



NAVS NEWS VIBES

NATIONAL ACADEMY OF VETERINARY SCIENCES (INDIA)

Volume 1 • Issue 2 • April 2021

GOVERNING COUNCIL

PRESIDENT

Dr D.V.R. Prakash Rao

VICE-PRESIDENT

Prof A.C. Varshney

SECRETARY GENERAL

Maj Gen M.L. Sharma (Retd.)

TREASURER

Dr S.K. Gupta

EDITOR

Dr A.K. Pattanaik

MEMBERS

Dr Ashok Kumar

Dr K.P. Ramesha

Dr Karam Pal Singh

Dr M.P. Yadav

Dr Mandeep Sharma

Dr Meenakshi Prasad

Dr Nem Singh

Dr Rajeshwari Shome

Dr Ravindra Sharma

Dr S.K. Srivastava

Dr S.N.S. Randhawa

Dr Shailendra Tiwari

Col Dr Tej Ram

Dr V.D.P. Rao

Dr Vipin K. Gupta

EX-OFFICIO MEMBERS

Lt Gen P.R. Venkatesh (DG-RVS, MoD)

Dr B.N. Tripathi (DDG-AS, ICAR)

Dr Praveen Malik (AHC, GoI.)

Dr Umesh Sharma (President, VCI)

National Academy of Veterinary
Sciences (India)

G-4, A Block, NASC Complex,
DPS Marg, New Delhi-110012, India

INSIDE THIS ISSUE

EDITORIAL

2

HORIZON: *The President's Views & Vision*

3

ACADEMIA: *Scholastic Connections*

4

THE ACADEMY: *Events & Endeavours*

5

IN FOCUS: *Aflatoxin in Milk*

7

FOOD FOR THOUGHT: *World of the Vets*

8

SPLENDOUR: *Shining Fellows*

9

TIDBITS: *Snacking on snippets*

10

BEYOND THE BOUNDARIES: *Sister Sciences*

11

REFLECTION: *The Issue That Was*

12

ISSUE HIGHLIGHTS ...

5 The president of the Academy met dignitaries in the Government to highlight the issues and perspectives of the Academy

6 NAVS(I) declared the list of the newly elected Fellows, Associate Fellows and Members and the recipients of various awards of the Academy

6 Last date of receiving applications for various awards and Fellowships of NAVS(I) extended till 31st July 2021

7 Aflatoxin in milk: Aflatoxin in milk meant for human consumption is a severe public health issue. A look at the various aspects of the toxin, including preventive measures and permissible limits ...



EDITORIAL

One Health: now is the most opportune time!

The concept of 'One Health' is not a new lexicon in a veterinarian's manual. We have been discussing it at various junctures in many forums every so often. The World Health Organization defines it as an approach to designing and implementing programs, policies, legislation and research in which multiple sectors communicate and work together to achieve better public health outcomes. As per the University of Washington Centre for One Health Research (UWCOHR), *One Health* is an integrated, transdisciplinary approach to health problems involving humans, animals, and the rapidly changing environments. It further highlights that understanding the concept calls for awareness and interrelating the connections involving exposure, comparative clinical associations, occupational health, human-animal-nature bond, agriculture, food, and, above all, biodiversity.

The areas that have the highest bearing under *One Health* include food safety, zoonoses and antimicrobial resistance. This, in turn, calls for a high level of active and committed collaboration among professionals from public health, animal health, plant health, and the environment.

The increasing globalization of health risks and the perceived importance of the human-animal-ecosystem interface in the evolution and emergence of pathogens has undoubtedly brought to the fore the need for a renewed focus on *One Health*. However, a look at the reality reveals that while there have been many brainstorming and discussions on the approaches and road maps at multiple levels in academia, government and other national and international groups, things have hardly moved beyond the starting block.

The present COVID-19 outbreak, with multiple and often contested theories about its origin, has brought to the fore the importance of *One Health* in defining the occurrence or otherwise of future such pandemics. The recent news emerging from China about a human case of H10N3 bird flu coupled with a Feb 2021 report of the first case of human infection in the Russian Federation with seven employees of a poultry farm infected with the H5N8 strain of the Avian influenza A virus has sent disturbing signals to the general public and professionals together.

The changing dynamics involving population growth, industrialization, global trade, geopolitical dilemmas, migratory movements, ecosystem degradation, and biodiversity erosion have been implicated in the re/emergence of infectious and non-infectious diseases (Destoumieux-Garzón *et al.*, *Front. Vet. Sci.* 2018.00014). Based on the complexities involved, a tangible approach to achieve the goals that go with the very concept of *One Health* would require collaborations overcoming the interdisciplinary barriers.

It is thus crucial that we understand the ecological, evolutionary and environmental angles required for understanding the emergence and control of diseases. In turn, this would require concerted efforts among the stakeholders (government policy planners, researchers, academicians and funding bodies) that should eventually aim to dismantle the interdisciplinary barriers and coming together under the unified canvas of *One Health*.

Ashok K. Pattanaik

EDITORIAL BOARD

Dr N.K.S. Gowda Dr O.P. Dinani Dr Pawan K. Verma
Dr Sakar Palecha Dr Swaraj Rajkhowa

INSTITUTIONAL LIFE MEMBERS



Lala Lajpat Rai University of
Veterinary & Animal Sciences
Hisar



Chhattisgarh Kamdhenu
Vishwavidyalaya
Durg



Deen Dayal Upadhadhaya
Veterinary and Animal Sciences
University, Mathura



Rajasthan University of
Veterinary & Animal Sciences
Bikaner



Maharashtra Animal &
Fisheries Sciences University
Nagpur



Bihar Animal Sciences
University
Patna



Karnataka Animal,
Fishery & Veterinary Sciences
University, Bidar



Sri Venkateshwara Veterinary
University
Tirupati



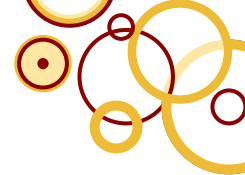
Kamdhenu University
Gandhinagar



Kerala Veterinary and Animal
Sciences University,
Pookode



Khalsa College of
Veterinary & Animal Sciences
Amritsar



HORIZON

THE PRESIDENT'S VIEWS & VISION

My dear distinguished Fellows of the Academy,

Warm greetings!

At the outset, I congratulate and thank Prof Dr MR Saseendranath, Vice-Chancellor, Kerala Veterinary and Animal Sciences University, and Dr Satender Arya, CEO, Agriculture Skill Council of India, for becoming institutional life members of the Academy.

