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VET VISION

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HIGHLIGHTS

- IVA NEWS
- ARTICLES ON LIVESTOCK HEALTH AND MANAGEMENT
- VETERINARY HOMEOPATHY COMPENDIUM- RELEASED
- INTERVIEW WITH DR. NITISH BHARADWAJ
- RSVC ELECTION
- FELLOWSHIP & AWARDS

JULY 2022

EDITION

E- Magazine by **Indian Veterinary Association**



Reg. No.: S/2093/2019



ivaemagazine@gmail.com



<http://www.vetvision.in>



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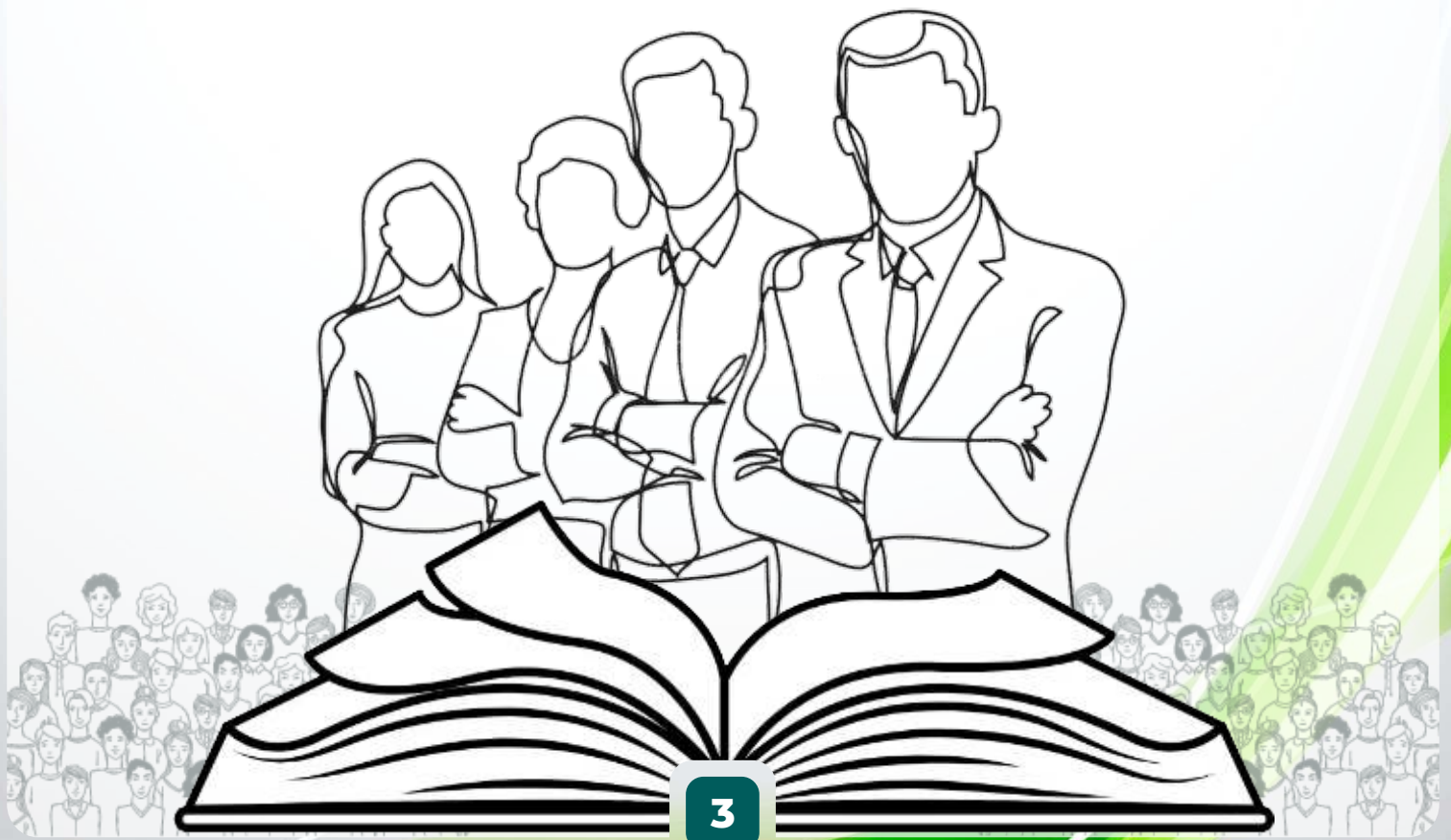
MESSAGE FROM THE EDITORIAL TEAM

At the outset, the editorial team takes pleasure in releasing the second issue of the e-magazine - 'Vet vision' of the Indian Veterinary Association. The editorial team takes the opportunity to thank the authors, reviewers, and editors, all of whom have volunteered to contribute to the magazine. Care is taken to keep diversified content covering varied species to make it interesting to all vets. This issue has diversified content covering small ruminants, large ruminants, clinical aspects of certain important field problems, and waste disposal etc.

With happiness, the editorial team note that the response to the request for contributions from vets across the length and breadth of our country has been overwhelming. It is regretted to inform that despite our best efforts, some articles could not be published in this issue due to some technical constraints. However, members are encouraged to send their articles, case reports, reviews, etc., which they feel are helpful for the vets.

While thanking all the contributors for their support and interest, the editors request the members to lend their hands, making this budding 'e-magazine' the most sought after one for general veterinary information and news pertaining to vets. We request the contributors to keep the idea, while writing for us, that the information should be for the purpose of updating the knowledge and hence the authenticity.

All the readers are requested to provide valuable feedback, helping us to make our 'Vet vision', the 'e-Magazine', a tool for realizing the vision of vets. We are eager and looking forward to your suggestions.



INTERVIEW WITH DR. NITISH BHARADWAJ



Dr. Nitish Bharadwaj

Famous Veterinarian, Politician, TV and Film actor, Director, Screenwriter



Interviewer

Prof. (Dr.) P. Jaya Lakshmi

An exclusive interview was taken with Dr. Nitish Bharadwaj for the Vet Vision e-Magazine and the glimpses of it are-

1 Did you join the veterinary medicine by choice? Can you narrate a little about your college days?

Yes ... I joined veterinary medicine by choice for the love of my horses and tigers. I went to Bhonsala military school at Nasik where I was part of the riding platoon. Right from my childhood I used to love horses and there one horse, named Chetak was given to me. It was my horse and I used to take care of it. I fed him, bathe him, malished him and massaged him. He was a very young compassionate Chetak and I fell in love with horses even more.

When after 12th, there was talk about medicine and going to all sorts of medical colleges- Allopathy, Homeopathy etc., I said that I am not going to do run of the mill things and I want to be a horse practitioner and I joined veterinary medicine by choice. But life takes its own twists and turns and because of that I eventually landed up in theatre and cinema in which I was trained as a theatre director right from my childhood.

I met some wonderful people during my college days while doing veterinary medicine. Those friends are friends even today and are very large hearted loving people. When I became MP also in 1996, the entire vet fraternity greeted me and gave me lots of love. I have wonderful memories of Bombay Veterinary College. It was an unusual batch because for the first time in the history of any veterinary college in India, there were 13 girls in one batch. All the veterinary colleges in India were overwhelmed. They were all mostly urbane girls and very hepcats and so the whole atmosphere in Bombay veterinary college changed because of those girls and they added a lot of fun and different dimension to the rural community which was there in the college till then. It was nice and they very positively added their colour and every year we did orchestra and in monsoons we used to do Varsha Geet programme with classical and semi classical music. Thanks to our pharmacology professor, Dr Ranade and every year we would do plays and other cultural programmes. So, that actually gave me lot of boost and confidence and I started appearing

on Bombay Doordarshan to do a monthly news bulletin for the agricultural programme. That is how I started facing camera. So, Bombay veterinary college has a lot to contribute to my future life which I am leading today.

2 What do you feel about the status of veterinary profession in India?

Regarding veterinary profession in India, we need to improve a lot. When it comes to academics, we need to really pull up our socks and we need to refurbish our knowledge and update our courses of veterinary medicine in India. I have not studied post graduation abroad, but my friends who studied abroad say that, undergraduate courses of veterinary medicine are very much advanced when compared to those in our country.

