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2016-17

उ.प्र. पं. दीनदयाल उपाध्याय पशु चिकित्सा विज्ञान विश्वविद्यालय
एवं गो अनुसंधान संस्थान, मथुरा - 281001 (उ.प्र.)

U.P. Pandit Deen Dayal Upadhyaya Pashu-Chiktsa Vigyan Vishwavidyalaya Evam Go Anusandhan Sansthan (DUVASU), Mathura-281001 (U.P.) INDIA

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FOREWORD

Contribution of livestock in socio-economic upliftment of farmers is significant. It enhances the income of farmers by providing additional employment to the women members of the family.

The contribution of Indian livestock to the total livestock population of world is almost 11.6%, which is largest in the world. Contribution of livestock and fisheries sectors to the national economy in terms of gross domestic product (GDP) is 4.1 and 0.8%, respectively. Uttar Pradesh has about 15% of India's total livestock population and enjoys the privilege of leading producer of milk and meat in the country. U.P. Pt. Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go Anusandhan Sansthan (DUVASU), Mathura has pledged itself for continuing service to veterinary profession.

It is a matter of great pleasure for me to present the Annual Report of DUVASU highlighting the main activities of the academic departments, farms, clinics and administrative units during 2016-17. The report gives details of the teaching, research and extension activities and financial statement of the University. Animal health services are provided to livestock and pet owners through the Teaching Veterinary Clinical Complex (TVCC), clinical camps and ambulatory services. Facilities of TVCC were further strengthened. Apart from infrastructure, the University has been proactive in capacity building programme for faculty and a number of teachers were permitted to attend trainings and seminars in different institutes of India as well as abroad. Students were imparted hands on practical trainings in the areas of poultry management, livestock management, animal nutrition and livestock products technology under experiential learning programmes. The research mandate of the university is being supported by the grants from Government of U.P., UPCAR, RKVY, ICAR and Government of India. Presently, nine externally funded research projects are running in different departments.

Under Rastriya Gokul Mission university has been sponsored to start a 'Gokul Gram Pariyojana' for conservation and improvement of indigenous cattle breeds. The project is running with the mandate of propagation of superior germ plasm of indigenous breeds. It may be helpful in fulfilling the target of doubling the income of Indian farmers. The University is committed towards its mandate of extension and has organized several trainings to address the practical problems of farmers, livestock owners and field veterinarians.

Sixth convocation of the University was held on 17th November, 2016 to confer the degrees to successful UG, PG and PhD candidates of various disciplines. The occasion was presided

over by Hon'ble Chancellor and Governor of Uttar Pradesh Shri Ram Naik Ji. Hon'ble Chancellor conferred the honorary degree of Doctor of Science to Professor Ramesh Chand, member NITI Aayog, GOI.

On behalf of the University, I express my sincere thanks and gratitude to Government of Uttar Pradesh, UPCAR, RKVY, ICAR, New Delhi and Government of India for adequate financial support. The support has helped in uplifting the teaching, research, extension activities, lab facilities, diagnosis, treatment and animal welfare activities. I am extremely thankful to Principal Secretary to Hon'ble Governor and Principal Secretary, Animal Husbandry, Govt. of Uttar Pradesh for their support in overall development of this institution. I take this opportunity to acknowledge the university officers, head/ incharge of departments, teaching fraternity, technical, non-technical, administrative, supporting staff and students for their commitment towards the welfare of this university and their high spirits in up keeping the reputation of the university. Their everlasting hard work, sincerity and cooperation helped in achieving the set targets. I acknowledge the sincere efforts made by the editorial committee to bring out this Annual Report well in time depicting various activities and achievements of the university.

K.M.L. Pathak

(K.M.L.Pathak)

प्राक्कथन

पशुपालन भारतीय ग्रामीणों के जीवन में एक महत्वपूर्ण भूमिका निभाता है क्योंकि यह देश के एक बड़े ग्रामीण वर्ग को रोजगार दिलाता है तथा फसल उत्पादन हेतु जमीन के एक बड़े हिस्से को जोतने के लिये पशुशक्ति प्रदान करता है।

भारत में पशुधन की संख्या विश्व पशुधन संख्या का 11.6 प्रतिशत होने के साथ विश्व के पशुधन का सबसे बड़ा हिस्सा है। पशुपालन एवं मत्स्यपालन सम्बन्धी व्यवसायों का राष्ट्र के सकल घरेलू उत्पाद में योगदान क्रमशः 4.1 और 0.8 प्रतिशत है। उत्तर प्रदेश राज्य भारत के कुल पशुधन संख्या में 15 प्रतिशत के सार्थक योगदान के साथ देश में दुग्ध एवं मीट उत्पादन में अग्रणी स्थान पर है। उ.प्र. पंडित दीनदयाल उपाध्याय पशुचिकित्सा विज्ञान विश्वविद्यालय एवं गो-अनुसंधान संस्थान मथुरा, पशु चिकित्सा एवं पशुपालन के क्षेत्र में अपना योगदान देने हेतु प्रतिबद्ध है।

विश्वविद्यालय की प्रमुख गतिविधियों एवं उल्लेखनीय क्रियाकलापों को दुवासू वार्षिक प्रतिवेदन के माध्यम से प्रस्तुत करने पर मुझे अत्यधिक हर्ष की अनुभूति हो रही है। इस प्रतिवेदन में वर्ष 2016-17 में विश्वविद्यालय की शिक्षण, शोध एवं प्रसार गतिविधियों का विस्तृत विवरण दिया गया है।

विश्वविद्यालय द्वारा उत्तर प्रदेश एवं निकटवर्ती राज्यों (राजस्थान, मध्य प्रदेश, हरियाणा) के पशुपालकों को पशुचिकित्सा सेवाऐं विश्वविद्यालय के शैक्षणिक पशुचिकित्सालय, पशु चिकित्सा शिविरों एवं सकल पशुचिकित्सालय के माध्यम से प्रदान की जाती हैं। पशुचिकित्सालय की सुविधाओं को इस वर्ष फेको मशीन, रेंगीज क्रोपलर, अल्ट्रासाउन्ड मशीन द्वारा अधिक सुदृढ़ बनाया गया। आधारभूत ढाँचे को सुदृढ़ बनाने के साथ ही विश्वविद्यालय ने अपने शिक्षकों को भी अधिक से अधिक संख्या में भारत के विभिन्न संस्थानों के साथ-साथ विदेशों में भी प्रशिक्षण एवं सेमीनार में भाग लेने की अनुमति प्रदान की। छात्रों को अनुभवात्मक शिक्षा कार्यक्रम के तहत मुर्गीपालन, डेयरी फार्मिंग, पशुपोषण और पशु उत्पादों के प्रसंस्करण के क्षेत्र में व्यवहारिक ज्ञान प्रदान किया गया।

विश्वविद्यालय की अनुसंधान परियोजनाएं राज्य सरकार, उत्तर प्रदेश कृषि अनुसंधान परिषद् भारतीय कृषि अनुसंधान परिषद और भारत सरकार के अनुदान द्वारा पोषित एवं समर्थित की जा रही हैं। वर्तमान में 09 बाह्य वित्त पोषित अनुसंधान परियोजनाएं विभिन्न विभागों में क्रियान्वित हैं। विश्वविद्यालय द्वारा राष्ट्रीय गोकुल मिशन के अन्तर्गत गोकुल ग्राम परियोजना का संचालन किया जा रहा है जिसका उद्देश्य देशज गोवंशीय पशु प्रजातियों का संरक्षण एवं सम्वर्धन है। विश्वविद्यालय द्वारा पशुपालन एवं पशु चिकित्सा की नवीनतम एवं वैज्ञानिक जानकारियों के प्रसार हेतु समय-समय पर पशुपालकों एवं पशु चिकित्सकों हेतु विभिन्न प्रशिक्षण आयोजित किये गये।

विश्वविद्यालय का षष्ठम दीक्षांत समारोह 17 नवम्बर 2016 को आयोजित किया गया। मैं माननीय राज्यपाल महोदय, उत्तर प्रदेश एवं कुलाधिपति उ.प्र. पंडित दीनदयाल उपाध्याय पशुचिकित्सा विज्ञान विश्वविद्यालय एवं गो-अनुसंधान संस्थान मथुरा, श्री रामनाईक जी का आभारी हूँ जिन्होंने इस समारोह की अध्यक्षता करते हुये विश्वविद्यालय के छात्रों को उपाधि प्रदान की, जो कि भविष्य के उत्तम पशु चिकित्सक एवं वैज्ञानिक बनकर समाज में अपना योगदान देंगे। इस अवसर पर प्रख्यात कृषि वैज्ञानिक एवं नीति आयोग के सदस्य प्रोफेसर रमेश चन्द को

'डाक्टर ऑफ साइंस' की मानद उपाधि से सम्मानित किया गया।

विश्वविद्यालय की ओर से मैं राज्य सरकार तथा भारतीय कृषि अनुसंधान परिषद का पर्याप्त वित्तीय सहायता प्रदान करने के लिये धन्यवाद एवं आभार व्यक्त करता हूँ। उत्तर प्रदेश सरकार एवं भारतीय कृषि अनुसंधान परिषद द्वारा मिलने वाली वित्तीय सहायता से विश्वविद्यालय की उन्नति को नई दिशा मिली है। मैं मा० कुलाधिपति के मुख्य सचिव तथा मुख्य सचिव पशुपालन विभाग उत्तर प्रदेश का भी आभारी हूँ जिन्होंने विश्वविद्यालय के समग्र विकास में महत्वपूर्ण योगदान दिया। मैं विश्वविद्यालय के वरिष्ठ अधिकारियों एवं कर्मचारियों, शिक्षकों एवं छात्रों को उनके सहयोग तथा विश्वविद्यालय की उन्नति में उनके योगदान के लिये धन्यवाद देता हूँ तथा अपेक्षा करता हूँ कि वे निरंतर विश्वविद्यालय की उन्नति हेतु अपना महत्वपूर्ण योगदान देते रहेंगे। मैं वार्षिक प्रतिवेदन 2016-17 को समय से तैयार करने एवं इसमें विश्वविद्यालय से सम्बन्धित क्रियाकलापों एवं उपलब्धियों को सम्यक एवं समग्र रूप से समावेशित करने हेतु इस प्रतिवेदन की सम्पादक मंडली को भी धन्यवाद ज्ञापित करता हूँ।

KML Pathak

(के.एम.एल.पाठक)

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EXECUTIVE SUMMARY

TEACHING

- College of Veterinary Science and Animal Husbandry, College of Biotechnology and Institute of Para Veterinary Sciences are running their regular academic programmes.
- During 2016-17, College of Veterinary Science and Animal Husbandry admitted 90 students in B.V.Sc. & A.H programme which was 20% more than the student intake during 2015-16; out of which 25.56% were girls.
- In M.V.Sc. and Ph.D. programmes, 36 and 09 students, respectively, were admitted. During the year, 40 Graduate, 23 Postgraduate and 11 Doctorat students completed their degrees from College of Veterinary Science. 38 and 34 students were admitted in Diploma in Veterinary Pharmacy (DVP) and Diploma in Livestock Extension (DLE) programmes, while 48 and 46 students completed their DVP and DLE programmes respectively.
- During 2016-17, College of Biotechnology admitted 13 students to B.Sc. Biotechnology and 04 students in M.Sc. Biotechnology programme.
- Teaching Veterinary Clinical Complex (TVCC) is well equipped with modern facilities which include small and large animal operation theatres, ICU for pets, imaging diagnostic unit, small animal dentistry unit, operating microscope, laproscopic surgery unit, orthopaedic surgery instruments, eye surgery instruments, diathermy, multiparameter monitors, oxygenators, nebulizers and general unit for large and small animals.
- Phacoemulsification with intraocular lens implantation, Colour Doppler, USG machine and flexible laparoscope were also procured for further strengthening of the facilities in TVCC.
- The diseases diagnostic laboratory of TVCC is well equipped with semiautomatic blood and biochemical analyzer, urine analyzer and electrolyte analyzer in addition to other conventional facilities for diagnosis of animal diseases.
- During 2016-17, 10,829 clinical cases were treated in TVCC, which was almost 10% more than that of 2015-16. Out of these, 4235 were large ruminants, 1022 small ruminants, 719 equines, 4511 pets and 342 other animals. Total revenue generated during the year was Rs 4, 04,510.
- During 2016-17, 2036 clinical samples were processed by diagnostic laboratory. Out of these, 1590 blood samples for CBC, 429 samples for serum biochemical analysis, 17 samples of urine and 17 samples of milk were analysed.
- During the year under report, 07 clinical camps were organized in Mathura and adjoining districts with the help of gram panchyats and local veterinary officers in which 475 animals were treated, which included 124 cattle, 262 buffaloes and 89 other animals like sheep, goat, horse and pigs. Out of 475, 42 were surgical cases, 282 medicine cases and 151 gynecological cases.
- The breeder and layer poultry farm and hatchery established under ICAR funded Experiential Learning Programme (ELU) in Department of Poultry Science imparted hands on training to undergraduate, postgraduate, PhD and Internship students. These students were trained in various poultry farm activities including hatchery operations and record keeping etc. Entrepreneurial training on poultry production was conducted for B.V.Sc. & A.H. students. During 2016-17, total revenue generated through experiential learning unit was Rs 5, 27, 937/- which was 110% more than that of 2015-16.
- Department of LPT trained undergraduate students of B.V.Sc. &A.H. and postgraduate students of the Department of LPT in the area of milk and meat processing which included pasteurization and processing of milk, preparation of value added products of milk and meat like chicken nuggets, chicken patties, flavored lassi, milk loaf etc.
- Library provided online journal and books facilities (www.cera.jccc.in) to students and faculty.
- AKMU in University provides computer and internet facilities to students and faculty members.

- The wireless internet facility was extended to S.N. Hostel after its renovation during the year. The website of the University was redesigned to make it more informative. Internet facility is available to all the students in their respective hostels too.

RESEARCH

- University is running 09 externally funded projects in various Departments of College of Veterinary Science and Animal Husbandry. Out of these, 03 projects are ICAR funded, 05 projects are RKVY funded and one project is Indian Herbs Specialities Pvt. Ltd funded.
- Acedemic research in various departments has resulted in subenission of 09 Ph.D. and 16 M.V.Sc. theses in College of Veterinary Science and Animal Husbandry, and 04 MSc/MVSc from College of Biotechnology.

EXTENSION

- During 2016-17, Directorate of Extension with the assistance of faculty of College of Veterinary Science and Animal Husbandry organized nine trainings on the campus, seven visits of farmers, animal's owners and others in Pashu Gyan Chaupal and five trainings at the door steps of farmers. Through these trainings, 345 farmers, Veterinary Officers and livestock owners were trained. Total 584 farmers visited the Pashu Gyan Chaupal during the year.
- 23rd group meeting of AICRP on Rapeseed & Mustard was organised by the university in collaboration with the Directorate ofRapeseed & Mustard on 5th-7th August, 2016.
- Directorate of Extension is running one externally funded project entitled "Imparting scientific knowledge of animal rearing for better production through technology transfer to livestock owners" costing Rs. 14.812 lacs.
- During the year, thirty one visits of farmers and Veterinary Officers were organized by the Directorate of Extension. These visits were sponsored by Animal Husbandry Department, Department of Agriculture and Sugarcane Division, U.P. under ATMA programme.
- Training manuals, leaflets and popular articles in the form of booklets were developed by Directorate of Extension for the benefit of farmers and animal owners and keepers.
- Consultation services were provided to large number of farmers about animal husbandry and poultry farming practices.
- During the period under report, total of 115 trainings were conducted by KVK scientists in which 2739 participants were trained. Out of this, 98 trainings for practicing farmers / women, 8 for rural youth, 7 for extension personnel and 2 vocational trainings under Kaushal Vikas Yojna were organized in which respectively 2309 farmers/farm women, 151 rural youth, 249 extension functionaries and 30 participants participated. To study the location specifity of technology, 11 OFT with 89 trials were also conducted on various crops at farmers fields.
- Gosthies, Diagnostic visits, Kisan Samman Diwas were organized for improving connectivity with farmers. During this year, Soil Testing Laboratory of KVK analyzed 561 soil samples and 23 water samples were analyzed and the result with recommendation for balance fertilization were given away to farmers.

ADVISORY SERVICES

College of Veterinary Science and Animal Husbandry rendered advisory and consultancy services to:

- National Zoological Park, New Delhi
- Etawah Lion Safari, Etawah
- Animal Husbandry Department, Govt of UP
- U.P. Livestock Development Board
- Department of Animal Husbandry, Dairying and Fisheries, GOI, ICAR, New Delhi
- Food Safety and Standards Authority of India
- Ministry of Food Processing Industries, GOI

- Pharmaceutical and food industry

UNIVERSITY FARMS

- Dairy farm of Veterinary College produced 1, 96, 879 liters of milk which was 2.77% more than that of 2015-16 and generated a revenue of Rs. 58, 94, 111.
- Poultry farm of Veterinary College maintained variety of species and breeds including layers, Chabro, Aseel Peela, Kadaknath, Naked neck, Japanese quail, Turkey, Guinea fowl and Emu.
- Poultry farm generated a total revenue of Rs. 2, 90, 596 through sale of spent hens, Japanese quails, Japanese quail chicks, birds and eggs.
- Madhuri Kund farm produced a total of 5727.43 quintals of seeds, grains and fodder which generated a total revenue of Rs. 1,73,41,512.00.
- Total fodder grain, wheat straw and green fodder production during FY 2016 – 17 of university's fodder research section was 1566.22 quintals (Estimated) and that of instructional livestock farm complex was 13998.38 quintals (Estimated) with estimated sales revenue of Rs. 13,11,903/- (thirteen lakh eleven thousand nine hundred and three rupees) (Estimated) and Rs. 24,54,883/- (twenty four lakh fifty four thousand eight hundred eighty three rupees) (Estimated) respectively.
- Through the auction of jowar, bhusa, berseem etc and production of wheat seed, pasture unit of the University generated a revenue of Rs 51,70,286/-.
- During 2016-17, KVK generated a revenue of Rs. 2160800/- through the sale of farm products which was 92.23% more than that of 2015-16.

HUMAN RESOURCE DEVELOPMENT

- College of Biotechnology organised two days workshop on "Biotechnology Awareness" during 2nd - 3rd July, 2016.
- Department of LPT organized an ICAR sponsored 10 days short course on "Strategies in development of functional livestock products" from 21st to 30th November, 2016.
- Department of Pharmacology and Toxicology organized 21 days Winter School on "Advance Techniques in Pharmaco-Toxicodynamic Studies: An Analytical, Functional, Molecular and Cyto-genotoxicity Approach" sponsored by ICAR, New Delhi from 1st to 21st December, 2016.

STUDENTS' WELFARE

- During 2016-17, 108 students participated in CATC-39 NCC camp. In addition to this "B" & "C" certificate examination were successfuly cleard by 80 and 29 cadets respectively.
- Fresher's Day of B.V.Sc. & A.H., Diploma and B.Sc. Biotechnology students were organized.
- Literary and Cultural festival was organized from 8 Oct to 14 Nov 2016 in which students from COVSc and AH, COB and Diploma Programme participated.
- 4th Year B.V.Sc & A.H students went on South India Educational Tour from 17th June 2016 to 04th July 2016.
- 15th Annual Sports Meet of the University was organized during 02nd -03rd March, 2017. Mr. Gaurav Bhoiya, student of 4th Year B.V.Sc and A.H and Miss Nikita Chaudhary, student of 1st Year College of Biotechnology were adjudged as best male and female athletes of the sports meet, respectively. Slow cycling, musical chair for ladies and tug of war between teachers and students were the events of special attraction during sports meet.
- During 2016-17, students of the University actively participated and excelled in various national/inter-university competitions and events such as AGRIUNIFEST organized at RAJUVAS, Bikaner from 22nd – 25th February 2017, All India Inter Veterinary College Badminton and Table Tennis Tournament and All India Professional Quiz Competition organized by GBPUAT, Pantnagar from 23rd to 25th March 2017 and National level Inter-University Debate Competition held from 14th -15th January 2017 organized at GB Pant University of Agriculture and Technology, Pantnagar.
- Nineteen Students participated in All India Inter-Veterinary Colleges Badminton and Table Tennis

Tournament and Venkys All India Quiz Championship organized by Gobind Ballabh Pant University of Agriculture & Technology, Pantnagar from 31st March to 02nd April, 2016.

OTHER HIGHLIGHTS AND ACTIVITIES

- 6th Convocation of U.P. Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go Anusandhan Sansthan (DUVASU), Mathura was organized on 17th Nov, 2016. Hon'ble Governor of Uttar Pradesh and the Chancellor of the University, Shri Ram Naik Ji, presided over the function and Prof. Ramesh Chand Hon'ble Member of Niti Aayog, Government of India was the Chief Guest and Hon'ble Minister Animal Husbandry, Government of Uttar Pradesh Shri Ziauddin Rizvi ji was the Guest of Honor on this occasion.
- During 6th Convocation, Honoris Causa (Doctor of Science) degree was conferred upon Prof. Ramesh Chand Hon'ble Member of NITI Aayog, Government of India.
- University successfully conducted the Pre-Veterinary Test-2016 in two phases viz. Preliminary Examination and Mains Examination.
- Oath taking ceremony of Veterinary Graduates of the 2011 batch was organized on July 15, 2016 in which forty (40) graduates were administered the professional oath by Dean, College of Veterinary Science and Animals Husbandry.
- University celebrated Ambedkar Jayanti, World Veterinary Day, Independence Day, Pt. Deen Dayal Upadhyaya birthday, Gandhi Jayanti, Republic Day and Basant Panchmi with gusto and enthusiasm.