The foremost agenda on my commitments is to expand the Academy's reach and make it vibrant and conspicuous in all the segments of the veterinary profession in the country. The Academy, as a pan-Indian THINK TANK, should have a say in not only the professional activities related to academics and R&D but also involved in the issues of integrating the veterinary services and the industry.

As a part of this broad agenda, I met Shri Giriraj Singh *ji*, Hon'ble Union Minister of Fisheries, Animal Husbandry and Dairying, to appraise him on the potential role the Academy can play in supporting various initiatives being undertaken by the Government of India at the national level while extending support to the Academy from the government's side.

I also had meetings with Shri Anil Chaturvedi *ji* IAS, Secretary Animal Husbandry and Dairying, Government of India, and Prof. Dr Trilochan Mahapatra *ji*, Secretary DARE and Director General, ICAR, along with our Secretary-General, Maj Gen ML Sharma. The salient points of our discussion were:

- o A presentable office for the Academy
- o Constant sources of funding from the Ministry/ DARE
- o Recognition of NAVS fellowship on par with NAAS fellowship in the ASRB scorecard.

They have agreed to look into the highlighted subjects, but this needs constant follow up and a strategic action plan to achieve these difficult targets.

We have formed various committees to evaluate the Academy's fellowships and



awards. These committees, under the respective chairman, met and finalized the recommendations. These recommendations were approved by the Governing Council of the Academy and were published on the Academy website. I congratulate all the recipients of the awards on this occasion. I take this opportunity to thank the chairpersons of the selection committees, namely:

1. Prof Dr AK Mishra, Chairman ASRB, as chairman of the selection committee for NAVS Fellowships
2. Prof Dr AK Srivatsava, Member ASRB, as chairman of the selection committee for Dr CM Singh Memorial Award for Excellence in Animal Health and Production
3. Prof Dr Inderjit Singh, Vice-Chancellor GADAVASU, as chairman of the selection committee for the Young Scientist award

I am happy to advise all honourable Fellows that the response has been excellent for fellowships and awards from our professional colleagues. We will endeavour to expand the Academy's reach by popularizing the awards amongst our professionals across the country. At this juncture, I appeal to our zonal coordinators to play an active role to reach out to all the veterinarians in their respective zones across the country.

During the selection process of our academy fellowships, it was felt that the teachers and researchers from the university system are not given due credits in the scorecards, and the scorecard needs a revision. Hence, a committee was constituted under the chairmanship of Prof. Vishnu Sharma, Vice-Chancellor, RUJUVAS, to recommend the necessary changes in the scorecard for approval by the Governing Council.

The Academy has come up with a virtual platform for highlighting the professional activities and to increase the reach and visibility of the Academy in the scientific community. At this juncture, I must profusely thank Dr Suresh. S. Honnapagol, former Animal Husbandry Commissioner, Government of India, for conceptualizing the virtual platform. The first webinar was held on April 9, 2021, on

the topic “NAVS INDIA – HISTORY, OUTCOMES AND EXPECTATIONS.” I am delighted that the online platform was a great success, and the response was beyond expectations. We intend to deliberate on topics of high professional value with increased platform capacity in future dates; I look forward to active and maximum participation from our professionals all over the country.

Lastly, I would like to inform all of you that the inaugural issue of the NAVS News Vibes has received an excellent response from members of our profession. I have received many messages and phone calls from our senior colleagues appreciating the well-crafted publication with an attractive layout and thoughtfully chosen content. I request you to join me in congratulating Dr A.K. Pattnaik, the Editor, Principal Scientist (Animal Nutrition) ICAR-IVRI. I am sure he will continue the good work in times to come for such a good publication.

I conclude my message welcoming the valuable suggestions from all the Fellows, Associate Fellows and Members of the Academy, which will help us march ahead and make the Academy a very purposeful, vibrant, and acknowledged professional body.

Thanking you,
Cordially yours



(DVR PRAKASH RAO)

INSTITUTIONAL LIFE MEMBERS (NGO)



CORPORATE LIFE MEMBERS



THE ACADEMIA

SCHOLASTIC CONNECTIONS

Technical seminar for veterinary officers by IDA South Zone

On the occasion of birth centenary celebration of Dr Verghese Kurien, Indian Dairy Association South Zone, in collaboration with ICAR-NIANP and Karnataka Veterinary Association, organized a one-day technical seminar for field Veterinary Officers on the topic “Feeding of dairy animals for quality milk production” at Hosakote, Bengaluru rural district on March 16, 2021. Dr NS Balachandra, Deputy Registrar, Karnataka Veterinary Council was the Chief Guest. The seminar was attended by more than 100 Veterinary Officers and feed industry representatives. Scientists from ICAR-NIANP (Dr NKS Gowda and Dr K Giridhar), officers from Kolar Milk Union (Dr L Reghavendra), Department of Animal Husbandry (Dr Gomu Nagaraj) and industry personnel (Dr Channe Gowda and Dr Krishna Reddy) made presentations on different aspects of feed and fodder management, mastitis control and alternative therapeutics for health improvement and quality milk production.

ICAR-IVRI and ANA celebrate 100 years of animal nutrition research in India

A two-day Centennial Symposium on '100 years of Animal Nutrition Research in India' was held to commemorate the completion of 100 years of animal nutrition research in India that started back in 1921 with the establishment of the Laboratory of Physiological Chemists at the Imperial Agricultural Research Institute at Pusa in Bihar. The two-day event organized jointly by ICAR-IVRI and the Animal Nutrition Association on 11-12 March 2021 has several activities involving veteran animal nutritionists, young researchers and postgraduate students. Dr Trilochan Mohapatra, Secretary, DARE & DG, ICAR, unveiled a 'Commemorative Plaque' and released a short film and a book brought out to mark the occasion. In his address, he deliberated on the relevance of the present focus of the animal nutrition research. Dr B.P. Mishra, Director, ICAR-IVRI, while welcoming the dignitaries highlighted the history of the animal nutrition research and the stellar role played by IVRI in formative years of animal nutrition research. Dr A.K. Verma, President, Animal Nutrition Association underscored the role of the association, with more than 1100 life members, in propagating the science among the nutrition fraternity since 1994. Guests of Honor Dr SK Ranjhan, Former Chief Technical Advisor, FAO/UNDP and Dr K Pradhan, Former Vice-Chancellor, Rajasthan Agricultural University & Odisha University of Agriculture and Technology, shared their experiences of early years of animal nutrition and how it has evolved to match the changing needs. Dr BN Tripathi, DDG (Animal Science), ICAR talked about the future focus the animal nutrition scientists should have keeping in mind the issues *in vogue*.

