

# XI BIENNIAL ANA CONFERENCE



REORIENTING ANIMAL NUTRITION  
RESEARCH IN THE PERSPECTIVE OF  
FARMERS WELFARE

**November 19-21, 2018**

Bihar Animal Sciences University, Patna

## DAY 1: 19 November 2018 [MONDAY]

|             |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| 08:30-09:30 | <b>REGISTRATION</b>                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 09:30-10:30 | <b>PLENARY LECTURE - 1 (BIT Auditorium)</b>                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|             | <p><i>Chair:</i><br/><b>K Sharma, New Delhi</b></p> <p><i>Co-chair:</i><br/><b>Rajan Gupta, New Delhi</b><br/><b>SK Das, Bhubaneswar</b></p> <p><i>Rapporteur:</i><br/><b>G Alexander, Hyderabad</b><br/><b>MR Chavda, Junagadh</b></p>       | <p><b>Prof M Blümmel, Ethiopia</b><br/>Animal nutrition approaches for profiteering livestock operations and sustainable rural livelihoods</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 11:00-12:00 | <b>INAUGURAL FUNCTION (BIT Auditorium)</b>                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 12:00-12:30 | <b>HIGH TEA</b>                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 12:30-14:30 | <b>SYMPOSIUM - I &amp; II (PARALLEL SESSION)</b>                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|             | <b>SYMP- I: FEED RESOURCES (Hall 1, BVC)</b>                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|             | <p><i>Chair:</i><br/><b>P. Biswas, Kolkata</b></p> <p><i>Co-chair:</i><br/><b>TM Prabhu, Bengaluru</b><br/><b>Neeta Agarwal, Izatnagar</b></p> <p><i>Rapporteur:</i><br/><b>Ravindra Kumar, Makhd'm</b><br/><b>Sheetal Chopde, Nagpur</b></p> | <p><b>Manju Wadhwa, Ludhiana</b><br/>Potential of fruit and vegetable wastes: an option for horizontal expansion of feed resource base</p> <p><b>AK Srivastava, Anand</b><br/>Feed safety issues in smallholder food animal production setting</p> <p><b>Avijit Dey, Hisar</b><br/>Enhancing rumen function for efficient utilization of fibrous feeds and methane abatement from livestock</p> <p><b>Asim K Misra, Jhansi</b><br/>Scope of increasing fodder quality through plant breeding approaches</p> <p><b>Keshab Barman, Guwahati</b><br/>Alternate feeds : a source of power for economic pig farming</p> <p><b>Pratiksha Saxena, Noida</b><br/>Mathematical modeling and simulation tool development for animal diet formulation</p> |
|             | <b>SYMP-II: MOLECULAR NUTRITION (Hall 2, BVC)</b>                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|             | <p><i>Chair:</i><br/><b>T Sharma, Bikaner</b></p> <p><i>Co-chair:</i><br/><b>Madhu Mohini, Karnal</b><br/><b>RK Sharma, Jammu</b></p> <p><i>Rapporteur:</i><br/><b>KY Deshpande, Parbhani</b><br/><b>RK Mohanta, Cuttack</b></p>              | <p><b>DT Pal, Bengaluru</b><br/>Nutrigenomics for furthering the elucidation of physiological basis of mineral metabolism</p> <p><b>D Nagalakshmi, Hyderabad</b><br/>Nutritional knowledge in improving immunity in farm animals</p> <p><b>Mohan Mondal, Kalyani</b><br/>Nutri-physiogenomic approaches for augmenting reproductive efficiency in dairy animals</p> <p><b>Nitin Tyagi, Karnal</b><br/>Understanding nutrition from traditional to genome-based feeding</p> <p><b>LC Chaudhary, Izatnagar</b><br/>Mechanistic overview on implications of hindgut metabolism in ruminant health and production</p>                                                                                                                              |
| 14:30-15:15 | <b>LUNCH</b>                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

