiclox was administered 2.0 g intra-muscularly twice a day for seven days. There was complete healing of cornea in seven days. The corneal opacity disappeared completely. The worm was measured 7 mm in length and identified as larva of *Setaria digitala*. In the present case, due to migratory habit, larva of *Setaria digitala* would have reached the anterior chamber of the eye and resulted in the opacity of the affected eye.

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"Cowards die many times before their death.
The valiant never tastes death but once"

- Shakespeare

News

"Wonder Cross Breed Cow in SIMUL Dairy Milk Shed Area"

The 27-year old cross breed cow, has been reported of having the following wonder features -

- She has achieved 25th successful parturition recently.
- She is continuously giving milk since 25 years.
- Initially she was giving 22 litres of milk per day. Now she gives 16 litres per day.
- Till date, she has no dry period and no colostrum type of milk after parturition.

Fig.: Showing Wonder Cross Breed Cow with her Owner Rameshwar Shivjilal.

Dr. P. R. Pandey, Dr. S. A. Ghera and Gulabbhai Patel (From letf to right) looking on.

Courtsey : Dr. P. R. Pandey, Manager, SIMUL Dairy

Ibrivax® : Infectious Bovine Rhinotracheitis (IBR) Vaccine from Intervet

Recently, Intervet has commercially launched IBR vaccine under the trade name **Ibrivax®**. The vaccine production technology for IBR vaccine has been licensed to Intervet and thereafter field trials of the vaccine have demonstrated that **Ibrivax®** is safe, efficacious and suitable for routine vaccination to prevent IBR disease. As post-launch sero-surveillance studies, several field trials have been conducted in Maharashtra, Andhra Pradesh and other parts of the country.

Ibrivax® (IBR Vaccine) is an inactivated tissue culture oil adjuvant vaccine, developed from an Indian strain of *Bovine Herpesvirus-1*. **Ibrivax®** has been widely studied for its post-vaccination sero-conversion titers. Post-vaccination immune response is monitored through Serum Neutralizing (SN) antibodies, as well through post-vaccination animal challenge studies.

Like any other viral disease, there is no specific treatment for IBR. As the virus is widespread the only practical method to prevent IBR is through developing protective immunity level in the herd by routine vaccination. As in the case, **Ibrivax®** will be a good prophylactic measure to combat BHV-1, injection in the country.

The vaccine dosage is 2 ml and generally administered through sub-cutaneous (s/c) or intra-muscular (i/m) route. Initial vaccination to be followed by a booster vaccination, 3 months after the first vaccination and thereafter, revaccination annually.

- Dr. R. Sethi, Sr. Marketing Manager, Intervet (India) Pvt. Ltd.

NEWS

Preliminary Safety and Efficacy Report on **Ibrivax®**, Infectious Bovine Rhinotracheitis (IBR) Vaccine

Infectious Bovine Rhinotracheitis Vaccine (IBR) virus also known as *Bovine Herpesvirus-1* (BHV-1) causes huge economic losses to farmers in the form of reproductive disorders, losses in milk production and sometimes mortality. According to the latest countrywide sero-survey conducted, it is evident that, the overall sero-prevalence of IBR was 38% and approximately 48% was recorded in Maharashtra.

Considering the widespread prevalence of the latent virus and economic losses due to the disease, this project was undertaken, with the following objectives -

1. To study the efficacy of oil adjuvanted, inactivated IBR vaccine (**Ibrivax®**) in crossbred cattle and buffaloes under field conditions.
2. To compare the efficacy of serological tests for detecting, post-vaccinal antibody response against IBR virus i.e., Indirect Haemagglutination test (IHA), Serum Neutralization Test (SNT) and Enzyme Linked Immunosorbant Assay (ELISA).

Experimental Design :

1. Seventy Five (75) animals of different age groups were selected.
2. Animals were vaccined on the day 0 by subcutaneous route with 2 ml of inactivated oil adjuvanted vaccine, **Ibrivax®**, supplied by Intervet, Pune. Booster dose was similarly administered on the day 60. The sera samples (total 450, so far) were collected from vaccined and unvaccined (control) animals at the intervals of day 28, 60, 90, 120, 180 days followings vaccination and only once before vaccination i.e., day 0.

Gross Observations :

The gross observations on this preliminary studies i.e., 3 days before and days after 0 day vaccination and 14 days booster dose showed that there was no adverse drug reaction at the site of injection and in general, all animals were quite healthy. The feed intake, activity profile, texture of skin, general behavior, approximate weight and milk yield remained normal during the observation period. Rectal temperatures were between 100.4° to 101° F. The preliminary studies (Gross Observations) of animals injected with inactivated oil adjuvant vaccine **Ibrivax®** showed that the vaccine is safe and innocuous.