AWARDS AND HONOUR / ACHIEVEMENTS

- During 2016-17, 16 students received National Talent Scholarship from Indian Council of Agriculture Research, New Delhi.
- Prof. Satish K. Garg was elected as President STOX and was the Chief Guest at the Inaugral Function in 36th Annual Conference of Society of Toxicology (India) 2016, International Conference on New Insights & Multidisciplinary Approaches in Toxicological Studies held at Amity Institute of Environmental Toxicology, Safety and Management (AIETSM), Amity University Uttar Pradesh (AUUP) Sector-125, Noida-201313, India held from 3-5 August, 2016.
- Prof. Ajay Prakash, Dr. M.M. Farooqui, Dr. Archana Pathak, Dr. Shriprakash and Dr. Abhinov Verma received Dr. K.L. Suri Award and medal for best poster presentation in XXXI Annual convention & national symposium Hyderabad held from Dec. 21-23, 2016.
- Dr. Shanker K. Singh received Best Oral Presentation Award (2nd) in "Complementary and Alternative Medicine" session and Best Oral Presentation Award (3rd) in "Companion Animal and Infectious Diseases" session and acted as Co-Chairman of the technical session in 35th Annual Convention of Indian Society For Veterinary Medicine and National Symposium on "Innovative Techniques, Emerging Issues and Advancement in Veterinary Medicine to Meet the Challenges: Present and the Future" held at VCRI, Tirunelveli (TN) from 22-24th Feb 2017.
- Dr. Sooraj V. Nair, MVSc Scholar received Dr. R. Natrajan Young Scientist Award for Best Paper presentation during XVI Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology held at College of Veterinary Science and Animal Husbandry, Navsari Agriculture University, Navsari-396450 (Gujarat) form 23-25 November, 2016.
- Dr. Udayraj P. Nakade, Ph.D. Scholar received Best Poster Presentation Award during XVI Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology held at College of Veterinary Science and Animal Husbandry, Navsari Agriculture University, Navsari-396450 (Gujarat) form 23-25 November, 2016.

FINANCE AND BUDGET

- During 2016-17, University received Rs. 55.29 lacs and Rs. 3253.90 lacs under Plan and non-plan schemes, respectively under the salary head from Govt. of U.P.
- During the year, University received Rs. 632 lacs and 250 lacs under Plan and non-plan,

respectively in contingency head from Govt. of U.P.

- Indian Council of Agricultural Research, New Delhi granted Rs. 956.729 lacs as development grant.
- During the year, under report total receipt generated by the University was Rs. 683.75 lacs.

ESTATE ORGANIZATION

- During 2016-17, with the financial assistance from Indian Council of Agricultural Research, New Delhi, various renovation works like roof replacement of the main building of College of Veterinary Science and Animal Husbandry and Teacher's Home was undertaken. New toilets were constructed in the residence of class IV employees and certain under-graduate and Post-graduate laboratories in some of the department were renovated.

RIGHT TO INFORMATION ACT

- In compliance of the order of Govt. of Uttar Pradesh and provision of RTI Act 2005, PIO received 65 applications out of which 57 applications were cleared and rest are under consideration for disposal.

कार्यकारी सारांश

शैक्षणिक

- पशु चिकित्सा विज्ञान एवं पशुपालन महाविद्यालय, जैव प्रौद्योगिकी महाविद्यालय एवं पैरा वैटेरिनरी विज्ञान संस्थान अपने शैक्षणिक सत्र नियमित रूप से चला रहे है।
- वर्ष 2016-17 के दौरान 90 विद्यार्थियों ने बी० वी० एस० सी० एन्ड ए० एच० कोर्स में प्रवेश प्राप्त किया जिसमें 25.56 प्रतिशत छात्राऐं है। एम० वी० एस० सी० तथा पी० एच० डी० में क्रमशः 36 और 09 विद्यार्थियों ने प्रवेश प्राप्त किया। क्रमशः 38 तथा 34 विद्यार्थियों ने वैटेरिनरी फार्मेसी डिप्लोमा तथा पशुधन प्रसार डिप्लोमा कार्यक्रम में प्रवेश प्राप्त किया।
- वर्ष 2016-17 में जैव प्रोद्यौगिकी महाविद्यालय में 13 विद्यार्थियों ने बी० एस० सी० बायोटैक्नोलोजी तथा 04 विद्यार्थियों ने एम० एस० सी० बायोटैक्नोलौजी में प्रवेश प्राप्त किया।
- इसी वर्ष 40 स्नातक, 23 स्नातकोत्तर, 11 पी० एच० डी० विद्यार्थियों ने उपाधि प्राप्त की। इसी दौरान 40 तथा 38 छात्रों ने क्रमशः वेटेरिनरी फार्मेसी एवं पशुधन प्रसार में डिप्लोमा प्राप्त किया।
- टी० वी० सी० सी० सभी आधुनिक रोग निदान की सुविधाओं से सुसज्जित है तथा इसमें छोटे तथा बड़े पशुओं के लिए शल्य क्रिया हेतु कमरा, पालतू पशुओं के लिए आई० सी० यू० एक्स-रे, अल्ट्रासाउन्ड यूनिट, दन्त चिकित्सा यूनिट, शल्य अणुविक्षण यंत्र, लैपरोस्कोपिक शल्य क्रिया यूनिट, आर्थोपेडिक शल्य क्रिया यूनिट, नेत्र शल्य क्रिया यूनिट हेतु उपकरण तथा नेबुलाईजर की सुविधा उपलब्ध है।
- टी० वी० सी० सी० की रोग निदान प्रयोगशाला अर्धस्वचालित ब्लड एनालाइजर, बायोकेमिकल एनालाइजर, यूरिन एनालाइजर उपकरणों से सुसज्जित है। वर्ष 2016-17 में 2036 नमूनों का परीक्षण किया गया, जिनमें 1590 नमूने सामान्य खून जाँच, 429 नमूने बायोकेमिकल एनालिसिस, 17 नमूने मूत्र के तथा 17 नमूने दुग्ध के जाँचे गए।
- वर्ष 2016-17 के दौरान 10829 रोगी पशुओं का उपचार किया गया जिनमें से 4235 रोमन्थी पशु, 1022 छोटे रोमन्थी पशु, 719 अश्व प्रजाति के पशु, 4511 पालतू पशु तथा 342 अन्य पशु शामिल थे। इन सेवाओं से टी० वी० सी० सी० को रू० 4,04,510.00 का राजस्व प्राप्त हुआ।
- 2016-17 में टी० वी० सी० सी० की सचल पशु चिकित्सा इकाई द्वारा मथुरा तथा निकटवर्ती जिलों में ग्राम पंचायत तथा पशु चिकित्सकों के सहयोग से 07 शिविरों का आयोजन किया गया, जिसमें 475 पशुओं की चिकित्सा की गयी, इनमें 124 गौवंशीय पशु, 262 महिष वंशीय पशु तथा 89 अन्य पशु जैसे भेड़, बकरी एवं शूकर शामिल थे।
- पोल्ट्री विभाग के अनुभवात्मक प्रशिक्षण यूनिट स्थित पोल्ट्री ब्रीडिंग फार्म, लेयर फार्म तथा हेचरी द्वारा अधोस्नातक तथा स्नातक छात्रों को मुर्गी पालन एवं प्रबन्धन व अण्डे सेने सम्बन्धित विषयों का व्यवहारिक ज्ञान प्रदान करने में महत्वपूर्ण भूमिका निभाई गई। वर्ष 2016-17 में अनुभवात्मक प्रशिक्षण यूनिट द्वारा विश्वविद्यालय को 5,24,627/-रुपयों का राजस्व प्राप्त हुआ।
- पशुधन उत्पाद प्रौद्योगिकी विभाग द्वारा बी० वी० एस० सी० विद्यार्थियों को दुग्ध प्रसंस्करण एवं दुग्ध निर्मित उत्पाद तथा मीस निर्मित उत्पादों जैसे चिकिन नगेट, चिकिन पैटिज, संगठित लस्सी इत्यादि बनाने हेतु प्रशिक्षण दिया गया।
- अनुभवात्मक प्रशिक्षण योजना के अन्तर्गत, फीड मेन्यूफेक्चरिंग यूनिट द्वारा प्रथम वर्ष के 516 छात्रों को पशु आहार एवं यूरिया-शीरा की ईंटें को बनाने का प्रशिक्षण प्रदान किया गया। वर्ष 2016-17 में 11,241 क्विन्टल पशु आहार का उत्पादन किया गया।

- पुस्तकालय द्वारा विद्यार्थियों को विभिन्न शोध पत्रों के अवलोकन हेतु ऑनलाइन सेवा प्रदान की जा रही है।
- कृषि ज्ञान प्रबन्धन ईकाई (ए0 के0 एम0 यू0) द्वारा कम्प्यूटर तथा इन्टरनेट की सुविधा छात्रों एवं संकाय सदस्यों को नियमित रुप से उपलब्ध करायी जा रही है। वर्ष 2016-17 में वायरलैस इन्टरनेट की सुविधा एस0 एम0 छात्रावास को प्रदान की गई। विश्वविद्यालय की वैबसाईट को आकर्षक बनाने हेतु उसकी पुन: संरचना की गई।

अनुसंधान

- विश्वविद्यालय के पशु चिकित्सा विज्ञान एवं पशुपालन महाविद्यालय के विभिन्न विभागों में 09 बाह्य वित्त पोषित परियोजनाऐं चल रही हैं। जिसमें से 03 भारतीय कृषि अनुसंधान परिषद् द्वारा, 01 भारत सरकार के अनुदान द्वारा तथा 05 राष्ट्रीय कृषि विकास योजना एवं 01 इण्डियन हर्बस रयेसिलिटीज प्राइवेट लिमिटेड द्वारा पोषित है।
- विभिन्न विभागों में चलने वाले अनुसंधान कार्यों पर आधारित विषयों पर 09 पी0एच0डी0, 16 एम0वी0एस0सी0 एवं 04 एम0एस0सी0/एम0वी0एस0सी0 जैव प्रोद्यौगिकी के शोधप्रबंध पूर्ण किए गए।

प्रसार

- वर्ष 2016-17 में प्रसार निदेशालय ने पशु चिकित्सा विज्ञान एवं पशुपालन महाविद्यालय के सहयोग से 09 प्रशिक्षण विश्वविद्यालय के प्रांगण में, 05 पशु ज्ञान चौपाल में तथा 07 प्रशिक्षण किसानों से सीधे सम्पर्क द्वारा (गाँव) में आयोजित किए। इन प्रशिक्षण कार्यक्रमों द्वारा लगभग 584 किसान, पशु चिकित्सक, वैज्ञानिक (विषय वस्तु विशेषज्ञ) विभिन्न विश्वविद्यालयों के सहायक आचार्य एवं सेवानिवृत्त भारतीय सेना के जवान लाभान्वित हुए।
- सरसों अनुसंधान निदेशालय भरतपुर द्वारा प्रसार निदेशालय दुवासू के सहयोग से सरसों अनुसंधान की AICRP की 23वीं समीक्षा बैठक का आयोजन अगस्त 05, 2016 को किया गया।
- 'Imparting Scientific knowledge of animal hearing for better production through technology transfer to livestock owner' नामक UPCAR द्वारा पोषित इस परियोजना का संचालन निदेशालय प्रसार द्वारा किया जा रहा है।
- कृषि विज्ञान केन्द्र द्वारा कुल 115 प्रशिक्षण आयोजित किए गए जिसमें क्रमश: 2,739 किसानों ने भाग लिया।
- कृषि विज्ञान केन्द्र की मृदा विश्लेषण प्रयोगशाला में 56। मृदा नमूनों तथा 23 जल के नमूनों की जाँच की गई तथा कृषकों को आवश्यकता अनुसार उर्वरक के प्रयोग के बारे में जानकारी दी गई।

विश्वविद्यालय प्रक्षेत्र

- आई0एल0एफ0सी0 के डी.डी.डी. फार्म पर 1,96,879 लीटर दुग्ध का उत्पादन हुआ जिससे 58,94,111.00 रुपयों का राजस्व प्राप्त हुआ।
- महाविद्यालय के कुक्कुट फार्म पर विभिन्न प्रजातियों की मुर्गियाँ जैसे ब्रायलर, असील, कड़कनाथ, नेकड नेक, जापानी तीतर, टर्की, गिन्नी फॉउल, ऐमू का पालन किया जा रहा है। इनके अण्डों, चूजों तथा कुक्कुट इत्यादि की बिक्री से कुल 2,90,596.00 रुपयों का राजस्व प्राप्त हुआ।
- माधुरी कुण्ड फार्म में कुल 861.2 क्विंटल धान एवं सिल (खरीफ) का उत्पादन किया गया तथा रू. 1,965,241.00 का राजस्व अर्जित किया गया। रबी फसलों में गेहूँ, जौ, जई, बरसीम तथा सरसों की बुवाई की गई है, जिसमें से 33 एकड़ बरसीम की कटाई से अनुमानत: रु0 3,73,725.00 का राजस्व प्राप्त हुआ।

- चरागाह एवं चारा शोध अनुभाग द्वारा वर्ष 2016-17 में 1566.22 क्विंटल (अनुमानित) चारे, दाने तथा भूसे का उत्पादन किया गया, जिससे रु० 13,11,903.00 का राजस्व प्राप्त हुआ। आई. एल. एफ. सी. प्रक्षेत्र द्वारा 13998.38 क्विंटल (अनुमानित) चारे, दाने तथा भूसे का उत्पादन किया गया, जिससे रु० 24,58,883.00 (अनुमानित) का राजस्व प्राप्त हुआ।

मानव संसाधन विकास

- जैव प्रौद्योगिकी महाविद्यालय द्वारा 'जैव प्रौद्योगिकी जागरूकता' विषयक दो दिवसीय कार्यशाला का आयोजन 2-3 जुलाई 2016 को किया गया।
- एल.पी.टी. विभाग द्वारा भा०कृ०अ०प० प्रायोजित "Strategies in development of functional livestock products" विषयक दस दिवसीय प्रशिक्षण का आयोजन दिनांक 21-30 नवम्बर, 2016 को किया गया।
- भैषज्य एवं विष विज्ञान विभाग द्वारा भा०कृ०अ०प० प्रायोजित Advance Techniques in Pharmaco. Toxicodynamic Studies: An Analytical, Functional, Molecular and Cyto-genotoxicity Approach विषयक 21 दिवसीय प्रशिक्षण का आयोजन दिनांक 01-21 दिसम्बर, 2016 को किया गया।

छात्र कल्याण

- वर्ष 2016-17 में 108 विद्यार्थियों ने एन.सी.सी. के CATC-39 शिविर में भाग लिया। जिसमें से 84 छात्रों ने 'B' सर्टीफिकेट तथा 29 छात्रों ने 'C' सर्टीफिकेट हेतु परीक्षा दी। इस वर्ष 80 छात्रों ने 'B' सर्टीफिकेट तथा 26 छात्रों ने 'C' सर्टीफिकेट प्राप्त किया।
- बी० बी० एस० सी० एन्ड ए० एच०, डिप्लोमा तथा बी० एस० सी० बायोटेक्नोलोजी के विद्यार्थियों ने 'फ्रेशर्स डे' का आयोजन किया।
- साहित्यिक एवं सांस्कृतिक कार्यक्रमों का आयोजन दिनांक 08 अक्टूबर से 14 नवम्बर 2016 को हुआ, जिसमें पशु चिकित्सा विज्ञान एवं पशुपालन महाविद्यालय, जैव प्रौद्योगिकी महाविद्यालय एवं डिप्लोमा के छात्रों ने भाग लिया।
- चतुर्थ बी०वी०एस०सी एण्ड ए०एच० के छात्र दिनांक 17 जून - 04 जुलाई, 2016 तक दक्षिण भारत शैक्षणिक भ्रमण पर गये।
- 02 तथा 03 मार्च 2017 को वार्षिक खेल-कूद प्रतियोगिता आयोजित हुई जिसमें छात्र वर्ग में बी०वी०एस०सी एण्ड ए०एच० के तृतीय वर्ष के छात्र श्री गौरव ओझला तथा छात्राओं के वर्ग में सुश्री निकिता चौधरी (प्रथम वर्ष, जैव प्रौद्योगिकी महाविद्यालय) को सर्वश्रेष्ठ एथलीट चुना गया।
- दुवासु के 19 छात्र तथा छात्राओं ने 31 मार्च 2016 से 02 अप्रैल 2016 को गोविन्द वल्लभ पंत कृषि एवं प्रौद्योगिकी विश्वविद्यालय द्वारा आयोजित ऑल इण्डिया इन्टर वेटरिनरी कॉलेज बैडमिंटन एण्ड टेबल टेनिस प्रतियोगिता में भाग लिया।

अन्य झलकियाँ एवं कार्यकलाप

- विश्वविद्यालय द्वारा वर्ष 2016 की प्री वेटरिनरी परीक्षा का आयोजन सफलतापूर्वक किया गया।

  वेटेरिनरी स्नातक छात्रों का शपथ ग्रहण समारोह 15 जुलाई 2016 को आयोजित किया गया जिसमें 40 छात्रों ने शपथ ग्रहण की।
- विश्वविद्यालय का षष्ठम दीक्षांत समारोह 17 नवम्बर 2016 को आयोजित हुआ जिसकी अध्यक्षता उत्तर प्रदेश के राज्यपाल तथा विश्वविद्यालय के कुलाधिपति श्री राम नाईक जी ने की। नीति आयोग के सदस्य प्रोफेसर रमेश चन्द ने समारोह के मुख्य अतिथि तथा श्री जियाउद्दीन रिज़वी, माननीय मंत्री, पशुधन, उ०प्र० सरकार ने विशिष्ट अतिथि के रूप में उपस्थित होकर दीक्षांत समारोह की गरिमा बढ़ाई। षष्ठम दीक्षांत समारोह में प्रोफेसर रमेश चन्द को 'डाक्टर ऑफ साईंस' की मानद उपाधि से सम्मानित किया गया।

विश्वविद्यालय में अम्बेडकर जयन्ती, विश्व पशुचिकित्सा दिवस, स्वतन्त्रता दिवस, गाँधी जयन्ती, गणतन्त्र दिवस तथा बसन्त पंचमी हर्षोल्लास से मनाये गये।

पुरस्कार एवं सम्मान

- बी0वी0एस0सी एण्ड ए0एच0 के 16 छात्रों ने भारतीय कृषि अनुसंधान परिषद, नई दिल्ली द्वारा आयोजित राष्ट्रीय प्रतिभा छात्रवृत्ति प्राप्त की।
- प्रो0 सतीश कुमार वर्मा, आचार्य एवं विभागाध्यक्ष मैथज्य एवं विष विज्ञान विभाग को एमिटी विश्वविद्यालय, नोएडा में आयोजित 'सोसाईटी ऑफ टाक्सीकोलाजी' (STOX) के 36 वें वार्षिक अधिवेशन में सोसाईटी का अध्यक्ष चुना गया।
- प्रो0 अजय प्रकाश, डा0 एम.एम. फारुखी, डा0 अर्चना पाठक, डा0 की प्रकाश, डा0 अभिनव वर्मा को पशु शरीर रचना विज्ञान के 31वें वार्षिक अधिवेशन में उत्कृष्ट पोस्टर प्रदर्शन हेतु डा0 के.एल. सूरी पुरस्कार से सम्मानित किया गया।
- डा0 शंकर कुमार सिंह को भारतीय पशु औषधि विज्ञान सोसाईटी (ISVM) के 35वें वार्षिक अधिवेशन में शोध पत्र प्रस्तुत करने पर पुरस्कृत किया गया।
- मैथज्य एवं विष विज्ञान विभाग के एम.वी.एस.सी छात्र डा0 सूरज वी0 नायर को ISVPT के 16वें वार्षिक सम्मेलन में डा0 आर. नटराजन युवा वैज्ञानिक पुरस्कार प्रदान किया गया।
- मैथज्य एवं विष विज्ञान विभाग के पी.एच.डी. छात्र डा0 उदयराज पी0 नकाडे को ISVPT के 16वें वार्षिक सम्मेलन में उत्कृष्ट पोस्टर प्रदर्शन पुरस्कार प्रदान किया गया।

निर्माण एवं अनुरक्षण

- वर्ष 2016-17 में भारतीय कृषि अनुसंधान परिषद, नई दिल्ली द्वारा प्रदान वित्तीय सहायता से अनेक पुनरोद्धार कार्य जैसे पशुचिकित्सा विज्ञान एवं पशुपालन महाविद्यालय के मुख्य भवन टीचर्स होम, स्नातक एवं स्नातकोत्तर प्रयोगशालाओं का अनुरक्षण कार्य कराया।

वित्त एवं बजट

- वर्ष 2016-17 में विश्वविद्यालय को योजनागत मद में रू. 55.29 लाख एवं गैर योजनागत मद में रू. 3253.90 लाख वेतन हेतु बजट प्राप्त हुआ।
- इस वर्ष विश्वविद्यालय को क्रमशः रू. 632 लाख एवं रू. 250 लाख योजनागत मद एवं गैर योजनागत मद के अन्तर्गत कन्टीजेन्सी हेतु बजट प्राप्त हुआ।
- भारतीय कृषि अनुसंधान परिषद, नई दिल्ली द्वारा रु. 956.729 लाख की वित्तीय सहायता विकास एवं सुदृढ़ीकरण के लिए प्रदान की गई।
- इस वर्ष विश्वविद्यालय को कुल रु. 683.75 लाख राजस्व की प्राप्ति हुई।

जनसूचना अधिकार

- उत्तर प्रदेश सरकार के निर्देशों तथा आर0 टी0 आई0 एक्ट 2005 के अनुपालन के क्रम में 65 प्रार्थना पत्र प्राप्त हुए, जिनमें से 57 का निस्तारण किया गया तथा अन्य विचाराधीन हैं।

MISSION

University was established by U.P. Govt. in 2001 with the basic objective of imparting quality education in veterinary and allied subjects, undertake need-based and basic research, integrate education and research and offer efficient extension services for the benefit of farmers and livestock owners.

VISION

- Produce competent and skilled human resource in the field of animal health and production and allied sectors who are socially sensitive and responsible professionals.
- Undertake region-based, need-based and basic research for improving animal health and productivity adopting modern technology.
- Validate indigenous traditional knowledge (ITK) on scientific basis.
- Provide efficient extension services at the doorstep of poor and marginal farmers and livestock owners and motivate them to adopt animal husbandry, poultry, fishery and related vocations as an engine of economic growth and social empowerment.
- Social empowerment of women to become "knowledgeable stake holders" and giving them economic identity.
- Interface Industry and stakeholders in the newer perspectives of open global market.
- Ensure enhanced production from rural and urban livestock through effective disease surveillance and diagnosis, health care and vaccination programmes.
- Empower rural youth for self-employment adopting integrated farming practices.

MANDATE

University is the premier Veterinary and Animal Science Institution and is known for quality education and research on various aspects of animal health including disease diagnosis and providing advisory and extension services through scientific knowledge and expertise for :

- Strengthening hands on training to students with special emphasis on capacity building.
- Providing opportunity to faculty and staff to improve their scientific and working capacity and capability to make the University a vibrant organization.
- Undertake need-based, applied and basic research.
- Bringing livestock owners, poor and marginal farmers and rural women to the Center of Technology Information System and catalyze them for continuous improvement in production and productivity of their livestock and economy.
- Collaborate with State Agriculture and Animal Husbandry functionaries, SAU's, Indian Council of Agricultural Research Institutes related to animal health and production, Livestock Industry and NGO's in an attempt to develop resurgent, sustainable, profit oriented market based production system for livestock, poultry, fishery and allied sectors.