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| 15:15-17:15   | <b>TECHNICAL SESSION-I &amp; II (PARALLEL SESSION)</b>                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                           |
|               | <b>TECHNICAL SESSION - I: FEEDS, FEEDING AND NUTRITION [FFN] (Hall 1, BVC)</b>                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                           |
|               | <i>Chair:</i><br><b>A Sahoo, Avikanagar</b><br><br><i>Co-chair:</i><br><b>Navneet Saxena, Hisar</b><br><b>Sunil Jadhav, Izatnagar</b><br><br><i>Rapporteur:</i><br><b>D Medhi, Dirang</b><br><b>Mahesh Jawale, Nagpur</b> | FFN-1, FFN-3, FFN-4, FFN-9, FFN-15, FFN-20, FFN-21, FFN-22, FFN-23, FFN-24, FFN-29, FFN-30, FFN-31, FFN-35, FFN-36, FFN-39, FFN-45, FFN-47, FFN-54, FFN-67, FFN-68, FFN-69                                                                                                                                                                                                                                                |
|               | <b>TECHNICAL SESSION-II: FEED ADDITIVES AND MICRONUTRIENTS [FAM] (Hall 2, BVC)</b>                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                           |
|               | <i>Chair:</i><br><b>RK Dhuria, Bikaner</b><br><br><i>Co-chair:</i><br><b>Amitav Dey, Patna</b><br><b>B Sahoo, Bhubaneswar</b><br><i>Rapporteur:</i><br><b>AK Pathak, Jammu</b><br><b>Atul P Dhok, Nagpur</b>              | FAM-1, FAM-4, FAM-8, FAM-12, FAM-22, FAM-26, FAM-33, FAM-35, FAM-39, FAM-41, FAM-42, FAM-43, FAM-45, FAM-47, FAM-48, FAM-53, FAM-55, FAM-59, FAM-67, FAM-69                                                                                                                                                                                                                                                               |
| 17:00-18:00   | <b>TEA BREAK AND POSTER SESSION - I</b>                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                           |
|               | <b>POSTER SESSION-I: FEEDS, FEEDING AND NUTRITION [FFN]</b>                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                           |
|               | <i>Chair:</i><br><b>Robin Bhuyan, Guwahati</b><br><br><i>Co-chair:</i><br><b>GP Mandal, Kolkata</b><br><b>Nazim Ali, Meerut</b><br><br><i>Rapporteur:</i><br><b>Ajit Kumar, Meerut</b><br><b>Pramod Kumar, Pusa</b>       | FFN-2, FFN-5, FFN-6, FFN-7, FFN-8, FFN-10, FFN-11, FFN-12, FFN-13, FFN-14, FFN-16, FFN-17, FFN-18, FFN-19, FFN-25, FFN-26, FFN-27, FFN-28, FFN-32, FFN-33, FFN-34, FFN-37, FFN-38, FFN-40, FFN-41, FFN-42, FFN-43, FFN-44, FFN-46, FFN-48, FFN-49, FFN-50, FFN-51, FFN-52, FFN-53, FFN-55, FFN-56, FFN-57, FFN-58, FFN-59, FFN-60, FFN-61, FFN-62, FFN-63, FFN-64, FFN-65, FFN-66, FFN-70, FFN-71, FFN-72, FFN-73, FFN-74 |
| 19:00-20:30   | <b>CULTURAL PROGRAM</b>                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 20:30 onwards | <b>CONFERENCE DINNER</b>                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                           |

