



# NAVS NEWS VIBES

NATIONAL ACADEMY OF VETERINARY SCIENCES (INDIA)

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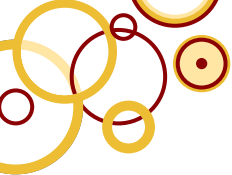
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## ISSUE HIGHLIGHTS ...

**1** Mastitis, an inflammatory disease of the udder, causes considerable economic loss to dairy farmers. A look into the contemporary and merging approaches in its therapeutic management ...



**HORIZON**

**THE PRESIDENT'S VIEWS & VISION**

To,  
Shri Parshottam Rupala ji,  
Honourable Cabinet Minister of Fisheries,  
Dairying & Animal Husbandry  
New Delhi

Most Respected and Honourable Sir,

Sub: Selection of distinguished Veterinary  
Scientists as Directors of Veterinary National  
Institutes under ICAR

I have received several representations from  
Veterinary Scientists regarding selection of non-  
vets as Directors of National Veterinary  
Institutes of ICAR. I felt I will be failing in my  
duty as a President of the Academy if I don't  
highlight the facts for your kind perusal.

The recruitment of Directors for Veterinary  
Institutes is not being done with a basic degree  
in Veterinary Science since the committee  
constituted by ICAR stipulates the eligible  
qualifications for these positions. Such  
committees do not have eminent Veterinary  
Scientists who are not working in the ICAP  
system. The ICAR system is dominated by  
Agriculture Scientists and the views of the  
Veterinary Scientists in the system are over  
ruled. The Veterinary Scientists outside the  
system will have the courage of conviction to  
express their views in the committee.

It is regretting to see that although outstanding  
Veterinary Scientists are available in the  
country with such a big network of 15  
Veterinary Universities and ICAR Research  
Organizations. the appointment of Directors  
without a basic degree in Veterinary Science is  
still being continued.

Such prominent and important positions are  
very pivotal and require vast knowledge and  
basic technical exposure in Veterinary Science  
to appreciate and stretch their imagination for a  
comprehensive understanding on issues  
relating to livestock sector. Sir, you will be able  
to appreciate this point as our dynamic  
Honourable Cabinet Minister. The Veterinarian  
undergoes a rigorous course of 5 1/2 years in  
Anatomy, Physiology, Microbiology, Nutrition,  
Breeding and other clinical subjects unlike his  
other counterparts in agriculture or basic  
sciences. The scientists who do not have a basic



degree in Veterinary Science cannot appreciate or stretch their  
imagination. The vice versa is also true where a Veterinarian may not  
be able to head a National Institute on Agriculture. As far as my  
information goes, there was no appointment of a Veterinarian  
heading the Agriculture Institutes or non-medical heading the  
medical institutes but many non-vets have headed Veterinary  
Institutes.

The leadership of a non-Veterinarian at the helm of the affairs in  
Veterinary and Animal Science Research affects the growth and  
development of the Veterinary and Animal Husbandry activities due  
to lack of comprehensive abilities to redress the issues pertaining to  
the Veterinary research as a whole. It should not be out of place to  
mention here that the Animal Husbandry activities contribute 30% of  
GDP of Agriculture and are growing at 7 to 9% as against 1.5 to 2%  
of Agriculture.

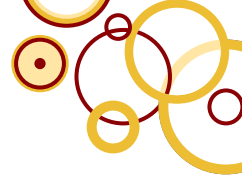
Hence the National Academy of Veterinary Sciences (India) strongly  
emphasizes the need to select distinguished Veterinary Scientists with  
a basic Veterinary degree who is dynamic competent and visionary to  
head the Veterinary Research Institutes. It is my earnest appeal to  
you Sir, as the President of the Academy to consider this matter in  
the right perspective which will boost the morale and motivation of  
Veterinary fraternity, since the Veterinary profession feels helpless  
due to the over shadowing of ICAR.

Thanking you sir,  
Cordially Yours

Thanking you,  
Cordially yours,

  
**(DVR PRAKASH RAO)**

*[Reproduction of the letter written by the President, NAVS(I) to Hon'ble Minister,  
MoFDAH on 29 Dec 2021]*



## IN FOCUS

### MASTITIS THERAPY

## Contemporary therapeutic approaches of mastitis in dairy animals

*Neelesh Sharma*

Division of Veterinary Medicine, Faculty Veterinary Science & Animal Husbandry, SKUAST-J, Jammu-181 102