CHALLENGES

- Concept of integrated farming which includes agriculture, livestock, poultry and fishery has been recognized as "high power engine" for sustainable agricultural and rural economy. Therefore, to translate the idea into reality, it is imperative:
- To produce Veterinarians and other technocrats related to animal health and allied sectors who become "Job providers" not the "Job seekers".
- To substantially improve the faculty strength to a level which commensurates with the minimum requirements as per the specifications of Veterinary Council of India for under-graduate teaching.
- To improve laboratory facilities for imparting quality education including training of post-graduate and doctoral degree programme students in an attempt to make them capable enough to meet the current and emerging challenges.
- To re-establish and achieve at par research excellence through optimized internal and external research fund support from the State and Central Govt. agencies.
- To muster sufficient financial support in conformity to what a Veterinary University needs under resurgent economy and global education and trade scenario.
- Challenges enumerated above have to be faced through concerted efforts of University Academia with full support of the Government of U.P. and ICAR.

UNIVERSITY TARGETS

- Revamp teaching programmes and "Teaching Methodologies", set up e-learning class-rooms, introduce net-based "virtual class-rooms" and promote e-teaching and learning.
- Set up "State of the Art" Instructional Livestock Farms, Demonstration Units, Veterinary Clinical Complex, Disease Investigation and Research Laboratories.
- To achieve at least 15 per cent increase per annum in the number of University graduate and postgraduate students qualifying for national competitive examinations.
- To produce competent and skilled clinicians, entrepreneurs and livestock business managers and team leaders.
- Faculty up-gradation, filling vacant teaching posts and creating faculty positions in newer and upcoming faculties.
- Encourage faculty members to garner more financial assistance from outside agencies through externally funded research projects and support atleast one University funded research project in each department to give impetus to research.
- As per University Act, to obtain state support for generating trained and competent human resource in fisheries, biotechnology, livestock products technology and industry and business management through designated colleges/faculties.
- To augment University financial resources and refurbish infrastructure.

INTRODUCTION

Govt. of Uttar Pradesh established U.P. Pandit Deen Dayal Upadhayaya Pashu Chikitsa Vigyan Vishvavidayalaya Evam Go Anusandhan Sansthan, Mathura, first of its kind in the state and fourth in the country, vide Act 27 of 2001 on 25.10.2001 with erstwhile U.P. College of Veterinary Science and A.H., Mathura as its main constituent college with all its movable and immovable assets including land and buildings of Veterinary College, residential complex, hostels, dairy farm and agriculture land. University is having 782.34 acres prime land in Mathura, and agriculture farm of around 1400 acres at Madhurikund, about 25 Km from the main campus

University offices were shifted to the newly constructed Administrative Block in the New campus in 2009 after the building was inaugurated by Hon'ble Governor of Uttar Pradesh, Shri T.V. Rajeshwar, on Feb 24, 2009.

Government permitted the University to start College of Biotechnology under self-finance scheme. Accordingly, University started College of Biotechnology from the academic session 2010-11. During 2009, in an endeavor to augment research and extension activities, Directorate of Research and Directorate of Extension were also created to coordinate research and extension activities respectively. The Act of University envisages opening of three more colleges, namely- College of Fisheries, College of Livestock Products Technology and College of Animal Industries and Business Management. .

ORGANIZATIONAL SET-UP

The organizational set-up of the University (Flow Chart 1) is in almost conformity with other state agricultural, veterinary and academic universities and various bodies and authorities of the University exercise their powers at various levels to coordinate and regulate administration, education, research and extension activities.

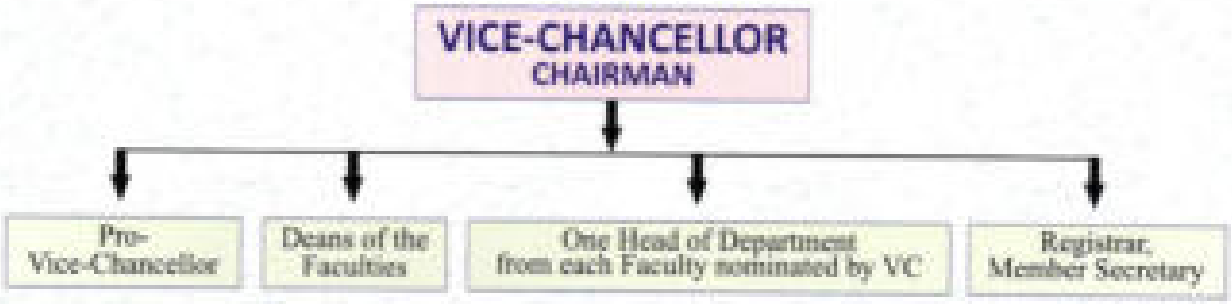
A. AUTHORITIES OF THE UNIVERSITY

1. Executive Council

Executive Council (EC) of the University is the main executive body empowered to monitor, supervise and control the affairs of University. Vice Chancellor is the Chairman of EC and other members of the EC are Principal Secretary Animal Husbandry and Fisheries, Principal Secretary Finance, Principal Secretary Higher Education, Govt. of U.P., Director of Animal Husbandry U.P., one reputed Industrialist nominated by Govt. of U.P., two eminent Veterinarians nominated by the Chancellor on the recommendation of UP Govt., two livestock farmers/breeders nominated by U.P. Govt. and one social worker nominated by Govt. of U.P.

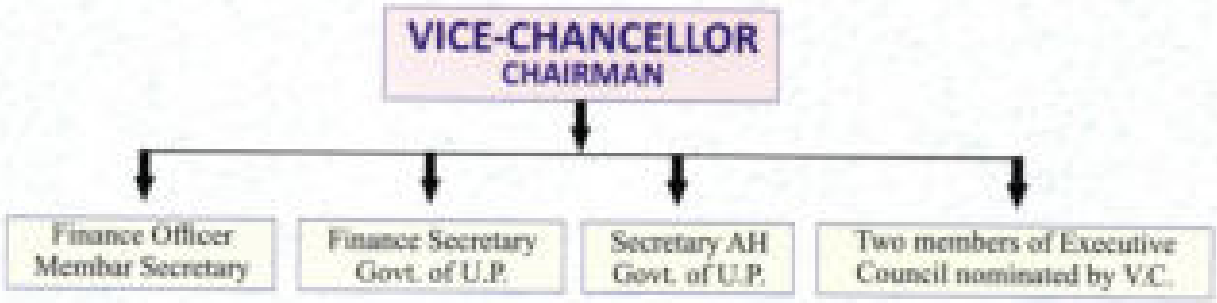
2. Academic Council

Academic Council of the University is the principal academic body which controls and frames all the academic regulations and is responsible for maintenance of standards of instruction, education and examination in the University. The flow chart of Academic Council composition is presented below:



3. Finance Committee

Finance Committee of the University advises the Executive Council on matters relating to administration of property and funds of the University. The flow chart of Finance Committee composition is presented below:



4. Examination Committee

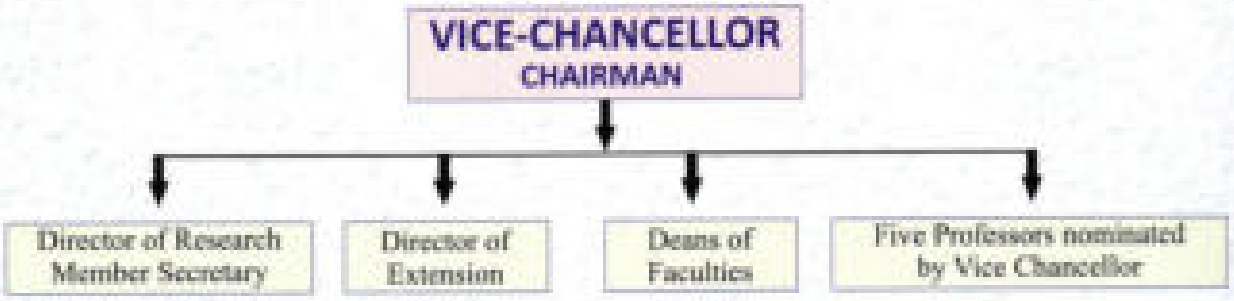
Examination Committee of the University coordinates and supervises all the examinations of the University including Pre Veterinary Test (PVT), appointment of examiners, tabulation and moderation of results and make recommendations to the Academic Council for improvement in examination system. The flow chart of the composition of the Examination Committee is presented below:

5. Board of Faculty

Board of Faculty is for framing the curricula for undergraduate and post graduate programmes and to make recommendations to the Academic Council for the establishment of new departments, abolition / subdivision / or otherwise reconstitution of the existing departments. Dean of the Faculty is the Ex- Officio Chairman of Board of Faculty, and Faculty Secretary is elected on the basis of consensus amongst the faculty members. All Professors, Associate Professors and Assistant Professors of the faculty are the members of Board of Faculty.

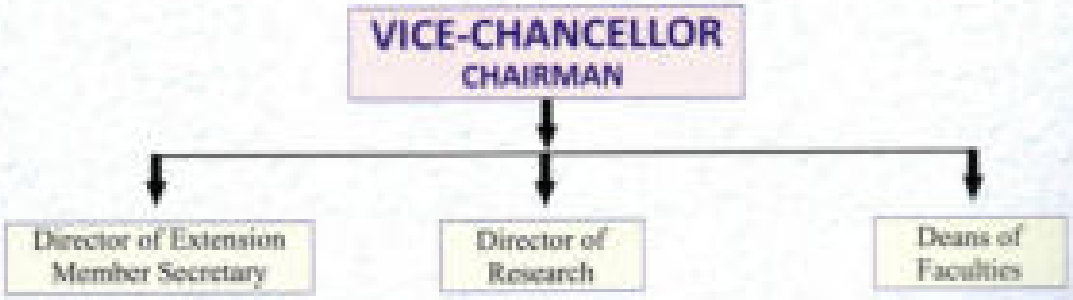
6. Research Advisory Committee

Research Advisory Committee is the policy making body on research activities of the University with Vice Chancellor as its Chairman and Director of Research as the Member Secretary. The set up of this Committee is shown below:



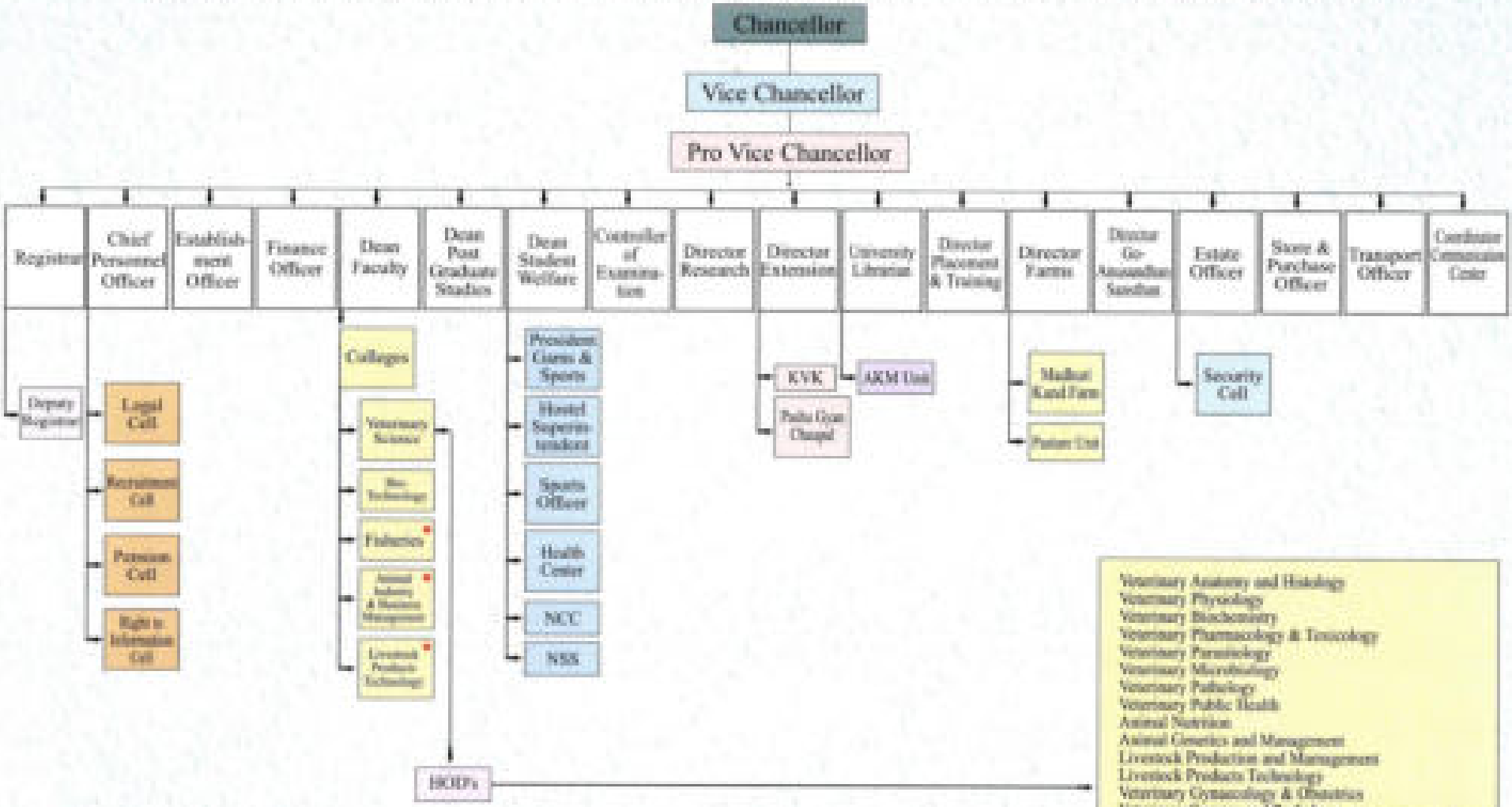
7. Extension Advisory Committee

The Extension Advisory Committee is the policy making body on extension activities of the University with Vice Chancellor as its Chairman and Director of Extension as the Member Secretary. The set-up of this committee is as shown here:



Organizational Structure

U.P. Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyala Evan Go-Anusandhan Sansthan (DUVASU), Mathura



* Proposed

B. Organizational Meetings

I. Executive Council

S.No.	Meeting No.	Date	Venue
1	26th	08-07-2016	DUVASU, Mathura
2	27th	16-11-2016	DUVASU, Mathura
3	28th	08-03-2017	DUVASU, Mathura

II. Academic Council

S.No.	Meeting No.	Date	Venue
1	57th	21-05-2016	DUVASU, Mathura
2	58th	05-07-2016	DUVASU, Mathura
3	59th	22-08-2016	DUVASU, Mathura
4	60th	07-11-2016	DUVASU, Mathura
5	61st	16-01-2016	DUVASU, Mathura

C. Officers of the University

S.No.	Designation /Post	Name of Officer	Date	
			From	To
1	Chancellor	Hon'ble Shri Ram Naik Ji, Governor of U.P.		
2	Vice-Chancellor	Prof. K.M.L. Pathak	March 03, 2016	Continuing
3	Registrar	Sh. S.K. Sharma Prof. P.K. Shukla	June 11, 2014 July 05, 2016	July 05, 2016 Continuing
4	Deputy Registrar	Dr. Brijesh Yadav	June 21, 2014	Continuing
5	Finance Officer	Sh. M.K. Jain	June 22, 2015	Continuing
6	Controller of Examination	Prof. Daya Shanker	Aug. 29, 2012	Continuing
7	Dean, CVSc. & A.H.	Prof. Satish K. Garg	June 30, 2009	Continuing
8	Dean, College of Biotechnology	Prof. Rajesh Nigam	Feb. 05, 2013	Continuing
9	Dean PGS	Prof. P.K. Shukla	Jan. 15, 2013	Continuing
10	Dean Student Welfare	Dr. A.K. Madan Dr. M.M. Farooqui	Nov. 20, 2012 Dec. 05, 2016	Dec. 05, 2016 Continuing
11	Director of Clinics	Prof. R.P. Pandey	Sept 18, 2010	Continuing
12	Director of Research	Prof. Atul Saxena	Nov. 24, 2009	Continuing
13	Director of Extension	Prof. Sarvajeet Yadav	Nov. 24, 2009	Continuing
14	Director Gau-Anusandhan	Prof. S.K. Yadav	June 16, 2015	Continuing
15	Director of Farms	Prof. Ajay Prakash	May 20, 2015	Continuing
16	University Librarian	Dr. Udit Jain Dr. Sanjay Purohit	May 21, 2015 Nov. 26, 2016	Nov 26, 2016 Continuing

TEACHING

Presently, academic programmes are running in the following two colleges of the University:

1. College of Veterinary Science and Animal Husbandry
2. College of Biotechnology

A. COLLEGE OF VETERINARY SCIENCE AND ANIMAL HUSBANDRY

College of Veterinary Science and Animal Husbandry was established in 1947 with the aim to generate trained human resource as qualified veterinarians and address veterinary health and animal husbandry issues in the state, undertake research and ensure the extension services. Later in 2001, it became the main constituent college of the Veterinary University. The College is running three degree programmes; namely Bachelor of Veterinary Science and Animal Husbandry (B.V.Sc. & A.H. as per VCI regulation 2008), Master of Veterinary Science (M.V.Sc.) in 16 Disciplines and Doctor of philosophy (Ph.D) in 15 disciplines as per ICAR recommendations for higher agricultural education. The strength of teaching faculty of the college during 2016-17 was 82. All the faculty members were involved in teaching, research and extension activities of the College. Besides this, faculty members of the College also shared the administrative responsibilities of University activities and affairs. They were also actively involved as resource persons for the post graduate programme of College of Biotechnology. College is also running two diploma programmes of two years duration each, namely- Diploma in Veterinary Pharmacy (DVP) and Diploma in Livestock Extension (DLE).

Admissions of students during 2016-17

Academic programme		Male	Female	Total Students Admitted
B.V.Sc. & A.H.		67	23	90
M.V.Sc.		28	08	36
Ph.D		07	02	09
Diploma Courses	Diploma in Livestock Extension	30	04	34
	Diploma in Veterinary Pharmacy	27	11	38

B. COLLEGE OF BIOTECHNOLOGY

College of Biotechnology is running four academic programmes, namely B.Sc.-Biotechnology, B.Sc. Industrial Microbiology, M.Sc. Biotechnology and Ph.D. Biotechnology. Faculty members have been appointed on contractual basis for teaching of undergraduate courses, whereas postgraduate teaching programme is being looked after by the faculty of College of Veterinary Science and Animal Husbandry and scientists of ICAR-CIRG, Makhdoom, Farah, Mathura.

A well equipped tissue culture lab has been established in the College during FY 2016-17 to strengthen the research capabilities of the College.

To streamline and strengthen undergraduate teaching, well illustrated practical manuals have been prepared for B.Sc. students.

The College organised an exhibition and workshop on "Biotechnology Awareness" on 2nd and 3rd July, 2016.

Admissions of students during 2016-17			
Degree programme	Male	Female	Total Students Admitted
B.Sc. Biotech	08	05	13
M.Sc. Biotech	02	02	04

C. ACTIVITIES OF COLLEGE OF VETERINARY SCIENCE AND ANIMAL HUSBANDRY

1. Teaching Veterinary Clinical Complex (TVCC)

TVCC, the erstwhile Kothari veterinary hospital, is multi-specialty veterinary clinic. It is well equipped with the modern facilities and has operation theaters for large and small animals, radiology unit, ICU for pets, indoor unit for pets and large animals with loading and unloading platform facility, Colour Doppler and laparaoscopic facilities, diagnostic laboratory, animal dentistry unit, ophthalmology unit and also renders ambulatory services. It is the center for providing hands on training to students of B.V.Sc. & A.H., M.V.Sc. and Ph.D. degree programmes for diagnosis of diseases and treatment of animals. Students are well exposed to a variety of clinical cases under the guidance and supervision of learned faculty members. TVCC also actively participated in celebration of World Veterinary Day, wherein free antirabies vaccine was provided to pets. During FY 2016 - 17, total 10975 clinical cases were treated in TVCC. Total revenue generated during the year was Rs. 404510.

1. Diagnostic Laboratory

Disease diagnostic laboratory in the Clinical Complex is having facilities for diagnosis of diseases.Laboratory also serves as an important unit for training of undergraduate students and is equipped with semi-automatic blood and biochemical analyzers, urine analyzer, electrolyte analyzer, blood auto-analyzer etc. Samples requiring microbiological, toxicological and histopathological examinations were sent to the concerned departments. During 2016-17, 2036 biological samples (blood, urine, milk, faeces *etc*) were processed in diagnostic laboratory. Based on the laboratory test reports, animals were suitably treated.

2. Ambulatory Services and Clinical Camps

Emergency clinical services were provided round the clock by undergraduate and postgraduate students under the supervision of teachers from clinical departments including those on on-call duty during late night hours. For the farmers and animals owners coming from distant places, facility for their stay is also available.

Faculty members and post graduate students provided clinical services to 838 animals at farmer's doorstep in 10 clinical camps organized in different villages of Mathura district.

D. HANDS ON TRAINING OF STUDENTS UNDER EXPERIENTIAL LEARNING PROGRAMME

1. Poultry Production and Management

The breeder farm, layer farm and hatchery established under Experiantial Learning Programme,

served as rich source for undergraduate, postgraduate and Ph.D students teaching and also to train them on the various activities in these subunits. These subunits also served as models for "Internship Students" to train them on different farm activities pertaining to feeding, watering and management. Further, they were also imparted hands on training on rearing of Chabro birds and layers in the sub units of ELU during the internship training. In addition, the students were also trained on the hatchery operations. The sub units have also been used to cater the training needs of the army persons during their training courses on poultry conducted by Department of Extension. The resources of ELU *viz.* dead birds and embryonated eggs of different stages of development were used to cater the educational and research needs of students and staff of Anatomy, Pathology, Biotechnology and Microbiology departments.

'Entrepreneurial training on poultry production' was conducted for B.V.Sc. & A.H. 2nd Year students from 24/08/16 to 30/09/16. 26 batches of hatches and 19,050 day old chicks were obtained during this period. 2nd year, 3rd Year and Internship students of B.V.Sc. & A.H. and P.G students of Poultry science department were trained on hatchery management during this period. Exposure visits of students and farmers and visits of dignitaries from various parts of the country from time to time were major altration of the on going activities under ELU unit apart from training of students.

