



NAVS NEWS VIBES

NATIONAL ACADEMY OF VETERINARY SCIENCES (INDIA)

Volume 2 • Issue 2 • April 2022

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5 NAVS invites applications for the awards of the Academy for the year 2021. The last date for receiving the applications has been extended till May 15, 2022 ...

7 NAVS Convocation: The 20th Convocation-cum-Scientific Convention of the Academy is scheduled to be held during June 20-21, 2022 at MAFSU, Nagpur ...

HORIZON

PRESIDENT'S VIEWS & VISION

Revered and Distinguished Fellows,

Warm Greetings.

I have immense pleasure in informing you that National Academy of Veterinary Sciences (India) is organizing the 20th Annual Convocation cum Scientific Convention in collaboration with Maharashtra Animal & Fishery Sciences University, Nagpur on Monday the 20th and 21st of June 2022 at Nagpur Veterinary College, Nagpur. The objective of the two days Scientific Convention is to strategize the autonomy of Veterinary Research, Education and Extension and for the establishment of a separate Indian Council of Veterinary and Fisheries Research under the aegis of Ministry of Fisheries, Animal Husbandry and Dairying, Government of India. I am extremely delighted to inform you that Hon'ble Shri Dr. Mohan Bhagwat Ji has consented to be the chief guest for the inaugural session. The Cabinet Minister Hon'ble Shri Parshottam Rupala Ji, Minister of Fisheries, Animal Husbandry and Dairying has accepted to be the guest of honour.

The theme of the Scientific Convention is "Restructuring Veterinary Education, Research and Extension for enhancing Livestock & Poultry Production to boost GDP". We have excellent speakers for all the sections. All the fellows will receive the invitation. I deem it as an honour to invite everyone of you to attend the Convocation and the Scientific sessions in large numbers which will boost the Academy's image and also encourage the organizers. It will also help to show our strength to the Hon. Chief guest and guest of honour who play very important role in the present dispensation of the Country.

It is fascinating to note that the Academy has received 41 applications for the award of Fellowships and the Academy has awarded 20 fellowships in the order of merit as per the score card designed and approved by the Hon. Governing Council for the award of Fellowships. I must record my appreciation to



Prof Dr. Inderjeet Singh, Vice Chancellor, GADAVASU who has done a commendable job along with the committee members to complete the job on time very efficiently. The response for Associate Fellowships and Memberships is quite good. We have received 22 applications for Associate Fellowships and 11 candidates have been awarded. Similarly we have received 29 applications for memberships and 24 have been awarded.

I take this opportunity to request all the Fellows of the Academy to motivate our professionals for applying for the award of Fellowship and Associate fellowship of the Academy since the strength of the Academy always lies in the Fellows and Associate Fellows.

I am happy to put forth before you that the Academy has instituted the following awards to recognize the contribution of our Scientists and our Professionals. They are:

1. NAVS (I) - Dr. C.M. Singh Award
2. NAVS (I) - Dr. D.V.R. Prakash Rao Life Time Achievement Award-Cum-Late Smt Sundari Prakash Rao Memorial Endowment Lecture.
3. NAVS (I) - Dr. Vallabh Mandokhot Memorial Award for Outstanding Young Women Veterinarian
4. NAVS (I) - Young Scientist Award

The Academy has sponsored the awards and convinced sponsors to donate for the corpus of the other awards.

I once again take this opportunity to invite all to attend the convocation on 20th June in large numbers.

Kind Regards
Cordially Yours


(DVR PRAKASH RAO)



IN FOCUS

VACCINATION FOR BIRD FLU

Avian influenza – prospects for vaccination in disease control

C Tosh, S Nagarajan, Manoj Kumar, HV Murugkar, VP Singh

ICAR-National Institute of High Security Animal Diseases, Bhopal- 462 022

Avian influenza virus

Avian influenza (AI) is a highly contagious viral disease that affects domestic poultry, wild birds and occasionally mammals including humans. AI is caused by influenza A virus (IAV), an RNA virus with segmented genome, belonging to Orthomyxoviridae family. IAVs are classified into different subtypes based on the antigenicity of their two surface glycoproteins, hemagglutinin (HA) and neuraminidase (NA), and are found in different combination, e.g., H5N1, H5N8, H9N2. The error-prone replication of viral RNA leads to high mutation rate and emergence of multiple antigenic variants. The IAVs have caused three major pandemic in the 20th century with the largest being the Spanish Flu in 1918-1919 that resulted in death of nearly 50 million people worldwide.

According to severity of the disease they cause in poultry, AI viruses (AIVs) are classified into, low pathogenic (LP) AI, which typically causes little or no clinical signs including drop in egg production and upper respiratory tract infection, and high pathogenic (HP) AI that causes severe clinical signs with possible high mortality rates.

AI outbreaks

Currently, the HPAI H5Nx and H7Nx subtypes and the LPAI H9N2 subtype are major threats to poultry industry worldwide including India. Since its first report in USA among turkey flocks in 1966, many Eurasian countries have reported H9N2 virus infection in their poultry. Phylogenetically, the H9N2 viruses are divided into 2 major branches viz. Eurasian and North America. The Eurasian H9N2 viruses are further subdivided into 3 major lineages including G1-lineage, BJ/94-lineage and Korean-lineage. The G1-lineage is probably the most widespread H9N2 virus in Eurasia including South Asia, the Middle East, North Africa, China and Russia. Since 1998, human infections of H9N2 virus has been reported globally implying public health importance. In India, the H9N2 virus isolated from poultry for the first time in the State of Haryana during AI surveillance in 2003 belonged to G1-lineage. All the H9N2 viruses isolated from many other States in India subsequently also belonged to G1-lineage.