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.



THE ACADEMY EVENTS & ENDEAVOURS

NAVS President's meetings with Dignitaries

During the period under report, the President, NAVS, met the Secretary, DARE & DG, ICAR. He raised three issues with the Secretary: (i) space for the NAVS office (the space we have for the Academy is small, and we need 2-3 rooms for improving our functioning); (ii) funding from DARE to sustain our activity; and (iii) the recognition of the NAVS Fellowship at par with NAAS for ASRB selections.

The President also met Dr Umesh Sharma, the President of the Veterinary Council of India. He apprised him that since Dr CM Singh established the Academy, he had made use of this Academy as a support arm to the VCI. The Academy, therefore, remained as a think tank and one of the resource points of experts for the VCI. Keeping this in mind, both VCI and the Academy should work together in the future. The second point for discussion was regarding the office space for NAVS. And, Dr Umesh Sharma has kindly agreed that the VCI would spare one floor of their building, which is coming up in the IARI campus, to the Academy.

The President also had a meeting with the Secretary, Department of Animal Husbandry & Dairying. He impressed upon the Secretary that we do not have enough financial support from the Department of Animal Husbandry. We expect that we are part of the Ministry of Animal Husbandry. And, like the Ministry of Health funds the medical academy, the Ministry of Agriculture supports the agriculture academy; we also expect that the Ministry of Animal Husbandry must support the veterinary academy. The Secretary promised that he would try his best to take up this case with the Ministry of Agriculture and DG, ICAR, to fund the Academy.

Later, the President had a meeting with the Hon'ble Union Minister of Fisheries, Animal Husbandry and Dairying. He has apprised the Minister of our Academy's importance in providing intellectual inputs in supporting the Ministry's activities. He also raised the issue of



funding for the Academy with the Minister. The Minister was quite positive and has promised to look into the matter.

Governing Council Meeting of the Academy

II Governing Council Meeting

The 2nd Governing Council (GC) Meeting of the Academy was held on Feb 8, 2021, in a virtual mode. The GC reviewed the progress of the policy documents under preparation namely, on Para Vet Regulation, Glanders, AMR and Rabies and it was decided to request the concerned persons to expedite the process. The other issues taken up by the GC for deliberation included the progress on the finalization of the Academy's awards, issues regarding updating the NAVS(I) website, functioning of the NAVS(I) office and handing/taking over of charges by the new Executive. The need for a more elaborate office space for functioning of the Academy also came up for discussion, and it was decided that the President along with the Secretary General would meet officials in the Ministry and ICAR to seek their support.

Based on the identified agenda points, discussion on various aspects of establishment of National Research Centre for Canines, the role of VCI in National Education Policy including Continuing Veterinary Education were also deliberated in detail with the members providing their opinions.

On the collaboration front, it was agreed that the Academy should take a lead in the organization of interactive seminars to promote collaboration between Industries and Veterinary Universities besides greater interaction with other Academies and Ministries. In this context, avenues should be explored for having a virtual Online Platform of the Academy. Some of the other decisions taken include: (i) efforts should be made towards the promotion of Corporate/Institutional Memberships



of the Academy, (ii) VCs of Veterinary Universities, Directors of State Animal Husbandry departments, Representatives from other Academies/Ministries/NGOs etc. as special invitees to the GC meeting, (iii) to keep the age limit of 75 years at the time of applying for GC Member election, (iv) need for review of Score Card of Teaching Faculty from SAUs/SVUs for the award of NAVS (I) Fellowship, and (v) time limit for renewal Institutional/Corporate memberships.

Other issues that came up for discussion were related to (i) NPA for veterinarians, (ii) establishment of ICV&FR, and (iii) promotion/facilitation of establishment of State Veterinary Universities.

It was decided to organize the Academy's 19th Convocation-cum-Scientific Convention at RAJUVAS, Bikaner during 10-11 April 2021 on the theme "Transforming Livestock Health and Production Through Technological Intervention and Policy Reforms to Boost Farmers' Income".

III Governing Council Meeting

The 3rd Governing Council Meeting of the Academy was held on March 10, 2021, in a virtual mode. The meeting was specially convened to discuss about the 19th Convocation of NAVS (I). Considering the travel restrictions imposed by the Government in view of the increasing cases of COVID-19, it was decided to postpone the convocation to a later date in July 2021.

Declaration of NAVS Awards: 2019-20

Fellowship

1. Dr SS Ghuman, GADVASU, Ludhiana
2. Dr YR Reddy, NIRD&PR, Hyderabad
3. Dr NS Sharma, GADVASU, Ludhiana
4. Dr AJ Dhami, AAU, Anand
5. Dr SK Bhanja, CARI, Izatnagar
6. Col PK Chug (Retd), MHA, New Delhi
7. Dr Swaraj Rajkhowa, NRC on Pigs, Guwahati
8. Dr Shiba Shankar Giri, CIFA, Bhubaneswar
9. Dr Sanjay Kumar, NRCE, Hisar
10. Dr C Latha, CVAC, Mannuthy
11. Dr Sushila Mann, LUVAS, Hisar
12. Dr S Mondal, NIAN&P, Bengaluru
13. Dr AK Tiwari, IVRI, Izatnagar
14. Maj Gen P Batra, ADG RVS, MoD, New Delhi
15. Dr RK Sharma, SKUAST, Jammu

Associate Fellowship

1. Dr Sanjay Kumar, GBPUAT, Pantnagar
2. Dr Richa Sood, NIHSAD, Bhopal
3. Dr Shantanu Banik, NRC on Pigs, Guwahati
4. Dr Subhash Verma, CSKHPKV, Palampur