Generally, it is only in rural areas that we realize what the importance of a veterinarian is because for the farmer animal is everything. But, in spite of that, somehow veterinarians are not given their due respect. Abroad, veterinarians are more respected than even the human doctors. But, I think that will slowly change when we go for more agrarian economy and organic farming which depend heavily on animals. We should not look vets as only for cats, dogs or cattle. There are so many commercial projects that we can do out of veterinary medicine where veterinarians are required. I think the more people realize that veterinary has a base and veterinarians have a knowledge pool in furthering the agrarian economy, they will gain more importance and respect overall- in both urban as well as in rural India. The only way that we can go ahead in India is to go for agrarian economy and organic farming where animals will be loved and valued rather than attaching only commercial value to them.

3 Can you brief about your journey into theatre as actor, director and producer. How did you enjoy these roles?

I was trained in theatre and in children's theatre as writer and director and then by accident became an actor. But the role I enjoy the most is a writer-director. From a seed thought, I can create a film, a whole new world, which is so phenomenal and cinema is such a wonderful medium. It is a confluence of literature, poetry, music, art, sculpture, architecture, fashion, jewelry and it is everything. It is a marriage of all these art forms on to celluloid and I am lucky to be in cinema and that showed in my first feature film which was a debut film in Marathi. That is how I got that first taste of enjoyment and so my onward journey will be to make more films.

4 Please tell us about your entry into politics.

My entry into politics is not by accident. Right from my childhood, my father was a part of socialist party and the labour union movement with George Fernandes. So, I had seen where congress was going wrong from my childhood and how they goofed up the entire economy and the social structure of the society. So very consciously when I came back from London, I joined BJP in 1995 and I feel, it is the only party which thinks completely nationally and in the best national interest of the country and that is proved by this Modi government now. I am happy to be a part of the BJP but I am not in active politics anymore.

Today, I am a BJP supporter like many millions of the country. I would like to focus on making films which are pertinent and relevant to India and Indian history. I would want to bring out those parts and leads of Indian history on to the celluloid so that today's generation understands what the Bharath was. I am inactive in politics now but BJP had given me the platform to travel across length and breadth of the country due to which I could see the Bharath. When we live in major cities like Mumbai, it is so angular sized. Everything we are interested in is foreign, foreign lands, foreign brands and everything is in english whereas the real ethos and the culture of this country lies in Bharath- which is rural India and thanks to BJP that I could see that and I love Bharath.

5 Wow ...Great...A vet turned MP... As an MP, what do you feel is your important contribution to Animal husbandry or any other sector?

So far, I have not been, because I was not a part of active politics for too long so far. So my contribution to animal husbandry sector has not been great unfortunately and that is one of my sad feelings in my heart. But in future I would very much want to contribute to the field of Animal Husbandry sector either as an entrepreneur or if I go back to politics some day, not so soon of course, as a legislature also. At the moment, I am only going to make films. But maybe as an entrepreneur, I would like to contribute and I am open to ideas. I have said this in IVA function also and I would like to collaborate with some other entrepreneur veterinarians and come out with some interesting projects in Animal Husbandry.

6 What is your message to the veterinarians of the country?

My message to veterinarianians – we are the most important life sciences people in this country because this is still an agrarian economy country. Other industries like, IT, Biotechnology etc are increasing no doubt. But there is no alternative to food and food means agriculture. Sustainable agriculture means organic farming and organic farming means the focus on animals. Being a vegetarian, I am not a propagator of non-vegetarian food. So, I don't believe in cutting even buffaloes or lamb or whatever for food. But you can't force your views on others.

Veterinarians have a very very important role to play and mind you, including in-vitro fertilization (IVF) all the major medical advancements that we see in human sciences and life sciences, they first started in veterinary medicine. There was a lab setup by Raymond in Dhulia named Raymond sheep farm where Dr Jhawar used to do in-vitro fertilization (IVF) experiments and embryo transfer was started in sheep and goat. Then IVF has become a common thing in humans. So, veterinary medicine has a huge foundation giving role to human life sciences and we have an important role to play in human society, not only in veterinary society. So, I really feel that we, as a fraternity should come together even more and demand what we deserve.

I wish all the best to all the veterinarians who work in rural areas as well and hats off to them. I salute them.

MAINTAINING GOAT HEALTH IN TEMPERATE CLIMATE OF HILLY REGIONS

Madhusoodan A.P.^{1*}, Nitish Singh Kharayat¹, Amol Gurav¹, Siddharth Gautam¹, Indrasen Chouhan¹, Nidhi Sharma¹, Karam Chand², Deepika Bisht², Ajayta Rialch³

¹Temperate Animal Husbandry Division, ICAR-IVRI, Mukteswar campus, Uttarakhand, India – 263138

²Division of Virology, ICAR-IVRI, Mukteswar campus, Uttarakhand, India – 263138

³ICAR-IVRI, Palampur, Himanchal Pradesh, India, 176061

*Corresponding author – madhu.jnvvet.918@gmail.com

Abstract

Goats are the versatile species which thrive in different agro-ecological environment. Goats form the core component of hill agriculture as well as livelihood of the smallholders. Profitable goat husbandry relies on the health status of goats which is influenced by several factors. Maintaining homeostasis and health status is critical for achieving profitable productive and reproductive potential in goats adapted to temperate hilly regions.



Introduction

Goat rearing is common animal husbandry practice in the temperate hilly regions across the globe. Goats serve as the emergency fund for the livelihood of farmers. Goats are the sturdy versatile livestock which are adapted to the varied agro climatic conditions. Hence, goats are being projected as the “Future animals” in this changing climatic scenario. Goats are the multipurpose species which provides meat, milk, and fibre as well. Even their hide and manure is having immense economic values. So these benefits of goat husbandry are highly critical in achieving Sustainable Development Goals (SDGs) among the stakeholders in hilly regions. Therefore maintaining goat health is of paramount importance in the temperate hilly regions.

Factors influencing goat health in temperate hilly region

Several factors influence goat health in temperate hilly region which includes geographical topography, season, feed and fodder availability, housing, pathogens.

1. Geographical topography :-

Hilly regions are characterized by rough and steep terrain. So, goats adapted to hilly region are characterized by dwarf size body, well developed extremities, small hoof structures for climbing rough terrain. Considering the nature of terrain, goats are always susceptible for fall. Hooves are prone for continuous wear and tear, hence hooves must be regularly screened for abnormalities and lameness needs to be monitored.

2. Season :-

Temperate hilly regions weather is highly variable throughout the year. It is characterized by the maximum number of cold days as well as rainy days. Summer is highly comfortable whereas winter is very harsh. So, goats native to this region have to maintain their health by achieving homeostasis amid these challenges. Management of goats especially during winter season is challenging, as they are prone for cold stress. Providing warmth bedding, energy rich diet and constant supply of drinking water is critical during winter to maintain the homeostasis of goats.

3. Feed and Fodder availability :-

During winter, goats are susceptible for suboptimal temperature and cold waves. Their energy requirements would be high. But, fodder availability is very scarce. Maintaining optimum nutritional status for productive and reproductive health is challenging amid these conditions. Hence, goats should be supplemented with energy rich concentrate feed to compensate the fodder scarcity. Goats should be provided with lukewarm water around the clock especially in winter. The soil in the hilly region is devoid of important macro and micro minerals as rain water washes the upper layer of soil as it doesn't precipitate. So, the forages mineral content is very poor. Hence, mineral supplementation is highly critical.

4. Housing :-

Providing housing requirements with proper bedding material is essential for maintaining health status as well welfare of the goats. Housing also helps in preventing the ill effects of adverse weather calamities as well as protection from predators. Hilly regions are also characterised by maximum sunshine intensity, hence arrangement of shade is of paramount importance during summer season.

5. Pathogens :-

Goats adapted to temperate hilly regions are susceptible for various viral, bacterial, parasitic and vector-borne diseases. Periodical monitoring of health status of goats is must. Periodic vaccination and deworming is prerequisite for the prevention of infectious diseases which in turn aids in profitable goat husbandry.

Conclusion

Maintaining goat health is prerequisite for profitable goat rearing in temperate hilly regions. Therefore, factors affecting the health of the goats in temperate hilly regions needs due consideration for sustainable goat production as goat husbandry is the integral part of hill agriculture and livelihood of small and marginal farmers.