Asian lineage HPAI H5 subtype emerged in China in 1996 and subsequently spread to other Asian countries, Europe, Africa and recently to North America. The virus also resulted in human infections in 18 countries including India with more than 30% mortality. India reported HPAI outbreaks of H5N1 virus for the first time in poultry in 2006, and the virus was genetically characterized as clade

2.2. Since then, India has reported HPAI outbreaks in poultry almost each year and the new virus clades 2.3.2.1a, 2.3.2.1c and 2.3.4.4b were reported for the first time in 2011, 2014 and 2021 respectively. A new H5N8 HPAI virus of clade 2.3.4.4b emerged first time in 2016.

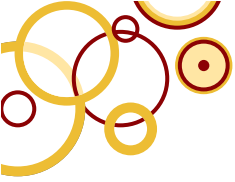
Control

Traditionally, control of HPAI in poultry is achieved through early detection and reporting, culling of infected and in-contact birds, financial compensation for farmers who lost their birds, cleaning and disinfection of premises and biosecurity measures. Vaccination may be used under certain specific conditions. There is no specific treatment for AIV infection in poultry. India developed a national action plan in 2005 for control and containment of AI which is revised from time to time depending on the experience gained from the outbreaks with the last revision in 2021. India follows “test and slaughter” policy during outbreaks to eradicate HPAI virus along with other measures such as movement restriction, quarantine, disposal of infected materials, thorough cleaning and disinfection of premises. Control of HPAI outbreaks in zoological parks involves immediate closure of park to public, segregation of infected from healthy animals, good biosecurity and hygiene. Compensation is paid to the poultry owners for forced culling of their birds. As early detection and quick response is vital in containing the HPAI virus, the stake holders including poultry owners and veterinarians are required to inform the veterinary authority on any sickness or unusual mortality in poultry and other birds. Department of Animal Husbandry and Dairying is the national authority for control and containment of AI in India reports HPAI outbreaks to World Organization for Animal Health (WOAH; formerly OIE) as a member. There is no policy of vaccination to control the disease.

Control of H9N2 LPAI varies between countries and includes good biosecurity and hygiene in farms, and some countries have implemented vaccination to prevent economic losses and virus becoming endemic.

Vaccines and vaccination

The primary strategy for HPAI and H5/H7 subtypes LPAI control will continue to be immediate eradication using a four-component strategies including education, biosecurity, rapid diagnostics and surveillance, and elimination of infected poultry. When immediate eradication is not feasible, vaccination can be added as an additional tool within a wider control strategy, which will maintain



livelihoods and food security, and control clinical disease until a primary strategy can be developed and implemented to achieve eradication.

The HA and NA surface glycoproteins of AIV are primary target of the antibody response. While the HA plays an important role in antibody mediated immune protection following vaccination, the NA plays a lesser role. Therefore, immune response against HA is used in assessing the efficacy of officially approved poultry vaccines and such immunity is HA subtype specific.

Till date, four vaccine technologies viz. inactivated whole virus, in vitro expressed viral antigen, in vivo expressed viral antigen and nucleic acids with a viral antigen expression cassette are available for development of vaccine against AIV. Live conventional AI vaccines against any subtype are not recommended as they have the potential for reassortment leading to increased virulence and public health risk.

Of the 63 countries affected with H5N1 virus during 1996 to 2010, 15 countries adapted vaccination as part of their control strategy and majority applied stamping-out of poultry to eradicate HPAI H5N1 virus. Five countries including China, Egypt, Indonesia, Vietnam and Hong Kong special administrative region utilized 99% of the vaccine used globally. Inactivated whole vaccines accounted for 95.5% and live recombinant virus vaccines for 4.5% of the vaccines used.

Vaccination strategies can be an effective emergency measure in an outbreak or as a routine measure in endemic areas. There are a number of vaccine types available for poultry including monovalent and bivalent inactivated vaccines, subunit killed vaccines, live recombinant vaccines, and DNA-based vaccines as examples. The vaccines developed as per WOA (formerly OIE) guidelines should be used in official control programs. Most vaccines are targeted for chickens; however, they can be validated for other species including turkeys.

Vaccine usage prevented clinical disease and mortality in chickens and maintained rural livelihoods and food security during HPAI outbreaks. However, vaccination strategies have several shortcomings.

- a. Vaccination of poultry with AI vaccines suppresses clinical disease, and some vaccines are able to increase resistance to infection and decrease virus excretion and transmission. In the absence of a good surveillance program, the infection can be masked leading to emergence of vaccine induced antigenic variants. Vaccine induces 1.5 times faster genetic substitution rate in HA gene of AIVs compared to the vaccine strain leading to antigenic diversity. Thus, judicious use of vaccination can be an important component of an AI control program. However, the long-term vaccination without eradication efforts may result in the selection of the antigenically divergent

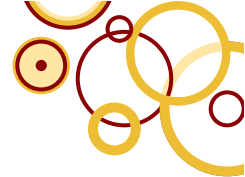
strains, which might compromise the vaccination campaign.