2. Milk and Meat Processing Unit

The department is running a Revolving Project on "Processing of milk, meat and eggs for value added products". The under-graduate students of 3rd Professional B.V.Sc. & A.H. and post-graduate students of the Department are imparted practical training for preparation of different milk and meat products which are made available to employees of the University at nominal rates approved by the competent authority of the University.

3. Feed Production and Processing

Experiential Learning Programme on "Feed Production and Processing" was sanctioned during 2010-11 by ICAR, New Delhi. Under this project, a total of Rs 55.6 lacs were sanctioned. A feed processing unit and Urea molasses mineral block unit were installed. Since the inception of this feed processing unit, a total of 114247 quintal concentrate feed of about Rs 2.56 crore values has been prepared from July 2012-March 2017 and more than 570 students has been given hands on training to formulate compounded feed as per the nutrient requirement of livestock. Since the installation of unit, University has not procured compounded feed for its farm animals from outside. Feed produced from this unit is also available to farmers and goshala during Kisan melas and farmers training. Urea molasses mineral block unit is for preparing UMMB which are good source of mineral and readily soluble carbohydrates and nitrogen to ruminants during lean period. Practical training of students makes them self reliant and it can serve as microenterprise for student to starts their ventures after B.V.Sc. & A.H. Experiential learning on feed production and processing is very successful asset with University. Unit also prepared area specific mineral mixture (DUMIN-AS) about 60 quintal/yr and provided to farmers on nominal cost.

RESEARCH

A. ONGOING EXTRAMURAL PROJECTS

S. No	Name of the Project	Name of PI & Co-PI	Funding Agency	Sanctioned Cost (Rs in lacs)
1	Conservation and genetic improvement of Muzaffarnagari sheep for multiplication of superior germplasm	Dr Deepak Sharma Dr Madhu Tiwari	DADF, Ministry of Agriculture and Farmers Welfare, GOI	79.66
2	Outreach programme on Ethno-Veterinary Medicine " Pharmacological studies and development of a poly herbal formulation for reproductive disorders of animals"	Prof. S.K.Garg Dr. Soumen Choudhury Dr. Ashok Kumar (CIRG)	ICAR	80.00
3	Outreach programme on Zoonotic diseases – Verocyto toxic E.coli	Dr. Udit Jain Dr. Barkha Sharma	ICAR	73.04
4	AICRP for epidemiological studies on FMD	Dr. Amit Kumar	ICAR	288.00
5	FMD Control Programme	Dr. Amit Kumar	ICAR	421.00
6	Imparting scientific knowledge of animal rearing for better production through technology transfer to livestock owners.	Prof. Sarvjeet Yadav Dr. D.N. Singh Dr. Shanker Singh Dr. Brijesh Yadav Dr. Anuj Kumar	UPCAR	14.814
7	All India network programme on diagnostic imaging and management of surgical conditions in animals(DIMSCA)	Dr. Vivek Malik Dr. Sanjay Purohit Dr. Gulshan Kumar	ICAR	288.00
8	Integrated indigenous cattle center for conservation and improvement of indigenous milch breeds for cow	Prof. Sharad Kumar Yadav Prof. Atul Saxena Prof. R.P. Pandey Prof. Rajesh Nigam Prof. Vikas Pathak Dr. Vinod Kumar Dr. Rajneesh Sirohi Dr. Deepak Sharma Dr. S.P. Singh Dr. Sanjeev Kr. Singh	DADF, Ministry of Agriculture and Farmers Welfare, GOI	421.00

S. No	Name of the Project	Name of PI & Co-PI	Funding Agency	Sanctioned Cost (Rs in lacs)
9	Effect of supplementing herbal digestive stimulant with probiotics on *in vitro* rumen fermentation and performance of growing indigenous heifers.	Dr. Debashis Roy Dr. Vinod Kumar Dr. Raju Kushwaha Dr. Ajay Pratap Singh	Indian Herbs Specialities Pvt Ltd	4. 24
10	AICRP on Fodder seed production	Dr. Brijmohan Dr. Brijesh Upadhyay	ICAR	Non-Funding Center
11	AICRP on nutritional and physiological approaches for enhancing reproductive performance in cattle and buffalo.	Prof. Atul Saxena Dr. Shalini Vaswani Dr. Dilip Swain	ICAR	Non-Funding Center

B. NEWLY SANCTIONED EXTRAMURAL PROJECTS

S. No	Name of the Project	Name of PI & Co-PI	Funding Agency	Sanctioned Cost (Rs in lacs)
1	Entreprencurial promotion by preparation of specimens from fallen animals.	Dr. Archana Pathak	RKVY (SLSC Approved)	67.80
2	Propagation of insemination techniques in goats and establishment of semen bank for enhanced productivity and socio economic upliftment in state of U. P.	Dr. Mukul Anand	RKVY (SLSC Approved)	306.50
3	Demonstration Unit for Silage Making and Popularization of Low cost Silage Technology for Year Round Fodder Availability for Small-Scale Farmers.	Dr. Shalini Vasvani	RKVY (SLSC Approved)	89.62
4	Establishment of environment controlled chamber and calorimetric unit to enhance productive of livestock in the scenario of climate change inU.P.	Dr. Brijesh Yadav	RKVY (SLSC Approved)	252.50
5	Establishment of modernized goat farm for strengthening goat husbandry practices in U.P.	Dr. Mukul Anand	RKVY (SLSC Approved)	440.05

RESEARCH

C. COMPLETED PROJECTS

S. No	Name of the Project	Name of PI & Co-PI	Funding Agency	Sanctioned Cost (Rs in lacs)
1.	Molecular basis of host immune response in mastatic dairy cows of different production potential, parity and lactation an identification of suitable markers for early diagnosis of subclinical mastitis and development of therapeutics for mastitis.	Dr. Dilip Swain	University funded	4.92
2.	Association between polymorphism of solute carrier (SLC 27 A1) gene with milk production trait in Sahiwal and Hariana cattle	Dr. Madhu Tiwari	University Funded	1.45
3.	Modulation of host innate and adaptive immune system effecting production in Sahiwal and Hariana cattle in changing climate scenario.	Dr. Jitender Kumar	University Funded	2.97
4.	Effect of supplementation of inorganic and organic form of copper on growth performance nutrient urilization and blood parameters in growing cattle .	Dr. Shalini Vaswani	University Funded	1.00
5.	Effect of different sources of chromium on growth performance, nutrient utilization and blood biochemical in growing cattle heifers.	Dr. Debashis Roy	University Funded	1.00
6.	Assessment of apoptosis and capacitation like changes in the cryopreserved sperms of cattle and buffalo.	Dr. Vijay Singh	University Funded	1.00
7.	Hematology of the Muzzafarnagri sheep.	Dr. Archana Pathak	University Funded	0.50
8.	Molecular characterization and phylogenetic analysis of different isolates of trypanosoemes in and around Mathura.	Dr. Vikrant Sudan	University Funded	1.75
9.	Effect of different season on biomarkers of environmental stress, immunity and endocrine variables in indigenous dairy cattle (Bos indicus).	Dr. Jitendra Kumar	University Funded	3.00

S. No	Name of the Project	Name of PI & Co-PI	Funding Agency	Sanctioned Cost (Rs in lacs)
10.	Cryoprotective effect of low-density lipoproteins (LDL) in extenders on post thaw semen quality in pure breed Hariana bull.	Dr. Mukul Anand	University Funded	1.00
11.	Deciphering the thermal stress associated deprotamination and DNA compaction in Bull Sperm.	Dr. Dilip Swain	University Funded	2.00
12.	Association of bovine leptin genes polymorphism with production and reproduction traits in primiparous dairy cows.	Dr. Vijay Pandey	University Funded	1.50
13.	Isolation, purification and characterization of antimicrobial peptides of gaumutra (cow urine) in indigenous and crossbred cows.	Prof. Rajesh Nigam Dr. Ajay Pratap	ICAR	30.00

ONGOING EXTRAMURAL PROJECTS

Project 1: Conservation and genetic improvement of Muzaffarnagari sheep for multiplication of superior germplasm.

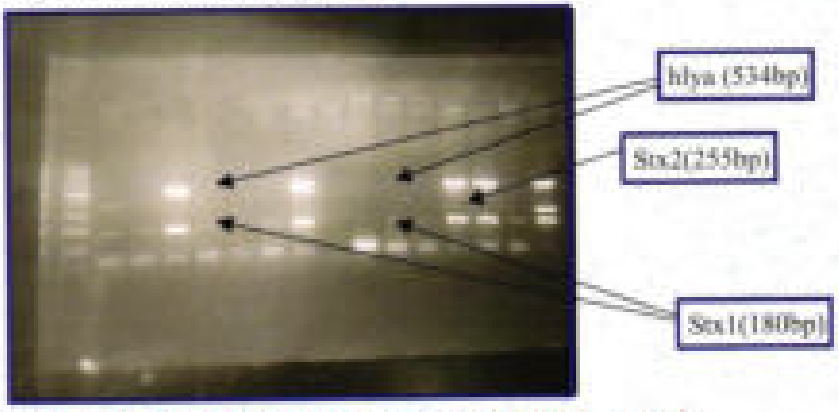
1. The animals are being reared under proper managemental practices in semi-intensive system.
2. Muzzafarnagari lambs maintained as nucleus herd at ILFC are evaluated at various growth stages like, at birth, 3, 6, 9 and 12 months age. The average body weights at different growth stage have been recorded in 2016 were 3.46±0.07, 15.87±0.08, 21.58±1.74, 23.17±0.23 and 30.45±0.29 kg respectively.
3. The mortality recorded in the year 2016-17 was 2%, which was lower compare to previous year.
4. Effort is being undertaken to improve the twinning rate in successive years through selective breeding and proper screening of breeding rams responsible for multiple births. The twinning rates in 2016-17 was found as 26% which was higher as compare to previous year (15%).
5. Till date 159 lambs (males and females) were obtained which have led to more than 400% increase in the total nucleus flock size (206).

Project 2: Out-reach programme on Ethnoveterinary Medicine: Pharmacological studies and development of polyherbal formulation for reproductive disorders in animals.

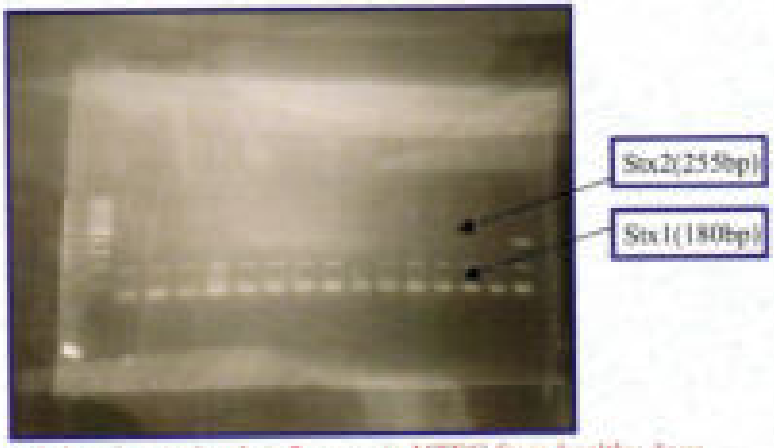
1. Phytochemical analysis of the methanolic extract of Eucalyptus robusta leaves using UP-LC and HPLC assay techniques revealed the presence of 18 different marker compounds; out of which betulinic acid was found to be present in highest concentration, followed by ellagic acid, gallic acid, shikimic acid and quinic acid. But 2,5-Dihydroxybenzoic acid and polydatin were found to be present but below the detection limits.
2. Phytochemical analysis of the methanolic extract of Polyalthia longifolia leaves using UP-LC and HPLC assay techniques revealed the presence of 17 different marker compounds; out of which quinic acid was found to be present in highest concentration, followed by shikimic acid, ellagic acid and betulinic acid. But 2,5-Dihydroxybenzoic acid, gallocatechin and polydatin were found to be present but below the detection limits.
3. Polyherbal formulation "Pyodermacare-G" was found to be very effective against generalized demodicosis as well as bacterial and fungal pyoderma and canines.
4. Polyherbal formulation "Pyodermacare-G" has promising antibacterial, antifungal, antiviral and immune-modulatory potential.
5. Possible target(s)/mechanism of action of methanolic extract of Polyalthia longifolia leaves against paramyxoviruses, namely peste des petits ruminants virus (PPRV) and Newcastle disease virus (NDV) was studied. At noncytotoxic concentration, the extract was found to inhibit the replication of PPRV and NDV at the level of viral entry and budding, whereas other steps of viral life cycle such as attachment and RNA synthesis remained unaffected.

Project 3: Outreach Programme on Zoonotic Diseases: (a) Prevalence of verotoxic E. Coli (VTEC) in man, animals, animal products (milk, meat and their products) and environmental sources (water, soil, manure) and (b) sero-prevalence and risk factors associated with brucellosis in bovines in certain areas of Uttar Pradesh.

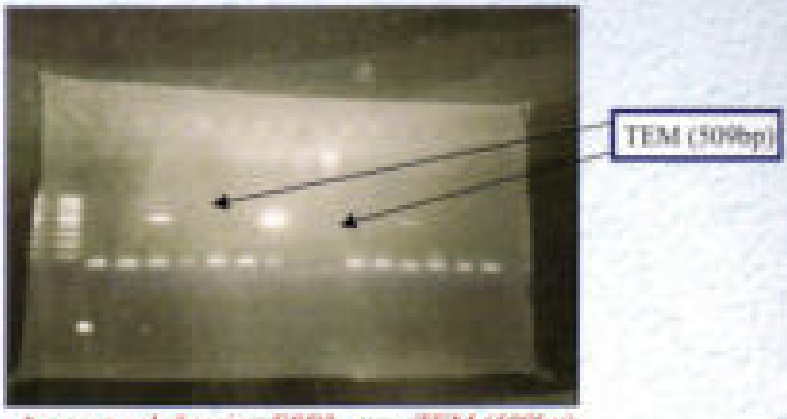
1. During the period under report, 964 samples of these. coli was isolated from 483 (50.10%) samples and 158 isolates (16.39%) were found positive for VT genes. A total of 138 VTEC strains were studies for antimicrobial activity. The most sensitive drugs for VTEC isolates were found as Imepenam with 92.75% followed by Chloramphenicol 73.18%, Streptomycin 34.05%, Amikacin 26.08% and Trimethoprim 25.36%. The Most Resistant drugs for VTEC isolates were found Enrofloxacin, Ofloxacin, and Ampicillin / Sulbactum and Clindamicin with 100%. MDR index % of all 138 VTEC strains were found >20%.
2. In addition, sero-prevalence and risk factors associated with brucellosis in bovines in certain areas of Uttar Pradesh which showed overall 12.29 (38/309) percent positivity by I-ELISA in serum samples collected from cattle and buffalo. Overall percent positivity of serum samples of humans collected from Paravets, Veterinarians and pathology labs, Mathura by I-ELISA Test was 17.46 (22/126)
3. Determination of risk factor of Brucellosis showed prevalence of brucellosis in buffalo (27.41%) much higher to cattle (8.50%). Percent positivity of brucellosis in female's buffaloes (34.69%) was found much higher in comparison to the female cows (9.70%). Age wise prevalence was much higher in age group of >6 years in cows (42.85%) in comparison to 2 to 6 years in cattle (21.17%) and 4 months - 2 years (1.09%). Percent prevalence of brucellosis was in 2 years-6 years of Buffalo was 27.41%. Percent prevalence of brucellosis was much higher in indigenous breeds of cows (9.45%) in comparison to cross breeds (0%). Gir breed of cows was found highly positive (55.17%) in comparison to Sahiwal (3.12%) and Haryana breeds (0%) and indigenous non-descript (21.42%). Brucellosis was more prevalent in Gaushalas (37.73%) in comparison to Kamdhenu dairies (25.71%).



Agarose gel showing stx1, stx2 and hlyA genes in VTEC from cattle,



Agarose gel showing stx1and stx2 genes in VTEC from healthy dogs



Agarose gel showing ESBL gene-TEM (509bp)

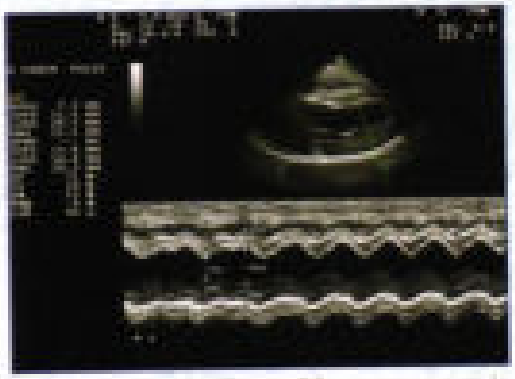
Project 4: All India Coordinated Research Project for Epidemiological studies on Foot and Mouth disease

1. During the year 2016-17 RRC on FMD, Mathura and AICRP on FMD received a total of 15419 and 15220 Pre and Post vaccination sera samples.
2. Simultaneously a total of 9040 random sera samples were also collected from 52 districts of UP. These included 4322 and 4718 sera samples of cattle and buffalo, respectively.
3. These were tested through DIVA ELISA and the seropositivity in DIVA was recorded 16.3% (706) and 15.3% (721) with overall DIVA seropositivity of 15.8%.
4. An outbreak due to serotype Type 'O' was also reported in pig.

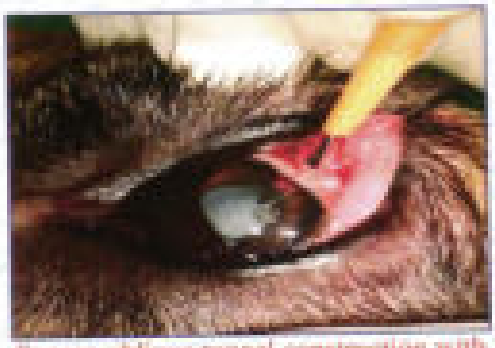
Project 5: All India Network Programme on Diagnostic Imaging and Management of Surgical Conditions in Animals (AINP-DIMSCA).

1. Development of flexible endoscopy unit for large as well as small animals and it's clinical application
2. Standardization and clinical application of "*small incision cataract surgery (SICS)*" along with intraocular lens implantation in canines.
3. Standardization and clinical application of echocardiograhic techniques including color Doppler and establishment of normal echo-cardiographic indices for healthy Indian Mongrel dogs
4. Standardization and clinical application of ocular sonography in different types of oculopathies and establishment of normal intraocular echo-biometric indices in dogs, horses, cattle and buffaloes.
5. Evaluation of different techniques and implants for management of supra-condylar fractures of femur in canines.
6. Designing and development of C-Arm compatible table, modified Rush pin inserter, rehabilitation cart for dogs and cattle.
7. A six days training programme on "Diagnostic imaging of surgical conditions in animals" for veterinary practitioners was also organized.

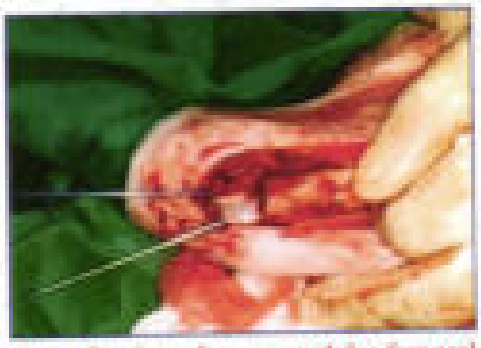
Endoscopic view of gastric foreign body



M-mode echocardiographic measurements



Supero-oblique tunnel construction with crescent knife (SICS)



Cross fixation of supracondylar femoral fracture with titanium k-wires

Project 6: Effect of supplementing herbal digestive stimulant with probiotics on *in vivo* rumen fermentation and performance of growing indigenous heifers.

1. The present study showed pH in normal range (6-7) in treatment groups indicating no adverse effect of treatment over control.
2. Methylene blue reduction time was highly reduced (P=0.01) in all the dose levels of both bolus and powder of Rumaxon pro than control which indicate that adding Rumaxon pro significantly increases number of functional anaerobic bacteria that may result into better digestibility of feed.
3. The glucose fermentation test showed higher (P=0.01) amount of gas production in in level 2, 3 and 4 Rumaxon pro (powder) groups and level 4 of Rumaxon pro (bolus) group than control.
4. Similarly ammonia-N (NH_3-N) level in rumen liquor reduced significantly in level 3 and 4 in Rumaxon pro (powder) group than control which indicated less protein degradability in rumen and more availability of dietary protein to lower GI tract.
5. Total VFA concentration increased (P<0.01) in all the treatment groups which was much higher in all the levels of Rumaxon pro (powder) and Rumaxon pro (bolus) groups than other treatment groups.
6. Rumen protozoan motility remained inconsistent after addition of treatment and found lower in level 1 and 4 in both Rumaxon pro (powder) and Rumaxon pro (bolus) groups compared to other levels in which they remained similar to control group.
7. Though cellulose digestion test (CDT) is not considered a reliable test to indicate rumen microbial activity, time required for cellulose digestion took lesser time in level 2 of Rumaxon pro (powder) group than control. It may be interpreted that particular treatment group enhanced the activity of cellulose digesting bacteria.