SUCCESSFUL SURGICAL EXCISION AND MANAGEMENT OF CARPAL HYGROMA IN A BUFFALO

Dr. Ashwani Bassan

Veterinary Assistant Surgeon
State Veterinary Hospital Sai
Department of Animal Husbandry
Distt. Jammu. 181111(J&K)

Abstract

An unusually large, infected chronic hygroma of carpal joint in a buffalo was treated by surgical excision, compression bandage to immobilize the joint and routine post-operative care for 15 days resulted in complete recovery.

Key words: buffalo, hygroma, carpal joint, bursa.

Introduction

A hygroma is a false bursa, nonpainful, fluid-filled localized swelling of tissues surrounded by a thick, fibrous capsule that develops under the skin dorsal to the carpal joint. It result from repeated mild trauma to an area over a bony prominence caused by lying on hard surfaces, such as cement or hardwood floors, lack of bedding or poorly designed manger. A common cause of bursitis is direct trauma that leads to acute bursitis when it is sudden and severe and chronic bursitis when it is mild and repeated (O' Connors, 1950). Davis and Broughton (1996) reported prepatellar bursitis caused by *Brucella abortus* in cattle. The present paper reports successful surgical excision and management of carpal hygroma in a buffalo.

Case History and Observations

A Six-year-old adult buffalo was presented at Veterinary Hospital Sai, Office of the Livestock Development Officer Block. R.S.Pura, District: Jammu, J&K, with the history that the animal had a non-painful soft fluctuating swelling of the size of a tennis ball in front of the right knee since six months. It was being treated by para-vets who aspirated straw coloured fluid from the swelling at several occasions with the result that the swelling reoccurred within few days after every treatment. Now the swelling had increased to about football size and was painful with the result animal was reluctant to sit while standing and vice-versa.

Clinical examination revealed a 25cm x 25cm (Fig.1) round swelling in front of the right knee extending well above and below the knee. It was warm and doughy on palpation and evinced pain. Aspiration revealed thick creamy pus in the cavity of the swelling. The swelling was diagnosed as hygroma that had got infected due to repeated aspiration and medication probably using unsterilized needles and syringes resulting in abscessation. Hence it was decided to drain the pus and treat it like an abscess by passing a seton.

Treatment

The animal was cast and restrained in left lateral recumbency and a 2cm long incision was made on the lateral aspect of the swelling, under local infiltration of 2% lignocaine. About 3L thick creamy pus (Fig. 2) was drained and exploration revealed a mass within the cavity. Therefore, it was decided to excise the excessive skin and the mass. A tourniquet was applied above the elbow joint and intravenous regional anaesthesia was achieved by injecting 30ml of 2% lignocaine intravenously in a superficial vein just above the knee. Sedation was achieved by injection of xylazine @ 0.05mg/kg b.wt. The limb including the skin of the swelling was clipped and scrubbed for aseptic excision. The cavity was packed with gauze for preventing contamination during surgery and also for its clear demarcation. An elliptical incision was made enclosing almost entire swelling with sufficient allowance for skin closure without any tension. The skin was reflected by blunt dissection and the entire cavity was separated from the knee joint without opening the knee joint. Entire exposed tissue was smeared with tincture iodine and subcutaneous tissue was applied using No. 1 chromic catgut in simple continuous pattern to favor adhesion formation and to obliterate the dead space. The skin after trimming was sutured with nylon No. 1 using horizontal mattress sutures, so that the sutured The incision was slightly on the lateral aspect of the limb. Wound at the distal most part was left uncultured to facilitate drainage. A compression bandage was applied to the limb (Fig. 3). The excised swelling in addition to pus contained about 10cm x 12cm irregular soft tissue mass at its base (Fig. 4).

Post-operative care and management

Animal was given antibiotic inj. Intamox 4.5 mg (amoxicillin and cloxacillin @ 10mg/kg bw and NSAID inj. Maxxtol (Tolfenamic acid) @ 2mg/kg bw for 7 days and the wound was dressed on alternate days after compressing and flushing the subcutaneous area with 5 % povidone iodine topical solution and applied pressure bandage for 15 days and animal was not allowed to move out of the stall. The skin sutures were removed after 15 days following uneventful first intention healing (Fig. 5).





Fig 1
Large spherical shape swelling
on right knee joint.



Fig 2
Thick creamy pus draining
from the swelling.



Fig 3
compression bandage applied
after surgical excision.



Fig 4
Irregular soft tissue mass
removed from the swelling.



Fig 5
Complete uneventful
recovery after 15 days.

Discussion

A hygroma is the bursitis of acquired bursa of the knee, in which there is a cystic cavity filled with fluid and surrounded by a layer of fibrous tissue. Some hygromas are congenital while others are developed over time, usually in response to trauma. In cattle the constant rubbing with the rough flooring while the animal lie down and gets up is a common cause. In the horses, frequent falling during progression may cause it (Venegopalan, 2009). Another aetiology for the condition relates to brucellosis in cattle (Balbo et al., 1969). In the present case maintenance of the animal on hard floor resulting in constant rubbing of the skin over the knee while sitting down and getting was probably the cause of hygroma. Its improper treatment had resulted in infection and abscessation. In this case, the joint capsule was not involved just as found in horses (Veenendaal, Spiers and Harrison, 1981). There is little information in the veterinary literature on the management of hygroma. Some of these need not be treated. The development of hygroma can be prevented by adequate protection of the bony prominence. (Chhatpar et al., 2012). Treatment of hygroma include aspiration and drainage and insertion of seton or excision. Total and partial excision and injection of corticosteroids preparation have been advocated; however, these procedures may be harmful (Archibald, 1974, Johnston, 1975), or effective only in acute cases when cavity is filled with serous fluid. Aspiration of the contents and injection of an irritant solution like iodine tincture or 3-5% carbolic acid leads to destruction of the bursal lining followed by granulation, cicatrization and obliteration of the cavity (Stashak, 1987 and Venugopal (loc.cit.)). Use of tincture iodine-soaked gauge to destroy the capped knee has been recorded as a method of treatment for such cases. Use of copper sulphate into the capped knee has been done for treatment but it was observed to

be having less success as compared to the surgical excision of the bursae (Dilipkumar and Dhage, 2008). Surgical removal of the bursa has been advocated only when all other methods of treatment have failed and the bursa is large and composed of primarily fibrous tissue (Honnas et al., 1995). In the present case due to chronicity of the case, in addition to the pus there was fibrous mass inside the cavity. Thus, excision was planned that resulted in uneventful recovery.

Conclusion

Hygroma generally does not interfere with the gait of the animal as it is not painful. However, if not managed properly it may get infected and enlarge to interfere with gait of the animal. Aspiration of hygroma when acute should be performed under aseptic precaution followed by compression bandaging and rest to the animal. The surgical excision of the hygroma is recommended only in chronic bursitis causing inconvenience to the animal. The post operative care should be taken in consideration very cautiously and the animal should be provided maximum rest in order to avoid any post-operative complication.

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DEVELOPMENT OF INDIGENOUS SNP CHIPS FOR GENOMIC SELECTION OF INDIAN LIVESTOCK

Tapendra Saini^{1*}, Manoj Baghel², Prashant Patel³

¹Animal Genetics & Breeding Section, ²Livestock Production & Management Section
ICAR – Indian Veterinary Research Institute, Izatnagar, Bareilly, U.P. – 243122

³ICAR-Central Avian Research Institute, Izatnagar, Bareilly, U.P. – 243122

*Corresponding author - tsaini.9461@gmail.com

With the advancement in genotyping technologies, animal genetics have shifted from the traditional selection strategies to era of genomic selection. In genomic selection of dairy animal Single Nucleotide Polymorphism (SNP) markers offers a promising solution. Many SNP chips have been developed for cattle and buffalo breeds but the main lacuna was that they were developed with the help of genetic information from exotic breeds. So, there are chances of biasness when the same data use for Indian breeds. To overcome this huge problem, SNP chips have been developed for the selection of indigenous livestock population.