- b. Given the high variability of AIV and emergence of selection mutants in vaccinated flocks, it is important to monitor the circulation of divergent strains and develop vaccine matching protocols for the local field strains to update the vaccine formulation.
- c. The vaccine coverage should be at least 70% of the poultry population which is considered as sufficient to confer protection to the whole population. Field outbreaks have occurred in vaccinating countries primarily because of inadequate coverage in the target species and vaccine failures following antigenic drift in field viruses. Such outbreaks have been recorded in China, Egypt, Indonesia, Hong Kong, and Vietnam.
- d. Limitations of use of inactivated vaccine are high labour cost of injection of vaccine and insufficient antibody response in some of the vaccinated chickens.
- e. Although, use of vaccination has obvious benefits, if indirect costs were not considered, the mean direct cost of simulated disease control without vaccination was only 1.36% of the cost of the routine vaccination strategy, and this former approach would have saved 57 billion yuan for all poultry in China from 2004 to 2012.
- f. Complacency following vaccination could lead to persistent threat of virus to poultry workers.
- g. Post vaccination surveillance is critical to determine its effectiveness and periodic review and updating of vaccine strains.

For H9N2 LPAIV, vaccination is one of the control measures adapted by many Asian countries. However, taking the experience of the other Asian countries including China and South Korea on the emergence of variants in the field following vaccination of poultry, H9N2 LPAI vaccination programs should have an epidemiologically relevant surveillance and monitoring programs that includes all relevant geographical regions and production sectors. Additionally, vaccine matching and sources of vaccine strain should be considered. The vaccination programme should have a continuous monitoring and implementation of strict farm biosecurity measures which are critical for effectiveness of vaccination program.

Conclusion

Vaccination alone should not be considered as a sustainable solution for control of AI. Vaccination should be part of a comprehensive control strategy and should be based on risk analysis, economic consequences of the outbreaks, capacity of the veterinary services. Other information that needs before vaccination includes availability of an updated epidemiological assessment and human health implications may also be taken into consideration. Consideration must be given to differentiate vaccinated from infected birds (DIVA). A decision to vaccination must include an exit strategy.



THE ACADEMY

EVENTS & ENDEAVOURS

VII Governing Council Meeting of the Academy

The 7th Governing Council (GC) meeting of NAVS (I) was held on 23 Mar 2022 at 11.30 AM through virtual mode. All the GC- and Ex-Officio-members attended the meeting with Maj Gen Shri Kant (Past President), as a Special Invitee. The followings were the key issues discussed during the meeting.

Detailment of committees for award evaluation

The following committees were constituted for evaluation of applications and selection of candidates for the Fellowship, Associate Fellowship and Membership Awards

- a) Fellowship Award Committee:
 - Dr Inderjeet Singh - Chairman
 - Dr AC Varshney - Member
 - Dr SK Gupta - Member
 - Dr KP Ramesha - Member
 - Dr Rajeswari Shome - Member
 - Maj Gen ML Sharma - Member
- b) Associate Fellowship and Membership Award Committee:
 - Dr MP Yadav - Chairman
 - Dr SNS Randhawa - Member
 - Dr Ravindra Sharma - Member
 - Dr Minakshi Prasad - Member
 - Maj Gen ML Sharma - Member
- c) Detailment of Search-cum-Selection Committee for Dr DVR Prakash Rao Life Time Achievement Award-cum-Late Smt Sundari Prakash Rao Memorial Endowment Lecture :
 - Dr ML Madan - Chairman
 - Dr BN Tripathi - Member
 - Dr Suresh S Honnappagol - Member
 - Dr DVR Prakash Rao - Member
 - Maj Gen ML Sharma (Retd) - Member

Extension of date of receipt of applications for NAVS awards

Since there has been very poor response of applications for the NAVS (I)-Dr CM Singh Award for Excellence in Veterinary Sciences, NAVS (I)-Dr DVR Prakash Rao Life Time Achievement Award-cum-Late Smt Sundari Prakash Rao Memorial Endowment Lecture, NAVS (I)-Dr Vallabh Mandokhot Memorial Award for outstanding Young Woman (Field) Veterinarian and NAVS (I)-Young Scientist Awards, it was decided to extend date of receipt of applications up to 15 May

2022. The President conveyed to the house that he will request the VCs of state veterinary universities and President, VCI to carryout wide publicity on the subject.

Venue for NAVS Convocation

The President briefed the house that Prof (Dr) AM Paturkar, Vice Chancellor of Nagpur Veterinary University has confirmed the venue of the next convocation at Nagpur. The Vice Chancellor will soon meet Mr Mohan Bhagwat ji, RSS President, to seek his acceptance and availability as Chief Guest of the convocation.