Mastitis results in the destruction and disturbances of the mammary gland and affects milk production and productivity. Among the many actions that could be taken as treatment, the administration of antimicrobial agents is the most commonly used method. The emphasis of clinical mastitis treatment has been on antimicrobial therapy and currently there are a number of conventional antibiotics with different degree of spectrums that are used for the treatment of the disease in India. An important aspect of mastitis therapy is the alleviation of inflammation that can result in swelling and subsequent pain associated with clinical mastitis that can cause considerable discomfort to the cow in the udder. The purpose of mastitis therapy is to assist the affected quarter to clear infection as rapidly as possible and to enable a quick return of the cow to normal milk production. For antibacterial mastitis therapy to be successful, the active drug must attain and maintain concentrations exceeding the minimum inhibitory concentration (MIC) at the focus of infection for long enough to break the production and toxin-producing cycle of the causative pathogen. The treatment of mastitis can be highly effective in removing infection from quarter and returning the milk to normal composition. The best indicators of treatment efficacy are increased feed intake, improved milk production; additional milk marketed and reduced health or early culling rates.

### Principles of mastitis treatment

In acute, severe disease, due to severe inflammation distribution of drugs through the udder may be impaired by inflammatory cells or blockage of milk ducts by tissue debris. Moreover, parenteral administration may trounce these problems. Severely inflamed udders should be milked out frequently, with the use of oxytocin if necessary. It has been recommended that in peracute or acute clinical mastitis cases, combined systemic and intramammary treatment with compatible antibiotics should be use with supportive therapy.

The basic rule in selecting the drug is to opt for one with as narrow a spectrum as possible, to focus treatment on a specific pathogen and minimise side-effects. It has been documented that, narrow-spectrum antibiotics are bacteriocidal and those with a broad spectrum are bacteriostatic. Successful intravenous or intramuscular mastitis therapy depends on effective passage of the drug from blood into milk to reach foci of infection, which is largely governed by lipid solubility, degree of ionisation

(dependent on the dissociation constant (pKa), and the extent of protein-binding of the drug with plasma) since drugs cross the blood-milk barrier by passive diffusion. Only the unbound or free drug can diffuse through the blood-milk barrier and exert pharmacological or antimicrobial activity. However, the blood circulation through the udder of a cow producing 20 kg of milk per day is approximately 10,000 L/d, or 7-10 L/min. Systemic administration of rationally selected antibacterials can therefore be used as the sole treatment in acute mastitis. Following systemic administration, basic drugs (if sufficiently lipid-soluble) tend to concentrate in milk. The non-ionized fraction reaches equal concentrations on either side of the blood- milk barrier, even when marked udder changes are present. On the basis of various studies, an ideal antibiotic for parenteral mastitis therapy should have some properties such as: low MIC against the majority of udder pathogens, high bioavailability via the intramuscular route, sufficient lipid solubility, a low degree of serum protein binding, a long half-life in the body, similar clearance from organs, tissues and blood, no distribution to the gastrointestinal tract, and be weakly basic or otherwise highly non-ionized in serum. Unfortunately, to date, as far as we know, no single antibiotic meets all these requirements.

**Antimicrobials:** The conventional antimicrobial agents used in mastitis treatment include penicillin, cloxacillin, erythromycin, cephalosporins, gentamycin, amikacin, trimethoprim-sulfa, amoxicillin-clavulanic acid, polymyxin B, cephalotin, tetracycline, ampicillin, neomycin, kanamycin, nystatin, miconazole and other drugs with systemic injectable and local intramammary infusion formulations.

**Anti-inflammatory:** Anti-inflammatory drugs are widely used to treat acute clinical cases of mastitis. In India, previously Diclofenac sodium was commonly used as anti-inflammatory drug but now it has been banned due to residual effect in treated carcass. Presently meloxicam is commonly used as anti-inflammatory in the treatment of mastitis at the dose rate of 0.5 mg/kg b.wt. intramuscularly.

**Steroids:** Glucocorticoid inhibits the production of inflammatory molecules and the adhesion molecules that facilitate transport of inflammatory cells from the bloodstream to the site of inflammation. Glucocorticoids

need to be administered early in the course of disease for maximum efficacy, Intramuscular administration of Dexamethasone (@ 30 mg (as total dose for adult cow) is sufficient, Isoflud (Isotlupredone acetate) (10-20 mg (total dose) by intramuscular route, which safe even in pregnancy.