Membership

1. Dr Jaspal S. Hundal, GADVASU, Ludhiana
2. Dr Sharanagouda Patil, NIVEDI, Bengaluru
3. Dr Amitav Bhattacharyya, DUVASU, Mathura
4. Dr Ankur Rastogi, SKUAST, Jammu
5. Dr M Muthukumar, NRCM, Hyderabad
6. Dr Tapan Kumar Datta, COVS&AH, Mizoram
7. Dr P Perumal, CIARI, Port Blair
8. Dr Rakesh Ranjan, NRCC, Bikaner
9. Dr Nishant Kumar, NDRI, Karnal
10. Dr Aman Kumar, LUVAS, Hisar
11. Dr Shanker K. Singh, DUVASU, Mathura
12. Dr Vishal Mudgal, CIRB, Hisar
13. Dr Nittin Dev Singh, GADVASU, Ludhiana
14. Dr Pratiksha Raghuvanshi, SKUAST, Jammu
15. Dr Rajesh, LUVAS, Hisar
16. Dr Chetna Gangwar, CIRG, Mathura
17. Dr Rinku Sharma, IVRI, Palampur
18. Dr BR Maharana, LUVAS, Karnal
19. Dr Jerome Andonissamy, CIRB, Hisar

Dr CM Singh Award for Excellence in Veterinary Sciences-2020

Dr S.S. Honnappagol, Veterinary College, Bengaluru

Young Scientist Award in Veterinary Sciences - 2020

Dr P. Perumal, ICAR-CIARI, Port Blair

Dr Vallabh Mandokhot Memorial Award for Outstanding Young Woman Veterinarian - 2020

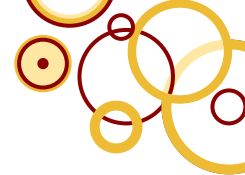
Dr Chetna Gangwar, ICAR-CIRG, Mathura

NAVS fellowships: Last date extended

Keeping in view the prevailing COVID-19 pandemic situations, the last date for the receipt of applications for the award of the Fellowship, Associate Fellowship and Membership has been extended till July 31, 2021. Details of the eligibility, guidelines and application form are available on the Academy's website (www.navsindia.org). The applications, complete in all aspects, must reach the Secretary General on or before the last date for receipt of the applications, i.e., July 31, 2021.

Postponement of NAVS Convocation:

In view of the prevailing COVID-19 pandemic situations in the country, the proposed 19th Convocation of NAVS(I) scheduled to be held at RAJUVAS, Bikaner in the month of July is hereby postponed indefinitely. The rescheduled date and venue shall be declared after normalization of the pandemic.



IN FOCUS

AFLATOXIN IN MILK

Aflatoxin M₁ in Milk and milk products and their Impact on Human Health

G. Devegowda and TN Krishnamurthy

Division of Animal Sciences, University of Agricultural Sciences, Bangalore-560 032

Milk, nature's the perfect food

Milk is a highly nutritious food containing high-quality protein, vitamins, and minerals necessary for growth, development, and maintenance of human health. They play a key role in healthy human nutrition and development throughout life. Dairy products are rich in nutrients that are essential for good bone health in children and older people.

Fungi and mycotoxins (Aflatoxin)

There are more than 10,000 known species of fungi. Fortunately, most of them are beneficial to man in the production of bread, cheese and antibiotics, etc. There are about 50 fungi species harmful to livestock and man known to produce toxins, which are collectively called mycotoxins. The threat of mycotoxins to humans was described during World War II when Russian soldiers suffered severe dermal necrosis, haemorrhages, and destruction of bone marrow after eating moldy grains. However, it was not until 1960, when the entire turkey population of Britain was decimated in a fatal liver disease called *Turkey X Disease*, that the scientific community recognized the adverse effects associated with mycotoxins. British agriculture officials later traced the outbreak's source to aflatoxin in a shipment of peanut (groundnut) meal that originated from Brazil.

Aflatoxins are the most widespread and the most studied group of all the mycotoxins and are prevalent in warm and humid climatic conditions, as exists in India and many Asian countries. Aflatoxins are primarily produced by fungi of the genus *Aspergillus* (*Aspergillus flavus*) and are found in dairy feeds and human food products. Major forms of aflatoxins found in feeds include B₁, B₂, G₁ and G₂, with aflatoxin B₁ being the most common and toxic and is described as the potent naturally occurring carcinogen.

Permissible level of aflatoxin B₁ (AFB₁) in dairy feeds

Strict control of AFB₁ level in feeds for lactating dairy cattle and buffaloes is required to minimize the level of AFM₁ in milk and milk products. The USFDA and FSSAI set a maximum permissible level for AFM₁ in milk at 0.5 µg/kg of milk or ppb, which means that one ton of milk should not contain more than 500 µg of AFM₁. The FDA (USA) and BIS (India) stipulate a maximum of 20 ppb of aflatoxin in dairy feeds. The European Union regulations are much more stringent and the maximum level is set at 5 ppb (Table 1). Major concerns about the

contamination of cow's milk by aflatoxins are limited to AFB₁. Aflatoxin B₁ is readily transmitted from feed to milk.

Table 1. Regulations for Aflatoxin B1 in dairy feed

Country	AFB ₁ (ppb)
FDA, United States	20
European Union (lactating animals)	5
European Union (calves)	10
BIS, India	20

Permissible level of aflatoxin M₁ in milk

The occurrence of aflatoxins in human breast milk, commercially available milk and milk products is one of the most serious food hygiene problems, as milk is a key source of nutrients for humans. This is especially significant for infants and children, who are potentially more sensitive and have less variety in their diets. In the USA and India (FSSAI), the law requires that AFM₁ in milk be less than 0.5 ppb. In Europe, the regulations are much more stringent, and maximum levels are set at 0.05 ppb. The milk free of aflatoxin is considered desirable, but it is not easy to achieve this ideal. Therefore, all countries accept milk contamination with some amounts of this toxin.

Table 2. Regulations for Aflatoxin M1 in milk

Country	AFM ₁ (ppb)
United States, FDA	0.5
European Union	0.05
European Union (baby foods/infants)	0.025
FSSAI, India	0.5

Conversion of AFB₁ to AFM₁ in the liver

In milk, aflatoxin appears as AFM₁, one of its metabolites. Aflatoxin B₁ is metabolized by enzymes found primarily in the liver (cytochrome p450) to aflatoxin M₁. Strict control of AFB₁ level in feeds for dairy animals is required to minimize the level of AFM₁ in milk and milk products. Aflatoxin is readily transmitted from feed to milk; approximately 1 to 6% of AFB₁ present in the dairy feed is transferred to milk as AFM₁. After AFM₁ is formed, it is excreted in the milk and urine of dairy animals.

Public health importance

Milk that is sold commercially should be checked for AFM₁. When AFM₁ is found at concentrations of 0.5 ppb or more, the milk may be discarded because it cannot be

used for products that go into the human food supply. Like AFB₁, AFM₁ is toxic and carcinogenic, although the toxicity of AFM₁ is somewhat lower than that of AFB₁. However, AFM₁ is of great concern because of the high consumption of milk and milk products by humans, especially infants and children.