Felicitation of Padma Shri Awardees

The following veterinarians who have been honoured with Padam Shri Award, will be felicitated by the Academy during next convocation of the Academy:

1. Dr ML Madan
2. Dr Sosammaiype
3. Dr Kushal K Sarma

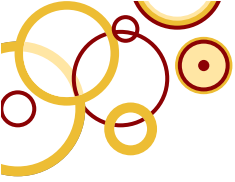
Sub-Editors for NAVS (I) Newsletter

Since the existing Sub-Editors of NAVS News Vibes have completed their one-yeartenure, the following sub-editors are nominated:

1. Dr Mandeep Sharma – North Region
2. Dr Minakshi Prasad – West Region
3. Dr Rajeswari Shome – South Region
4. Col SK Choubey – East Region

Miscellaneous issues

- *Involvement with VCI:* The Veterinary Council of India (VCI) is in the process of reviewing the Minimum Standards of Veterinary Education. The Council will share the draft with the Academy for seeking any suggestions/amendments. The Council will incorporate Maj Gen ML Sharma as representative of the Academy in the committee constituted for formulation of Para Vet Regulation. The VCI will organize two-days brain storming session to deliberate on future vision of Veterinary Education and will look forward for active participation of NAVS (I) in above session and formulation of a Vision Document.
- *Brain-storming sessions:* It was suggested that the Academy must organize a brain storming session to deliberate on issues like control of Avian Influenza and FMD, which impact onpoultry and livestock production, respectively. Based on above, Policy/Vision Documents be formulated for



submission to Govt. It was further suggested that while formulating the Policy Documents, it is important to consider that the issues are contemporary and the recommendations are implementable with clear road map.

- *Focus on NCC:* The NCC units of the Remount and Veterinary (R&V) Squadron are of paramount importance in character building and inculcating leadership qualities in the youth. R&V Sqn NCC/Regt which are held with 21 veterinary colleges of the country are doing a commendable job in this regard. However, the veterinary colleges which do not have R&V Sqn NCC units may endeavor to raise the same.
- *Career RVC:* A career in the Remount and Veterinary Corps is an enriching, rewarding and respected career for veterinarians. However, of late, the number of candidates who are able to clear the Services Selection Board examination, a prerequisite to join RVC, has dwindled drastically. There is a requirement that the Vice Chancellors/Deans of the Veterinary Universities/Colleges with the assistance of the R&V Sqn NCC Sqn/Regt organize motivational lectures for the students. The institutes which presently do not have R&V Sqn NCC may approach this Dte Gen RVS for organizing such lectures.
- *Revised syllabus to include Equine Management:* Equine Management is an important aspect in animal management. Often this aspect does not get due attention during the undergraduate level. Appropriate and practical aspects of equine management may be incorporated in the revised syllabus.

VIII Governing Council Meeting of the Academy

The 8th Governing Council (GC) meeting of NAVS (I) was held on 30Apr 2022 at 10.30 AM at ILRI, NASC Complex, New Delhi. All the GC- and Ex-Officio-members attended the meeting with Maj Gen Shri Kant (Past President), as a Special Invitee. The followings were the key issues discussed during the meeting.

Academy awards

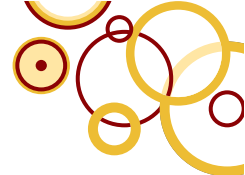
- (a) *Fellowship:* Out of 41 applicants, 24 secured more than 70% (the prescribed qualifying marks); however, due to restrictions of award of maximum 20 fellowships in a year, the first 20 candidates in merit were recommended for the

Award by the selection committee. The GC approved award of following 20 fellowships:

1. Dr A Wilson Santhosh Kumar Aruni, Chennai
2. Dr Ajay Kumar Sharma, Izatnagar
3. Dr Ashok Kumar, Mathura
4. Dr Chanchal Guha, Kolkata
5. Dr Devanaboyina Nagalakshmi, Hyderabad
6. Dr Mohan Ramchandra Wani, Pune
7. Dr Nagendra Nath Barman, Guwahati
8. Dr Narender Singh Maan, Hisar
9. Dr Pankaj Sood, Palampur
10. Dr Parkash Singh Brar, Ludhiana
11. Dr Prabhu TM, Bengaluru
12. Dr Probodh Borah, Guwahati
13. Dr Rajakishora Swain, Jalukie
14. Dr Rajkumar Ullengala, Hyderabad
15. Dr Ramanuj Banarjee, New Delhi
16. Dr S Selvaraju, Bengaluru
17. Dr Samit Kumar Nandi, Kolkata
18. Dr Shyam Sunder Paul, Hyderabad
19. Dr Tarun Kumar Bhattacharya, Hyderabad
20. Dr Vikash Pathak, Mathura

(b) Recommendation of Fellowship Evaluation Committee

- The evaluation committee recommended that the selection of Fellows should not be 'mechanical' based only on score card, as this makes the committee proceedings simply a clerical one. It is important that outstanding veterinarians in different spheres of profession or even performing exemplarily outside the professional boundaries, should be taken on board for making NAVS a vibrant think-tank with 'out of box' opinions. It is therefore proposed that score card credit should be restricted to say 70/75 the committee should evaluate the candidature with a score of 30/25 or as considered appropriate.'
- The issue was deliberated in the house, some of the GC Members expressed their views that allowing 25/30 marks at the discretion of evaluation committee will invite criticism in terms of bias /subjectivity in selection processes. However, there were suggestion that two to three Fellowships in a year may be awarded to outstanding veterinarians who have excelled in various streams as recommended by the committee.
- The President ruled that a maximum of two "Outstanding Veterinarians" who have excelled in their respective streams be considered for award of Fellowship. The committee will however evaluate



their applications and based on their achievements will recommend for the award. Such award will have to be approved by the Governing Council.