### Specific treatment

In acute mastitis, parenteral antibiotic therapy may be preferred with intramammary injection. Either the same antibiotic or compatible antibiotics with identical or synergistic action are administered parenterally and locally for 3-5 days, depending on clinical cure. For increased bioavailability of the drug, a large volume should be administered intramuscularly at two sites. Macrolide antibiotics are potentially best for the treatment of Gram-positive bacterial mastitis, and gentamicin for Gram-negative infections. Different drugs should be administered together only if synergism or at least no antagonism exists; when using combinations the risk of residues is increased. Use of more than 2 antimicrobial drugs together in routine treatment of mastitis is not pharmacologically justified. There are very few antimicrobial drugs suitable for treating coliform mastitis. High concentrations of some drugs (tetracyclines, chloramphenicol, novobiocin-penicillin, streptomycin) have been found to suppress phagocytosis in the udder. This effect is enhanced if corticosteroids are combined with the drugs. These considerations are important when treating severe coliform mastitis, in which the local defence mechanism is of major significance. The most frequently used drugs are enrofloxacin and gentamicin in combination. Causal agents of yeast mastitis are usually sensitive to fungicidal drugs such as amphotericin B. Spontaneous recovery from fungal mastitis is relatively common, and frequent milking out enhances recovery.

Per-acute clinical mastitis, in principle, treatment is the same as for acute mastitis, but more aggressive, and special attention must be given. Fluid therapy play important role in the management of shock with steroids. When the affected quarter is gangrenous or severely damaged, intramammary treatment will be ineffective, and teat amputation may help drainage, if it is economically feasible.

In chronic mastitis, it is usually necessary to cull the cow or to destroy the affected quarter's by means of an infusion of 25-40 ml of concentrated ether to eliminate an important potential source of bacterial infection for healthy quarters. Parenteral and intramammary antibiotic treatment for 3-5 days may be used in conjunction with anti-inflammatory products, but the prognosis remains poor. Infusion of 100-250 ml of a 5% or 10% dextrose solution in combination with antibiotics to which the bacteria are sensitive into the affected quarter 3 times at 12-hourly intervals has been recommended.

### Recent advances in the treatment of mastitis

**Stem cell based approaches:** Recently researchers are trying to improve milk production of dairy cows by manipulating mammary epithelial stem/progenitor cells. Bovine mammary epithelial cells (BMECs) produce milk and contribute significantly to the immunity of the mammary gland. Given the fundamental role the primary bovine mammary epithelial cells (pBMECs) play a major first line of defense against invading pathogens e.g. *S. aureus*. Hence, manipulating BMECs to enhance antibacterial system in the mammary gland may open the new avenue in the field of mastitis management. Recently we have isolated, characterized and established BMESCs for further studies. We used antibacterial proteins/peptides e.g. lipocalin-2 and transected BMESCs for developing model for the possible mastitis treatment. As a step toward prevention and control of mastitis, a plasmid-mediated antibacterial gene transfer technique into mammary epithelial cells may open new era of active bovine mastitis control. The plasmid-mediated technique use to enable mammary cells to synthesize and secrete target protein in the udder. Growth and maintenance of the mammary epithelium depend on the function of mammary stem cells and progenitor cells. The mammary glands contain stem/progenitor functional hierarchies. An important attribute of the mammary gland is the regenerative capacity of mammary epithelium, which is evidenced by repair mechanism during the regression phase in successive reproductive cycles, In mastitis cases, mammary parenchyma become damaged and get fibrosed, therefore stem cell based approach may also help in the regeneration and repair of mammary damaged tissue.

**Nanoparticles based approaches:** Despite the availability of several antibiotics with good in vitro activity, cure rates are poor, because antibiotics used in this phase have short half-life in the target of action due to the milking period and, therefore, unable to maintain therapeutic levels for long enough to determine the complete elimination of bacteria in cystic form. Few bacteria have the property of cellular internalization e.g. *S. aureus*, in that case antibiotics are not enough to kill the bacteria. Hence, researchers are thinking on aspect and trying to develop nanoparticles based therapeutic options with the concept of slow release and can target the bacteria inside cells. reported the preparation, characterization and utilization of chitosan nanoparticles for the intracellular delivery of the poorly cell- penetrating antibiotic e.g. Ciprofloxacin, Chlortetracycline hydrochloride and Gentamicin sulfate to improve their treatment of bacterial infections showing results that chitosan nanoparticles and its loaded antibiotics kill and inhibits the growth of gram positive and gram negative bacteria tested due to nanoparticles structures, and the antibacterial activity increased with the antibiotic content.