Project 7: AICRP on Nutritional and Physiological Interventions for Enhancing Reproductive Performance in Animals

The AICRP project was provided to the University as non-funding center. Under the project three discipline of College of Veterinary Sciences namely Gynaecology, Physiology and Nutrition are involved. As per the mandate of the project the activities carried out were (1) to test the effect of ASMM, ASMM+Bypass Fat on induction of estrus (2) to test two different synchronization protocol (estra synch and doube estra synch) for their effect on induction of estrus and conception rate in anestrus cows (3) to develop a suitable extender for preservation of buck semen and (4) to test the effect of supplementation of Guduchi (*Tinospora cordifolia*) on transitional cows. The results achieved in different activities are summarized as follows

1. Twenty four (24) anestrus cows were treated with ASMM (50g/day/animals) for a period of 60 days. Out of 24 treated anoestrus animals, 05 animals were reported in estrus between 10-30 days of treatment (average 20.8 days). None of the control group animal was reported in estrus.
2. Eight (08) anestrus cows were treated with ASMM (50g/animal/day) + Bypass fat (100g/animal/day). Out of 8 animals, 02 animals were reported in estrus between 13-30 days of treatment (average 21.5 days). None of the control group animal was reported in estrus.
3. Twenty (20) anestrus cows comprising of 9 Sahiwal and 11 Hariana cows were treated with estra synch protocol of synchronization. Out of 9 Sahiwal, 4 (44.44%) conceived at induced estrus whereas of 11 Hariana cows, 3 (27.27%) conceived at induced estrus. The overall pregnancy rate was 35%.
4. Six (06) anestrus buffaloes were treated with estra synch protocol of synchronization. Out of 6 only 1 (16.66%) buffalo conceived at induced estrus.
5. Ten (10) anestrus cows were treated with double synch protocol of synchronization. Out of 10 animals, animals conceived on induced estrus.
6. Additionally, Ovsynch protocol of synchronization was tested on 35 anestrus cows (under UPLDB, program, data presented in AICRP) comprising of 26 Shaiwal and 09 Hariana cows, 13 (50.0%) and 7 (77.77%) respective animals conceived. The overall pregnancy was 57.14%. In buffalo out of 33 buffaloes, 13 (39.39) conceived at induced estrus.
7. For optimizing liquid freezing (4°C) of buck semen, 4 additives viz sericin, IGF-1, CLC and GSH in different concentration were tested. Based on the results of progressive motility, live sperm percentage, capacitation status, mitochondrial transmembrane potential, DNA fragmentation and tyrosin phosphorylation study, the effective concentration of Sericin was found to be 0.25%; IGF-1, 150 ng/ml ; CLC , 1.5 mg per 120 millions spermatozoa and GSH as 1 mM.
8. Guduchi (*Tinospora cordifolia*) stem powder was fed @ of 60 g and 120 g per animal per day for a period of 45 day prepartum and 45 days postpartum to access its effect on blood biochemical, immune status and endocrine profile of transitional cows. The effect was also recorded for milk production and reproductive status. The study is still in progress and the parameters are under observation.

Project 8: Identification and characterization of urinary antimicrobial peptides of indigenous and cross-bred cows.

1. Urinalysis : revealed normal physico-chemical parameters showing pH: 7.0-8.0
2. Extraction of urinary peptides: Eluted anionic and cationic fractions were collected using ion-exchange chromatography
3. SDS-PAGE analysis revealed 14,15 and 10 bands in fresh, Dia-filtered and purified anionic fractions respectively
4. AU-PAGE analysis revealed 09,11and 05 bands in fresh, Dia-filtered and purified cationic fractions respectively
5. Radial diffusion assay showed marked zone of inhibition against *Escherichia coli* and *Staphylococcus aureus*

D. PROJECT OF POST GRADUATE STUDENTS COMPLETED DURING 2016-17

S. No.	Title of Thesis	Name of the Student	Name of the Guide	Subject
	Ph.D.			
1	Anatomical studies on the development of heart in prenatal goat *(Capra hircus)*.	Dr. Sunil Kumar Gupta	Dr. Archana Pathak	Veterinary Anatomy
2	Morphological, histological and histochemical studies on the development of stomach of prenatal goat *(Capra hircus)*	Dr. Varsha Gupta	Dr. M.M. Farooqui	Veterinary Anatomy
3	A study on milk proteome and biochemical analysis of milk and blood of mastitic and healthy Sahiwal cows.	Dr. Pawanjit Singh	Prof. Rajesh Nigam	Veterinary Biochemistry
4	Development and evaluation of formalized killed adjuvant *Brucella melitensis* biovar 3 vaccine.	Dr. Amit Kumar	Dr. V.K.Gupta	Veterinary Microbiology
5	Evaluation of some biochemical parameters and TLR expression in *Haemonchus contortus* resistant and susceptible goats.	Dr. Jitendra Tiwari	Prof. Dayashanker	Veterinary Parasitology
6	Role of α-tocopherol on copper and/or flubendiamide induced chronic toxicity in rats with special reference to male reproductive system.	Dr. Rajesh Mandil	Prof. Satish Kumar Garg	Veterinary Pharmacology & Toxicology
7	Studies on protective effect of different avian species egg yolk, LDL, concentration and antioxidants supplementation on quality of cryopreserved Barbari buck semen.	Dr. Mukul Anand	Prof. Sarvajeet Yadav	Veterinary Physiology
8	Quality analysis (physico-chemical and microbiological) of drinking and Yamuna water from different areas of Mathura and Agra regions with special reference to *E.coli* (VTEC) and *Campylobacter spp.*	Dr. Barkha Sharma	Prof. Basanti Bist	Veterinary Public Health
9	Endoscopic, ultrasonographic and urinalytic studies on female bubaline urinary system.	Dr. Gulshan Kumar	Prof. R.P. Pandey	Veterinary Surgery and Radiology
	M.V.Sc.			
10	Genetic polymorphism in prolactin receptor (PRLR) and growth hormone receptor (GHR) gene in Sahiwal and Hariana cattle.	Dr. Gaurav Parihar	Dr. Deepak Sharma	Animal Genetics and Breeding
11	Growth performance, nutrient utilization and blood biochemical parameters in heifers supplemented with different sources of chromium.	Dr. Anchal Keshri	Dr. Debashis Roy	Animal Nutrition
12	Study of environmental musical sound on performances and activities of transient Hariana cows.	Dr. Garima Shukla	Dr. Yajuvendra Singh	Livestock Production Management
13	Status and quality assessment of meat from different food animals.	Dr. Sushant Sharma	Prof. Vikas Pathak	Livestock Products Technology

14	Quality and safety assessment of milk from different milch animal.	Dr. Sadhana Ojha	Prof. Vikas Pathak	Livestock Products Technology
15	Impact study on livestock insurance in Mathura district.	Dr Jitendra Kumar	Dr. Sanjeev Kr. Singh	Veterinary and Animal Husbandry Extension
16	Studies on circulating leptin level, polymorphism of LEP and LEPR genes in Hariana cows.	Dr. Ram Bachan	Prof. Rajesh Nigam	Veterinary Biochemistry
17	Study on effect of cooling and freezing rate on cryopreserved Hariana bull spermatozoa.	Dr. Alok Kumar	Prof. Atul Saxena	Veterinary Gynaecology & Obstetrics
18	Studies on effect of cholesterol loaded cyclodextrin on freezeability and capacitation status of Hariana bull spermatozoa.	Dr. Hanuman Prasad	Dr. Anuj Kumar	Veterinary Gynaecology & Obstetrics
19	Effect of addition of glutathione on tyrosine phosphorylation and apoptosis like changes in cryopreserved hariana bull semen.	Dr. Nadeem Shah	Dr. Vijay Singh	Veterinary Gynaecology & Obstetrics
20	Studies on the effects of prepartum supplementation of ammonium chloride along with immunomodulators on metabolomics and immunodynamics of periparturient indigenous cows.	Dr. Vivek Kumar Singh	Dr. Shanker Kumar Singh	Veterinary Medicine
21	Studies on inflammatory biomarkers of endometritis and their modulation by *Eucalyptus citriodora* leaves extract in rats.	Dr. Aastha Tiwari	Dr. Atul Prakash	Veterinary Pharmacology & Toxicology
22	Studies of hydrogen sulfide-induced alterations in myometrial activity and its associated downstream signaling pathways in water buffaloes (*Bubalus bubalis*).	Dr. Sooraj V. Nair	Prof. Satish K. Garg	Veterinary Pharmacology & Toxicology
23	Study on evaluation of microbial quality and E. Coli (VTEC) contamination in milk and milk products of Brij region with special reference to public health.	Dr. Subhasmita Behera	Dr. Udit Jain	Veterinary Public Health
24	Clinical studies on comparative evaluation of halothane, isoflurane and sevoflurane anaesthesia on glycopyrrolate, xylazine premedicatid and ketamine-diazepam induced anaesthesia in canine.	Dr Hari Pal Singh Gangwar	Dr. Sanjay Purohit	Veterinary Surgery and Radiology
25	Clinical studies on the effect of glycopyrrolate, dexmedetomidine, fentanyl and butorphanol in different combinations on propofol- isoflurane anaesthesia in dogs of different age groups.	Dr. Rohan Kumar Vijay	Dr. Vivak Malik	Veterinary Surgery and Radiology
	M.Sc. (Biotechnology)			
26	Genetic polymorphism of TLR4, CD14 & DRB3 genes in Indian breeds of cattle and buffalo.	Dr. Hitesh Lamba	Dr. Deepak Sharma	Biotechnology

27	Genetic polymorphism of kappa-casein and beta –lacto globulin genes in Sahiwal, Hariana cattle and Murrah buffalo.	Abhishek Pal	Dr. Madhu Tiwari	Biotechnology
28	Molecular and functional characterisation of voltage -gated sodium channels in sperms of bulls.	Dharmendra Singh	Dr. Dilip Swain	Biotechnology
29	A comparative study on expression profile of HSP genes during different seasons in goat breeds.	Devendra Kumar	Dr. Brijesh Yadav	Biotechnology

Ph. D. Abstracts

1. Anatomical studies on the development of heart in prenatal goat *(Capra hircus)*.

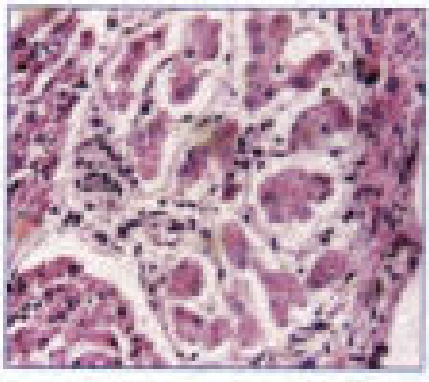
The gross, histological and histochemical studies were conducted on the developing heart of 36 prenatal goat (*Capra hircus*) divided into three groups; group-I (early prenatal period ≤50 days), group-II (mid prenatal period ≥51 days to ≤100 days) and group-III (late prenatal period ≥101 days till parturition) with 12 embryos / foetuses in each group. In early prenatal period, on 23 days of gestation, the primitive heart of goat embryo was present caudal to the mandibular arch and cranial to the liver in the cervical flexure region. It lay in the ventral part of thoracic cavity on 48 days of gestation. On 34 days, four chambers of heart were found as indicated externally by transverse and longitudinal grooves. These grooves were occupied by blood vessels in the embryo of 42 days and onwards. On 76th day of gestation the heart was covered with pericardium and it was attached with sternum by sternopericardiac ligament. On 79th day, the fat deposition started in transverse groove which increased with the advancement of age. On 82nd day of gestation the anastomosis of right and left longitudinal arteries took place. The weight and volume of heart increased from 23rd to 148th days of gestation continuously in a co-linear fashion, however maximum gain in weight and volume occurred during late prenatal period. The heart weight percentage of total body weight goes on reducing with the advancement of age. Internally on 51days of gestation, the left and right atria were divided by incomplete interatrial septum forming foramen ovale. Among the three papillary muscles of right ventricle, the anterior papillary muscle was the largest and septal papillary muscle was the smallest. The wall of left atrium and left ventricle was thicker than the wall of the right atrium and right ventricle, respectively. The left ventricular wall was about 1.2 times thicker than the wall of right ventricle. Histologically on 23 days of gestation the heart was tubular, comprised of 4 segments; truncus arteriosus, bulbus cordis, ventricle and atrium. On 26th day the sinus venosus was distinguished. On 23rd day of gestation, the septum primum and septum secundum were present between right and left atria. The interventricular septum leaving the interventricular foramen was present between bulbus cordis and ventricle. Upto 32 days of gestation the atrial and ventricular walls were made up of two layered tissues i.e. outer epimyocardial layer and inner endocardial layer. The epimyocardial layer was made up of multi-layers of cuboidal to polyhedral myocardial cells (myocytes) with spherical to oval nuclei. The endothelial layer was made up of a single layer of spindle shaped cells with flattened nuclei. In 34 days goat embryo, the four chambered heart appeared. The interventricular canal was completely obliterated by interventricular septum, the later was made up of the septum musculare (cardiac myocytes) and septum membranaceum (mesenchymal tissue). The epimyocardium of the tubular heart differentiated into an outer layer of epicardium and inner layer of myocardium. Thus the atrial and ventricular walls of the heart consisted of three layers i.e. epicardium, myocardium and endocardium without inwards. A-V valves, chordae tendineae and sporadic Purkinje fibers in subendocardium of ventricles were formed on 38th day of gestation. On 42 days of gestation, striations were found in the cardiac myocytes of the ventricles. On 46th day the foetal heart attained the general structural features similar to the adult heart. Ganglionated

and non-ganglionated nerve plexuses were found in the deeper part of epicardium in the foetuses of 47 days and more. In mid prenatal period the Purkinje fibers became multinucleated. Intercalated disc and muscle bundles lined with perimysium were present on 71 days of gestation. The amount of collagen, reticular and elastic fibers increased in the heart with the advancement of age. In late prenatal period the histological features of the heart was same but the thickness of the wall and amount of fibers increased more significantly resulting into increase in the thickness of epicardium, myocardium and endocardium of atrial and ventricular walls. Histochemically, in the walls of atria and ventricles the PAS, AMPS and lipid activity was more in early prenatal period. The DNA reactivity, alkaline phosphatase and acid phosphatase was more in late prenatal period. In the major blood vessels the activity for AMPS was more in early prenatal period, but PAS and alkaline phosphatase activity was more in late prenatal period. The activity for lipid, DNA and acid phosphatase was nearly the same in all the major blood vessels of all the three groups of goat embryo/foetuses.

Dissected left atrium of heart in 89 days goat foetus showing well developed pectinate muscles (pm).

Photograph showing many small foramina (arrow) in the septum primum (sp) viewed from left atrial side in 71 days of goat foetus.

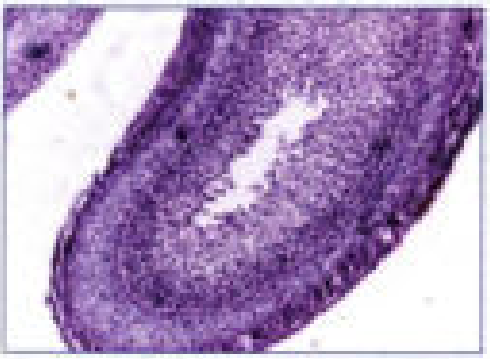
Photomicrograph of ventricular wall of heart from 42 days goat embryo showing striations in the cardiac muscle fibers (arrow). PTAH, X1000



Photomicrograph of moderator band of right ventricle of heart from 113 days goat foetus showing Purkinje bundles surrounded by connective tissue sheath (arrow). H&E, X200

2. Morphological, histological and histochemical studies on the development of stomach of prenatal goat (*Capra hircus*).

On perusal of literature it was found that very meager attention has been paid on the sequential changes in the development of ruminant stomach during various stages of gestation. Therefore, the present study was designed. Macro and microscopic studies were conducted on the stomach of 36 healthy and normal goat embryos/ foeti of either sex. Age of the embryos/foeti was estimated by using formula derived by Singh *et al*., (1979). Embryo/ foeti were grouped into I (0-50 days), II (51-100) and III (101-till term). At 38 days, all the four compartments of ruminant stomach were clearly discernible. Undifferentiated stratified epithelium changed into stratified squamous and simple columnar epithelium at 102 and 76 days of gestation in forestomach and abomasum, respectively. Microscopically, the rumen, reticulum and omasum were distinguished by the appearance of papillae, crests and laminae at 51, 60 and 38 days of gestation, respectively. Corial papillae first came in sight in reticulum and omasum at 121 and 51 days of gestation, respectively. Muscularis mucosae could not be observed in rumen till term. The orientation of smooth muscle fibers of tunica muscularis was inconstant throughout the gestation in forestomach. Earliest appearance of reticular fiber was noticed in blastemic tissue of fore stomach (omasum) and abomasum at 44 and 38 days of gestation, respectively. Collagen fibers embarked in lamina propria and submucosa of rumen and fundic part of abomasum at 60 and 76 days of gestation, respectively. At 100 days of gestation, the elastic fibers were first debuted concomitantly in the wall of the blood vessel of omasum and abomasum. Four different types of cells were identified in fundic region of abomasum viz. undifferentiated, chief, parietal and mucous neck cells. The number of undifferentiated cells was predominant. Parietal and chief cells emerged concurrently at 70 day and mucous neck cells at 82 days of gestation. The cytoplasm was eosinophilic and basophilic in parietal and chief cell, correspondingly. Mucous neck cells were largest and confined to neck region only. The pyloric gland contained undifferentiating, mucous secreting and sporadic parietal cells. Well differentiated mucous secreting cells were noticed at 121 day of gestation. Ganglionic and supporting cells of nerve elements were found either in the subserosal tissue or in between the muscle bundles of stomach throughout the gestation. Basal zone of epithelium showed intense activity for PAS and lipid in forestomach. AMPS reaction was pronounced in most of the epithelial cells of superficial zone. Intense Feulgen reaction was detected in nuclei of the epithelial cells of basal zone. Smooth muscle cells and blood vessels exhibited weak reaction for alkaline phosphatase enzyme. Surface epithelium and glandular blind ends of pyloric abomasum revealed intense reaction for PAS and AMPS. Cell boundaries, parietal cells, smooth muscle cells, blood vessels and nerve cells showed intense reaction for lipid. At term abomasum was largest and omasum was the smallest compartment. Macroscopically and microscopically the wall of omasum was thickest among all the compartments. Statistical analysis of data revealed that all biometrical parameters of fore stomach increased significantly with the advancement of age and were highly significantly correlated with each other. Micrometrical analysis of different strata of fore stomach showed that the thickness of propria submucosa, tunica muscularis and serosa was highest in omasum followed by reticulum and lastly the rumen. However, the thickness of epithelium was found to be maximum in reticulum, followed by rumen and lastly the omasum. From the above study it can be concluded that the organogenesis and histogenesis of non glandular as well as glandular stomach was almost completed in prenatal life. However, to become functional the stomach still required more time as the process of keratinization in forestomach and differentiation of different cells of fundic and pyloric parts of abomasum were yet to be completed.



3. A study on milk proteome and biochemical analysis of milk and blood of mastitic and healthy Sahiwal cows.

The study was performed at Department of Veterinary Biochemistry, College of Veterinary Sciences and Animal Husbandry, Uttar Pradesh Pandit Deen Dayal Upadhayaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go Anusandhan Sansthan, (DUVASU), Mathura, Uttar Pradesh, India. The study was carried out on lactating Sahiwal cows maintained at ILFC of the College of Veterinary Science, Mathura. Milk samples used in this study were of control/apparently healthy group, subclinical mastitis and clinical mastitis group. The animals were classified into three stages of lactation namely, Early lactating group (up to 100 days), mid lactating (from 101 to 200 days) and late lactating (from 201 to 280 days). Now these groups were further divided in to three subgroups, namely control/healthy group subclinical mastitis and clinical mastitis group on the basis of screening by using somatic cell count (SCC) , California mastitic test (CMT) and Electrical conductivity test (ECT) on the milk samples. Biochemical analysis of milk samples revealed significant increase in sodium, copper, MDA, Lactose, LDH, AST and ALP and decrease in Magnesium, calcium , phosphorus, potassium, iron, zinc, Total protein and Albumin compared to healthy animals. Milk of healthy animal showed significant decrease in Sodium and LDH whereas Subclinical mastitic animals revealed significant fall in copper and LDH and rise in copper levels in Mid and Late lactation compared to early lactation. Biochemical study of serum of healthy, SCM and CM Cows showed significant increase in Sodium, potassium, Total protein, Globulin LDH and AST while significant decrease in calcium, copper, albumin, A/G ratio, FFA, MDA and Cholesterol. The stage of lactation found to affect biochemical profile in both serum and milk and revealed significant increase in Calcium, phosphorus, copper, glucose, cholesterol, LDH and AST and decrease in Total protein in Mid and Late lactation compared to early lactation in healthy animals. Similarly cows having SCM showed significant increase in calcium, phosphorus, sodium, glucose and cholesterol and decrease in Total protein and MDA in Mid and Late lactation. Bacterial isolation and multiplex PCR performed on milk samples of SCM/CM revealed infection of *Staphylococcus*, *Pseudomonas* and *E. coli* in the studied cows. SDS-PAGE analysis of pooled milk samples healthy milk revealed 23 protein bands where as both subclinical and clinical mastitic milk 27 protein bands. The 4 protein bands which were not found in the healthy milk revealed 14, 56, 160 and 168 kDa molecular weight proteins. 2-D gel electrophoresis was carried out by using isolated whey proteins of healthy SCM and CM sahiwal cows. IEF and I-D gel analysis revealed expression of large set of proteins but on gel analysis revealed 3 differentially expressed protein spots in CM group of proteins. Those spots were identified, digested and sent for MALDI analysis. MALDI analysis revealed following important proteins. DNA-dependent protein kinase catalytic subunit, protein. Rho-specific guanine nucleotide exchange factor (RhoGEF) acyl-CoA-binding domain-containing protein 6 isoform X4 [Bubalus bubalis] Ankyrin repeat domain-containing protein [Homo sapiens] Chordin-like protein 1 kielin/chordin-like (KCP) protein.