Courtesy - Sharmila Majee, A. A. Sherlikar, A. M. Das, D. R. Patil and R. M. Gosavi
Bombay Veterinary College, Parel, Mumbai - 400 012.

Dear Readers,
"The final report of the above mentioned research article will be published in the next issue which may kindly be noted."

- Editor

ANGARA (Leechi or HHS) DISEASE

Angara is an emerging viral disease of great economic importance and a major threat to poultry industry.

The disease was reported in 1987 from Angara Goth in Pakistan. In India, the first outbreak was reported in the state of Jammu & Kashmir and Punjab in 1993. Subsequently, the disease spread to Haryana, Gujarat, Madhya Pradesh, Andhra Pradesh, Karnataka, Tamil Nadu and Kerala. In India, it is commonly reported by name of 'Leechi disease', because the heart and pericardium of the affected bird resemble peeled Leechi fruit. Generally, the disease is common in intense poultry growing areas. Recently, outbreaks of Angara disease have been reported from Palladam, Coimbatore and other adjoining broiler growing areas of Tamil Nadu.

Etiology : Angara disease is caused by adenovirus which is non enveloped size varying from 70 to 90 nm and with double stranded DNA, having icosahedral symmetry. It is resistant to lipid solvents, disinfectants, pH and temperature variations. The adenoviral pathogens of poultry are classified in the family Adenoviridae under the genus Aviadenoviridae. Three groups of Aviadenoviridae are recognized. Group I contains 12 serotypes some of which cause Angara, IBH and Quail Bronchitis. Group II include the pathogens responsible for marble spleen disease in pheasants Haemorrhagic enteritis in turkeys and Splenomegaly virus of chickens and Group III includes EDS 76 as the principle pathogen. Considerable debate has taken place regarding the direct role of fowl adenovirus to cause Angara and immunosuppression. However, the direct role of fowl adenovirus serotype-4 to cause Angara disease in chickens has been scientifically verified and documented.

Predisposing Factors : The disease is likely to occur in poultry growing areas which are endemic to virulent ND and IBD. Also, the disease is accentuated by immunosuppressive viral agents like CAV, MD and Reo. Moreover, the role of Mycotoxins and Clostridal Toxins to predispose viral diseases in well known.

Susceptibility : Disease affects broilers flocks between 3 to 6 weeks of age, breeders upto 32 to 35 weeks of age and commercial layers upto 17 weeks of age. Infected chicks can shed the virus upto 14 weeks of age.

Transmission : Angara disease is transmitted by vertical route from infected parents to offspring. Under farm conditions, horizontal transmission is rapid through carrier birds, faecal material, contaminated clothing, equipment, footwear, personnel and in some cases by contaminated vaccines. Morbidity is 100% and mortality upto 80% has been recorded.

Clinical Signs : There are no specific clinical signs but affected birds are listless and depressed with ruffled feathers.

*"Recently Intervet (India) Pvt. Ltd. has commercially launched Angara disease vaccine under the trade name **Nobilis®FAV**. Several field trials have been conducted as per the specified vaccination schedule and it is found that **Nobilis®FAV** is extreamly safe and efficacious.*

*For prevention, intensive vaccination with **Nobilis®FAV** of the parent flock and progeny is required to prevent vertical transmission and outbreaks.*

Further it is suggested that to take proper control measure of the disease, administration of standard and quality IBD (intermediate plus), CAV and MD vaccines in Angara endemic areas will greatly reduce the intensity of predisposing factors precipitating Angara outbreaks. Thorough disinfection between two successive grow outs and disposal of dead birds either by incineration or by deep pit burial will avoid the spread of infectious agent. It is also suggested to avoid contaminated fish meal in the ration and practice delivery of feed in new feed bags at the farm."

- Dr. Prasad S. Patala,
Sr. Manager - Marketing & Technical Support, Intervet (India) Pvt. Ltd.

READERS' COLUMN

Comments / Suggestion on *'The Blue Cross Book - 15'*

1. **Dr. Shatrughn Singh**
   District Veterinary Hospital, Fa garh - 496 001

   "Thanks for sending this issue. Please incorporate one canine breed coloured photograph in each issue, so that every issue will have an added attraction"

2. **Dr. R. K. Mahuli**
   2/22, M.H.B. Colony, Swami Vivekanand Nagar, Pune - Solapur Road, Pune - 411013

   "Impressed by the wide range of its subjects covered in this issue as well as readership across the country as noted from the "Readers' Column".

3. **Dr. J. P. Soman**
   Department of Microbiology, Ranchi Veterinary College, Kanke, Ranchi - 834006

   "I have read this issue and also all previous issues of *'The Blue Cross Book'*. The research articles and reviews published in the book are highly useful and informative to field veterinarians and professionals, engaged in teaching and research. I thank the Editorial Board and specially to the Editor, Dr. A. K. Datta for his valuable efforts".