## FOOD FOR THOUGHT WORLD OF THE VETS

### Large-scale bovine vaccine study reveals the role of genetics in immune response

Vaccines are a critical tool in the protection of humans and animals against pathogens, but a major challenge for vaccine development is understanding why vaccines work better for some individuals than others. To answer this question, a research team in the Department of Computer Science at the Johns Hopkins Whiting School of Engineering, studied black angus cows and their varying responses to the Bovine Respiratory Disease, or BRD, vaccine. The research sought to understand how the unique genetic structure of cows and other bovine animals such as bison, buffalo, and antelopes were creating antibodies from the BRD vaccine. The researchers examined a distinguishing feature of bovine immunity: the long complementarity-determining region H3 loops in the antibodies they create. Bovine antibodies with such ultralong CDR H3 loops have been found to neutralize certain strains of HIV, and the researchers team have discovered that they are also one key to developing antibody responses against BRD. The results of the study, published in *Genome Research*, indicates that while the creation of these unique antibody structures was triggered by each vaccine dose, vaccine efficacy (how well the vaccine actually works) is determined long before the individual mounts an immune response. Segments of DNA called variable, diversity, and joining immunoglobulin genes, also referred to as IG genes, are what produce antibodies and control individual responses to a vaccine.

[Source: <https://phys.org/news/>]

### Using artificial intelligence to predict life-threatening bacterial disease in dogs

Leptospirosis, a disease that dogs can get from drinking water contaminated with *Leptospira* bacteria, can cause kidney failure, liver disease and severe bleeding into the lungs. Early detection of the disease is crucial and may mean the difference between life and death. Veterinarians and researchers at the University of California, Davis, School of Veterinary Medicine have discovered a technique to predict leptospirosis in dogs through the use of artificial intelligence. After many months of testing various models, the team has developed one that outperformed traditional testing methods and provided accurate early detection of the disease. The research involved historical data of patients at the UC Davis Veterinary Medical Teaching Hospital that had been tested for leptospirosis. Routinely collected blood work from these 413 dogs was used to train an AI prediction model. Over the next year, the hospital treated an additional 53 dogs with suspected leptospirosis. The model correctly identified all nine dogs that were positive for leptospirosis (100% sensitivity). The model also correctly identified approximately 90% of the 44 dogs that were ultimately leptospirosis negative. Leptospirosis is a life-threatening zoonotic disease, meaning it can transfer from animals to humans. As the disease is also difficult to diagnose in people, the research team hopes the technology behind this groundbreaking detection model has translational ability into human medicine.

[<https://www.sciencedaily.com/releases/2022/05/220523135026.htm>]

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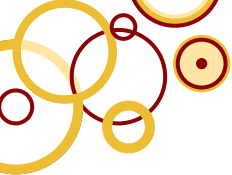
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## Vegan diets for dogs may be linked with better health

A survey study that explored links between dog diet and health outcomes, suggests that nutritionally sound vegan diets may be healthier and less hazardous than conventional or raw meat-based diets. To help clarify the potential health effects of different dog diets, researchers from the University of Winchester, UK, analyzed survey data from guardians of 2,536 dogs fed either a conventional meat, raw meat, or vegan diet. The survey included questions about the dogs' health, including the number of veterinary visits, use of medications, and specific dog health disorders. Statistical analysis of the survey results suggested that, overall, dogs on conventional diets were less healthy than dogs on raw meat or vegan diets. Dogs on raw meat diets appeared to be healthier than those on vegan diets. However, the researchers noted several factors that prevent a conclusion that raw meat diets are healthier. For one, in the study, dogs on raw meat diets were significantly younger than dogs on vegan diets, which could help explain why they appeared to be healthier. Additionally, dogs on raw meat diets were less likely to be taken to a veterinarian; while this could be a sign of better health, prior research has indicated that guardians of dogs on raw meat diets are less likely to seek veterinary advice. Further, prior research has linked raw meat diets to increased risk of pathogens and nutritional deficiencies. In light of both the new and prior findings, the researchers suggest that a nutritionally sound vegan diet may in fact be the healthiest and least hazardous choice for dogs.

[<https://www.sciencedaily.com/>]

### DISCLAIMER:

The views expressed by various authors in this publication are their own and not necessarily that of the NAVS(I). Further, news items related to selected scientific and academic advances published in this newsletter are sourced from varied sources, including scientific journals, newspapers and websites, etc. They are solely meant for developing educational awareness among the members of the Academy.

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## BEYOND THE BOUNDARIES

SISTER SCIENCES

### Depression, bipolar disorder, and anxiety share a common gut bacteria

A new study suggests that people with mental illnesses like depression, anxiety, bipolar disorder, and psychosis tend to have lower faecalibacterium and coprococcus. The faecalibacterium and coprococcus are two types of bacteria that have an anti-inflammatory effect within the gut. It found a common, overlapping environment in the gut bacteria of people living with mental illnesses. People with these illnesses had higher levels of Eggerthella, a bacterium with proinflammatory effects and are more likely to have gut biomes characterized by a lack of anti-inflammatory-producing bacteria and a higher amount of proinflammatory bacteria. The findings demonstrate that changes in the composition of the microbiota are widespread and, even though it is likely to be a lot more complicated than that, there are some indication of how they may be linked to other known underlying mechanisms of mental illness, such as the regulation of inflammatory processes. The study highlights the need for greater awareness of gut health should be considered in treating psychiatric disorders.