- (c) *Associate Fellowship and Membership*: Since three members of the Evaluation Committee are not available due to unavoidable circumstances and also it was not possible to forward scanned copies of applications through e-mail to committee members, it was decided to reconstitute the committee as under:

Dr Nem Singh - Chairman
 Dr Ravindra Sharma - Member
 Dr VK Gupta - Member
 Maj Gen ML Sharma (Retd) - Member

Organization of 20th Convocation-cum-Scientific Convention

- The Secretary General informed the house that Prof (Dr) AM Paturkar, Vice Chancellor of Nagpur Veterinary University has confirmed that Mr Mohan Bhagwar Ji, RSS President, has accepted our invitation to be Chief Guest of the Convocation and his availability on 20 Jun 2022.
- Theme of the convocation was decided as 'Re-Structuring Veterinary Education, Research and Extension for enhancing Livestock and Poultry Production to boost GDP'; the GC approved the theme.
- A detailed discussion on selection of most appropriate speakers and panelists for various sessions was carried out and the list of speakers and panelists for inaugural and technical sessions finalized.
- It was decided that the GC Members travelling by Air should get their Air Tickets(Economy Class) booked one month prior to the event. The lodging and boarding arrangements will be made by the Nagpur Veterinary University.

Award of Honorary Fellowship

The President suggested that the Academy may consider award of Honorary Fellowship to the following dignitaries who have hugely contributed towards upliftment of veterinary profession, and the GC Members supported the proposal, and approved it unanimously.

- (a) Shri Mohan Bhagwat, President, RSS
- (b) Shri Parshottam Rupala, Hon'ble Union Minister of Fisheries, Animal Husbandry and Dairying, Govt of India
- (c) Shri Tarun Shridhar, IAS, Former Secretary, Department of Fisheries, Animal Husbandry and

Dairying Govt. of India.

- (d) Dr Umesh Sharma , President, VCI

Miscellaneous issues

- It was suggested that a Corpus amounting to Rs 2 crore need to be raised to enable the Academy to bear the expenditure of Rs 10 to 12 lakhs per year out of the interest accrued. The GC Members are requested to explore the possibility of engaging various Veterinary Universities/Colleges / Corporate's/NGO's for Membership.
- It was decided that a Gold-plated Silver Medal be presented to the recipient of all four awards of the Academy.
- It was suggested that the President NAVS (I) to deliberate the issue of denial of NPA to serving and retired veterinarians by ICAR and find a resolve. The issue was deliberated, and it was resolved that Dr Nem Singh, Dr Ashok Kumar and Maj Gen ML Sharma will deliberate on the issue and forward draft letter to be addressed to various authority for the signature of the President.
- Maj Gen Shri Kant (Retd), Past President, and the Chairman of Revision Committee gave a detailed presentation on suggested amendments to the existing Rules & Regulation of the Academy. The following points/suggestions were made by the GC Members
 - Para 7 (b) - No Fellow will hold more than twice the office of the Academy in his/her lifetime. As define under para 5 (b).
 - The President can call meeting of the GC in case of emergency
 - Corpus fund of the Academy will not be utilized under normal circumstances. However, in case of emergency, approval of the GB is mandatory for such expenses.
 - Life Time admission fee for the Fellow be raised to Rs. 10,000 from the existing Rs.8,000. Similarly, for Associate Fellowship the amount be raised to Rs.8,000 from Rs.5000.
- Prof (Dr) AC Varshney presented the revised score card for the award of NAVS Fellowship, submitted originally by the committee chaired by Prof Vishnu Sharma. The GC approved the same.

EDITORIAL BOARD

Dr Mandeep Sharma	Dr Minakshi Prasad
Dr Rajeswari Shome	Col SK Choubey

ACADEMIA

SCHOLASTIC CONNECTIONS

The ICAR-National Institute of Animal Nutrition and Physiology, Bengaluru organized a 3-days International Australia-India Council Workshop on “Climate Change and Livestock Production: Current Scenario and Way Forward” during April 11-13, 2022. Totally 50 participants from different states of India participated in the workshop. Dr Raghavendra Bhatta, Director, ICAR-NIANP welcomed all the delegates. Dr B.N. Tripathi, DDG (AS), ICAR was the Chief Guest; he released a book edited specially as a part of the workshop on 'Climate change and livestock production: Recent advances and future perspectives'. While addressing the gathering DDG (AS) appreciated the collaboration between ICAR-NIANP and the University of Melbourne, Australia. He highlighted the effect of climate change on livestock production and the emergence of new diseases in livestock. Professor Frank Dunshea, Faculty of Veterinary and Agricultural Sciences, University of Melbourne, Australia, the Guest of Honour, gave an overview on Indo-Australian collaboration; he also released two products 'Transcare-Sheep' and 'Transcare-Goat', two supplements to ameliorate the transport stress in small ruminants. Dr Surinder Singh Chauhan, Senior Lecturer, School of Agriculture and Food, University of Melbourne, Australia, as the guest of honor gave a brief about the Australia-India Council projects. The 3-days' workshop covered lectures from the world's leading experts from Australia, Italy, Brazil, Japan and Germany. The valedictory function was held on 13th April. Prof S Abdul Rahman, Former Dean Veterinary College, Hebbal and Executive Director and Past President, Commonwealth Veterinary Association was the Chief Guest; he distributed the certificates and addressed the participants. Mr Gopi Shankar, Director-Trade, State Government of Victoria, Australia based in Bengaluru, Karnataka, India was the Guest of Honor.