4. **Dr. P. R. Pandey**
   Rameshwaram, HB Park, Shastri Road, Bardoli-1 (Surat)
   Gujarat - 394601

   "I liked this issue very much because, it is really informative. I liked the article on 'Selection of Foot & Mouth Disease Virus Vaccine Strains'. Please publish "Immunity titre level" of your **Clovax®**-C, FMD vaccine as it is very good vaccine."

5. **Dr. Prakash Nadoor**
   Department of Pharmacology & Toxicology, Veterinary College, P. O. No. 6, Bidar-585401

   "One or two articles related to clinical toxicology, may be included for publication in each issue for the benefit of field veterinarians".

6. **Dr. S. K. Agarwal**
   Animal Reproduction Division, IVRI, Izatnagar - 243 122

   "Good attempt to update people of this country to veterinary sciences and recent development. 'Premier Veterinary Institution of India' is a good series, complement for the same".

READERS' COLUMN

Comments / Suggestion on *'The Blue Cross Book - 15'*

7. **Dr. D. B. Sarode**
Veterinary College Hospital, Nagpur Veterinary College, Nagpur-440006.

"Very useful to the clinician & academician as a ready reference. Post graduate research scholars could be benefited by availing recent advance information of valuable quality. Yes, I will be sending few articles".

8. **Dr. T. B. Singh**
Veterinary Hospital, Jamalpur, District-Mirzapur, UP

"I liked this issue because of its much informative articles which provide valuable information to the field of Veterinary. I would also like to suggest that more clinical cases, may kindly be published".

9. **Dr. B. C. Taneja**
Department of Animal Husbandry, 301/11, Sanyas Ashram Road, Fatehabad, Haryana-125050

"I am impressed by the two articles regarding **Receptal®** & use of honey, a substitute of glucose therapy".

10. **Dr. K. G. Umesh**

Department of Clinical Medicine, Veterinary College, UAS, Bangalore - 560 024

"Suggest to stop publishing articles like 'An Unusual Case of Ascites in Dog' in this issue. We need 'scientific aspect of publications'."

11. **Dr. V. R. Jani**
Panchamahal Dairy, Post Box No.37, Lunavada Road, Godhra, Gujarat - 389 001

"It is nice to have *'The Blue Cross Book'* in a new form, and found good mixture of articles - useful to vets working in different areas - like Researcher, Clinicians, Students, Academicians etc. Congratulations. Keep it up! Wishing you all the best".

12. **Dr. Kamal Singh**
Embryo Transfer State Centre, N.D.U.S.S. Limited, Lalkuan, Nainital - 262 402

"I liked this book very much because it is very informative and provides the latest information in veterinary field. Please arrange to provide review articles on repeat breeding and advancement of E. T. technology in Veterinary field".

READERS' COLUMN

Comments / Suggestion on *'The Blue Cross Book - 15'*

13. **Dr. Prodyot Kumar Paul**
44/2/B,, Kalipada Mukharjee Road, Kolkata - 700 008

"This volume contains a good number of clinical articles which are much helpful to the clinician like me. Article may kindly be published on canine infertility and its remedy measures."

14. **Dr. Dayal Singh**
Village and P. O. Hathod, Via Kalwar, Jaipur, Rajasthan - 303 706

"A page for field veterinarians, problems to be answered by eminent expert, may kindly be incorporated, if possible"

15. **Dr. Prem Raj Singh Tyagi**
Veterinary Hospital, Town - Patla, Ghaziabad - 201 201, UP

"It is an excellent book for the veterinarians. "Miraculous effect of Vitamin-E & Selenium in animals" is the best article with detailed information about the role of Vitamin E & Selenium".

16. **Dr. R. K. Sharma**
Veterianary Hospital, Sonari, Jamshedpur - 831 011, Jarkhand

"Thank you very much for sending me a copy of *'The Blue Cross Book'* - 15th issue'. I liked this issue very much because it is very informative and provides the latest information in veterinary medicines and provides valuable information for canine & cattle practitioners in field condition. The paper quality is very good. Printing & Editing techniques are also very good, thus helps in preserving the book for a longer period. Please mention your e-mail address".

17. **Dr. Pawan Kumar**
Civil Veterinary Hospital, Pakhal - 125 133

"Diseases photographs are published less. Field based problems are also published less. Question-answer page should be started"

18. **Dr. B. L. Pandey**
Veterinary Hospital, Nagod, District Satna - 485 446, MP

"I liked this book because as it contains very important publication of today's problems like oestrus response of fertility in non cyclic cases of buffaloes & cattle and clinical efficacy of **Floxidin®**. I would suggest that more of clinical cases may kindly be published."