[Source: <https://www.techexplorist.com/depression-bipolar-disorder-anxiety-share-common-gut-bacteria/41310/>]

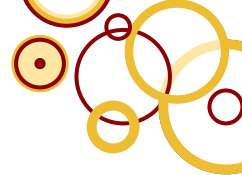
## TIDBITS

SNACKING ON SNIPPETS

### A lack of fish faeces is changing the flow of carbon in the ocean

A shortage of fish faeces is contributing to shifts in the ocean's carbon cycle of an equivalent magnitude to that of the impact of climate change on the ocean. Fish-produced faecal pellets are one of the most efficient natural mechanisms of carbon storage, locking it deep in the ocean for up to 600 years. But the rise of industrial fishing has seen the number of fish in the sea fall, so researchers at the University of California, Los Angeles investigated how this has affected the flow of faeces. The team developed a model of the global marine ecosystem that quantifies how the production of fish faeces has changed over time. The model is based on estimates of historical and present-day numbers of fish caught, as well as broader human-driven impacts on marine ecosystems, such as climate change. Their research suggest that the effect of industrial fishing on the ocean's carbon cycle is comparable in magnitude to the impact of climate change on the ocean's carbon as fish is considered as an integral part of the ocean's biogeochemical cycles.

[Source: *Science Advances*, DOI: 10.1126/sciadv.abd7554]



## SPLENDOUR SHINING FELLOWS

### Prof ML Madan gets Padma Shri

Prof Moti Lal Madan, a distinguished veterinarian and reproduction biotechnologist, has been conferred with the Padma Shri for his contribution to livestock research. Born in Srinagar in 1939, Dr Madan got his PhD from Columbia University, Missouri, USA and has served for about three decades in NDRI, Karnal. He has contributed significantly to the areas of national agricultural development through his ground-breaking research in animal biotechnology. Innovating in vitro fertilization (IVF) technology among buffaloes, Prof Madan, produced for the first time in the world, a buffalo IVF calf. Prof. Madan has made momentous contributions in the fields of research in animal physiology, endocrine, environmental physiology and reproductive biotechnology and has 236 publications to his credit in international-national journals. He is also known as the father of regenerative biotechnology for his contributions. An academician and research manager, he worked in NDRI, Karnal for 28 years in various capacities before being elevated to the position of DDG (Animal Science) at ICAR, New Delhi. He has also served as Vice Chancellor of DUVASU, Mathura and PDAU, Akola. NAVS (India) congratulates Prof Madan, a Fellow of the Academy, for this commendable achievement.



### Padma Shri for Dr Sosamma Iype

Dr Sosamma Iype, Former Professor of Animal Breeding and Genetics from Kerala Agricultural University (KAU), has been conferred with the Padma Shri for her contribution to cow breed conservation. Dr Iype was born in 1942 and did her PhD from the National Dairy Research Institute, Karnal and has worked as Head of the Department of Genetics and Animal Breeding at the Kerala Agricultural University before her retirement in 2001. Dr Sosamma was among the pioneers in starting a movement to conserve the Vechur breed of cows since 1988. She formed an organisation called the Vechur Conservation Trust in order to increase support and participation from farmers as well as the researchers. Starting with just eight Vechur cows, now there are over 5,000 cows in Kerala and other parts of the country. She is still active and works closely with the Vechur Conservation Trust. Most of her programmes were in partnership with several national and international



organisations like the National Biodiversity Authority, Ministry of Science and Technology, Food and Agriculture Organization, Kerala State Biodiversity Board, NABARD, and United Nations Development Programme. Dr Sosamma has earned several awards from organizations such as the FAO and the UNDP. NAVS (India) congratulates Dr Sosamma, a Fellow of the Academy, for this laudable accomplishment.