4. Development and evaluation of formalized killed adjuvant *Brucella melitensis biovar* 3 vaccine.

The present study was conducted to develop a stable, safe and effective vaccine against caprine brucellosis. For that three well approved and recognized adjuvants viz., MontanideTM IMS, MontanideTM GEL 1 and MontanideTM ISA61VG were incorporated with virulent Brucella melitensis biovars 3 IND1 (Accession no. VTCCBAA228) bacterial strain, isolated from stomach content of aborted fetus of infected goat to develop three different formalized killed adjuvant B. melitensis biovar 3 IND1 vaccines viz. NPV (Nano particle based vaccine), PGV (Polymer gel based vaccine) and OAV (oil adjuvant based vaccine), respectively to make it 1.47X108 and 1.47X1010 CFU per shot in mice and goats vaccine. These vaccines were tested for sterility and then safety in adult female inbred BALB/c mice and were kept at different temperature to assess its stability. Sterile, safe and stable all three vaccines were inoculated 10µl vaccine with 1.47X108 CFU of Brucella in per dose intra nasally (NPV & PGV), Subcutaneously (PGV) and intra muscularly (OAV) in adult female BALB/C mice in the group of 10 for efficacy. 50% of mice were vaccinated with single vaccination where as remaining 50% mice were given booster on 21st day of initial vaccination. Vaccinated mice were challenged on 28th day of vaccination and booster vaccination, respectively with live virulent B. melitensis biovar 3 cultures (109 CFU) through I/P route and sacrificed on 7th day of challenge. During mice experiment, blood was collected at 7th, 14th, 28th and 35th days of booster vaccination (28th, 35th, 49th and 56th day of first vaccination) for serum as well as whole blood. The blood erythrocytes were used for the estimation of oxidative stress biomarker parameters, plasma for plasma cytokine level whereas serum was used for the status of serum antibodies against Brucellosis by RBPT and indirect ELISA. After sacrifice, mice organs were collected for live weight whereas spleen and liver were also used for live Brucella count and molecular confirmation of B. melitensis by amplification of 16S rRNA and Omp31 genes. Splenocytes proliferation and expression of cytokines in spleen by Real time PCR were done. Analysis of all the parameters revealed all the vaccines produced efficacy as desired in OIE guidelines and European pharmacopeia. The sterile and stable vaccines which were found to be safe and effective in inbred BALB/c mice (NPV, PGV, OAV) were further used in homologous host (three pure bred apparently healthy non pregnant Brucella free Jamunapari adult female goats in each group) with 1.47X1010 CFU per shot with intra nasal, subcutaneous and intra muscular routes, respectively and compared with standard Rev.1 (IIL, Hyderabad). Vaccinated animals were subjected to blood collection on 0, 14th and 28th day of vaccination for serum as well as whole blood. On 28th day, animals were challenged with live virulent B. melitensis biovar 3 cultures (109 CFU) through subcutaneous route and monitored for physical, physiological and other adverse reactions and blood samples were collected 14th, 28th, 60th and 90th days post challenge till animals were sacrificed on 90th day of challenge. Serum separated from blood samples were used for detection of serum antibodies by RBPT, STAT and indirect ELISA along with serum enzyme chemistry. The whole blood was used for blood hematology, plasma for cytokine levels and estimation of oxidative biomarker parameters was done in erythrocytes. The vital organs collected immediately after sacrifices were subjected to histopathology to observe the changes produced by challenge, estimation of oxidative biomarker parameters, live Brucella load in spleen and liver and molecular confirmation of B. melitensis by amplification of 16S rRNA and Omp31 genes. The splenocyte proliferation and expression of TLR by Real time PCR in spleen, liver, supra mammary lymph node and uterus tissues were also examined. On the basis of the findings of present study we can conclude the following: 1. Brucella melitensis biovar 3IND1 can be used as a vaccine candidate for the control of caprine Brucellosis in India. 2. Three vaccines developed with formalized killed Brucella melitensis biovar 3IND1and nano particle (NPV), polymer gel (PGV)

and oil adjuvant (OAV) were found stable for the duration of 12 months under refrigeration temperature (4-8 °C). 3. Brucella melitensis biovar 3IND1based formalized killed vaccines (NPV, PGV and OAV) confer good serological as well as cell mediated immune response in mice and goats. 4. Nano particle, polymer gel and oil adjuvant can be used as adjuvants to improve immunogenicity in caprine. 5. The persistence of antibodies due to killed vaccination is for shorter duration in comparison to Rev.1 in caprine. 6. The protection against virulent Brucella melitensis biovar 3IND1in goats vaccinated with killed vaccines was comparable to Rev.1 for the duration of 90 days. 7. Among three killed vaccines attempted in present study, OAV revealed better efficacy and safety in comparison to other two vaccines (NPV & PGV). 8. The OAV was followed by PGV in efficacy and safety parameters. Based on laboratory findings as well as trial on homologosas host OAV can be further recommended for field trial.

5. Evaluation of some biochemical parameters and TLR expression in *Haemonchus contortus* resistant and susceptible goats.

Haemonchosis represents primary constraint to profitable production of sheep and goats around the World. Sole dependence over few available anthelmintics for the control makes the parasite resistant against nearly all of them. The present study was carried out at Department of Parasitology, U.P. Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go Anusandhan Sansthan, Mathura and at Central Institute for Research on Goats (CIRG), Makhdoom, Farah, Mathura with the objectives to detect the resistance pattern in Jamunapari goats against H. contortus and to compare TLR expression in resistant and susceptible animals. In the study, a resource population of 344 Jamunapari goat kids with complete pedigree records has been analysed for resistance pattern detection. The animals were characterized for their resistance to natural challenge of GINs on the basis of FEC. Also, FEC of sires was included in the final selection for genetic resistance in the animals. Coprological examination was done in Jamunapari goat kids of 3-6 months of age group born during three kidding seasons under the study period of 18 months from February 2013 to August 2014. Under natural infection a significantly ($P<0.05$) higher incidence of strongyle worms were observed during monsoon-autumn season (14.23%) as compared to spring-summer season (8.13%). Larva culture of the positive samples revealed a significantly ($P<0.01$) higher incidence of H. contortus (90%) as compared to other strongylid worms. In the study, a non-significantly higher infection was observed in female kids (39.14%) as compared to male kids (31.95%). The haematological and biochemical changes occur due to damage caused by H. contortus in selected resistant and susceptible animals were evaluated in controlled study after infection with 30,000 L3 larvae of the parasite. In the study, resistant animals remained apparently healthy with low FEC whereas susceptible animals showed significantly ($P<0.05$) higher FEC. A range of haematological measures were significantly different between the susceptible group and the resistant and uninfected controls at one or more time points. Statistical analysis revealed significant ($P<0.05$) decreases in Hb, PCV, TEC, serum glucose, total protein and albumin and a significant ($P<0.05$) increases in serum ALP level in susceptible group as compared to resistant and control groups at different time intervals after the infection. This concluded that experimental H. contortus infection causes disturbances to the haemopoietic system resulting in anaemia and severe damage to abomasal mucosa with lower serum protein and higher ALP enzyme activity. It was concluded that decreased Hb, PCV, TEC, serum glucose, total protein and albumin levels were important indicators of haemonchosis in goats. To understand the molecular basis of genetic resistance against H. contortus, expression profiles of TLR1-10 genes were investigated in animals demonstrating resistance or susceptibility against natural infection, using quantitative real-time PCR. The animals were treated with broad spectrum anthelmintics to remove existing parasitic load and were then

experimentally challenged with 25,000 L3 larvae of H. contortus. The mRNA expression profiles of these TLRs in abomasal mucosa and abomasal lymph node were compared between resistant and susceptible animals. In the study, resistant animals exhibited significantly ($P<0.05$) increased expression of TLR2 (2.35 fold), TLR4 (3.24 fold) and TLR6 (4.22 fold) in both the tissues three days post infection. This elevated expression indicated the role of these three TLRs in providing resistance against H. contortus in Jamunapari goats. This is for the first time that this study has established the role of TLRs in the resistance mechanism against H. contortus in goats. Overall the results have enriched the information on genomic basis of resistance against GI nematodes in this important livestock species.

6. Role of α-tocopherol on copper and/or flubendiamide induced chronic toxicity in rats with special reference to male reproductive system.

Present study was undertaken to evaluate the ameliorative effect of α-tocopherol (100 mg/kg) against copper (33 mg/kg) and/or flubendiamide (200 mg/k)-induced toxicity following 90 days oral exposure. Fifty four male rats of 130-150 g were divided into nine groups of six animals each. Rats of group I served as negative control and group II as vehicle control (corn oil) while animals of groups III to IX received orally α-tocopherol (100 mg/kg), copper sulphate (33 mg/kg), flubendiamide (200 mg/kg), flubendiamide (200 mg/kg) + copper sulphate (33 mg/kg), copper sulphate (33 mg/kg) + α-tocopherol (100 mg/kg), flubendiamide (200 mg/kg) + α-tocopherol (100 mg/kg) and flubendiamide (200 mg/kg) + copper sulphate (33 mg/kg) + α-tocopherol (100 mg/kg), respectively. Both the xenobiotics failed to produce any apparent clinical sign of toxicity or mortality in rats. Body weight and per cent weight gain in rats of copper and flubendiamide alone groups and in combination treated (copper + flubendiamide) rats were markedly lower. But organ weights and relative organ weight did not differ between different treatment groups except significant increase in relative weight of lungs and brain in rats of copper and copper + flubendiamide treatment groups. No significant alterations were observed in feed and water intake in any of the treatment groups except significant reduction in feed intake during 9th and 11th weeks in copper-treated rats. Significant reduction in Hb, PCV, WBCs count and granulocytes count was observed in flubendiamide and copper + flubendiamide treated rats while lymphocytes % was significantly increased in rats of flubendiamide alone treated. RBCs, Hb, MCV, MCH, MCHC, LY%, MO%, GR% and PCT values did not differ significantly in any of the xenobiotics treatment groups except significant increase in RDWC and decrease and PLT count, respectively in copper or flubendiamide or copper + flubendiamide-treated rats. Total proteins, albumin and globulin, glucose, cholesterol and HDL-cholesterol, AST and ALT values did not differ significantly any of the xenobiotics-exposed groups except significant increase in total and direct bilirubin in flubendiamide-treated rats and creatinine and uric acid levels in copper-treated rats.LPO level significantly increased in erythrocytes, kidneys, spleen and testes while modestly in liver of copper and flubendiamide and copper + flubendiamide treated rats. SOD activity was significantly lower in RBCc, kidneys and spleen of copper treated rats while significantly lower only in liver and testes of flubendiamide treated rats, and copper + flubendiamide treated rats, and moderate decrease in testes of all three xenobiotics treated groups. CAT activity significantly decreased in testes, not significant effect was seen in liver, kidneys, spleen and erythrocytes of xenobiotics exposed groups. GSH levels did not differ significantly in RBCs, liver, kidneys, spleen and testes of any of the treatment groups compared to controls except in spleen of flubendiamide-treated rats. GPx activity in copper, flubendiamide and copper + flubendiamide treated groups revealed significant to moderate decrease in testes, spleen and erythrocytes while moderately increase in liver and kidneys compared to control, significant to moderate reduction in GST activity was evident in kidneys, spleen, testes and liver while significant increase in GST activity in erythrocytes. No

significant alterations were observed in ACP, ALP and SDH activities in testes of rats of any of the treatment groups, but there was significant increase in LDH, γ-GT and abnormal sperms count and depletion of 17β-HSD, percentage of live sperms, HOST+ve sperms and testosterone level in copper and flubendiamide and copper + flubendiamide treated rats. Compared to control, testes of copper or flubendiamide or copper + flubendiamide exposed rats exhibited severe degenerative alterations in histoarchitecture which included degeneration of germinal epithelium, nuclear pyknosis, necrotic germ cells and loss of spermatozoa, spermatocytes and spermatids and complete loss of spermatids. CYP450 and CYP b5 activities were significantly increased in flubendiamide-treated rats liver while CYP450 and CYP b5, APH, ANDM, GST and UGT activities did not differ significantly in any of the xenobiotics treatment groups except with copper-treated rats, where significant decrease in APH, GST and UDP glucuronosyltransferase activities were observed. Markedly increase in Cu and Fe levels and decrease in Zn and Mn levels in liver of copper, flubendiamide as well as copper + flubendiamide- treated rats. Phase II in vitro study was undertaken for evaluating apoptotic and genotoxicity potential of flubendiamide and copper on isolated thymocytes and splenocytes of rats and its prevention by resveratrol (5 and 10 µM), catechin (10 and 20 µM), curcumin (5 and 10 µM) and α-tocopherol (5, 10 and 20 µM) by employing by propidium iodide, TUNEL assay, micronuclei, DNA ladder and comet assays. Propidium iodide staining study revealed that flubendiamide and copper produced dose-dependent increase in percentage of dead/or apoptotic cells in thymocytes and splenocytes and 40 µM concentration was considered as the median lethal concentration of both flubendiamide and copper. Flubendiamide (40 µM) and copper (40 µM) treated thymocytes and splenocytes showed more number of Tunel+ve cells, micronuclei formation, DNA fragmentation and comets cell formation. All the four tested natural antioxidants, namely-resveratrol, catechin, curcumin and α-tocopherol were found to be effective against cytotoxicity and genotoxicity induced by flubendiamide and copper. Based on the above results, flubendiamide or copper seems too exert toxic effects on haemopoietic, renal and male reproductive systems and have cyto-genotoxic potential; and α-tocopherol was found to possesses the partial reparative potential against the copper and flubendiamide toxicity.

7. Studies on protective effect of different avian species egg yolk, LDL, concentration and antioxidants supplementation on quality of cryopreserved Barbari buck semen.

A study was designed to evaluate the cryoprotective effect of egg yolk from different avian species, low density lipoproteins and antioxidant supplementation in semen extender during freezing and thawing process in Barbari buck semen. Four healthy Barbari bucks of similar age and weight were selected as semen donor during the experiment. The semen was collected twice a week from each buck using artificial vagina. A total of 24 ejaculates were collected (six from each buck) during each experiment. The study was divided into six phases. Semen collected from each buck was initially evaluated before the start of each phase and samples with more than 85% live spermatozoa were selected and later pooled. Pooled semen sample was divided into equal parts. Each part was diluted separately with a tris-based extender containing 6% glycerol. The non penetrating cryoprotectant was replaced with different concentration of egg yolk; completely replace with LDL or supplemented with LDL and antioxidants. Dilution was made to have final sperm concentration to of 200 million spermatozoa per ml, as standardized in phase I. The diluted samples were later subjected to freezing and thawing process. Different seminal attributes and antioxidative enzyme level were evaluated after equilibration and thawing. Kinematic characteristic exhibited by spermatozoa were evaluated after thawing during different phases. During phase II,it was observed that 15% hen egg yolk, 10% Turkey egg yolk, 10% quail egg yolk and 15% duck egg yolk in semen extender recorded significantly ($P<0.5$ or $P<0.01$) higher values of different seminal attributes and kinematic characteristic of spermatozoa.

On comparison of egg yolk from different avian species it was observed that hen egg yolk@15% and quail egg yolk @10% gives significantly (P<0.5 or P<0.01) higher values. In phase III, significantly (P<0.5 or P<0.01) higher values of different seminal attributes and kinematic characteristic of spermatozoa was observed at 8% LDL replaced with whole egg yolk in semen extender. In phase IV, it was observed that the semen extender containing 15% hen egg yolk when supplemented with 3% LDL give better result. On comparison of the groups with best result in phase II, III and IV, group IV diluted with extender containing 15% hen egg yolk and 3% LDL recorded better post thaw semen quality. Supplementation of different antioxidant to the extender that gave best results in phase V, with Glutamine @5mM recorded a better semen quality as compared to Bovine serum albumin @ 10mg/ml and Hypotaurine @ 5mM. So, it may be concluded that the extender containing 15% hen egg yolk and supplemented with 3% LDL and 5 mM of glutamine gives better protection during freezing and thawing process and recommended for semen dilution in Barbari Buck.

8. Quality analysis (physico-chemical and microbiological) of drinking and Yamuna water from different areas of Mathura and Agra with special reference to *E. coli* (VTEC) and *Campylobacter* spp.

The present study was conducted to assess the physico-chemical and microbiological quality of water from different sources in Mathura and Agra along with the prevalence of *E. Coli* (VTEC) and *Campylobacter* spps in these water samples. A total of 480 water samples (drinking water n=180, underground water n=60, surface water (Yamuna and pond water (n=120 each)) were collected during Dec 2013-15. The overall ranges of pH, turbidity, TDS, TH, Chloride, fluoride, nitrate and iron were between 6.5-8.9, 0- 36.2 NTU, 20-2000 ppm, 117-1500mg/, 100-3250 mg/l, 0.12-2.5 mg/l, 0-100.2 mg/l and 0-0.5 mg/l, respectively. In surface water, pH, chloride, TH, fluoride, nitrates and iron were within the allowable limits in surface water. The pH and TDS were higher during postmonsoon season than premonsoon. The DO and EC in surface water ranged between 0.20-0.40 mg/l and 727-1250 µS/cm, respectively. The SPC and MPN were within 0-6x107 cfu/ml and 0->1800 coliforms/100ml. All surface water samples were positive for coliforms whereas 53.89% drinking water samples had coliforms. No coliforms were detected in packaged water of national brands. Sachet and locally packaged water was more contaminated. A total of 162 *E.Coli* (33.75%) were isolated from 480 water samples. Surface water had 52.92 % *E.Coli*, followed by underground water 26.67% (16/60) and drinking water, 10.56% (19/180). None of the packaged water samples had *E.Coli*. The prevalence of VTEC was 4.8% (23/480) with maximum 6.11% (11/180) in drinking water, followed by ground water samples 5% (3/60) and surface water 3.75% (9/240). There prevalence of *E.Coli* in surface water during premonsoon(65%) was more than post monsoon (40.83%).VTEC in premonsoon and post monsoon water was 3.33% (4/120) and 4.17% (5/120), respectively. 35 *E.Coli* (21.6%) had pathogenic genes. The EHEC hlyA gene was the most common virulent gene with prevalence of 74.29%, followed by stx1 (62.58%) and stx2 gene (8.58%). Gene combination of stx1+hlyA was predominant. 33 isolates (94.28%) were positive on Congo red medium indicating pathogenic nature. No *E.Coli* O157 and *E.Coli* O111 serotypes could be isolated from water sources in this study. A total of 36 ESBL producer *E.Coli* (22.22%) were detected among 162 *E.Coli*. Out of these, 19 (52.8%) were VTEC. Maximum prevalence (66.7%) of ESBL bacteria was in surface waters. bla-SHV(69.4%) occurred more than bla-CTX-M (58.3%).The serotypes obtained in this study were O140, O120, O83, O86 and O118 with one VTEC untypable. The isolates were highly sensitive to cefotaxime-clavulanic acid (77.14%), followed by chloramphenicol (74.28%) while highest resistance was shown against amoxicillin (80%). Intermediate sensitivity was shown against gentamicin (80%). 23 (65.71%) isolates were multi drug resistant with an MDRI >20%.No *Campylobacter* spps could be isolated from surface waters of this region in this study.

9. Endoscopic, ultrasonographic and urinalytic studies on female bubaline urinary system.

This study was undertaken in female buffaloes to standardize ultrasonographic and urethrocystoscopic examination protocol and generation of reference images and their compilation, urinalysis for physical and chemical attributes in normal buffaloes and identification, diagnosis and classification of affections of urinary system on the basis of urinalysis, urethrocystoscopy and ultrasonography in clinical cases. Therefore, this study was conducted in two parts. Part I of the study was conducted on 30 adult female farm buffaloes divided into three groups of ten animals each namely, Groups I, II and III. Part II comprised of females buffaloes possibly reporting for urinary tract affections. The left kidney and urinary bladder could be examined *per-rectum*, while the right kidney could be scanned transcutaneously through the right lumbar and paralumbar region. The urinary bladder could also be scanned transcutaneously through the ischio-rectal fossa. In the left kidney, the vertical diameter of the kidney was 7.4 ± 0.435 cm, 7.9 ± 0.437 cm and 6.9 ± 0.32 cm in Group I, II and III, respectively. The horizontal diameter of the kidney was 8.9 ± 0.732 cm, 8.6 ± 0.433 cm and 8.6 ± 0.45 cm in Group I, II and III, respectively. The left kidney was therefore, more wide than thick. The vertical diameter of the sinus was 3.7 ± 0.279 cm, 3.7 ± 0.23 cm and 3.7 ± 0.37 cm in Group I, II and III, respectively. The horizontal diameter of the sinus was 5.4 ± 0.719 cm, 4.3 ± 0.312 cm and 4.3 ± 0.36 cm in Group I, II and III, respectively. The dorsal dimension of the corticomedullary tissue was 1.8 ± 0.12 cm, 2.0 ± 0.162 cm and 1.9 ± 0.14 cm in Group I, II and III, respectively and the lateral dimension of the corticomedullary tissue was 2.1 ± 0.134 cm, 2.1 ± 0.125 cm and 2.3 ± 0.25 cm in Group I, II and III, respectively. In the right kidney, the vertical diameter of the kidney was 6.4 ± 0.41cm, 7.0 ± 0.211cm and 7.2 ± 0.407 cm in Group I, II and III, respectively. The horizontal diameter of the kidney was 7.9 ± 0.53 cm, 8.3 ± 0.571 cm and 9.0 ± 0.44 cm in Group I, II and III, respectively. The vertical diameter of the sinus was 3.4 ± 0.298 cm, 3.8 ± 0.292 cm and 3.4 ± 0.294 cm in Group I, II and III, respectively. The horizontal diameter of the sinus was 5.0 ± 0.547 cm, 4.6 ± 0.401 cm and 4.3 ± 0.36 cm in Group I, II and III, respectively. The dorsal dimension of the corticomedullary tissue was 1.8 ± 0.106 cm, 2.0 ± 0.087 cm and 2.0 ± 0.145 cm in Group I, II and III, respectively and the lateral dimension of the corticomedullary tissue was 2.0 ± 0.221 cm, 2.3 ± 0.154 cm and 2.1 ± 0.137 cm in Group I, II and III, respectively. The bladder wall measured between 0.3 and 2.1 cm. The echogenicity of the various structures of the kidney was variable. The renal outline was clear but the cortex could not be differentiated from the medulla with the 3.5 MHz transducer. The corticomedullary tissue appeared homogenously hypoechoic as compared to the surrounding tissue as well as the sinus of the kidney. The sinus was hyperechoic and irregularly shaped. The medullary pyramids appeared as round to triangular structures in the renal parenchyma and were hypoechoic to anechoic as compared to the corticomedullary tissue. The renal calyces were not seen. In some frames hypoechoic structures were visible within the sinus and were interpreted as vasculature or collecting tubules which could not be differentiated. The kidney appeared to be enveloped by hyperechoic peri-renal fat surrounding the capsule. The renal cortex and medulla could be differentiated and had better resolution with a 5-10 MHz transducer. However, the penetration was greatly limited. The urinary bladder appeared as an anechoic almost circular area on an ultrasonogram in transverse scan and pear shaped in longitudinal scan. The tissue area beyond the bladder appeared hyper echoic due to acoustic enhancement resulting from the sound waves travelling through fluid contained in the bladder. The bladder wall was distinctly hyperechoic with uniform thickness. On endoscopic examination the mucosal folds of the bladder were visualised in case of evacuated bladders. The urethral mucosa appeared glistening, smooth, off-white to

yellowish in colour. The vessels traversing the mucosa could also be visualised upon closing in. A cicatrized remnant of the opening of the urachus could be seen immediately in the fundus region. In full bladders, the mucosal folds were less marke with a smooth pale pink mucosa. The mucosa of the urethra was glistening, smooth, uniformly pink and appeared to be collapsing over what appeared like longitudinal mucosal folds while the endoscope was withdrawn. The specific gravity of the urine varied between 1.000 and 1.020 whereas, the pH values varied between 7.0 and 8.5. urobilinogen and protein were present in all buffaloes. In clinical cases, one case was diagnosed as having haemorrhagic cystitis, and post-partum vaginal trauma in addition to having retained placenta; two cases were diagnosed as having urinary bladder tumour, one case was diagnosed as having hydronephrosis and a cyst beneath the rectum, and two cases were diagnosed as having purulent cystitis and urethritis with renal cysts, on the basis of the findings of urinalysis, ultrasonography and urethraocystoscopy. Ultrasonography does not require any chemical restraint whereas endoscopy requires epidural anaesthesia. The urinalysis, ultrasonographic and endoscopic examination of the urinary tract in female buffaloes can help in early diagnosis of possible diseases of kidney urethra and urinary bladder in buffaloes.