When dairy products are manufactured from milk contaminated with AFM₁, the toxin is transmitted to the resulting products. Aflatoxin M₁ is stable in raw milk and processed milk products and is generally unaffected by pasteurization or processing into cheese, yoghurt, cream, and butter.

Remedial measures to reduce excessive AFM₁ in milk

Immediately after aflatoxin is detected in milk, the ration should be reformulated with ingredients that contain less than 20 ppb of AFB₁. The inclusion of aflatoxin binder in the feed is also beneficial to reduce the AFM₁ level in the milk. Pelleting of feed will not destroy the AFB₁, since they are heat stable.

Once a level of contamination of 20 ppb or higher in a feedstuff has been determined, the feed can no longer be used to feed lactating dairy animals. However, growing animals and dry cows and buffaloes can be fed feedstuff containing between 20 and 50 ppb aflatoxin.

Impact of consuming aflatoxin M₁ contaminated milk on human health

Long-term or chronic exposure to aflatoxins has several health consequences. Aflatoxins are potent carcinogens and may affect all organ systems, especially the liver and kidneys. Children are particularly affected by aflatoxin exposure, which is associated with stunted growth, delayed development, liver damage, and liver cancer. Aflatoxin B₁ exposure results in the accumulation of fat and necrosis of liver cells.

Conclusion

With the perceived adverse effects of aflatoxin on the human health, especially in children and senior people, it is imperative that adequate preventive measures should be taken to reduce the aflatoxin content in the feeds and fodders.

FOOD FOR THOUGHT

WORLD OF THE VETS

Use of army canines as medical detection dogs for real time detection of COVID-19 infection in humans

Taking a leaf out of the global trends of using medical detection dogs for various diseases, RVC Centre & College, Meerut Cantt, undertook a trial for detection of COVID-19 using army dogs in controlled conditions. The army dogs were successfully trained on specific biomarkers emanating from urine and sweat samples of COVID-19-positive patients. Scientifically, it is evident that affected body tissues release unique volatile metabolic biomarkers which are used as disease signatures for detection of disease by the medical detection dogs. A concerted effort has been made to train a Chippiparai dog (an indigenous breed) and also a Cocker Spaniel to detect the volatilome of COVID-19 disease from urine and sweat samples of positive cases by comparative method. The sensitivity and specificity of both the dogs obtained from screening of 279 urine and 267 sweat samples during the initial trial procedure was found to be very high. More than 3000 samples have been screened so far by these dogs. Till date 18 samples have been found positive by the COVID-19 detection dogs. It is for the first time in India, the olfactory capability of canines have been exploited to detect tissues infected with pathogens releasing volatile metabolic biomarkers. The use of such canines in detection of COVID-19 can assist in quick and real time detection of the disease.

[Source: Central Military Veterinary Laboratory (CMVL), Meerut]

Russia registers 'world's first' COVID-19 vaccine for animals

Russia's agricultural regulator announced that it had registered Carnivak-Cov, which it claims is the world's first COVID-19 vaccine for animals, after trials showed it produced antibodies in dogs, cats, foxes and mink. The vaccine was intended for use on fur farms or for pets, and that mass production could begin in April, 2021. The first batch will be supplied to several regions of Russia, the regulator Rosselkhoznadzor said in a statement. Further, companies from Germany, Greece, Poland, Austria, Kazakhstan, Tajikistan, Malaysia, Thailand, South Korea, Lebanon, Iran and Argentina had expressed interest in purchasing the vaccine. The World Health Organization has voiced concern over the risk of transmission of the virus between humans and animals. It is expected that the vaccine would be able to protect vulnerable species and thwart viral mutations.

[https://twitter.com/i/events/1377567075040825345?s=11]

Humans transmitted COVID-19 to cats during pandemic in UK

Researchers have now documented human-to-cat transmission of SARS-CoV-2, the virus that causes COVID-19. These findings indicate that human-to-cat transmission of SARS-CoV-2 occurred during the COVID-19 pandemic in the UK, with the infected cats developing mild or severe respiratory disease. Given the ability of the new coronavirus to infect different species, it will be important to monitor for human-to-cat, cat-to-cat and cat-to-human transmission. An analysis of the viral genome of the two cats together with nine other feline-derived SARS-CoV-2 sequences from around the world revealed no shared cat-specific mutations. Knowing which animals are susceptible to SARS-CoV-2 would help prevent building up animal reservoirs from which the coronavirus can re-emerge at a later date. The two cases of reverse zoonotic infections that are reported would serve to highlight the importance of a coordinated One Health approach between veterinary and public health organizations.

[https://bvajournals.onlinelibrary.wiley.com/doi/full/10.1002/vetr.247]



Can methane burps be bred out of cows?

A study of more than 1,000 cows across four European countries found that the microbes in their guts responsible for methane are inherited. The study led by a scientist from the Rowett Institute, University of Aberdeen, UK, identified a core rumen microbiome, phylogenetically linked and with a preserved hierarchical structure. Further, a 39-member subset of the core formed hubs in co-occurrence networks linking microbiome structure to host genetics and phenotype (methane emissions, rumen and blood metabolites, and milk production efficiency). The outcome of the study led the researchers to propose microbiome-led breeding/genetic programs to provide a sustainable solution to increase efficiency and lower emissions from ruminant livestock. On the basis of the genetic determinants of the heritable microbes, it should be possible to optimize their abundance through selective breeding programs. A different, and perhaps more immediate, application of the data could be to modify early-life colonization, a factor that has been shown to drive microbiome composition and activity in later life. In practical terms, this means inoculating key core species associated with feed efficiency or methane emissions as precision probiotics approach could be considered to complement the heritable microbiome toward optimized rumen function.

[<https://advances.sciencemag.org/content/5/7/eaav8391>]

Deer found with thick hair growing in its eyeballs

A whitetail deer with thick hair growing in its eyeballs was spotted wandering in a Tennessee suburb in the USA. The one-year-old foundling's unusual feature has been attributed to a very rare condition called 'corneal dermoids', something that occurs when a tissue of a particular type grows in the wrong place. Experts say hair growth in the eyeball is possibly the worst example of this condition. The deer's strange appearance alarmed the local residents. But, when they took a closer look at the animal, they noticed it was bleeding and disoriented. Unfortunately, the deer was killed by animal control officers, who suspected it to be infected with some chronic wasting disease (CWD). After that, the deer's head was sent to the Southeastern Cooperative Wildlife Disease Study (SCWDS) unit for tests. Things turned tragic when tests revealed the deer did not have CWD but was suffering from epizootic hemorrhagic disease, which led to its disorientation. Corneal dermoids, as in the case of this deer, often contain elements of normal skin, including hair follicles, sweat glands, collagen, and fat. The masses generally are benign (non-invasive) and are congenital, likely resulting from an embryonal developmental defect.