## REFLECTIONS THE ISSUE THAT WAS

- ✳ Dear Dr Pattanaik, Congratulations for bringing the latest NAVS News Vibes. We can get all the information at one place and this Vibes is a MIRROR of NAVS activities. Keep it up and we hope that it should be a timely affair ... [Dr Naveen Kumar, Izatnagar; naveen.ivri1961@gmail.com]
- ✳ Congratulations Dr Pattanaik for bringing our yet another NAVS News Vibes with good information and nice presentation! ... [Dr Inderjeet Singh, Ludhiana; inderjeet.dr@gmail.com]
- ✳ Thank you Dr Pattanaik for the nicely prepared Newsletter ... [Dr Hari Mohan Saxena, Patna; hmsaxena@yahoo.com]
- ✳ Dear Dr Pattanaik, Thanks for sending me the latest issue of NAVS News Vibes ... [Prof. Mahendra Pal, Bharuch; palmahendra2@gmail.com]
- ✳ Dear Ashok, Hope this will find you in good health and spirit. Thank you very much for your mail along with attachment of NAVS Vibe issue 4. Congratulations for excellent coverage ... [Dr P.K. Gupta, Izatnagar; drpkg1943@gmail.com]
- ✳ Thank you sir for bringing up a wonderfully compiled and set issue of NAVS publication. Its Editorial is really quite informative. Kudos ... [Dr RVS Pawaiya, Makhdoom; rvspawaiya@gmail.com]

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## BROOKE HOSPITAL FOR ANIMALS (INDIA)

*An Organisation Committed to Equine Health & Welfare and the Development of the Marginalised Equine Owning Community*

Brooke Hospital for Animals (India) or Brooke India (BI) is an affiliate of the Brooke, which is a United Kingdom-based international equine charity, focusing on the welfare and care of equines (horses, donkeys and mules). Brooke's vision is of a world in which working horses, donkeys and mules are free from suffering and have a life worth living.



*Renu Devi, equine owner from Sonipat, with her mule*

BI's journey in India towards equine welfare started two decades back when it was registered as a Section 8, Not for Profit Company under the Companies Act. Equids in India mostly work in harsh environments like Brick Kilns and face never-ending health troubles. This situation was mainly due to a lack of financial resources and knowledge on good management practices amongst the equine owners and insufficient understanding of equine health care by Local Health Providers (LHP).

BI's initial step as an intervention involved providing free veterinary services at different congregation points and organising Intensive Equine Care Camps (IECC) to spread awareness on welfare oriented husbandry practices and preventable injuries & diseases. From 2006 onwards, BI started focusing on establishing permanent intervention units and started expanding its operations to other states such as Andhra Pradesh, Rajasthan, Hyderabad and other parts of Uttar Pradesh. The BI team also introduced Community Engagement for exploring sustainable solutions for equine welfare and community development. This period saw the formation of male and female Self Help Groups called Equine Welfare Groups, the use of Participatory Rural Appraisal tools and increasing community participation. BI team saw the congregation of equines, equine owners, traders and local service providers at Equine Fairs as an excellent opportunity for a large-scale intervention. BI teams intervened to spread awareness on equine welfare issues, provide quality training on equine care and ensure equine welfare-friendly facilities and resources at these fairs.



*IECC Camps Luniyavas donkey fair*

BI teams also focused on strengthening the local service delivery system for working equines, including quality farriery services for hoof care, accurate and appropriate veterinary first aid during health emergencies, hair clipping, and welfare-friendly saddlery material. They also ensured compassionate handling while

delivering any of the services. These interventions were incorporated in Brooke's Theory of Change, in 2016. This theory promotes strengthened animal health policy environment and thriving equine owning communities.



*Equines working at Brick Kilns*

Currently, BI operates directly through 32 Equine Welfare Projects (EWPs) across 10 States and Union Territories in India, thereby reaching out to approximately 3.16 lakhs working equids and the equine owning community that owns/rears them. BI has multi-disciplinary teams with core strengths in Animal Health & Welfare, and Community Development, including Human behaviour Change, Gender Empowerment, Livelihoods and Resilience. Some of the notable achievements made by the team over the years include:

- Advocating the revision of Glander's Compensation- From INR 50 to 25,000 for horses and INR 16000 for mules/donkeys
- Inclusion of Equids in Livestock under the National Livestock Mission Schemes and thereby making them eligible for equine insurance.
- Advocating the issue of Animal Welfare Board of India (AWBI) advisories for Equine Fairs, Shrines & Pilgrim sites
- Introducing BI's innovative projects for ensuring sustainable availability of green fodder, through Azolla cultivation and Hydroponics techniques successfully across its intervention areas.
- BI teams worked throughout the COVID 19 pandemic. They supported the community by providing emergency treatments, alternative livelihood options, first aid kits and feed & fodder for the equines.

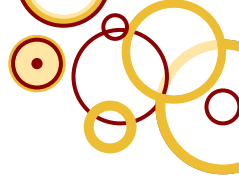
In the upcoming years, BI will focus on strengthening the Community Based Organisations, linkages with government welfare schemes, have robust disaster response capacity, advocate policy revisions on equine welfare issues, and enhancing the knowledge and skills of veterinary students on animal welfare, compassionate handling and upskilling the local farriers and animal health providers.