M.V.Sc. Abstracts

10. Genetic polymorphism of prolactin receptor (PRLR) and growth hormone receptor(GHR) gene in Sahiwal and Hariana cattle

Prolactin and Growth hormone both are the polypeptide hormones of the pituitary gland. Prolactin regulates mammary growth and lactogenesis. It also regulates reproductive and immunological functions, fluid balance, cellular growth and differentiation, while Growth hormone is the main regulator of postnatal growth and metabolism in mammals, stimulating anabolic process such as cell proliferation, skeletal growth and protein synthesis. Thus it has important role in reproduction, lactation and growth. The biological actions of GH/PRL mediate by receptors i.e. Prolactin receptor (PRLR) and Growth hormone receptor (GHR). In the present study, identification of PRLR and GHR gene polymorphism and its association with milk production traits was undertaken in 103 Sahiwal and Hariana cattle maintained at ILFC, DUVASU, Mathura by using PCR-RFLP technique. The amplified fragments of the PRL-I, PRL-II and GHR-I genes revealed 168bp, 582bp and 302 bp respectively, the amplified products were digested with *Sma*I, *Dra*III and *Nsi*I restriction endonuclease enzymes respectively. The *Sma*I/PCR-RFLP assay of PRLR gene revealed three types of genotypes; one of them was of 168 bp (GG genotype); 123 and 45 bp (TT genotype); third of 168, 123 and 45 bp (GT genotype) with frequencies 27.18%, 6.6% and 67.90 respectively. Allelic frequency of G and T allele were 0.607 and 0.393. After χ^2 analysis the screened population of Sahiwal and Hariana cattle was found in Hardy-Weinberg Equilibrium. The *Dra*III/PCR-RFLP assay of PRLR gene revealed three types of genotypes, 582 bp (AA genotype); 399 & 183 bp (GG genotype) and 582, 399 & 183 bp bands (AG genotype), with frequencies of 17%, 16% and 67% respectively. The allelic frequencies of allele A and G were 0.505 and 0.495. In restriction digestion of GHR 302 bp product with *Nsi*I revealed only one type of genotype. This revealed no polymorphism *i.e.* monomorphic in nature. In Association studies of PRLR/*Sma*I gene, *GG* genotype was associated with the higher milk yield 300 days in first lactation and total lactation yield in third lactation. There was no significant difference was observed for the production traits among all the genotypes of *Dra*III/PCR-RFLP in all the lactations.

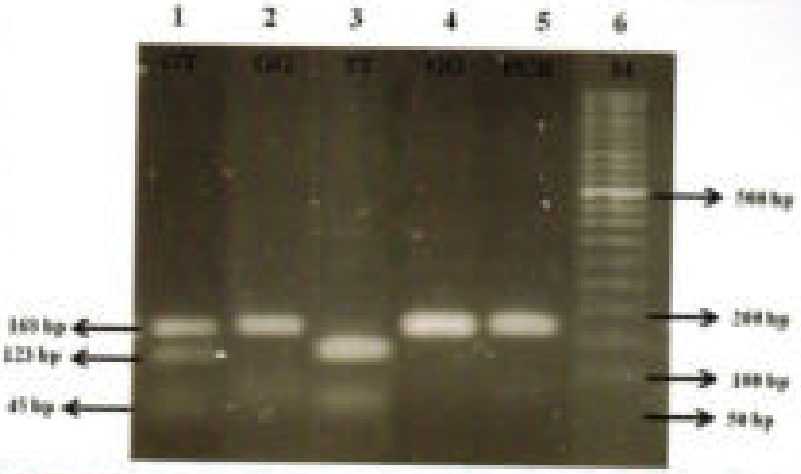


Fig 1. PRLR/*SnoI* PCR-RFLP assay showing genotype pattern in 2.0% agarose gel; Lanes 1: GT genotype (168, 123 and 45 bp); Lane 2, 4: GG genotype (168 bp only); Lanes 3: TT genotype (123 and 45 bp); Lane 5: Undigested PCR product (168 bp), M=Marker (50 bp).

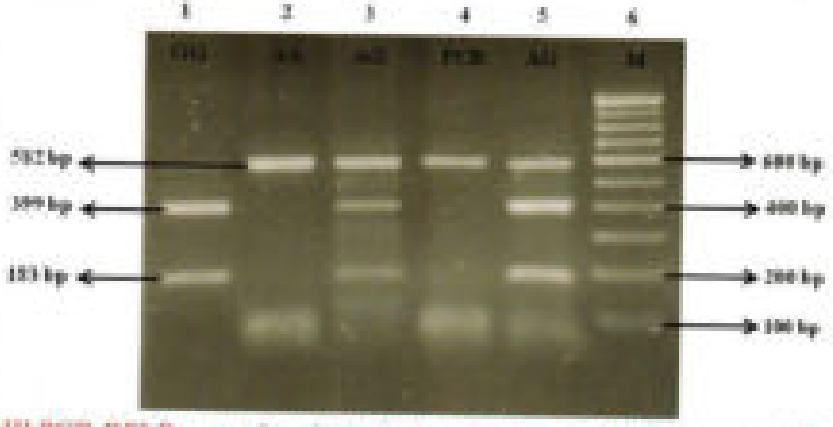


Fig 2. PRLR/*DraIII* PCR-RFLP assay showing genotype pattern in 1.5% agarose gel; Lanes 1: GG genotype (399 and 183 bp); Lane 2: AA genotype (582 bp only); Lanes 3, 5: AG genotype (582, 399 and 183 bp); Lane 4: Undigested PCR product (582 bp), M=Marker (100 bp).

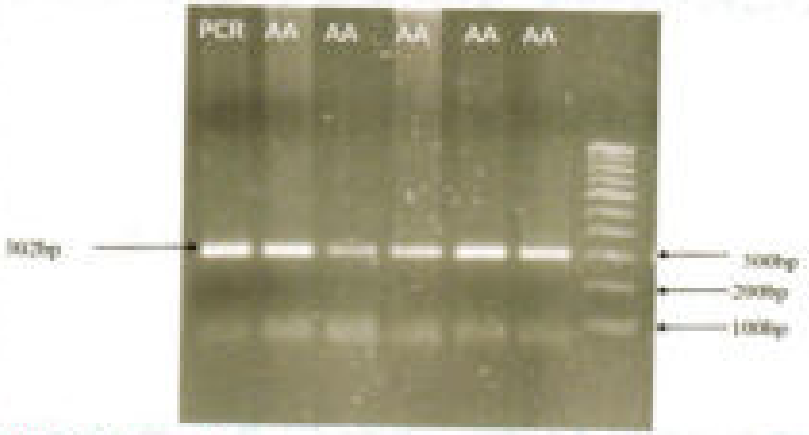


Fig.3. GHR/*NsiI* PCR-RFLP assay showing genotype pattern in 1.5% agarose gel; Lane1: Undigested PCR product (2-6); AA genotype (302bp only). 7: Marker (100bp ladder).

11. Growth performance, nutrient utilization and blood biochemical parameters in heifers supplemented with different sources of chromium.

Present study was conducted to see the effect of supplementation of Cr picolinate, Cr polynicotinate and Cr yeast in rumen fermentation parameters *in vitro*, growth performance, nutrient utilization, blood biochemical parameters and endocrine parameters of indigenous cattle heifers. These three sources of organic Cr were tested at five doses (0.5, 1.0, 1.5, 2.0 and 2.5 ppm) to determine their effects on *in vitro* rumen fermentation taking the diet at concentrate and roughages in the ratio of 50:50. Total gas production, true organic matter and dry matter degradability, ammonia nitrogen concentration, partitioning factor and microbial biomass production were remained similar in all the treatment groups at all dose levels though 1 ppm dose level from all the sources showed better ($P>0.05$) result. On the basis of these observations and available literature 1 ppm dose level of chromium from all the three sources were selected for *in vivo* experiment. Twenty four Hariana heifers of 1 to 2 years of age were randomly allocated into 4 groups (C, T1, T2 and T3) having 6 animals in each group, on body weight basis. Animals in control group fed with basal diet i.e wheat straw, maize fodder and compounded concentrate mixture. Animals in T1, T2 and T3 group were fed basal ration with 1 ppm organic Cr from Cr picolinate, Cr polynicotinate and Cr yeast on DM basis, respectively. Body weight, body condition score and dry matter intake were recorded fortnightly. In present study temperature humidity index varied from 86.08 to 90.76. Respiration rate (RR), pulse rate (PR) and rectal temperature (RT) remained similar in all the experimental animals and they were found in normal physiological range. Average body weight, metabolic body weight, body weight gain and body condition score remained were not impacted by Cr supplementation. Feed efficiency and overall DM intake also remained similar in all the experimental groups. Nutrient digestibility and digestible nutrient intake were not impacted by supplementation of organic chromium sources to Hariana heifers. Dry matter intake (kg/100 kg BW) and TDN intake (g/kg $W^{0.75}$) improved in chromium yeast supplemented group during digestion trial. Absorption (%) of chromium and zinc was increased in supplemented groups than control. Absorption (%) of copper, iron and manganese was not impacted by supplementation of organic chromium sources. Haematological parameters like blood haemoglobin concentration and haematocrit values were not impacted by Cr supplementation. Plasma glucose concentration of treatment groups was lower in Cr polynicotinate supplemented group than control group in last two months of growth trial. Plasma HDL-cholesterol level was found to increase in T1 and T3 groups than control. Total plasma protein, albumin and blood urea nitrogen concentration were also not impacted by Cr supplementation without any adverse effect on liver function test. Overall plasma FRAP value was found significantly higher in T2 and T3 groups than control depicting more antioxidant activity. Cr supplementation did not affect adversely plasma mineral concentration. Overall plasma cortisol concentration of treatment groups was found similar with control group. Plasma insulin concentration was lower in Cr polynicotinate (T2) supplemented group than control whereas other two treatment groups showed similar concentration to control. In conclusion, chromium supplementation at 1 ppm dose level proved beneficial in improving DMI and TDN intake in chromium yeast supplemented group and in improving the potency of insulin in chromium polynicotinate supplemented group without affecting overall growth performance and nutrient utilization in Hariana heifers.

12. Study of environmental musical sound on performances and activities of transient Hariana cows.

The present study was carried out to observe the effect of exposure of classical music on

behavioral, physiological, hematological, blood bio chemical attributes; production, reproduction performance and endocrine profile of transient Hariana cows. Ten transient Hariana cows maintained at DDD Farm of ILFC at DUVASU, Mathura, were quasi randomly distributed into two groups. Cows of one group were exposed to a classical musical sound (75-80 dB and below 120 beats per minute) 25 days before the expected date of calving. The exposure was made for an hour per day into two splits half in morning (6 AM) and half in evening (6PM). The effect of exposure was observed to be significant on rumination time ($P<0.05$), lying time ($P<0.05$). The overall mean rumination time of transient Hariana cows exposed to classical music in present investigation was observed to be 553.78±9.01 sec. Mean values for rumination time, lying time, latency to first reaction, looking at experimenter for exposed experimental cows on different days of observation reflected an increasing trend from day 21 pre to day 90 post partum whereas, mean values for duration in reaching to exposure site, time spent in standing in front of the door reflected a decreasing trend during same duration. The overall mean respiration and pulse rate observed for transient Hariana cows exposed to classical music in present investigation was 20.76±0.16 and 73.4±1.30 per minute, which were significantly ($P<0.01$) higher than the corresponding values for cows of unexposed group. The exposure of classical music significantly affected the overall mean WBC count ($P<0.01$); and Hb and PCV estimates ($P<0.05$) of experimental cows and the mean values for them were 12.96±0.16 x 10^3 /mm^3, 13.38±0.14 mg/dl and 41.49±0.48 %, respectively. Though, the WBC count on different days of observation for cows of exposed group remained apparently constant but it declined significantly for cows of unexposed group from day of calving to day 90 post partum. There was observed an apparent increase in fortnightly milk yield of cows exposed to classical music but the effect was not found to be significant ($P>0.05$). Out of various components of milk only overall mean percentage of fat could be observed to be significantly ($P<0.01$) affected by exposure of classical music and its mean value for cows of exposed group was observed to be 3.94±0.04 %. At the same time the exposure of classical music also reflected a significant effect on milk flow rate (17.59±0.94 ml/sec; $P<0.01$) and milk let down time (53.25±1.83 sec) in Hariana cows. In reproductive traits only duration of occurrence of first post partum heat was significantly ($P<0.05$) affected by exposure (70.60±7.53days). The growth rate of calves produced from exposed cows (0.22±0.01gm/day) at fortnightly interval was observed to significantly ($P<0.01$) higher than growth rate of calves produced from unexposed cows (0.15±0.01gm/day). The exposure of classical music reflected a significant effect only on plasma creatinine, total proteins, albumin, globulin and NEFA ($P<0.01$), and glucose, phosphorus, FRAP and immunoglobulin ($P<0.05$) and plasma cortisol concentration ($P<0.01$) while the effect on plasma estrogen level could not be observed to be significant. Thus, from present investigation it could be concluded that exposure of classical music improved the behavioral, biochemical, production and reproduction performance up to a certain extent.

13. Status and quality assessment of meat from different food animals.

The present study was conducted to appraise the status of meat workers and quality of meat produced in the city. The work included three different aspects viz. status of meat trade and socioeconomic status of respondents, quality of fresh meat produced in city and suitability of chicken, chevon and carabeef for development of meat nuggets. The locations of meat shops were mapped. Survey revealed that 91.17 percent of meat business was owned by Muslim community persons aged between 35-50 yrs. The respondents were mostly functionally literate and 70.59 percent were in opinion to carry forward the meat business to next generation. Persons carrying the meat business were very experienced (10-20yrs) and 47.06 percent were earning more than two lakh annually. Seventy percent of the butchers were in possession of meat shops. There were no facilities of lairage, AM and PM inspection in all of the meat shops though 38.23% meat shops were having the facility of

refrigeration. Halal was the common practice of animal slaughter and source of animals for slaughter was nearby markets. The major by-products were processed and sold while rest were disposed directly as waste material. Survey divulged that 97 percent respondents were satisfied with meat business while only 88 percent expressed economical satisfaction. The major constraints in business included high competition, deficit of healthy and cheap raw materials and lack of government financial assistance. The fresh meat produced in city was of satisfactorily quality. The pH, WHC and drip loss of meat samples ranged 5.33 to 5.42, 97.33 to 99.03 percent and 0.96 to 2.66 percent respectively. The estimated mean TBA values in meat of different food animals were 0.25 mg malonaldehyde/kg. The ERV and FFA values of samples were 31.80 to 35.0 ml and 0.05 to 0.14 percent oleic acid respectively. The mean WHC value was significantly higher in buffalo meat while no significant differences were observed in TBA, ERV and FFA values among chicken, chevon and carabeef. The respective percent moisture, fat, protein and ash content in meat samples ranged between 72.10 to 75.70, 2.22 to 3.25, 19.12 to 21.54, 0.96 to 1.02. The crude protein content in fresh chicken meat was significantly ($P<0.05$) higher than chevon and buffalo meat while the fat content was maximum in carabeef. The mean TPC conformed to standards recommended by FSSAI while no Salmonella was detected in any meat sample. The mean Coliforms count was found to be very high and exceeded prescribed standards. The emulsion stability was found highest for chicken meat whereas minimum values were observed for chevon. The cooking yield of meat nuggets varied between 82.03 to 87.42 percent. The percent moisture, fat, protein and ash content in meat nuggets ranged between 63.28 to 63.91, 12.92 to 14.16, 18.26 to 19.22 and 1.92 to 1.93 respectively. Significantly ($P<0.05$) higher fat values were recorded in nuggets made from buffalo meat whereas significantly ($P<0.05$) lower protein content was recorded in chevon meat nuggets. The nuggets made by chevon meat were adjudged best by sensory panelists.

14. Quality and safety assessment of milk from different milch animal.

The present study was carried out for quality and safety assessment of cow, goat and buffalo milk collected from five different regions of Mathura city viz. Holigate, Sadar, Aurangabad, Chungi and Township. The milk samples were collected from dairy shops, vendors and milk producers and evaluated on the basis of various organoleptic tests, physico-chemical properties, proximate estimation and microbiological studies following the standard procedures. The milks samples of Township and Chungi areas had more clear appearance, normal texture/consistency, normal odor and color than other three areas. No cow milk sample was observed with pure white color, however 74% samples had normal light yellow color. Goat and buffalo milk had normal white color in 86 and 70% samples, whereas some samples were also observed with abnormal pale yellow or dark yellow color. No milk sample had rancid/oxidized odor for any species in any region, however few milk samples of cow and buffalo had weedy or absorbed odor. Watery consistency was observed in 50, 18 and 42% of cow, goat and buffalo milk samples respectively, whereas thick, ropy or slimy consistency was observed only in 4, 4 and 20% of cow's milk only. The COB test was positive in 38, 12 and 20% of cow, goat and buffalo samples respectively. The temperature, pH and specific gravity of cow, goat and buffalo milk collected from different regions were lower than normal prescribed range, however titrable acidity was higher than normal value in all three species. The moisture content of was higher however other proximate parameters like fat, solid not fat, protein, ash and total solids showed quite variable values than normal range. The higher moisture content and lower specific gravity of milk were basically due to adulteration of water to increase the volume. Out of total, 28 and 20% samples of cow and buffalo milk were positive for formalin adulteration, however there was no adulteration in goat milk. The adulteration of other preservatives i.e. boric acid and hydrogen peroxide, neutralizers and adulterants like starch, cane sugar and urea was not detected in any milk sample. . The malpractices like skimming of fat, adulteration of

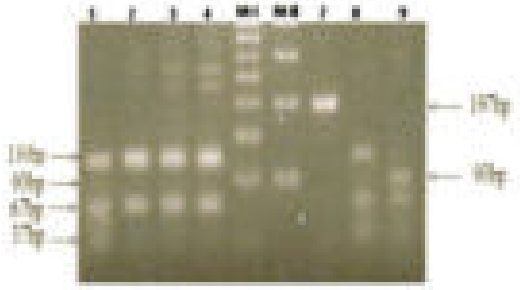
water and formalin etc. were less observed in goat milk as compared to other two species, however the microbial load of all milk samples was quite higher than normal prescribed limit in terms of DMC, SPC as well as Coliform and Staphylococcus count due to poor hygienic condition and sanitation during the milking, handling practices and transportation as well as use of uncleaned utensils.

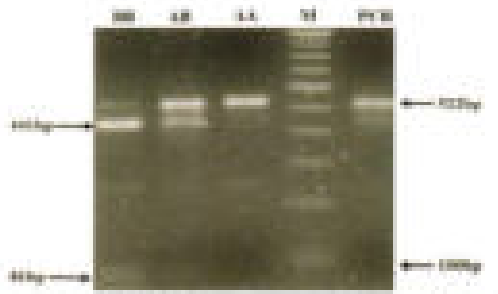
15. Impact study on livestock insurance in Mathura district.

Livestock Sector is an important sector of national economy, especially rural economy. Livestock comprise an important productive asset and source of income for about two-third of India's farm households. The supplemental income derived from rearing of livestock is a great source of support to the farmers facing uncertainties of crop production, apart from providing sustenance to poor and landless farmers. In the event of an animal disease outbreak, the livestock sector suffers large or even catastrophic economic losses. Hence in order to check economic losses of the livestock sector, the Government launched a centrally sponsored scheme on Livestock Insurance which was initially implemented on pilot basis during the 10th Plan. The centrally sponsored livestock insurance scheme was implemented on a pilot basis during 2005-07 and in 2007-08 on a regular basis in selected 100 districts of the country including Mathura district of Uttar Pradesh. The present study was carried out in ten villages of five blocks of Mathura district of Uttar Pradesh. Two villages were selected randomly from each block and twenty respondents' were selected from each village thus comprising a total 100 respondents for this study. Data was collected through pre- designed interview schedules as per the objectives of the study and the results were analyzed using suitable statistical tools. The study revealed that majority of farmers was middle age group, possessing secondary level of education and having medium family size. The 51.0% of the respondent were having high experience of livestock rearing, having herd size of 2-4 animals and having low information source. The result further reveals the awareness for livestock insurance indicates that 89.0% livestock holders were not aware with process of livestock insurance, 87.0% were unaware about regular premium compensation, 87.0% were not aware to inform the insurance agent in case of casualty of their animals respectively. The adoption of the insurance motivation by friends and community as well as high risk of mortality due to increase the adoption percentage. The important constraint in adoption of livestock insurance were inadequate information about livestock insurance, inadequate information for applying livestock insurance as well as inadequate awareness programme by Govt. Animal Husbandry department, and less coverage of small animal in the insurance policies and past experience of farmer reveals unsatisfactory payment of insurance claim respectively.

16. Studies on circulating leptin level, polymorphism of LEP and LEPR genes in Hariana cows.

Leptin is one of the polypeptide hormones secreted from white adipose tissues which regulate feed intake, energy metabolism, lactogenesis, reproduction and immune functions. The present study was executed to elucidate the trend of plasma leptin hormone and some other biochemical indices levels during periparturient period and genetic polymorphism by PCR-RFLP assay using *BsaA*I and *BseG*I restriction enzymes in LEP and LEPR genes, respectively and their associations with production and reproduction traits in Hariana cows. Blood samples were collected from 6 pregnant Hariana cows from -30 days prepartum to +90 days postpartum at 15 days interval for biochemical study and from 62 lactating cows for studying genetic polymorphism in LEP and LEPR genes. Biochemical study in periparturient cows revealed sharp reduction in plasma leptin and glucose concentration at calving and then gradual increase during lactation whereas plasma urea remains low during pregnancy and then rose after calving. Lipid profile remains normal during prepartum period and increases near term except triglycerides which remains high during pregnancy and become lowest just after calving. The PCR-RFLP analysis using *BsaA*I and *BseG*I found capable of revealing genetic polymorphism in LEP and LEPR gene in Hariana cattle. LEP/*BsaA*I assay exhibited AA, AB and BB genotypes with 9.67, 54.8 and 35.5 % genotypic frequency, respectively and its association study revealed significant influence of these genotypes on gestation period, dry period, lactation period, total milk yield, milk yield at 300 days, peak yield and days to reach peak yield. Besides, LEPR/*BseG*I assay indicated CC, CT and TT genotypes with 8.06 %, 87.09 % and 4.83 % genotypic frequency, respectively and revealed significant influence of these genotypes on gestation period, lactation period, total milk yield and milk yield at 300 days.