The SNP chips that have been developed in India are as follows:-

INDUSCHIP version 1:- It was the first chip developed by National Dairy Development Board (NDDB) in the year 2015 under the guidance of Center for Quantitative Genetics and Genomics, Aarhus University, Denmark and it have density of 51K SNPs. For the development of INDUSCHIP version 1 genotyping of animals from the cattle breeds Gir, Sahiwal, Kankrej, Red Sindhi and their crosses was done utilizing the Illumina BovineHD. The SNPs with average distance of 70kbps and polymorphic in the sampled breeds were selected and gaps were identified for each breed that filled with the polymorphic SNPs.

INDUSCHIP version 2:- It was the advanced version of version 1 made by genotyping 10 more new breeds and it has density of 53K SNPs. The breeds were Rathi, Tharparkar, Hariana, Ongole, Kangayam, Khillari, Amritmahal, Siri, Hallikar and Deoni. The genotyping platform was Illumina BovineHD. The data was extracted from INDUSCHIP version 1 and evaluated for MAF (Minor Allele Frequency) and other quality control parameters. Gaps in the MAF were located in different breeds and were filled with suitable SNPs from major breeds. Ancestral informative SNPs were also added to this chip.

BUFFCHIP: - SNP chip for genotyping the buffalo population has been developed by NDDB in 2020 by technical assistance from United States Department of Agriculture (USDA). For the development of this chip 296 animals from 9 breeds of riverine buffaloes and swamp buffalo were sequenced. The density of this chip is 59K. This chip is currently in use for genotyping Indian buffalo population.

IndiGau: - It was launched last year on 13th August 2021 by Union Minister Dr. Jitendra Singh and it is developed by National Institute of Animal Biotechnology (NAIB), Hyderabad. It is purely indigenous and largest cattle chip of the world. It has 11,496 SNPs more than the 777K Illumina Chip for *Bos taurus* cattle. The IndiGau database is available with NAIB Hyderabad that contains genomic information of 43 indigenous cattle breeds for their selection and conservation for future.

LIVESTOCK WASTE UTILIZATION IN INDIA: CURRENT STATUS AND FUTURE PERSPECTIVES

Manoj Baghel¹, Mukesh Singh¹, Ayon Tarafdar¹, Tapendra Saini²

¹Livestock Production & Management Section

²Animal Genetics & Breeding Section

ICAR – Indian Veterinary Research Institute, Izatnagar, Bareilly, U.P. – 243122

Corresponding author - omgod786@gmail.com

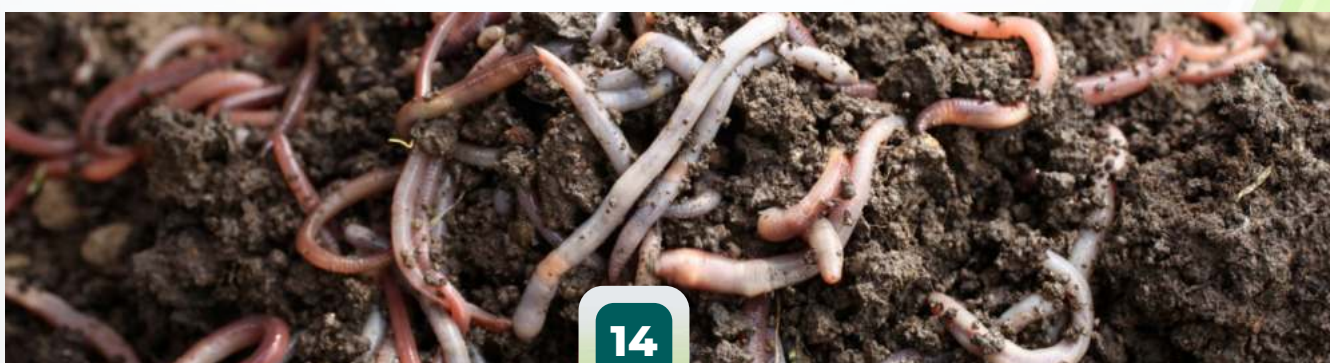
Livestock waste, if left unattended can cause a serious threat to the health of the environment and its inhabitants. Therefore, it is important that the generated waste be dispensed in a responsible and sustainable manner.

In the past decade, it has been established that livestock waste serves as a rich reserve of industrially important chemicals and can be utilized as an essential ingredient for the development of various other value-added products. According to the 20th livestock census, the total livestock population of India is 535.78 million, ranking it first in the global livestock population. Due to a large livestock population, India's total dung availability has been estimated at 2600 million tons per annum.

This accounts for 6.93% of the gross output from the livestock sector of India. Livestock waste utilization is a new and emerging livestock production industry which utilizes livestock waste for the preparation of soil-rejuvenators (such as compost, vermicompost and slow release fertilizers, etc.), biogas, bioelectricity, biodiesel, biochar, integrated fish farming, card board, paper, paint, textiles, pharmaceuticals, Panchgavy, etc. and also help to generate foreign reserve, as recently an Indian company has exported 192 metric tonnes of dung for organic farming to Kuwait.

These valuable products have huge potential to generate annual revenues of approximately INR 10.4 trillion, 6592.55 million and 25.9011 trillion from fertilizers, biogas and electricity generation, respectively.

In bid to fulfill, its long standing promise of doubling farmers' income, the Indian government has launched National Biogas and manure management Programme, Khadi-Pratik paints (Khadi and village commission), Gobar Dhan scheme, etc. Among the different livestock waste utilization strategies discussed, the bioenergy and biofertilizer sector has now gained tremendous popularity. Emerging sectors such as the production of biochar, biopaints and pharmaceuticals, among other industrially important products, are now appealing the research community and show potential for future growth of the livestock sector.



AN OVERVIEW OF THE INDIAN POULTRY INDUSTRY

Prashant Patel^{1*}, Tapendra Saini², Manoj Baghel³

¹ICAR-Central Avian Research Institute, Izatnagar, Bareilly, U.P. – 243122

²Animal Genetics & Breeding Section, ³Livestock Production & Management Section
ICAR – Indian Veterinary Research Institute, Izatnagar, Bareilly, U.P. – 243122

*Corresponding author - prashant12743@gmail.com

Poultry farming is a significant industry in India because of its huge potential to spur quick economic growth, with cheap investment requirements and a short gestation period that benefits the poor. Poultry is vital for enhancing livestock output. Over eight million people are employed in the poultry industry, both directly and indirectly. Among all animal sectors, the poultry sector is said to have the highest employability per unit of investment. The entire poultry population in the country has increased by 16.81 percent since the last census, with 851.81 million birds in 2019. India is the world's 3rd largest producer of eggs and 4th largest producer of broilers. Before the 1960s, the chicken industry in India was primarily a backyard enterprise, but it has since evolved into a fascinating agribusiness with annual revenue of INR 125 lakh crores. India's chicken industry is self-sufficient, thanks to a large and strong genetic basis that allows broiler and layer production to match that of other countries. Several variables, including active grants and funding from the federal and state governments, research and development accomplishments from research institutes, high per capita income growth, and worldwide collaboration in the commercial sector, have undoubtedly contributed to this amazing progress. Modernization, on the other hand, is offering more opportunities by making the sector internationally competitive and viable, as well as creating significant development possibilities by transforming food choices and tastes. Poultry meat has outperformed its two main rivals i.e. beef and veal, as well as buffalo meat. Another significant trend in the Indian poultry industry is the quick rise of convergence, particularly in broiler production, in both the southern and western portions of the country. Increasing buying strength, shifting food habits, contract poultry farming, and increasing urbanization are some of the major reasons for this niche poultry sector's constant upswing, but sporadic bird flu outbreaks in various parts of the country, as well as a lack of storage and processing facilities and rising feed prices, such as soya meal and maize, have severely harmed poultry exports. The national poultry market has been dominated by broiler meat and table eggs. Furthermore, the Indian poultry industry has begun to transition from a live bird to a chilled/frozen product category. Most of the country's overall poultry production and consumption occurs in southern India. In this regard, the southern states of Andhra Pradesh, Telangana, Kerala, Karnataka, Tamil Nadu, and Maharashtra, as well as the northern states of Punjab and Haryana, are important. Significant breakthroughs in poultry science and technology helped in the genetic improvement of genetically superior birds capable

of high production. In a world where one-third of the population is malnourished, eggs provide a feasible supply of nutritious food (World Bank Report, 2015, Global Hunger Index, 2015). India's mid-day meal scheme is one of the world's largest programs for feeding developing school children, and its incorporation in meals has cleared the way for a more effective battle over malnutrition. The very first state that included eggs in this scheme was Tamil Nadu, followed by Andhra Pradesh. Tamil Nadu has been the only state that provides the most eggs per week, with 5 eggs in schools and 3 eggs in rural child care centers (Anganwadi). Odisha, Bihar, Jharkhand, and West Bengal, among other significant states, have lately joined the egg club. All of the above highlighted the potential power of our Indian poultry sector, as well as making us proud of the manner it is expanding and contributing to the country's GDP.