*Quality Farriery Services*

BI's team is proud of its journey and aspire to keep bringing a positive change for vulnerable and marginalised working equines and the rural communities, whose lives we have not touched yet.





# INTEGRATION OF LIVESTOCK AND AGRICULTURE FOR SUSTAINABILITY



R & D Lab



Hydroponics Fodder



Vermicompost Promotion



Soil Fertility



Women Empowerment



Biogas

## INITIATIVES FOR

# 1 HEALTH



One Health is “the collaborative efforts of multiple disciplines working locally, nationally, and globally to attain optimal health for people, animals and our environment”.



Hydroponics Paddy



Education & Entrepreneurship



Animal Health



Medicinal Plants



Awareness Program



Awareness Program



**Ayurved Research Foundation**

4<sup>th</sup> Floor, Sagar Plaza, Distt. Center, Vikas Marg, Laxmi Nagar, Delhi-110092  
**Corporate Office Address**  
 Unit No. 117, First Floor, KM Trade Tower, Plot No H-3, Sector-14, Kaushambi, Ghaziabad, U.P-201010

*Introducing*

**Zydus AHL**

For the First Time in India

**VetPlasma™**

**PLASMA  
VOLUME  
EXPANDER**

**INDICATIONS AND USAGE**

VetPlasma is used primarily to treat acute hypovolemia & shock in conditions like Blood loss, diarrhoea, etc

**DOSAGE AND ADMINISTRATION**

Daily dose and rate of infusion depend on the animal's blood loss, hemodynamics and on the hemodilution effects

**Recommended Dose:**

**Large Animals (Cattle & Horse) :**

8-10 ml/kg body weight/day, up to maximum 20 ml/kg

**Small Animals (Dog, Cat, Pig, Sheep & Goat) :**

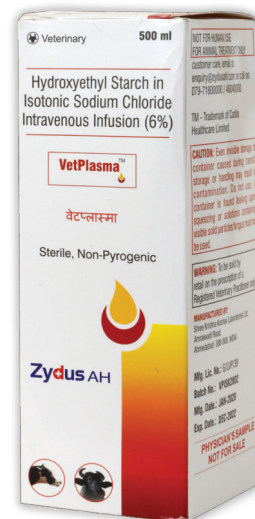
10-20 ml/kg body weight/day

Administer by intravenous infusion only.

The initial 10 to 20 ml should be infused slowly, keeping the animal under close observation due to possible anaphylactoid reactions

**PRESENTATION**

250 ml & 500 ml plastic bottle.



**Restores Blood Volume Saves Life**

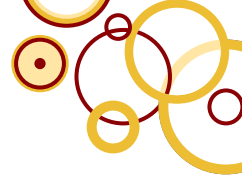
**Animal Pharm**  
Agribusiness Intelligence | Informa

**Award Winner 2015, 2016, 2018**  
Best Company- India, Africa, Middle East

**Zydus**  
dedicated to life

**Zydus Animal Health and Investments Ltd.**  
(A wholly owned subsidiary of Cadila Healthcare Ltd.)

Zydus Corporate Park, Scheme No. 63, Survey No. 536,  
Khoraj (Gandhinagar), Nr. Vaishnodevi Circle, SG Highway,  
Ahmedabad – 382 481, India.  
Phone : 079-71800000 / 48040000, Fax : +91-79-2686 8687  
e-mail : enquiry@zydusahl.com, www.zydusahl.com