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

SPLENDOUR SHINING FELLOWS

Maj Gen RM Kharb honored with Prani Mitra Lifetime Achievement Award

Maj Gen (Dr) RM Kharb, AVSM former Head of RVC and Former Chairman, Animal Welfare Board of India, has been honoured with *Prani Mitra Lifetime Achievement Award* by the Union Minister of Fisheries, Animal Husbandry and Dairying on February 16, 2021 at a function held in Krishi Bhawan, New Delhi for his outstanding services rendered for the well-being of animals. He is the first veterinarian to be honoured with this prestigious award for protecting the animals from cruelties and promoting their welfare. NAVS (India) congratulates Maj Gen RM Kharb, a Fellow of the Academy, for his commendable achievement.



Lt Gen PR Venkatesh awarded Param Vishisht Seva Medal

Lt Gen PR Venkatesh, Director General, Remount Veterinary Services has been conferred with the coveted award of *Param Vishisht Seva Medal* by HE the President of India on the occasion of Republic Day 2021. The award is ranked as the sixth highest award of India in the order of precedence. The award has been given in recognition of the General officer's distinguished services of the most exceptional nature. Lt Gen PR Venkatesh is the first serving officer of the RVC to have been conferred with this award. NAVS (India) congratulates Lt Gen PR Venkatesh, a Fellow of the Academy, for this unique and laudable achievement.



Dr PK Gupta's new book on toxicology published by Springer Nature

Gupta, P.K. 2020. *Problem Solving Questions in Toxicology: A Study Guide for the Board and other Examinations, First edition. Springer Nature, Heidelberg, Germany, 346 p. [ISBN: 978-3-030-50409-0]*

The first edition of the book by Prof (Dr) PK Gupta, Former Head of the Division of Pharmacology & Toxicology at IVRI, is an essential self-study guide for the toxicology board and other examinations. The book holds a global audience for undergraduate, graduates in pharmacy, veterinary, medical, environmental sciences and allied subjects in academia and industry. NAVS (India) congratulates Dr PK Gupta, a Fellow of the Academy, for this commendable deed.



TIDBITS

SNACKING ON SNIPPETS

A 2-year-old Chewbacca dog has grown to a human size

A two-year-old Newfoundland-Poodle cross, is so big in size that everyone who sees him for the first time is left absolutely stunned. The pooch named Mylo is absolutely huge and weighs 44 kg. Mylo's owner Nina Ayling, from Shoreham by Sea, Brighton in England, who got him when he was just a six-week-old puppy said that she never expected him to grow so big. Now, the two-year-old furry pup matches Nina's 5-feet-3-inch height when he stands on his back paws. The owner said that they had seen the breeder's previous litter of the same cross-breed and none of them grew to the size of Mylo. The owner said that they can't go anywhere without people staring at us or being stopped by people asking us what he is.

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

MoU Signed to introduce 'ayurveda' disciplines in veterinary science

As per a Memorandum of Understanding (MoU) between Department of Animal Husbandry and Dairying (DAHD), Ministry of Fisheries, Animal Husbandry and Dairying and Ministry of AYUSH signed on April 7, 2021, the concept of ayurveda and its allied disciplines will soon be introduced in veterinary sciences. This cooperation will definitely help in developing a regulatory mechanism for the use of ayurveda in the veterinary sector for the benefit of animal health, livestock owners' community and the society at large. The initiative involves capacity building in related areas through training, exploring marketing possibilities for herbal veterinary medicines on a sustainable basis and providing for services including cultivation, preservation and conservation of medicinal plants. The cooperation will help in developing herbal veterinary education programmes and creating awareness among dairy farmers and agro-farmers about utilization and importance of herbal veterinary medicine and cultivation of medicinal herbs, the statement by Ministry of Fisheries, Animal Husbandry and Dairying added.

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

Army disbands military farms

In line with its reform measures, the Army has disbanded its military farms after 132 years in service. In August 2017, the defence ministry announced a series of reform measures for the Indian Army that included shutting down of the military farms, housing around 25,000 head of cattle, in the country. The military farms with their dedication and commitment supplied 3.5 crore litres of milk during a period spanning over a century. The first Military farm was raised on February 1, 1889 at Allahabad. After independence, military farms flourished with 30,000 head of cattle in 130 military farms all over India in varied agro-climatic conditions. The farms were

occupying around 20,000 acres of defence land and the Army was spending around Rs 300 crore annually for their maintenance, according to official data. It is credited with pioneering the technique of artificial insemination of cattle and introduction of organized dairying in India, providing yeoman service during 1971 war, supplying milk at the Western and Eastern war fronts as well as during Kargil operations to the Northern Command. The Army said military farms were even established in Leh and Kargil in late 1990s, with the task of supplying fresh and hygienic milk to troops at their locations on a daily basis. A flag ceremony for the closure of the facilities was held at Military Farms Records at Delhi Cantonment.

[<https://indianexpress.com>]

IAF inducts Mudhol Hounds from Karnataka to rule out bird-hits on runways

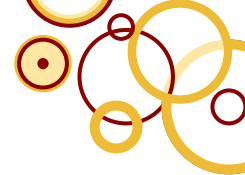
In a first, the Indian Air Force (IAF) has inducted a purebred Indian breed of hound from Karnataka, namely the Mudhol Hound to chase away birds and animals that stray on airport runways and hinder the movement of flights. Four Mudhol Hound puppies were handed over to the IAF from the Canine Research and Information Centre (CRIC) in Bagalkot district of Karnataka. This particular breed of hounds is said to be agile in nature who need minimum grooming, and are conducive to any weather. The dogs were hired to address the problem of ground-dwelling birds such as lapwings and larks. Bird-hits have become a thing of concern at several airbases. The IAF officials are hopeful that the dog walking module will help eradicate this menace. The IAF is also planning to extend these services to other bases depending on the success of this project.