RUMINAL ACIDOSIS IN SHEEP

Devendra Singh^{1*}, Lakshmi Kant¹ and Jayesh Vyas²

¹Ph.D. Scholar, Department of Veterinary Pharmacology & Toxicology, RAJUVAS, Bikaner

²Teaching Associate, Department of Animal Genetics and Breeding, RAJUVAS, Bikaner

*Corresponding author - dr.devenchoudhary@gmail.com

Ruminal acidosis in sheep is caused by the ingestion of a high amount of easily fermentable carbohydrate diet. Eating a diet rich in carbohydrates helps in the production of lactic acid in the rumen which eventually leads to clinical symptoms such as low food intake, distended stomach, depression, dehydration, pasty diarrhea or constipation, weakness, lameness, frequent water intake, and little or no urination etc. If it is not treated promptly, the sheep can die of dehydration and shock. This will cause huge loss to small farmers. The cause of acidosis in small ruminants is rice and cereals such as wheat, oats, barley, tapioca tubers, beets, grapes, etc. are rich in carbohydrates, so more acid producing bacteria will be produced. Lactic acid is usually produced by lactic acid-producing microbes in the rumen and is utilized by lactic acid-using bacteria. The level of lactic acid in the rumen will increase and it will be absorbed into the blood and cause clinical symptoms. Feed preparation methods such as cooking, grinding, soaking are classified under rapidly fermentable diets. These processed feeds can be easily fermented by bacteria and in a short time a large amount of lactic acid will be produced. Symptoms will progress very quickly and the prognosis is poor, so intensive care is needed. In the case of slow fermentable feeds such as raw feed, the fermentation time would be around 12 to 24 hours. Symptoms will appear after twelve hours, including loss of appetite, pasty diarrhea or constipation, lethargy and weakness. A slow digestible diet will have a better prognosis than a diet containing rapidly digestible carbohydrates. After ingesting a carbohydrate-rich diet, the Gram-positive bacteria producing lactic acid in the rumen (*Streptococcus bovis* and *Lactobacillus*) will digest the carbohydrates into lactic acid, so the energy-producing bacteria will eventually die. The dilation of the stomach is caused by lactic acid which can absorb water from the blood into the rumen, then the water content in the blood decreases which is followed by dehydration. Affected animals always drink excessive amounts of water and a decrease in urine output would usually be observed. If affected animals are allowed to drink water, excess amounts of lactic acid will be produced, eventually causing water to accumulate in the rumen and worsening symptoms. Once symptoms appear, animals should abstain from drinking water for at least 12 to 24 hours. Dehydration should be corrected using intravenous fluids.

Treatment: Feeding of concentrates (rice, wheat, etc.) should be avoided until the animal is well. Grazing may be allowed. In the early stages of acidosis, animals should avoid drinking water, as this will exacerbate the symptoms. Moderate exercise such as walking or walking with other animals will facilitate bowel

movement. To restore pH, sodium bicarbonate 5% should be given by the intravenous route at a rate of 2 ml/kg body weight. Antacids such as Gelusil, Diazine or Ulgel will be given orally for treatment of mild/moderate acidosis. Oral sodium bicarbonate (baking soda) may be given instead of antacids to correct rumen pH. Antibiotics such as oxytetracycline may be given orally to prevent further acid production. Veterinary assistance should be sought during severe cases. Usually the animal will not take feed for 2 to 3 days during acidosis. After recovery, animals can be given rumen fluid (good transplant) at the rate of 100 mL twice daily. Rumen fluid can stimulate appetite in affected animals.

Conclusion

Acidosis can be prevented by feeding a diet containing small amounts of carbohydrates. Mild and moderately affected animals can be successfully treated using antacids such as Gelusil or Diazine followed by rumen fluid from slaughtered animals.



NUTRITIONAL AND HEALTH BENEFITS OF GOAT MILK

Jayesh Vyas^{1*}, Aarti Nirwan¹, Satendra Kumar Yadav², Urmila Pannu³

¹Teaching Associate, Department of Animal Genetics and Breeding, College of Veterinary and Animal Science, Bikaner

²PhD Scholar, Department of Livestock Production & Management, College of Veterinary and Animal Science, Bikaner

³Professor and Head, Department of Animal Genetics and Breeding, College of Veterinary and Animal Science, Bikaner

*Corresponding author - jayeshvyas04@gmail.com

Goat plays an important role in the livelihood of a large proportion of small and marginal farmers and landless laborers. Goat rearing is an important component of rural economy particularly in the arid, semi-arid and mountainous areas of the country because of its multi-facet utility for wool, meat, milk, skins and manure. The goat is called by different names such as “Poor man’s cow”, “Seeding machine”, “Foster mother of man” and “Moving refrigerator”. India ranks second in terms of goat population in the world. The total population of goats in Rajasthan is 2.08 crore which is 27.74 percent of the total livestock of India. India ranks first in goat milk production. Milk production is 0.44 kg per day by goats. The contribution of goat’s milk to the total milk production is 2.95 percent.

Features of Goat Milk

1. Goat’s milk is rich in calcium, phosphorus, and potassium.
2. It acts as an immune regulator.
3. It acts as an antioxidant
4. The oligosaccharide sugar present in goat’s milk works as anti-inflammatory.
5. The fatty acids present in goat milk reduce the cholesterol of the body (anti-cholesterolemic).
6. Goat milk has more conjugated linoleic acids, which help to stimulate the immune system.

Goat milk is better than cow milk because

1. It is naturally homogenized
2. It is less allergenic
3. It is easily digested
4. There is less chance of lactose intolerance from this milk.

Benefits of goat milk

1. Nutritional Benefits: It is a source of nutrients and bioactive components, Nutrients have high bioavailability, Increases digestibility and absorption of micronutrients.

2. Physiological Benefits: It reduces the chances of getting type 1 diabetes, In goat milk, presence of prebiotic oligosaccharides, inhibit pathogens, It eases digestion, It plays an important role in the prevention of cancer and rheumatoid arthritis, It acts against microorganisms, It acts to boost the immune system, It regulates the level of cholesterol in the blood. It helps in the prevention of heart diseases, It cause antioxidation of radicals in the body.

Nutritional status of goat milk

1. Bioactive components are found in goat milk such as: - Polyamines, Nucleotide sugars, Free amino acids, Medium-chain fatty acids (MCFA), Polyunsaturated fatty acids.
2. Taurine concentration is much higher in goat milk.
3. Goat milk has high amount of the L-glutamine, helps to increase the pH of the blood stream.
4. Acidic blood and low intestinal pH levels associated with several factors.
5. Lactic acid bacteria isolated from goat milk, produced bacteriocin (inhibitory substance).
6. Bacteriocins use as a bio-preservative.

Digestibility and micronutrient Absorption

1. This is due to thinner protein and smaller size of fat molecules.
2. Goat milk has a low curd tension so easily digested.
3. The hydrolysis of casein protein of goat milk is faster (96%) than the of cow's milk (76-90%).
4. Goat milk is digested in the baby's stomach in 20 min, while cow milk in 2-3 hours.
5. Goat milk contains high level of medium chain fatty acids, provide energy needed during metabolism.
6. High levels MCT and amino acid facilitates the increased absorption of iron in body.

Goat milk soothes the digestive system

1. Goat milk has a better buffering capacity.
2. It helps to soothe irritated areas in the stomach and intestine.
3. The buffering capacity of goat milk is beneficial for the treatment of gastric ulcers

Role of Goat Milk in the Treatment of Dengue Fever:

1. Goat milk is rich in selenium, which increases the number of T-lymphocytes in the blood and strengthens the body immunity.