INSTITUTIONAL LIFE MEMBERS (NGO)



CORPORATE LIFE MEMBERS



This newsletter 'NAVS News Vibes' is published by the National Academy of Veterinary Sciences (India), G-4, A Block, NASC Complex, DPS Marg, New Delhi-110012, India

TIDBITS

SNACKING ON SNIPPETS

7,000 steps a day cuts risk of heart disease

According to a study, taking 7,000 steps a day during middle age can keep a person's arteries healthy and lowers the chances of heart diseases. The report in JAMA Network said participants who took approximately 7,000 steps or more experienced lower mortality rates compared with participants taking fewer than 7000 steps. The study suggested that “increasing steps” per day among the least active portion of the population may provide “mortality benefit”. The study assessed adults aged between 38 and 50 and found that those who took 7,000 steps daily were less likely to die over the next decade. Physical activity provides substantial health benefits for many conditions such as cardiovascular disease, diabetes and several cancers, as well as improving quality of life. The study said 7,000 steps was enough to protect against heart complications than the commonly recommended 10,000 steps per day. According to the World Health Organisation (WHO), a person should perform 150 minutes of moderate exercise. The study noted that wearable patient monitoring systems have emerged as “personalised medicine tools” for the prevention and management of chronic conditions. Encouraging walking to achieve step goals is a well-tolerated form of activity for most people, the report said.

[Source: <https://www.wionews.com/world>]

Pollution killed 9 million people worldwide in 2019 alone

Pollution killed nine million people globally in 2019, accounting for one in six deaths, an analysis by the Global Alliance on Health and Pollution in Switzerland revealed. The thing with pollution is that no one actually dies from pollution directly; people die because pollution gives them a disease that then kills them. The team found that the overall number of pollution-related deaths is unchanged from 2015. However, fatalities caused by household air pollution specifically, for example burning wood indoors, fell from 2.9 million in 2015 to 2.3 million in 2019 as many countries switched to cleaner fuels. Deaths due to outdoor air pollution, however, rose from 4.2 million to 4.5 million. This is due to increasing numbers of cars and factories. Burning fossil fuels releases fine particulate matter with a maximum diameter of 2.5 micrometres, called PM2.5. This can go deep into our bodies, and has been linked to heart disease and some cancers. The other important findings of the study is that lead (Pb) pollution is also rising globally with an estimated lead-caused deaths increased from 500,000 in 2015 to 900,000 in 2019. Overall, more than 90 per cent of pollution-related deaths occur in low and middle-income countries.

[Source: <https://www.newscientist.com/article/2320777>]



FOOD FOR THOUGHT WORLD OF THE VETS

Identification of genes associated with human-canine communication

During domestication, dogs experienced strong selection for temperament, behaviour, and cognitive ability. However, the genetic basis of these abilities is not well-understood. In a study, to explore the genes related to behavioural and cognitive changes in the dog domestication process, researchers from the Azabu University, Japan, investigated the association between the human-related cognitive ability of dogs and polymorphisms in four genes i.e., oxytocin, oxytocin receptor, melanocortin 2 receptor, and a Williams-Beuren syndrome-related gene (WBSCR17), as candidate genes of dog domestication. The researchers selected two distinctive social cognitive skills in dogs viz. the ability to follow pointing and gestures from humans, and tested using a two-way choice test, and gaze behaviour, tested using a problem-solving test. The results indicated that the single-nucleotide polymorphisms on melanocortin 2 receptor (MC2R) were related to both tasks, while other polymorphisms were associated with the unsolvable task. The result indicates that glucocorticoid functions are involved in the cognitive skills acquired during dog domestication. Further, MC2R gene was the most effective to the skill of dogs in two-way choice test and problem-solving task, indicating that this gene can be mutated in the early domestication process of dogs.

[Scientific Reports, 2022; DOI: 10.1038/s41598-022-11130-x]

Use of technology to look at the personalities and predictability of farmed calves

Using state of the art sensor technologies, experts at the University of Nottingham have found that calves reared on farms not only vary significantly in their movement and space patterns, but also that some calves are more predictable in their behavior compared to others. The research indicates the presence of exploratory and active personality types in farmed calves. This is the first livestock study to use detailed and extensive data on the space use and movement as they occur under normal management of farm-housed calves collected via sensors to indicate the existence of “exploratory” and “active” personality traits in farmed calves. The team used precision livestock technologies, particularly ultra-wideband sensors, to measure individual movement patterns and detect variation, between, and within, individual levels, of calves. The aim was to investigate whether the calves display different personality types by measuring and investigating patterns over time for different measures of movement and space use, e.g. total distance traveled, core area used, total area used, site fidelity, and average time spent in the feeder area. The results indicate that differences not only occur in

behavior expression between calves (i.e. personality); but that calves also vary in how predictable or unpredictable they are in terms of their movement and space use patterns. It is possible to speculate that unpredictable animals might be less affected by changes in the environment and therefore more resilient, while animals that rely on a more consistent pattern of behavior might struggle to cope with changes.