## INDIAN HERBS (Since 1951) (Pioneer & Global Market Leader)

- ▶ **ORIGINATOR OF VETERINARY AYURVEDA & PIONEER OF THE CONCEPT OF HERBAL ANIMAL HEALTH CARE PRODUCTS.** Maintaining No.1 POSITION in this Industry since 1951.
- ▶ **FIRST ISO 9001** Certified Company for Research and Manufacturing of Herbal Animal Health and Human Health Care Products (Awarded by DNV, The Netherlands).
- ▶ **FIRST GMP CERTIFIED COMPANY** for manufacturing of Ayurvedic Veterinary and Human Products (Awarded by the Director of AYUSH, Govt. of U.P., INDIA).
- ▶ **GMP Plus Certification** from GMP Plus International, The Netherlands .
- ▶ **MODERN R&D CENTRE** equipped with state-of-the-art facilities including HPLC, HPTLC, GC-MS/MS, ICP-MS, UV-VIS Scanning Spectrophotometer, Spectrofluorometer, Atomic Absorption Spectrophotometer etc., **RECOGNISED AND APPROVED BY MINISTRY OF SCIENCE AND TECHNOLOGY, Govt. of India, since 1986.**
- ▶ **More than 200<sup>+</sup> SCIENTISTS AWARDED Ph. D./M.V.Sc./M.Sc.** for Research on **INDIAN HERBS** products.
- ▶ **1000<sup>+</sup> RESEARCH PAPERS** published in leading national and international journals on **INDIAN HERBS** products.
- ▶ **Standardization & Quality Control** based on bio-actives and finger printing technology.
- ▶ **RECIPIENT OF 22 PATENTS** in USA & other countries for innovative research on herbs and herbal formulations.
- ▶ **EXPORTING** to around 50 COUNTRIES all OVER THE WORLD including USA, EEC, South and North American, African and Asian countries.
- ▶ **FOUR STAR CATEGORY RECOGNITION** for Excellence in Industrial Achievements by State Govt. of U.P.



● **Some AWARDS FOR OUTSTANDING ACHIEVEMENTS:**

- \* National Awards for Outstanding Entrepreneurship, Outstanding R&D Achievements, Outstanding Quality Products by Govt. of India.
- \* Certificate of Merit for outstanding export performance at All India Level by Chemexcil, Mumbai.
- \* State Export Awards (First Prize) by State Govt. of U.P.
- \* AIMA - Dr. J.S. Juneja Award in for Creativity and Innovation by All India Management Association, Delhi.
- \* State Export Awards (First Prize) in 1995-96, 2004-2005, 2008-09 and 2018-19 by State Govt. of U.P.
- \* The 2016 "ASIA BRANDS TOP 500" organised by Asia Brands Organization, China.

- **TWO STAR Export House Status** accorded by **MINISTRY OF COMMERCE AND INDUSTRY, Govt. of India.**

- **CERTIFICATE OF APPROVAL** from **Export Inspection Council of India, Ministry of Commerce & Industry, Govt. of India** since 2014.



### INDIAN HERBS SPECIALITIES Pvt. Ltd.

SHARDA NAGAR, SAHARANPUR - 247 001 (U.P.)  
 Phones: (0132) 2615010 (30 lines), Fax: (0132) 2726288  
 E-mail: info@indianherbs.org, Web: www.indianherbs.org

# HYPOCALCEMIA (Low Blood Calcium)

An important determinant of fresh cow Health and Milk production

## Five key principles for Milk fever control in commercial dairy

1. Oral supplementation of easily absorbed ionic calcium around calving
2. Peripartum magnesium supplementation
3. Low calcium feed in last weeks of pregnancy.
4. Anionic salt supplementation in the last weeks of pregnancy
5. Prepartem administration of supplement to boost up anabolism

## CALVEDA Gel reduces Risk factors associated with Hypocalcemia

### 3 fold increase in risk of

- Dystocia
- Retained placenta
- Metritis
- Abomasal displacement

### 9 fold increase in

- Mastitis
- Decrease in milk production

## Calveda Gel

Combination of best bio available ionic calcium, magnesium with herbal extracts (Jivanti, Shatavari & Jatamasi)

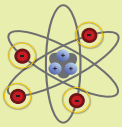
A nutritional supplement to prevent subclinical and transient Hypocalcemia

### Feeding Recommendations:

- First bottle: 6-12 hours before calving
- Second bottle: 6-12 hours after calving.
- Third bottle: 18-24 hours after calving
- one bottle a day for next 3-5 days.



300 mL

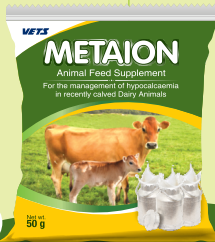


## METAION

Unique blend of anions, lowers the anion-cation balance promoting an acidogenic effect, counters Hypocalcemia and related health disorders.

### Feeding Recommendations:

Feed Metaion one 50 g sachet daily for 20 days before calving



50 g

For the management of Hypocalcaemia



## ANABOOST

Multi gluconeogenic high energy supplement fortified with Vitamin B complex and Minerals. Significantly decreases chances of negative energy balance.

### Feeding Recommendations:

100 to 200 ml orally once daily for 5 days before and after calving



1 L

Ideal Feed Supplement for Pre & Post Calving Period

With best compliments from



## VETSFARMA LIMITED

VETS HOUSE, SCO 90-91, Urban Estate, Phase-1, Jalandhar-144 022 (Pb.) INDIA  
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 Email : vets@vetsfarma.com  
 Website : www.vetsfarma.com

VOCAL for LOCAL



Caring for the speechless since 1979