2. Alkyl glycerol is found in high quantities in goat milk this activate the platelet activating factor in patient body.
3. Goat milk maintains fluid balance in the body during dengue fever.

Conclusion

The use of goat milk is increasing day by day due to its functional and therapeutic properties. The high digestibility and its bioactive compounds make it suitable for the treatment or prevention of certain medical conditions. Goat's milk is better nutritionally than cow's milk. Goat milk with its unique composition can be a valuable alternative.



CARE AND MANAGEMENT OF LIVESTOCK IN RAINY SEASON



Dr, Parvinder Kaur

Assistant Director
NRDDL, Jalandhar

The livestock have now become an integral part of agricultural sector. Almost every farmer in the country rears livestock including Cattle, Buffalo, Sheep, Goat, Horse and Swine. Livestock rearing requires protecting the animals from inclement weather which maintains the level of production obtained from farm animals. Animals need a shelter from heavy rain, winds or hail. Some of the common problems faced by the livestock owners during rainy season and their preventive solutions are as follows:

Common problems in a livestock farm during rainy season :-

Leaking shed roofs :-

Water leaking in the animal shed affects the comfort of the animals. If shade is not clean enough, water leads to the production of chemicals such as ammonia which affects eyes of the animal if its concentration increases inside the shed. Coccidiosis can also occur due to leakage of water from dirty shades. For goats, livestock owner needs to keep their hooves away from water to prevent hoof rotting disease.

Feeding :-

Grass, which sprouts during rainy season contain lots of water and fiber. The water fills up the stomach and hence, it is virtually useless. This causes animals to pass watery dung during wet seasons.

Moisture :-

Moisture present on ground produces a lot of bacteria that can cause diseases. Worms are mostly seen in rainy season.

The tick problem :-

Ticks spread faster in rainy season. They can suck cows dry and eventually lead to death due to a disease called east coast fever that is spread by them. Flies are also found in increased numbers in wet season out of which few flies are deadly like tse tse flies. These flies spread Nagana disease in cows, which leads to cows' death if left untreated. Control of ticks on animal body is by applying acaricides. And control of ticks on floor is by floor burning with hot air.

Udder diseases :-

Diseases of udder become prevalent in this season. Dirty sheds during rainy season can cause mastitis in which fibrosis of udder takes place and milk ejection is either stopped or there are flakes found in milk.

Mouldy feeds :-

If the feeds become wet due to leakage of rain water from damaged roof, then they develop moulds. If this mouldy feed is fed to the animals then these can cause cancer. Slippery floor and floor with pebbles must be checked as the pebbles get lodged between the hooves of the animals.

Preventive measures required during rainy season:-

- (i) Make the roof of livestock sheds leak-proof and clean.
- (ii) Livestock owners must cut some of the young grass of rainy season and before feeding, dry it up in sunshine. It will reduce water in grass and it will turn into a good feed.
- (iii) Deworming must be done in the beginning of the rainy season and throughout the season because worms multiply at a greater rate during this period. Specially in grazing animals like sheep and goat.
- (iv) Farmers should spray their animals regularly for removal of ectoparasites and cut all bushes near their sheds. We should choose acaricides to be sprayed on animals with great care.
- (v) Farm should be disinfected using a disinfectant regularly.
- (vi) It must be made sure that feeds are stored in a dry place. Get the green fodder checked for nitrate toxicity.

Protection of farm animals from inclement weather conditions of rainy season is of utmost importance as it will provide economic benefits to the farmers through maintenance of production of farm and will lead to the well-being of the animals. Hence, the aforementioned problems occurring during rainy season and their preventive measures must be kept in mind by the livestock owner to prevent the animals from being stressed due to the inclement weather conditions, thus proving a boon for the prosperity of the farm.





IVA celebrated 'World Environment Day-2022' on June 5th, Sunday by planting saplings by Veterinary Doctors all over the country. Dr. Umesh Sharma President, IVA through his video message had appealed to all vets across the nation to take part in the plantation drive. Beside performing professional duties towards our speechless animal, IVA had felt that we vets should perform our social duties. Similar plantation drive was also taken up by IVA in 2021 where more than 1 lakh trees were planted.



Tree Plantation Programme was successfully organized on 20/06/2022 at Belgachia Campus of West Bengal University of Animal & Fishery Sciences (WBUAFS) by IVA Faculty Wing in association with the teachers, officers, students, researchers, non teaching staff & local social workers. The august presence of Dr. Gurucharan Datta, Vice President, IVA, Dr. Arun Kumar Mandal, State Convenor, IVA Faculty Wing, WBUAFS, Kolkata and University Officers (present & former) boosted the morale of enthusiastic audience during the programme.

Veterinary Homeopathy Compendium- Released

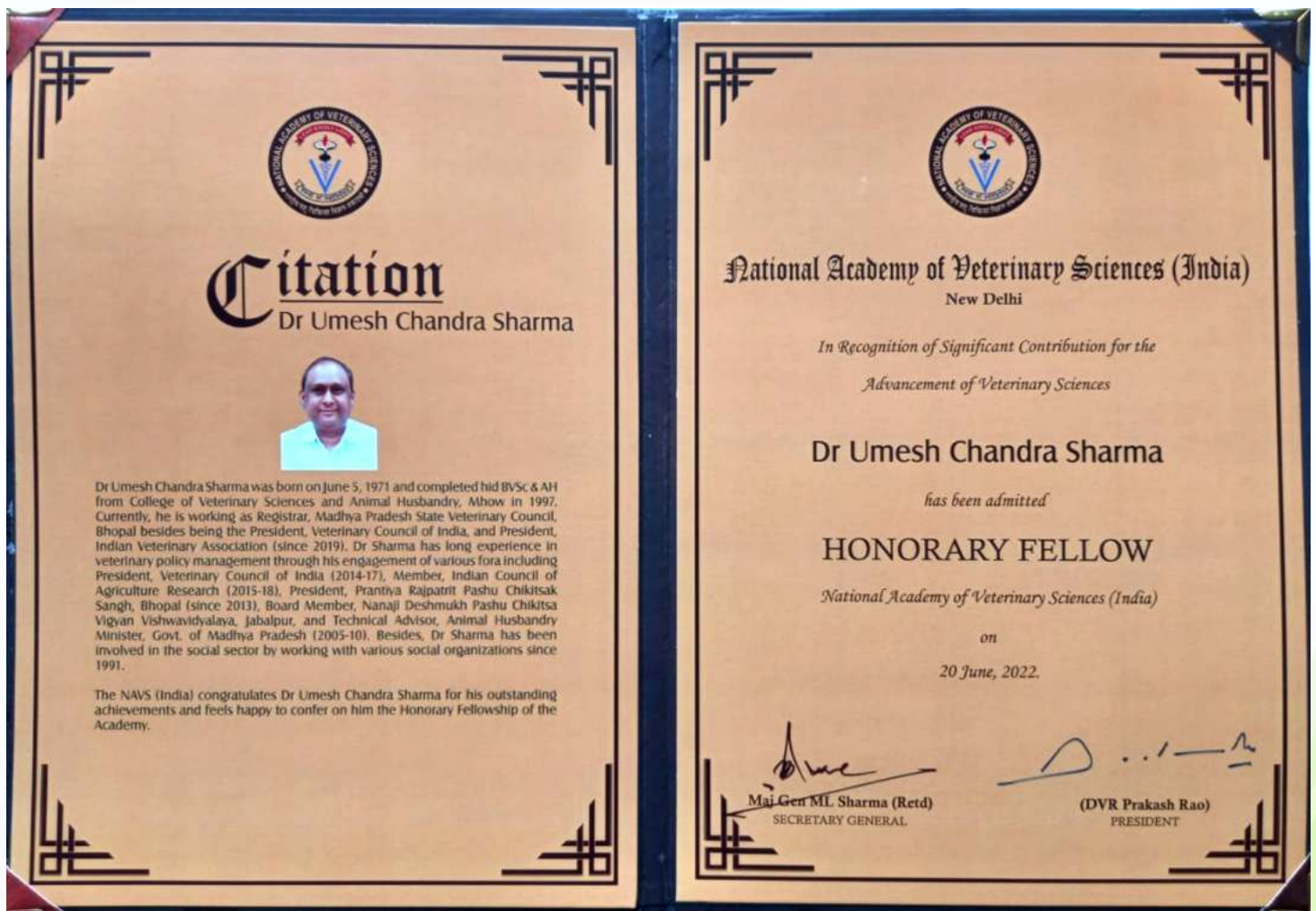


The Charitable Society for Holistic Veterinary Medicine (CSHVM) is happy to inform you that the Second Volume of THE COMPENDIUM OF CLINICAL CASES DOCUMENTATION IN VETERINARY HOMOEOPATHY(2022) has been released on 1/5/2022, at the Office of Indian Veterinary Association, Ramesh Nagar , New Delhi by the Honourable President Veterinary Council of India Dr Umesh Chandra Sharma. The First Copy of the Compendium was received by Dr Pradeep Yadav, Vice President , Veterinary Council of India in the presence of Dr. Vinod Bhat (Secretary,VCI)The compendium has 157 cases of Veterinary Homeopathy documented by our members who have done the Post Graduate Certificate in Veterinary Homeopathy Course (PGCVH) at The Kerala Veterinary & Animal Sciences University, practising in various States of India.