[<https://www.news18.com>]

Recycling CO₂ into protein-rich animal feed

An agriculture feed start-up has received \$9.4 million in initial funding for its technology that produces pure protein from CO₂. The protein would come from carbon dioxide generated by industrial exhaust, and would be combined with hydrogen to create scalable, cheap animal feed to replace soybeans – a major feed crop linked heavily with deforestation. The technology combines some of the most basic chemical building blocks, present in everything – like carbon, oxygen, and hydrogen – inside a fermentation chamber where it produces high-value protein called *Proton*. This *Proton* is then dried, mixed with other nutrients, and turned into pellets at a 90% CO₂ savings rate compared to other feed sources. The technology has the potential to be part of the solution to overcome the biggest environmental challenges of our time. The start-up is currently looking for a suitable location for its first large-scale production facility.

[<https://www.goodnewsnetwork.org>]



BEYOND THE BOUNDARIES

SISTER SCIENCES

Tarantula venom could be a breakthrough treatment for Type-2 diabetes

New research hints at the promise of tarantula venom as a treatment avenue for high blood sugar levels. The findings, presented at the Diabetes UK Professional Conference 2021, builds on previous research led by Prof Nigel Irwin at Ulster University, which found the venom of the Mexican blonde tarantula increases insulin production and lowers blood sugar levels. These new findings pinpoint the molecule that could hold the key: Δ TRTX-Ac1. Using a synthetic version of Δ TRTX-Ac1, the researchers found that Δ TRTX-Ac1 increased insulin secretion from pancreatic beta-cells in the lab more than two-fold. The venom molecule may be controlling channels on the surface of beta-cells, acting as the gatekeeper that allows other molecules to flow in and out of the cells. Δ TRTX-Ac1 also improved beta-cell growth, and didn't damage the cells, making it a potential future treatment that warrants further investigation.

[<https://www.express.co.uk/>]

Russia confirms first case of human infection with H5N8 strain of bird flu

Scientists from Russia's State Research Center of Virology and Biotechnology, VECTOR, have confirmed the first case of human infection with the H5N8 strain of the influenza A virus, which causes bird flu, as per a communique the Russian Federal Service for Surveillance on Consumer Rights Protection and Human Wellbeing (Rospotrebnadzor). The highly contagious strain is lethal for birds but has never before been reported to have spread to humans. Researchers have isolated genetic material of the strain from seven workers of a poultry farm in southern Russia, where an outbreak was recorded among the birds in December. The workers did not suffer any serious health consequences. This was considered an important scientific discovery, and time will tell if the virus can further mutate.

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

India saw 30% rise in antibiotic use in the last decade

Antimicrobial resistance continues to rise as countries increasingly report high rates of resistance among antimicrobials used to treat common infections. According to the State of the World's Antibiotics Report 2021, which highlights a 30 per cent increase in per capita use of antimicrobials from 2010 to 2020 in India. Since the first State of the World's Antibiotics Report in 2015, antimicrobial resistance has levelled off in some high-income countries but continues to rise in many low- and middle-income countries, where access to antibiotics has risen with increases in gross domestic product per capita. The report released by researchers at the Center for Disease Dynamics, Economics & Policy (CDDEP),

presents extensive data on global antimicrobial use and resistance. The report is based on the Center's extensive research through 'ResistanceMap', a web-based collection of data visualization tool that allows interactive exploration of antimicrobial resistance (AMR) and antibiotic use trends in countries across the globe.

[<https://fit.thequint.com/>]

Tailor-made drugs to treat epilepsy or cardiovascular diseases

In order for a drug to be effective at the right places in the body, it helps if scientists can predict as accurately as possible how the molecules of that drug will interact with human cells. In a joint research project, scientists from Leipzig University and the Chinese Academy of Sciences in Shanghai have succeeded in elucidating such a structure, namely that of the neuropeptide Y receptor Y2 with one of its ligands. This is the first time that a molecular blueprint for this receptor is available, which will enable the development of tailor-made new drugs, for example to treat epilepsy or cardiovascular diseases. The Y2 receptor plays an important role, especially in the peripheral nervous system and in the brain, as it is considered one of the "satiety receptors". It also plays a role in epilepsy as well as in cardiovascular diseases. If these diseases are to be treated with drugs that block the Y2 receptor, it is important to ensure that the drug can target this receptor precisely and exclusively, because some closely related receptors would have exactly the opposite effect. When developing novel drugs, it is therefore essential to obtain highly targeted compounds and to have precise knowledge of their molecular properties.

[https://www.eurekalert.org/pub_releases/2021-02/ul-tdt021021.php]

The appendix may play a role in Parkinson's disease

For years, the medical profession believed the appendix was a vestigial organ, i.e. it served a functional purpose in our evolutionary ancestors but has since lost that role. But in a recent study, researchers have concluded from a study of nearly 1.6 million individuals that persons who underwent an appendectomy decreased their chance of developing Parkinson's disease by roughly 20 per cent compared to the general population. A removed appendix also appeared to delay the onset of Parkinson's. The culprit is not the appendix, *per se*, but the Lewy bodies it houses. Lewy bodies are abnormal deposits of α -synuclein proteins. When these proteins accumulate in neurons, they affect the brain's biochemical processes, leading to neurodegenerative diseases such as Parkinson's disease and Lewy body dementia. The study shows that the appendix is a rich, lifelong source of misfolded α -synuclein, and early removal of the appendix is associated with a reduced risk of developing Parkinson's

disease. Compounds that limit aberrant α -synuclein cleavage and accumulation in the appendix and other GI tract lymphoid tissue may be a potential therapeutic strategy for Parkinson's disease.

[<https://stm.sciencemag.org/content/10/465/eaar5280>]

Britain approves 'world's most expensive drug'

The 'most expensive drug in the world' has been approved by the United Kingdom's National Health Service to cure Spinal Muscular Atrophy (SMA) a rare genetic disorder. The one-off gene therapy 'Zolgensma', manufactured by Novartis Gene Therapies, has a reported list price of ₹18 crore (£1.79 million) per dose. The drug treats SMA, a often fatal genetic disease that causes paralysis, muscle weakness and progressive loss of movement. Spinal muscular atrophy is the leading genetic cause of death among babies and young children. The drug will be used for babies and young children suffering from SMA. Babies born with severe type-1 SMA – the most common form of the condition – have a life expectancy of just two years. The treatment is given as a single intravenous infusion and contains a replica of the missing gene *SMN1*. The active ingredient *onasemnogene abeparvovec* passes into the nerves and restores the gene, which then produces proteins essential for nerve function and controlling muscle movement. The latest data suggested that Zolgensma can provide rapid and sustained improvement in motor function for young children with type-1 SMA and prolong their lives.