READERS' COLUMN

Comments / Suggestion on *'The Blue Cross Book - 15'*

19. **Dr. S. K. Singh**
Dog Care Centre, S.9/285B, Naibasti, Pandeypur, Varanasi - 221 002

"I liked this edition of *'The Blue Cross Book-15'*, because it contains a very important publication of today's emerging problem in cattle breeding-like "Effectiveness of Gonaodotrophin Releasing Hormone (**Receptal®**) on Pregnancy Rate, in Repeat Breeding Syndrome. Thanks to Dr.A.K. Datta for his tremendous efforts "

20. **Dr. G. N. Nagaraju**
Veterinary Dispensary, Ummathur - 571 316

"I liked this issue, because this edition contains the usefulness of honey, a substitute to glucose therapy in Hypoglycaemic cases. Really it is a beautiful study and experiment".

21. **Dr. S. U. Ahmed**
Veterinary and A.H., Nagaland, Kohima - 797 001

"I thank you sincerely for mailing *'The Blue Cross Book'* to me regularly. I appreciate your noble effort to educate our field Veterinarians through the clinical articles. Published in your journal. Please keep it up".

22. **Dr. Devendre Prasad**
Veterinary Dispensary, T.V.O., Kasba, Dist. Purnia - 854 330

"Different articles published in all the issues of *'The Blue Cross Book'* including 15th issue are very much informative and beneficial for field veterinarians like us. We really feel obliged to 'Hoechst Roussel Vet. Pvt. Ltd.' and now 'Intervet (India) Pvt. Ltd.' for promoting such type of scientific journal".

23. **Dr. Soshil Rattan**
23, Sandhya Enclave, Majitha Road, Amritsar - 143 001

"Material and presentation of this issue deserve commendation. It is observed that a case report entitled 'Anaplasmosis in a cattle heifer' mentioned the use of Oxytocin injection b.i.d. for ten days. This causes cruelty to the patient. The prick of this infection causes twisting pain and local irritation of used by intra-muscular route. The vets should restrict the use of Oxytocin injection b.i.d. for intra-muscular route and prefer to use by intra-venous route."

NEXT ISSUE : *Expected Articles*

Expected Articles for *'The Blue Cross Book - 17'*

- **Dr. D. N. Rajguru**
  Department of Clinical Medicine, Preventive Medicine & Veterinary Jurisprudence, College of Veterinary & Animal Sciences, MAU, Parabhani - 431 402
  a. "Effectiveness of Anapestic Steroids in Ketotic Animals / Hypoglycaemic Cases"
  b. "Management of Enzyme in Animals"

- **Dr. Vijay Pal Singh**
  RZ-26M, Phase IV, Prem Nagar, Najajgarh, New Delhi-110043
  "Bio-ferlilizar, Its Making and Usefulness in Agriculture".

- **Dr. Rajesh Kapoor**
  H. No.11, Bakshi Nagar, Opp. Punjab National Bank, Jammu - 180 001, J&K
  "Outbreak of Trypanosomiasis in Buffaloes and Cows"

- **Dr. A. K. Sinha**
  Department of Gynaecology, Ranchi Veterinary College, Jharkhand - 834 007
  "Induction of Farrowing in Swine

- **Dr. P. K. Srivastava, Dr. Agarwal and Dr. A. K. Datta**
  252-L, Sant Nagar, East of Kailash, New Delhi-110 065
  "To Study the Effect of Berenil - RTU in Normal Cases of Blood Protozoan Disease of Intra-cellular Origin" & "An Economical Protocol for Synchronization of Heat in Anestrous Bovines"

- **Dr. B. Bandyopadhyay**
  Institute of Animal Health & Veterinary Biologicals, 37, Belgachia Road, Kolkata - 700 037
  "Crypotsporidiosis, an Emerging Zoonotic Disease"

NEXT ISSUE : *Expected Articles*

Expected Articles for *'The Blue Cross Book - 17'*

- **Dr. D. N. Rajguru, Dr. Mohd. Saleem, Dr. B. N. Ambore and Dr. V. M. Machinder**
  Department of Preventive Medicine, Clinical Medicine & Veterinary Jurisprudence, College of Veterianry & Animal Sciences, MAU, Parbhani - 431 402, MS
  "Haematobiochemical Alterations and Therapeutic Management of Endoparasitic Infested Caprine Anaemia"

- **Dr. Uma Shanker and S. K. Agarwal**
  Animal Reproduction Division, Indian Veterinary Research Institute, Izatnagar - 243 122
  "Repeat Breeding: A Gynaecological Problem in Cattle and Buffalo"

- **Dr. D. K. Maske, Dr. M. D. Sakhara and Dr. A. K. Datta**
  Department of Parasitology, Nagpur Veterinary College, Nagpur - 440 006, MS
  "Treatment of Ectoparasitic Infestation in Dogs with Deltamethrin Tablet"

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