FELLOWSHIP



DR. U.C. SHARMA
President VCI & IVA



President VCI and IVA, was conferred Honorary Fellowship by National Academy of Veterinary Science (NAVAS) on 20th June 2022 at Nagpur for his service to profession. At the conference Honorary Fellowship was also awarded to SH. Mohan Bhagwat Ji, Sarsanhgchalak, RSS and Sh. Parshottam Rupalaji, Hon'ble Minister, Ministry of Fisheries Animal Husbandry and Dairying, Govt. Of India IVA in 2021.

AWARDS

Dr. Mamta Meena

Assistant Professor, Veterinary Pharmacology and Toxicology
Apollo College of Veterinary Medicine, Jaipur (Rajasthan). Assistant
Professor Veterinary Pharmacology and Toxicology



Apollo College of Veterinary Medicine, Jaipur (Rajasthan) is awarded as follows:

01) Young Scientist Award in 1st International Conference on Global Initiatives in Research, Innovation and Sustainable Development of Agriculture and Allied Sciences (GIRISDA-2022) from 06 to 08 June 2022, organized by Just Agriculture - the Magazine and Guru Kashi University, Talwandi, Sabo (Punjab).

02) Best Oral Presentation Award (3rd position) in 22nd Indian Veterinary Congress and Annual Conference of IAAVR and National Symposium from 08-09 April 2022, organized by CVAS, Navania, Udaipur (RAJUVAS, Bikaner).

B.V.Sc & A.H Student Won Second Prize in National level Hackathon at NAU, Navsari



NAHEP-CAAST–NAU, Navsari organised a National level hackathon on “Smart and Remunerative Farming” collaboration with the national premier institutes (IVRI-Izatnagar, NDRI-Karnal, CSE-IRMA, Anand, CARI-Jhansi and DBATU-Lonere Maharashtra). Mr.Karan Jain (Intern student of B.V.Sc & A.H,KU,Navsari Campus) & team members developed Pashumitra chat boat under the guidance of Dr.R.S.Ghasura. Mr.Karan Jain & team members won second position and cash prize (Rs.15000) in the national level hackathon event. The competition was hosted by Navsari Agricultural University at Navsari campus on 5th March,2022 and 22 teams (livestock theme) from different colleges participated in this national level hackathon event.

Elections of RSVC completed



Election of 4 members for Rajasthan State Veterinary Council was completed from 20th June to 22nd June 2022 through online voting process. A total of 14 veterinarians were contesting in this election. Veterinary Doctors Association (VDA), Rajasthan (affiliated to Indian Veterinary Association, New Delhi) supported 3 candidates were present in the election. All the three candidates of the VDA-supported panel **Dr. Dinesh Singh Nehra, Dr. Padam Chand Kankhedra and Dr. Sumer Singh Rawat** were victorious, and **Dr. Suresh Kumar Jhirwal** was elected as the fourth member.

Electoral officer Dr. Suresh Chand Meena declared the election results after the completion of online voting on 22nd June 2022, including the candidates in the Rajasthan Veterinary Council auditorium **Veterinary Council of India member Dr. Devi Shankar Rajoria, VDA President Dr. Inderjit Singh** and the council officials were present at the time of election results. In which a total of 12056 votes were exercised by 3574 registered veterinarians of the state. A maximum of 4 votes could be cast by a vet. After completing the online voting process, all the veterinarians and candidates present thanked the electoral officer Dr. Meena and his team at the council's auditorium.

Grow with Glitches

PROF. S. RAMKUMAR

This is a story of determination, passion and resilience added to professional qualification.

The story of Dr Surya, a lady Veterinarian, who takes up the post of night veterinarian in Government of Kerala, speaks briefly about how we need to face realities, learn from them, move stronger and happy facing them. Doing so, the problems shrink in front of the growing strength and determination of mind. Her friend, family and mentor Dr. Jijesh kumar of Animal Husbandry Department need special mention in handholding her to cross through the unforeseen difficult times. Thought it will be of use to many in any profession, or students completing their course to overcome the uncertain, challenging times in the initial stages of starting a career, through understanding the scope of opportunities of self-development and service-delivery, and translating problems to prospects.

Vet on the move

DR. SURYA SURENDRAN

Doctor... Should I call another Doctor for help?"



These were the few opening words of the farmer when I set foot at the farm, at 2 am, in response to a call I received seeking urgent assistance for the delivery of their cow. Within the short span of a few months, after taking charge as the Emergency Night Veterinarian with Govt. of Kerala, this particular question had become a usual opening dialogue from the farmers. I would say in my mind, "You are judging the book by its cover, let me prove that wrong". Being a "lady" and my relatively small physique often tempted them to doubt on my abilities as a clinician! But some farmers used to be genuinely concerned, and sympathize at me as a poor being struggling to deliver the calves of their dear cows.

After five long years of devouring the entire curriculum of BVSc and AH from College of Veterinary and Animal Sciences, Pookode, Wayanad in 2015, my deep desire to become a field veterinarian (vet) led me to attend the walk-in interview of the Govt. for the position of a night veterinarian. I was fortunate enough to be selected and was posted as the night vet in Pampady block, a beautiful place that lies midway between the backwaters of Western Kerala and the mountains of the Western Ghats in Kottayam district. Before landing on this position, most of the vacancies that came across preferred a male vet. On enquiry, I was told that the odd hours at night won't be a smooth ride for lady vets. But then, Why? I used to think. Why do you assume that we can't attend cases at night? Why are we being underestimated? These thoughts often disturbed me and kept me awake through late nights. Passionate on performing in the field on the treatment of animals, these hampered my dreams for a while. I was of the notion that we shouldn't be judged or our abilities doubted (or questioned) due to our gender or physical appearance. So I decided to take up the challenge along with my dear friend Dr. Sudharma. Also, the constant support promised by my mentor Dr. Gijesh Kumar, an experienced and popular vet in the region boosted my confidence.

Pampady never had a night vet before, which made it even nerve-wracking. But with Dr. Sudharma's help, what seemed like an onerous task became a cakewalk. Eventually, we started enjoying our work and with each challenging situation and case, came the confidence to step forward to do more. Since both of us looked younger and smaller than most people of our age, our abilities were often doubted in initial stages. Some even didn't hesitate to ask point blank on whether we could really do it! That is what my opening lines were: "Doctor... Should I call another Doctor for help?"

After three months, my friend got appointment in another clinic and I decided to continue as the lone night vet at Pampadi. The knowledge and confidence earned during the few months added to my asset. Most of the cases that showed up at night are emergency cases and have to be dealt with utmost care and attention. Being present at the right place, at the right time is itself a challenge. But convincing a doubtful farmer who expects a "well-built, experienced (older!) and physically strong Vet" whose physique gives a message that I am capable of doing it, was more difficult to be in terms with! If you wonder how I knew what the farmer was expecting; I could sense it from their body language, from their eyes which seemed like they have lost their last ray of hope! Sometimes the farmers mumbled, and some frankly expressed their mind.

They would remind me saying, "Doctor, it's really difficult to pull out a calf!", "Do you need help from someone else?" Their concern and lack of trust in me was tangible. Initially, hearing those words made me feel insecure and weak. But gradually with each strenuous case, came a spark that instilled a fire in me.