[https://phys.org/news/2022-06]

New embryo identification IVF method set to boost cow milk and meat production

Research from the University of Kent, the University of Nottingham and L'Alliance Boviteq Inc., has established a method of significantly improving in-vitro fertilization (IVF) in cattle. Advanced programmes select embryos with traits such as disease resistance, food conversion (reducing waste) and improved meat and milk production. This involves a process similar to one used in human IVF, wherein cells are taken from the early developing placenta and diagnosed for certain genetic traits and diseases. However, a high proportion of these cattle embryos fail to grow into calves. This research has developed a new means of identifying a subset of embryos that rarely lead to a live birth (less than 5% chance) due to carrying chromosome disorders. Researchers found this process improved overall pregnancy rates in cows by 7.8%, after careful analysis of 1,713 embryos. Chromosome disorders are well known in humans as a cause of IVF failure, pregnancy loss and diseases like Down syndrome, however this is the first time their detection has been shown to improve cattle IVF significantly. The process, known as preimplantation genetic testing for aneuploidy (PGT-A), is one of the most discussed areas of reproductive medicine in humans. PGT-A has both vocal opponents and proponents and these results will therefore inform future treatment in fertility clinics. This new PGT-A method of embryo identification will be an enormous boost for the cattle production industry and is set to greatly reduce pregnancy issues in cows, increase overall meat and milk production, and become a platform for further research in IVF in humans.

[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.

BEYOND THE BOUNDARIES

SISTER SCIENCES

Fascia: the long-overlooked tissue that shapes health

The connective tissue that surrounds the muscles and organs, known as fascia, has always been ignored; but new insights suggest it holds the key to tackling chronic pain and immune dysfunction. Recently, though, researchers have begun to take a fresh look at fascia and are finding that it is anything but an inert wrapping. Instead, it is the site of biological activity that explains some of the links between lifestyle and health. It may even be a new type of sensory organ, according to the researchers at Cornell University in Ithaca, New York. It is now realised that a better understanding of this ubiquitous tissue is sorely needed. If we manage to figure it out, it has the potential to provide new ways to tackle many common yet hard-to-treat conditions, from immune dysfunction to chronic pain.

[Source: <https://www.newscientist.com/>]

Sharpest ever images of live bacteria unravel the secrets of superbugs

By using a nanoscale needle tip to probe the intricate exterior structures of *Escherichia coli*, scientists at University College London have produced the sharpest images ever of living bacteria. The outer membrane of Gram-negative bacteria is a formidable barrier against antibiotics and is an important factor in making infectious bacteria resistant to medical treatment. It is increasingly effective at repelling antibiotics, and these types of superbugs could kill millions per year by 2050, experts have warned. The study enabled the team to detect and in turn image the very fine molecular structures on the surface of the bacteria, and show how the outer membrane features microscopic holes formed by proteins that allow the passage of nutrients while preventing toxins from entering. To the researchers' surprise, some patches of the membrane appeared to contain no proteins at all, instead bearing glycolipid molecules, and parts of the membrane had actually flipped inside out as a result of mutations. These defects correlated with a higher sensitivity to bacitracin, which is usually only effective against Gram-positive bacteria. In addition to revealing potential weak spots that can be targeted with antibiotics, the work may also reveal how bacteria can grow rapidly while maintaining a densely packed outer membrane. The researchers suspect that the glycolipid patches could be more malleable than the protein ones, allowing the membrane to stretch and adapt as the bacterium grows.

[Source: <https://newatlas.com/biology/>]

Gene for sex hormone synthesis could play key role in eczema

A study led by UT Southwestern dermatologists suggests that a common inflammatory skin condition may stem from poorly regulated sex hormones. The finding, published this week in PNAS, could offer an unexpected new target to fight this condition. Atopic dermatitis (AD) is a form of eczema that has previously linked to overactivity in genes responsible for the production of two inflammatory

immune molecules, IL-4 and IL-13. However, the molecular mechanisms behind how IL-4 and IL-13 contribute to this form of eczema was unknown. To investigate this question, the researchers focused on sebocytes; they dosed human sebocytes growing in petri dishes with IL-4 and IL-13, and used RNA sequencing to get a readout on gene activity for the entire genome and compared it with gene activity in sebocytes that weren't treated with these immune molecules. They found that a gene called HSD3B1, which makes an enzyme called 3b-hydroxysteroid dehydrogenase 1, became up to 60 times more active when exposed to the two interleukins. The finding was a surprise, because this enzyme is well known for playing a key role in the production of sex hormones such as testosterone and progesterone, but it had never been linked to atopic dermatitis and skin lipid production. To determine how this gene affects sebum output, the researchers manipulated HSD3B1's activity in sebocytes growing in petri dishes. They found that when they made this gene less active, the levels of sex hormones decreased, and skin sebum production increased. The reverse was also true, with more gene activity leading to higher amounts of sex hormones and less sebum. The researchers made similar findings in a mouse model of AD, with sex hormone production decreasing the production of skin lipids. Together, these findings suggest that HSD3B1 could be a new target for fighting AD and potentially other forms of eczema.