## DAY 2: 20 November 2018 [TUESDAY]

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| 06:30-09:00 | <b>VISIT TO PATNA SAHEB</b>                                                                                                                                                                                                       |                                                                                                         |
| 09:00-10:00 | <b>BREAKFAST</b>                                                                                                                                                                                                                  |                                                                                                         |
| 10:00-11:00 | <b>PLENARY LECTURE - 2 (Hall 1, BVC)</b>                                                                                                                                                                                          |                                                                                                         |
|             | <i>Chair:</i><br><b>K Pradhan, Bhubaneswar</b><br><br><i>Co-chair:</i><br><b>Dalip Lal, New Delhi</b><br><b>K Sarjan Reddy, Tirupati</b><br><br><i>Rapporteur:</i><br><b>PK Malik, Bengaluru</b><br><b>P.K. Naik, Bhubaneswar</b> | <b>Prof AK Srivastava, New Delhi</b><br>Potential of dairy sector in India in boosting farmer's welfare |
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| 11:00-11:30 | <b>TEABREAK AND POSTER SESSION</b>                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|             | <b>POSTER SESSION – II: FEED ADDITIVES AND MICRONUTRIENTS [FAM]</b>                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|             | <p><i>Chair:</i><br/><b>JJ Gupta, Patna</b></p> <p><i>Co-chair:</i><br/><b>HH Savsani, Junagadh</b><br/><b>A Bharathidhasan, Vellore</b></p> <p><i>Rapporteur:</i><br/><b>M Choubey, Varanasi</b><br/><b>Rajesh Nehra, Bikaner</b></p>       | <p>FAM-2, FAM-3, FAM-5, FAM-6, FAM-7, FAM-9, FAM-10, FAM-11, FAM-13, FAM-14, FAM-15, FAM-16, FAM-17, FAM-18, FAM-19, FAM-20, FAM-21, FAM-23, FAM-24, FAM-25, FAM-27, FAM-28, FAM-29, FAM-30, FAM-31, FAM-32, FAM-34, FAM-36, FAM-37, FAM-38, FAM-40, FAM-44, FAM-46, FAM-49, FAM-50, FAM-51, FAM-52, FAM-54, FAM-56, FAM-57, FAM-58, FAM-60, FAM-61, FAM-62, FAM-63, FAM-64, FAM-65, FAM-66, FAM-68, FAM-70, FAM-71</p>                                                                                                                                                                                                                                                                                                                           |
| 11:30-13:30 | <b>SYMPOSIUM - III &amp; IV (PARALLEL SESSION)</b>                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|             | <b>SYMP- III: FEED ADDITIVES AND NUTRACEUTICALS (Hall 1 BVC)</b>                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|             | <p><i>Chair:</i><br/><b>SP Tiwari, Durg</b></p> <p><i>Co-chair:</i><br/><b>AK Tyagi, Karnal</b><br/><b>SV Hosamani, Dharwad</b></p> <p><i>Rapporteur:</i><br/><b>SM Wankhede, Akola</b><br/><b>DD Garg, Junagadh</b></p>                     | <p><b>Chandr Sakhar, Jaipur</b><br/>Vitamins in practical dairy ration: potentials and constraints</p> <p><b>AK Panda, Bhubaneswar</b><br/>Influence of early nutrition on productivity of broiler chickens</p> <p><b>Atul Patil, Bengaluru</b><br/>Amino acids balancing in dairy animals for better health and production</p> <p><b>Veena Mani, Karnal</b><br/>Pertinence of newer trace elements in the feeding and nutrition of farm animals</p>                                                                                                                                                                                                                                                                                              |
|             | <b>SYMP-IV: FARM HEALTH AND FARMERS WELFARE (Hall 2, BVC)</b>                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|             | <p><i>Chair:</i><br/><b>MPS Bakshi, Ludhiana</b></p> <p><i>Co-chair:</i><br/><b>M. Chandrasekhariah, Bengaluru</b><br/><b>MK Ghosh, Kalyani</b></p> <p><i>Rapporteur:</i><br/><b>Yasir Afzal, Srinagar</b><br/><b>VK Munde, Parbhani</b></p> | <p><b>R Bhatta, Bengaluru</b><br/>Enteric methane amelioration using farmers' friendly feeding approaches</p> <p><b>MS Kundu, Port Blair</b><br/>Nicobari pig: an unexplored treasure for nutritional security to the Nicobari tribes of Nicobar group of islands</p> <p><b>AM Ganai, Srinagar</b><br/>Nutritional and socio-economical impediments in migratory small ruminants production system</p> <p><b>Vinod Sidhu, Mathura</b><br/>Feeding indigenous cows for better health and production</p> <p><b>Poonam Kataria, Ludhiana</b><br/>Livestock sector of India: some reflections</p> <p><b>D. Bardhan, Izatnagar</b><br/>Role of livestock in Indian economy with special reference to dynamics of economics of livestock production</p> |
| 13:30-14:30 | <b>L U N C H</b>                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 14:30-16:30 | <b>SYMPOSIUM- V AND TECHNICAL SESSION-III (PARALLEL SESSION)</b>                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|             | <b>SYMP-V: COMPANION ANIMAL NUTRITION (Hall 1, BVC)</b>                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|             | <p><i>Chair:</i><br/><b>JV Ramanna, Tirupati</b></p> <p><i>Co-chair:</i><br/><b>N Sridhar, Bengaluru</b><br/><b>Asit Das, Karnal</b></p> <p><i>Rapporteur:</i><br/><b>Sachin Kumar, Karnal</b><br/><b>Pankaj K Singh, Patna</b></p>          | <p><b>RA Legha, Hisar</b><br/>Fodders in equine nutrition: issues and solutions</p> <p><b>KG Umesh, Hyderabad</b><br/>Feeding and nutrition of cats: a different story</p> <p><b>K Pasupathi, Chennai</b><br/>Optimizing energy nutrition in dogs on homemade diets</p> <p><b>Parimal Sardar, Mumbai</b><br/>Nutrition of ornamental fish: existing and emerging concerns</p> <p><b>P Vasan, Namakkal</b><br/>Feeding ornamental birds for health and welfare</p> <p><b>RS Bhatt, Avikanagar</b><br/>Nutritional management of rabbits for greater profitability</p>                                                                                                                                                                              |