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

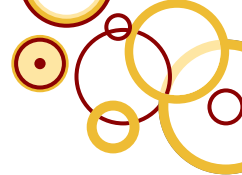
The gut-brain axis is more important than we thought

Gut-brain research continues to provide extraordinary insight into the effect microbes have on our mental health. We have come to know that dysbiosis – an imbalance in the gut microbiota – can cause mental perturbations. When mice or rats are given faecal matter from a depressed human, they start to exhibit similar depressive behavior. This not only shows causality; it also demonstrates cross-species causality. These faecal transplant studies provide definitive proof that microbes can transmit depression. There are many reasons for depression and anxiety, including stress, bereavement, chronic pain, abuse, medications, and genetics. But even these non-microbial vectors may be exacerbated by gut dysbiosis. The biology is frustratingly complex, but no one is denying the connection between the gut and the brain. It may be a messy, two-way street, but it is nevertheless a crucial avenue of exploration. Improving the gut with a better diet (more fiber) can lower inflammation and improve your mood. And amazingly, treating one's mood with cognitive behavioral therapy and mindfulness techniques can improve the balance of the person's gut microbes. These psychological treatments have been shown to reduce flare-ups and relapse in patients with IBD and IBS. So, does the gut rule the brain, or does the brain rule the gut? The humbling answer is both. But a vicious cycle like this can be interrupted at both ends. In the face of this accumulating evidence, it is hard to see the gut-brain axis as a fringe concept in psychology; it deserves some topline focus. If psychiatrists aren't looking at their patients' gut issues, they may be missing an important factor.

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

REFLECTIONS THE ISSUE THAT WAS

- ✿ Great effort ... [Dr Mandeep Sharma, Palampur; mandeepsharma289@hotmail.com]
- ✿ Let me compliment you for the Academy News Vibes Jan 2021 issue; it has been well captured. A new beginning in the new normal period is really taken a shape and wish you all the best for still better versions ... [Dr SS Honnappagol, Bengaluru; sskvafsu@yahoo.co.in]
- ✿ I am proud of your achievements specially for bringing out excellent Newsletter that covers concise and crisp information about multifarious activities in veterinary profession. Congratulations for attractive, well designed newsletter ... [Dr PK Gupta, Bareilly; drpkg1943@gmail.com]
- ✿ Congratulations. Nice vibes through this News Vibes. Nice format. Positive write-up from President Dr. Prakash Rao. Best wishes to the new team, including yourself ... [Dr Jit Singh, Udaipur; jitp48@gmail.com]
- ✿ Congratulations Dr Pattanaik. It has come out very well. Keep it up ... [Dr Raghavendra Bhatta, Bengaluru; directornianp@gmail.com]
- ✿ Excellent get up of the Newsletter with rich information and wide coverage. Incorporation of a lot of latest updates will enrich the readers. Well done. Keep it up ... [Dr RK Singh, Izatnagar; rks_virology@rediffmail.com]
- ✿ Nicely brought out. keep it up ... [Dr TS Chandrasekhar Rao, Tirupati; tammineedirao@rediffmail.com]
- ✿ Hearty congratulations! There is a perceptible change in the outline and outlook of the Newsletter compared to earlier ones. Let us keep the momentum going stronger ... [Dr NKS Gowda, Bengaluru; nksgowda@yahoo.co.in]
- ✿ Your well-crafted, engineered, innovative ideas fructified into reality, the NAVS News Vibes. You did the commendable job ... [Dr AK Samanta, Dhaka; drashiskumarsamanta@gmail.com]
- ✿ Good efforts. Please keep it up. With best wishes ... [Dr PK Uppal, Gurugram; profuppal@gmail.com]
- ✿ Nicely compiled newsletter. Keep it up ... [Dr Naveen Kumar, Izatnagar; naveen.ivri1961@gmail.com]
- ✿ Please accept my felicitations for very well engineered newsletter. I am sure you will take our newsletter to greater heights ... [Col Tej Ram (Retd), Bharatpur; dr.tejram@gmail.com]
- ✿ Congratulations, Dr Pattanaik for bringing out an illustrious volume of NAVS News Vibes under your able editorship!! It was well-stuffed with latest developments in related aspects and pleasantly laid out. Congratulations to all the team associated in this responsibility for the cause of the profession in general and NAVS in particular ... [Dr Inderjeet Singh, Ludhiana; inderjeet.dr@gmail.com]
- ✿ Wonderful issue ... [Dr RVS Pawaiya, Makhdoom, rvspawaiya@gmail.com]



Introducing

Zydus AHL

For the First Time in India

VetPlasma™



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⁺ SCIENTISTS AWARDED Ph. D./M.V.Sc./M.Sc.** for Research on **INDIAN HERBS** products.
- ▶ **1000⁺ 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.

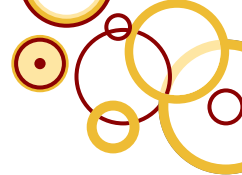
- **TWO STAR Export House Status** accorded by **MINISTRY OF COMMERCE AND INDUSTRY, Govt. of India.**

- **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)

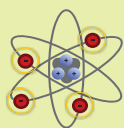
A nutritional supplement to prevent subclinical and transient Hypocalcemia

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



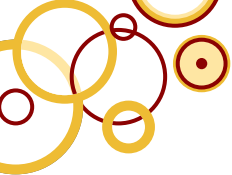
VETSFARMA LIMITED

VETS HOUSE, SCO 90-91, Urban Estate, Phase-1, Jalandhar-144 022 (Pb.) INDIA
 Ph.: +91 181 2484432, 435 3030-34, Fax: +91 181 2484285
 Email : vets@vetsfarma.com
 Website : www.vetsfarma.com

VOCAL for LOCAL



Caring for the speechless since 1979



INTEGRATION OF LIVESTOCK AND AGRICULTURE FOR SUSTAINABILITY



R & D Lab



Hydroponics Fodder



Vermicompost Promotion



Soil Fertility



Women Empowerment



Biogas

INITIATIVES FOR

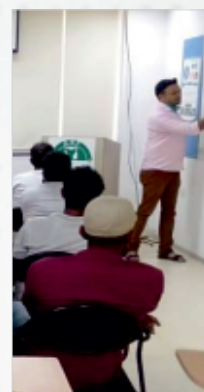
1 HEALTH



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

4th 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