[Source: <https://www.sciencedaily.com/releases/2021/09/210920082147.htm>]

Diabetes reversed in mice for four months after one-time implant

Using a one-time implant, Israeli scientists have corrected blood sugar levels in diabetic mice for months. The study isolated muscle stem cells from the mice being treated, and modified the cells genetically to make them express a very high quantity of GLUT4 transporters in the body. These GLUT4 cells were then grown to form an engineered muscle tissue, and was transplanted back into the abdominal muscle of eight diabetic mice with Type 2 diabetes. The engineered cells proceeded to absorb sugar correctly, improving blood sugar levels, and also induced improved absorption in the mice's other muscle cells. After this one treatment, the diabetes of the mice was reversed; their blood sugar levels remained lower, and they had reduced levels of fatty liver normally displayed in Type 2 diabetes. The transplanted tissue acts as a channel for glucose into the body, and blood glucose levels dropped in all the mice by an average of 26 percent. The levels stayed in the normal range for the entire four months of the study, while in control groups there was no drop in blood sugar levels. The results from this study could potentially, in the future, give human patients with Type 2 diabetes the possibility of having an implant and then going for a few months without taking any medications.

[Source: <https://www.timesofisrael.com/>]

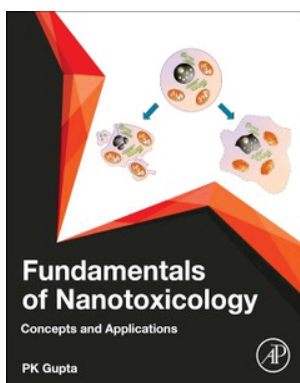


SPLENDOUR SHINING FELLOWS

Dr PK Gupta's new book on nano-toxicology

Gupta, P.K. 2022. *Fundamentals of Nanotoxicology: Concepts and Applications*, First edition. Academic Press, London, UK, 227 p. [ISBN: 978-0323903998]

Fundamentals of Nanotoxicology Concepts and Applications by Prof (Dr) PK Gupta, Former Head of the Division of Pharmacology & Toxicology at Indian Veterinary Research Institute, provides an outline to fundamental concepts of nanotoxicology and their applications. The book opens with a historical oversights on nanotechnology, terminology, comparison of nanomaterial sizes, and an overview of regulations. It then goes on to cover types, classifications, sources and properties. It also delves into mechanisms of toxicity as well as health and safety assessments. Biomedical, agricultural, veterinary, and food applications are explored, and ecotoxicology and the environmental impact on nanomaterials rounds out the book's overview of this topic. This book will be a helpful resource for understanding concepts and current knowledge to academics, advanced students, and researchers interested in entering or learning more about this interdisciplinary field of study. NAVS (India) congratulates Dr PK Gupta, a Fellow of the Academy, for this remarkable academic endeavour.



Dr HM Saxena conferred Paul Ehrlich Award

Dr. Hari Mohan Saxena, a retired Professor of Immunology from Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana has been bestowed with the prestigious International Paul Ehrlich Distinguished Educationist and Inventive Researcher Award 2022 in recognition of his lifetime contributions in teaching and research in Immunology. The award was conferred on him on the eve of World Intellectual Property Day in New Delhi recently by the



International Multidisciplinary Research Foundation. The citation says that the IMRF International Publications conferred this honour in recognition of his consistent superior performance and invaluable contributions in Immunology. The coveted award is named after the German Physician Paul Ehrlich who discovered the first antimicrobial therapy against Syphilis, developed hematological staining and antiserum for Diphtheria and won the Nobel Prize for his various contributions in Immunology. Dr Saxena pioneered the bacteriophage based immunotherapy of Brucellosis in cattle and developed a bacteriophage based marker vaccine and DIVA assay for bovine Hemorrhagic Septicemia. NAVS (India) congratulates Dr HM Saxena, a Fellow of the Academy, for this remarkable achievement.

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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 (EWP) 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:

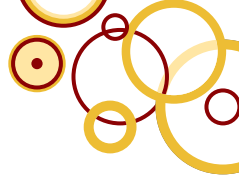
- Advocating the revision of Glander's Compensation- From INR 50 to 25,000 for horses and INR 16000 for mules/donkeys
- Inclusion of Equids in Livestock under the National Livestock Mission Schemes and thereby making them eligible for equine insurance.
- Advocating the issue of Animal Welfare Board of 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.



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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



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Animal Health



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Awareness Program



Awareness Program



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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) :

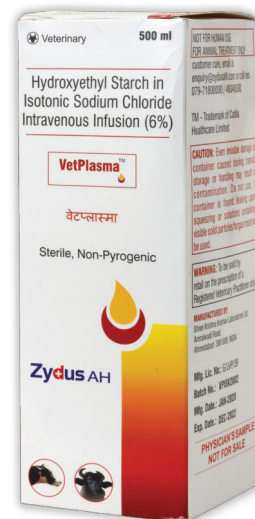
10-20 ml/kg body weight/day

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

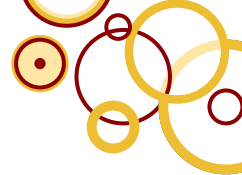
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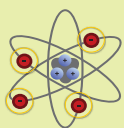
A nutritional supplement to prevent subclinical and transient Hypocalcemia

Feeding Recommendations:

- First bottle: 6-12 hours before calving
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- 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.

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50 g

For the management of Hypocalcaemia



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