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|                      | <b>TECHNICAL SESSION-III: NUTRITION, HEALTH AND ENVIRONMENT [NHE] (Hall 2, BVC)</b>     |                                                                                                                                                                                                                                                                                        |
|                      | <i>Chair:</i><br><b>Ravindra Kumar, Patna</b>                                           | NHE-2, NHE-12, NHE-14, NHE-16, NHE-17, NHE-19, NHE-20, NHE-25, NHE-28, NHE-29, NHE-35, NHE-36, NHE-37, NHE-38, NHE-39, NHE-42, NHE-43, NHE-45, NHE-46, NHE-51, NHE-53, NHE-57                                                                                                          |
|                      | <i>Co-chair:</i><br><b>Manpal Sridhar, Bengaluru</b><br><b>Ranjan Kumar, Samastipur</b> |                                                                                                                                                                                                                                                                                        |
|                      | <i>Rapporteur:</i><br><b>PN Chatterjee, Kolkata</b><br><b>Muneendra Kumar, Mathura</b>  |                                                                                                                                                                                                                                                                                        |
| <b>16:30-17:15</b>   | <b>TEA BREAK AND POSTER SESSION - III</b>                                               |                                                                                                                                                                                                                                                                                        |
|                      | <i>Chair:</i><br><b>RK Sohane, Sabour</b>                                               | NHE-1, NHE-3, NHE-4, NHE-5, NHE-6, NHE-7, NHE-8, NHE-9, NHE-10, NHE-11, NHE-13, NHE-15, NHE-18, NHE-21, NHE-22, NHE-23, NHE-24, NHE-26, NHE-27, NHE-30, NHE-31, NHE-32, NHE-33, NHE-34, NHE-40, NHE-41, NHE-44, NHE-47, NHE-48, NHE-49, NHE-50, NHE-52, NHE-54, NHE-55, NHE-56, NHE-58 |
|                      | <i>Co-chair:</i><br><b>SK Verma, Meerut</b><br><b>RK Tiwari, Samastipur</b>             |                                                                                                                                                                                                                                                                                        |
|                      | <i>Rapporteur:</i><br><b>Vinod Paswan, Varanasi</b><br><b>Runjun Dawara, Guwahati</b>   |                                                                                                                                                                                                                                                                                        |
| <b>17:30-18:30</b>   | <b>GENERAL BODY MEETING OF ANA</b>                                                      |                                                                                                                                                                                                                                                                                        |
| <b>19:30 onwards</b> | <b>CULTURAL PROGRAM FOLLOWED BY DINNER</b>                                              |                                                                                                                                                                                                                                                                                        |

## DAY 3: 21 November 2018 [WEDNESDAY]

|               |                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                              |
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| 09:00-10:00   | BREAKFAST                                                                                                                                                               |                                                                                                                                                                                                                                                                                                              |
| 10:00-11:00   | WORKSHOP (Hall 1, BVC)<br>Role of Industry in Defining Animal Nutrition Research in India                                                                               |                                                                                                                                                                                                                                                                                                              |
|               | <i>Chair:</i><br>DVR Prakash Rao, Chennai<br><br><i>Co-chair:</i><br>Dinesh Bhosale, Pune<br><br><i>Rapporteur:</i><br>Kaushalendra Kumar, Patna<br>Sharad Durge, Udgir | TK Walli, Karnal<br>The willingness of Indian feed industry to invest in R&D in India?<br>Naveen Kumar, Faridabad<br>Preparedness of nutritionists for emerging concepts in feed processing<br>B Singh, Chandigarh<br>Development of Bovans White Robust – the most genetically advanced breed of layer bird |
| 11:00-12:00   | OPEN HOUSE(Hall 1, BVC)<br>Animal Nutrition Research for Farmers Welfare                                                                                                |                                                                                                                                                                                                                                                                                                              |
|               | <i>Chair:</i><br>TK Walli, Karnal<br><br><i>Co-chair:</i><br>VB Chaturvedi, Izatnagar<br><br><i>Rapporteur:</i><br>Sanjay Kumar, Patna<br>BK Ojha, Rewa                 | PANELISTS<br>SR Bhagwat, SK Nagar<br>Dharmendra Kumar, Banka (Sabour)<br>MS Meel, Udaipur                                                                                                                                                                                                                    |
| 12:00-13:00   | PLENARY SESSION                                                                                                                                                         |                                                                                                                                                                                                                                                                                                              |
| 13:00-14:00   | VALEDICTORY SESSION                                                                                                                                                     |                                                                                                                                                                                                                                                                                                              |
| 14:00-15:00   | LUNCH                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                              |
| 15:00 onwards | LOCAL SIGHT SEEING                                                                                                                                                      |                                                                                                                                                                                                                                                                                                              |