My mind moved from being worried about the imagined uncertainties of cases I have to attend and the peaceful nights I would miss, to enjoying the chaotic nights. It was indeed a beautiful journey, which made me stronger and more resilient. Even now the hurdles are not less, especially in that village where I work -the electricity that finds joy in playing hide and seek, the humming mosquitoes which love to make us dance or the unpredictable rain which comes and goes as it pleases, are just few of the hardships we hurdle through in the devoted journey of saving lives. At night, very often, on the other side of each phone call that I receive, I could grasp the helplessness and the pleading voices of the farmers who toil all day to meet the two ends of their lives meet. And on rushing to their houses, sometimes my eyes would well up, and heart hurt s to see the torn and shabby clothes, cracked feet and leaking houses. In the yellow - often dim - light of the cowshed, I could feel their lips quivering and praying for the suffering animal. This gives me the strength to do what I am supposed to do in saving their only source of livelihood. And after I've successfully completed my part, the reward that I get is the smile on their tired, anxious faces and grateful twinkle of their tired eyes. Most importantly, the relieved gratitude and love shown by the voiceless poor creatures is so overwhelming that it gives me the energy, stored to save more suffering animals.

Recently, I was fortunate to receive the best reward that I could ever get in my life!

A calf was named “Radha Surya” after me for helping her come into this beautiful world. The farmer shared his experience through a Face book post, explaining the night RadhaSurya was born. That was the day I realized the unmatched significance of a veterinarian in this world. Yes, I chose the right path. This is how I always wanted to contribute to this world.

The experience gained during the last couple of months through Radhasurya; the little calf, Subhadra, 'Kaathu' ;the shy goat, 'Gipsy'; the naughty pup, 'Lakshmi' have taught me patience, faith, love and compassion. It has transformed me into a better version of myself. Within this short span of time, I got the opportunity to handle a number of complicated cases like dystocia, uterine prolapse and similar cases in animals that required emergency attention. That too to do the best against odds in not-so-ideal conditions of a hospital premises is equally challenging. I know there's more to come, more challenges to face and more lives to save. So, I strive to be a better vet each day.

I am always indebted to all my colleagues, dear friends, family and farmers for letting me be myself and encouraging me in my endeavours. It gives me immense pride to share that there are many lady veterinarians who rose like a Phoenix and is performing excellently in the field against all social stigmas. Everything converges to this one point ‘Believe in yourself. Your gender or physical appearance doesn't matter, what really matter is your heart, and the will to do the things that you strongly believe in. Your deeds speak more strongly than your words.’

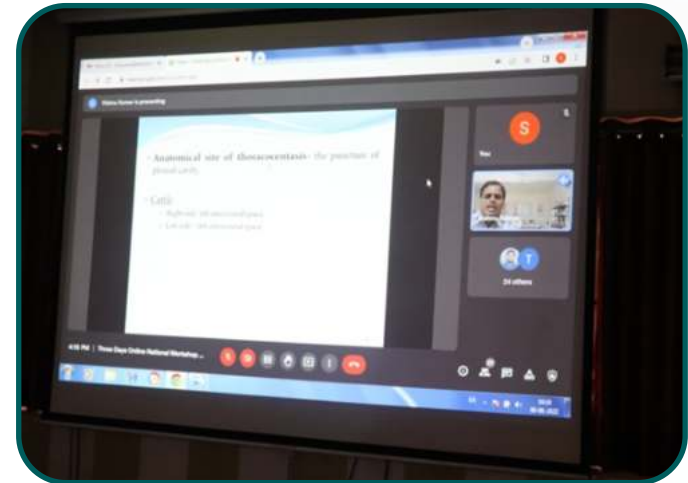
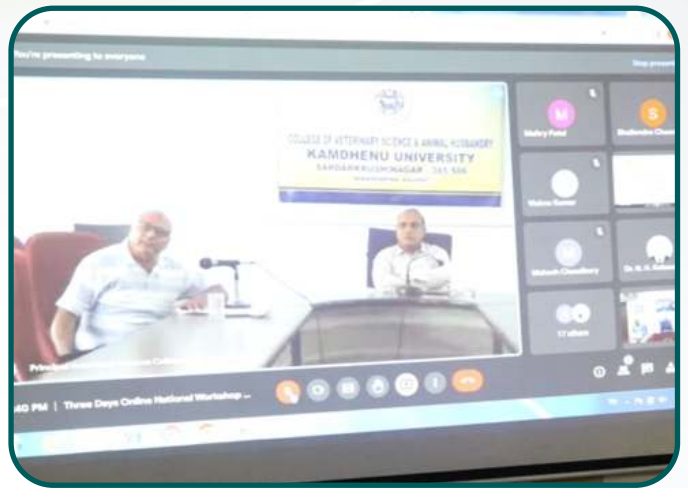
THREE DAYS ONLINE NATIONAL WORKSHOP ON “TECHNICAL APPROACHES AND APPLICATION OF ANATOMICAL KNOWLEDGE FOR VETERINARY PRACTITIONERS”, 06-08, JUNE 2022

College of Veterinary Sci. & AH., Kamdhenu University, Navsari

It has been given me immense pleasure to note that the Department of Veterinary Anatomy, College of Veterinary Science & A.H., Kamdhenu University, Navsari has organized Online National Workshop entitled “Technical Approaches and Application of Anatomical Knowledge for Veterinary Practitioners” during 06-08 June, 2022.

In this online National workshop participants viz, field veterinary practitioner, academicians, PG students were joined across country. There were more than 60 participants who took active part in the workshop. The inaugural function was chaired by Dr. N. H. Kelawala, Vice-Chancellor, Kamdhenu University, Gandhinagar as a president; Dr. M. C. Desai, Professor & Head, Department of Veterinary Anatomy, College of Veterinary Sci. & AH, KU, Sardarkrushinagar, as a Guest of Honour and Dr. V. B. Kharadi, Principal, College of Veterinary Sci. & AH, KU, Navsari as a Chairman of the function. Dr. V. B. Kharadi, welcomed the participants and guest speakers and also gave introductory remarks regarding the importance of this workshop. Dr. M. C. Desai, congratulated and gave best wishes to the organizing team for the workshop. He also emphasized the importance of veterinary anatomy for the diagnosis & treatment purpose. Dr. N. H. Kelawala, Vice-Chancellor, Kamdhenu University, Gandhinagar and president of the function told the situation during the Pandemic COVID 19 and how we can convert the problems to opportunity. He also told that to become a successful clinician, it depends on how to use their anatomical knowledge and basic skills in field practices. So, the topic is precisely chosen by the organizer. He appreciated the efforts made by Dr. V. B. Kharadi, Principal, CVSc & AH, Dr. R. Menaka, Organizing secretary and their Team Members. At the end, Dr. R. Menaka, Organizing secretary proposed the vote of thanks.

After the completion of the inaugural function the first day technical session started with two experts' lectures each presented by 1. Dr. Archana Pathak, Professor & Head, CVSc & AH, DUVASU, Mathura (UP) on “Applied Anatomy of Body Cavities in Relation to Clinical Practice of Dog” and Dr. R. Menaka, Assistant Professor & Head, CVSc & AH, KU, Navsari (GUJ) on “Nerve blocks in Large Ruminants”. The second day speakers were Dr. S. Sivagnanam, Assistant Professor, CVSc & AH, TANUVAS, Thanjavur (TN) and Dr. S. Chaurasia, Assistant Professor, CVSc & AH, KU, Navsari (GUJ) delivered the lecture on “Comparative Clinical Anatomy and Physiology of Avian & Exotic pets” and “Clinical Anatomy of the Equine- An Overview”, respectively. On the third day the lecture was delivered by Dr. Sunil Kumar Gupta, Associate Professor, CVSc & AH, NDVSU, Mhow (M.P.) on “Anatomical Knowledge to Help Veterinary Practitioners in Species Identification” and Dr. Vishnudeo Kumar, Associate Professor & Head, CVSc & AH, KU, Junagadh (GUJ) on “Clinical Anatomy of Large Ruminants”. At the end of the workshop Dr. R. Menaka gave the concluding remarks and thanks to all participants for active participation.



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