17. Study on effect of cooling and freezing rate on cryopreserved Hariana bull spermatozoa.matozoa.

This experiment was designed to study the effect cooling and freezing rate in Hariana bull spermatozoa during cryopreservation. For this purpose, ejaculates were collected from four Hariana bulls using artificial vagina at biweekly interval. The semen sample which possesses more than 70 % progressive motility and above 500 million/ ml spermatozoa concentration was subsequently subjected to processing for LN−2 vapour freezing. Semen samples were extended in GEYT extender and split into 3 parts. For these parts temperature reduced from 35oC to 4oC by means of rapid (@ 2.060C/min), moderate (@ .480C/min) and slow cooling (@ .250C/min). Each cooled part again given three freezing protocols i.e. rapid (@ 200C/min), moderate (@ 100C/min) and slow (@ 50C/min). Samples were evaluated at pre-freeze and post-thawing stage for per cent live spermatozoa, per cent progressive motility, per cent HOST positive spermatozoa, per cent spermatozoa with intact acrosome (FITC-PSA)

and different category of plasma membrane integrity as shown by AN/PI assay and reduction of each parameter was observed as the stage of cryopreservation advanced. Maximum reduction observed in rapid cooling-rapid freezing whereas damage found to be minimal in slow cooling- slow freezing protocol.

18. Studies on effect of cholesterol loaded cyclodextrin on freezeability and capacitation status of Hariana bull spermatozoa.

The present study evaluated the beneficial effects of incorporation of Cholesterol loaded cyclodextrin (CLC) as an additive in Tris egg yolk based extender in Hariana bull semen opted for ultralow freezing. The study evaluated physical seminal attributes (motility, livability and membrane integrity), cryocapacitation like changes, process of tyrosine phosphorylations, and apoptosis like changes in terms of mitochondrial transmembrane potential and DNA integrity after equilibration and thawing. Ten ejaculates from four Hariana bulls were divided into four aliquots: One aliquot diluted with egg yolk tris citrate (EYTG) extender Group I (control, without CLC), second aliquot was diluted with EYTG but supplemented with—0.5mg CLC/120x106 spermatozoa Group II, 1.0 mg CLC/120x106 spermatozoa Group III and the fourth aliquot was diluted with EYTG and supplemented with 2.0 mg CLC/120x106 spermatozoa Group IV and were cryopreserved. Semen evaluation after equilibration and post-thaw showed supplementation of 0.5mg CLC/120x106 spermatozoa to EYTG extender significantly ($P < 0.05$) increased motility, viability and membrane integrity of spermatozoa. The degree of cryocapacitation was significantly ($P < 0.05$) decreased in 0.5mg CLC/120x106 spermatozoa supplemented group. Immunoblot revealed seven proteins which were tyrosine phosphorylated and protein of 32kDa (p32) showed differential variation in intensity in the four groups. There was significant reduction in band intensity of 32kDa in Group II as compared to other three gorups. Immunolocalisation studies revealed localisation of tyrosine phosphorylated proteins at mitochondria (high fluorescence), post-acrosomal region (medium fluorescence), principal piece (low fluorescence) and neck (high fluorescence) of spermatozoa. Addition of 0.5mg CLC/120x106 spermatozoa significantly decreased percentage of spermatozoa showing fragmented DNA after thawing as compared to control. Along with this, CLC significantly increased the percentage of spermatozoa with high transmembrane mitochondrial potential. The result of the present study clearly demonstrated beneficial effects of CLC supplementation on post thaw cryocapacitation and apoptosis like changes in spermatozoa and it can be suitably incorporated for long term cryopreservation of spermatozoa.

19. Effect of addition of glutathione on tyrosine phosphorylation and apoptosis like changes in cryopreserved hariana bull semen

The present study evaluated the beneficial effects of incorporation of Glutathione as an additive in Tris egg yolk based extender in Hariana bull semen opted for ultralow freezing. The study evaluated physical seminal attributes (motility, livability and membrane integrity), process of cryocapacitation, immunoblotting for identification of tyrosine phosphorylated proteins, immunolocalization of tyrosine phosphoproteins in spermatozoa, and apoptosis like changes in terms of mitochondrial transmembrane potential and DNA integrity during after equilibration and thawing. Ten ejaculates from four Hariana bulls were divided into three aliquots: One aliquot diluted with egg yolk tris citrate (EYTC) extender (Control), second aliquot was diluted with EYTC but supplemented with 0.5Mm Glutathione (T1) and the third aliquot was diluted with EYTC and supplemented with 1.0Mm Glutathione (T2) and were cryopreserved. Semen evaluation at equilibration and post-thaw showed supplementation of Glutathione (0.5Mm) to EYTC extender significantly ($P < 0.05$) increased motility, viability and

membrane integrity of spermatozoa. The degree of cryocapacitation was significantly ($P < 0.05$) decreased in Glutathione supplemented group. Immunoblot revealed six proteins which were tyrosine phosphorylated and protein of 30kDa (p30) showed differential variation in intensity in the three samples. There was significant reduction in band intensity of 30kDa in T1 as compared to control and T2. It was also found that tyrosine phosphorylated proteins were differently located during different stages of semen preservation. Addition of GSH significantly decreased percentage of spermatozoa showing fragmented DNA after thawing as compared to control. Along with this, GSH supplementation significantly increased the percentage of spermatozoa with high transmembrane mitochondrial potential. The result of the present study clearly demonstrated beneficial effects of Glutathione supplementation on post thaw cryocapacitation and apoptosis like changes in spermatozoa and it can be suitably incorporated for long term preservation of spermatozoa.

20. Studies on the effects of prepartum supplementation of ammonium chloride along with immunomodulators on metabolomics and immunodynamics of periparturient indigenous cows.

In the current study, apparently healthy sixteen indigenous cows in the last trimester of pregnancy were enrolled and randomly allocated into two groups (group 1 and 2) having eight cows in each group. The cows of group 1 were supplemented with one bolus of immunomodulator and 50g of ammonium chloride daily from 14 days before parturition to till day of parturition. However, cows of group 2 were not supplemented with any supplements and were kept as negative control. A group of eight cows in mid lactation (>90 days) were taken as standard control. Remarkable alterations in serum metabolites, lipid dynamics and immunodynamics in control cows, who were not fed prepartum with the supplements (Group 2), were recorded during the transition period. The control cows suffered from clinical and subclinical production diseases. The cows prepartal supplemented with immunomodulators and ammonium chloride (Group 1) revealed remarkable resistance in metabolomic and immunodynamic alterations and were capable to maintained immuno-metabolomic status towards normalcy during the transition period. These cows have a smooth transition period and were free of production diseases. Therefore, prepartal supplementation with immunomodulators and anionic salts could be one of the best strategies to curb transition induced physiological aberrations and thus production diseases in indigenous cows.

21. Studies on inflammatory biomarkers of endometritis and their modulation by *Eucalyptus citriodora* leaves extract in rats.

Present study was undertaken to investigate the modulatory effect of Eucalyptus citriodora leaves extract and Cefixime on inflammatory biomarkers in experimentally induced endometritis in Wistar rats. Uterine discharge of clinical and subclinical endometritis cases having history of repeat breeding (43%) and abortion (57%) were found to have E. coli (60%) Staphyloccocus aureus (40%). Eucalyptus citriodora leaves methanolic extracts exhibited promising antibacterial activity against both clinical isolates as determined by disc diffusion method. Rat endometritic model was developed by inoculating the mixture of E. coli (1x 106) and Staphloccocus aureus (1x 108) in to uterine horns during diestrus stage followed by cervical ligation and the model was confirmed based on presence of visible pus in the uterus, edematous uterine horn, thinning of endometrial lining and presence of large number of polymorphonuclear cells and bacterial load in uterine flushing. Eucalyptus citriodora leaves extract and Cefixime were observed to significantly reduce uterine weight, uterine secretion index,

polymorphonuclear cells and bacterial load in uterine flushings, alteration in total leucocyte count and differential leucocyte count. Tumor necrosis factor α (TNF α), pro and anti inflammatory cytokines like interleukin 1 beta (IL1β) and interleukin10 (IL-10), Serum amyloid A(SAA) and Intercellular adhesion molecule 1 (ICAM-1), Myleoperoxidase (MPO), Toll like receptor 4 and 9 (TLR-4, TLR9), Cyclooxygenase 1 and 2 (COX-1, COX-2), inducible nitric oxide synthase (iNOS) and nitric oxide (NO) were found to be significantly reduced after treatment with Eucalyptus leaves extract. The effect was comparable with the cefixime treatment. Histopathological changes in uterus also showed efficient induction of endometritis by presence of inflammatory cells which are lessened effectively after treatment with Eucalyptus leaves extract. Results were compared with cefixime and it was evident that Eucalyptus citriodora produced curative and protective effect against endometritis. Oxidative stress parameters in vital organs like liver, spleen, kidney and brain showed decrease in reduced glutathione (GSH), catalase (CAT) while an increase in lipid peroxidation (LPO) and superoxide dismutase (SOD) after induction of endometritis. However, after treatment reduced glutathione and catalase level was significantly increased while lipid peroxide and superoxide dismutase significantly reduced. Based on these studies, it may be inferred that Eucalyptus citriodora leaves extracts possess promising antibacterial activity and efficacy against experimental endometritis and, therefore, can be exploited in drug development program for treatment of endometritis in animals.

22. Studies of hydrogen sulfide-induced alterations in myometrial activity and its associated downstream signaling pathways in water buffaloes (*Bubalus bubalis*).

Hydrogen sulphide, a gas with rotten egg smell, is traditionally considered as a toxicant and an environmental pollutant but recently, it has gained attention as a mediator of physiological and biological processes. The present study was undertaken to unravel the effect of HTS on myometrial activity and its underlining mechanism in non-pregnant buffaloes. L-cysteine is considered to be main endogenous amino acid responsible for hydrogen sulphide formation due to the action of two cytosolic enzymes- cystathione Q synthase (CBS) and cystathione y lyase (CSE/CGL). Sodium hydrogen sulphide and GYY4137 are major hydrogen sulphide donors were used in this present study. In *vitro*-exposure of isolated buffalo myometrial strips to L-cysteine (10nm to 3mM) produced concentration-dependent uterotonic effect. L-Cysteine induced uterotonic action is dependent on the activity of cystathione Q synthase (CBS) and cystathione y lyase (CGL/CSE) as evidenced by rightward shift of the DRC of L-cysteine in the presence of enzyme blockers (AOAA and PAG, respectively) it is to be further noted that following blockade of CBS and CSE enzyme, possibly some relaxant mechanism may get activated by L-Cysteine to produce uterine relaxation. The existence of CBS enzyme of molecular weight, 63kDa and CSE/CGL of 45kDa was observed by western blot technique. L-cysteine failed to produce any appreciable contraction in the absence of extracellular calcium. Further, in the presence of nifedipine, the uterotonic action of L-cysteine was completely abolished. Cumulative addition of sodium hydrogen sulphide (10nM to 300JiM), exhibited biphasic effect on isolated myometrial strips which is characterised by initial contraction (upto l0pM) followed by marked relaxation at higher doses (30pM to 300pM). The relaxant effect of NaHS differed in spontaneous and oxyiocin precontracted myometrial strips. The DRC of NaHS was significantly shifted towards left in OT-precontracted tissues compared to the control. GYY4 137 was found to produce no significant change in myometrial spontaneity compared to vehicle (DMSO) control. Thus, our findings evidently suggest that HTS regulates myometrial spontaneity in non-pregnant buffaloes.

23. Study on evaluation of microbial quality and isolation of *E. coli* (VTEC) contamination in milk and milk products of Brij region with special reference to public health.

A total no. of 380 samples comprising of 150 milk samples (90 raw milk, 30 boiled milk, 30 pasteurized milk), 140 milk products (20 paneer, 20 Khoa, 20 Curd, 20 Burfi, 20 Peda, 20 Rasmallai, 20 Ice cream) and 90 samples from environmental sources (30 hand swabs of milkers and vendors, 20 utensils swabs, 20 udder swabs, 20 water samples) were screened for total microbial load, total coliform count and E.coli with verotoxigenic potential in Brij region. Total viable counts (TVC) for milk, milk products and environmental samples in wet period were log 6.99±0.318, log 5.73±0.168 and log 3.87±0.162 respectively. Total viable counts (TVC) for milk, milk products and environmental samples in dry period were log 5.76±0.188, log 5.23±0.111 and log 3.99±0.147 respectively. Mean coliform count for milk, milk products and environmental samples in wet period were log 4.39±0.306, log 4.51±0.201 and log 1.90±0.253 respectively. Mean Coliform count for milk, milk products and environmental samples in dry period were log 4.74±0.199, log 3.91±0.166 and log 3.29±0.223 respectively. Out of 380 samples, 120 E.coli isolates were obtained, out of which 68 and 52 E.coli isolates were obtained in wet and dry season from 190 samples in each season, respectively. The overall percent of *E.Coli* from milk, milk product and environmental samples were found to be 43.33 %, 22.14 % and 26.66%, respectively. A total no. of 30 VTEC were obtained, which is 25% of the total E.coli and 7% of the total sample collected. The overall percent of VTEC from milk, milk product and environmental samples were found to be 16.66%, 2.14% and 2.22% respectively. Out of 30 VTEC, 22 samples were found positive for stx1, 1 for stx2, 1 for both stx1 and eaeA, 3 for both stx1 and hylA and 3 for both stx1 and stx2. Out of total E.coli, 3.33% samples were found positive for rfb O157 and 0 for rfb O111. 23.33% of VTEC were positive for SHV genes, 23.33% for CTX genes and 40% for both SHV and CTX genes. All the VTEC were subjected to antibiotic drug sensitivity test against 15 antibiotics. Imipenam (96%) showed highest sensitivity followed by Chloramphenicol (86.66%), Trimethoprime (86.66%), Tetracyclin (83.33%), Amikacin (73.33%) and antibiotics like Cefoperazone (100%) and Cefixime (100%) showed highest resistance followed by Ofloxacin (90%), Erythromycin (90%), Enrofloxacin (86.66%), Amoxy Sulbactam (80%), Gentamicin (76.66%), Norfloxacin (66.66%) and Cotrimazole (50%).

24. Clinical studies on comparative evaluation of halothane, isoflurane and sevoflurane anaesthesia on glycopyrrolate, xylazine premedicatid and ketamine-diazepam induced anaesthesia in canine.

Three anaesthetic protocols were evaluated in three groups (A, B and C) of animals presented for various surgical procedures. Each group consisted of 6 animals. All the animals of three groups were received glycopyrrolate (0.01mg/kg) + xylazine (0.5 mg/kg) intramuscularly as preanaesthetic medication taking the time interval of 10 minutes between glycopyrrolate and xylazine administration. After 10 minutes of the administration of preanaesthetics, induction of anaesthesia was achieved by administering diazepam (0.25mg/kg) and ketamine (5.0mg/kg) IV, till effect (the administration of induction agent was continued over a period of 60 seconds till the absence of response of animal to noxious stimulus, pedal reflex, relaxation of jaw muscles and absence of resistance to pulling out the tongue). After complete induction, endotracheal tube intubation was performed and maintained on inhalation anaesthesia. For maintenance in animal of group A used halothane, for animal of group B used isoflurane and for animal of group C used sevoflurane in 100% oxygen using semiclosed rebreathing system of anaesthesia machine. The vapourizer was set at 1% initially and then increased or decreased in increments as per the need to maintain an adequate level of anaesthesia throughout the

surgical procedure. The anaesthesia was maintained for at least 60 minutes or until the surgical procedure is completed. The effects of these anaesthetic combinations were evaluated on the basis of alteration in clinico-physiological, haemodynamic, haematological, biochemical observations and cost of anaesthesia. These observations were recorded at base line and other fixed time intervals during anaesthesia. Preanaesthetics, glycopyrrolate and xylazine, produced mild to moderate sedation in the animals of all the three groups. Premedication in all the animals of three groups decreased the requirement of ketamine and diazepam for sufficient anaesthetic induction. All the animals of group A, B and C were maintained by halothane, isoflurane and sevoflurane respectively. Palpebral reflex and pedal reflex was light to abolished during the different time intervals in the course of observation in all the three groups. Sternal recumbency time (SRT) and complete recovery time (CRT) were lowest in group C maintained with sevoflurane and were highest in group A maintained with halothane. While SRT and CRT in group B maintained with isoflurane was slightly higher than group C maintained with sevoflurane anaesthesia. Haemodynamic (SpO_2 and MAP), haematological (Hb, PCV, TLC and DLC) and biochemical parameters (serum glucose, serum urea nitrogen, serum creatinine, ALT and AST) in animals of all the three groups altered with in physiological limit and nearly normalised at complete recovery, indicating non significant alteration in body systems. Faster induction and recovery were recorded in animals of sevoflurane group in comparison to isoflurane and halothane groups. All the three anaesthetic protocols were comparable in terms of the cardio-respiratory and haemodynamic stability and did not produce any serious allegations on these parameters and hence recommended for surgical procedures of about 60 min of duration. None of the anaesthetic combinations imposed any deleterious effects on any vital organ function as evidenced by the haemato-biochemical analysis and hence can safely be used in routine clinical cases of surgery. In all the animals of three groups, induction cost (Rs/kg) was similar in all the groups while maintenance cost (Rs/kg/min) was minimum in halothane group in comparison to isoflurane and sevoflurane group.

25. Clinical studies on the effect of glycopyrrolate, dexmedetomidine, fentanyl and butorphanol in different combinations on propofol- isoflurane anaesthesia in dogs of different age groups.

Two anaesthetic protocols were evaluated in four groups (A_1, A_2, B_1 and B_2) of animals of two different age groups (A_1 and A_2: less than 8 years; B_1 and B_2: more than 8 years) presented for various surgical procedures. Each group consisted of 6 animals. As preanaesthetics combination a mixture of glycopyrrolate (0.01mg/kg), dexmedetomidine (5µg/kg) and butorphanol (0.1 mg/kg) was administered intramuscularly in the animals of group A_1 and B_1. In the animals of group A_2 and B_2, a mixture of glycopyrrolate (0.01mg/kg), dexmedetomidine (5µg/kg) and fentanyl (4µg/kg) was administered, intramuscularly. In all anaesthetic protocols, 15 min after administration of preanaesthetics, anaesthesia was induced with propofol (10 mg/ml) given slow intravenously, to effect using small boluses until a plane of anaesthesia suitable for endotracheal intubation was achieved. Soon after the desired level of anaesthesia was achieved, endotracheal intubation was performed and maintenance of anaestheisia in all groups was started with isoflurane using semiclosed rebreathing system of anaesthesia with a oxygen flow rate of 30 ml/kg/min. The vaporizer was set at 2% initially and then increased or decreased in increments as per the need to maintain an adequate level of anaesthesia throughout the surgical procedure. Anesthesia was maintained for at least 60 minutes or until the surgical procedure was completed. The effects of these anaesthetic combinations were evaluated on the basis of alteration in clinicophysiological, haemodynamic, haematological and biochemical parameters. These parameters were recorded at base line and at fixed time intervals till

complete recovery of drug administration. Preanaesthetics combinations used in group A_1 and B_1 produced better sedation than A_2 and B_2 groups. Premedication in all four groups decreased the requirement of propofol for anaesthetic induction. However, group A_2 and B_2 premedicated with glycopyrrolate, dexmedetomidine and fentanyl, required the higher dose of isoflurane for maintenance than group A_1 and B_1 premedicated with glycopyrrolate, dexmedetomidine and butorphanol. Palpebral reflex and pedal reflex were completely abolished during post induction and maintenance period in all the groups. Complete recovery time was the higher in animals of group B_2 followed by group B_1, A_2 and A_1. Haemodynamic (SBP, DBP, MAP and SpO_2), haematological (Hb, PCV, TLC and DLC) and biochemical parameters (serum urea nitrogen, serum glucose and serum creatinine) in animals of all groups altered within physiological limit. Preanaesthetic combination of glycopyrrolate, butorphanol and dexmedetomidine was found better in comparison to combination of glycopyrrolate, dexmedetomidine, fentanyl in terms of the sedation quality , recovery time, dose sparing action on the induction and maintenance agents used and better maintenance of the cardiopulmonary and haemodynamics. All the four preanaesthetic combinations were comparable in terms of the cardio-respiratory and haemodynamic stability and did not produce any serious allegations on these parameters and hence recommended for surgical procedures of about 60 min of duration. None of the anaesthetic combinations imposed any deleterious effects on any vital organ function as evidenced by the haemato-biochemical analysis and hence can safely be used in routine clinical cases of surgery.

M.Sc. Biotechnology Abstracts

26. Genetic polymorphism of TLR4, CD14 and DRB3 genes in Indian breeds of cattle and buffalo.

Toll-like receptors (TLRs) are a multi gene family play a central role in the initiation of inflammation response and subsequent adaptive immune system and CD14 gene is an important gene for immunomodulation, while BoLA-DRB3 class II genes trigger humoral immune response. Polymorphism study of BoLA-DRB3, TLR4 and CD14 gene in cattle and buffalo and its association with mastitis and production traits explore the possibilities of these genes being used as candidate marker gene. Keeping all these points in view the current study was proposed in Sahiwal & Hariana cattle breed and in Murrah buffalo breed. The study was undertaken in total 130 animals of Sahiwal, Hariana cattle and Murrah buffalo, maintained at ILFC, DUVASU, Mathura by using simple microscopic method for SCC and PCR-RFLP technique for gene study. The amplified fragments of the TLR4, CD14 and DRB3 genes revealed 493, 832 and 304 bp, respectively and the amplified products were digested with *Hae*III, *Hin*fI and *Hae*III restriction endonuclease enzymes respectively. The TLR4/*Hae*III PCR-RFLP assay revealed only one type of banding pattern (genotype); which was of 271 and 222 bp (BB genotype). This revealed that the Sahiwal, Hariana cattle and Murrah buffalo used in the present study were monomorphic in nature. The CD14/*Hin*fI PCR-RFLP assay revealed three types of banding pattern (genotypes); 377, 272 and 183 bp (CC); 377, 225,183 and 47 bp (DD) and 377, 272, 225, 183 and 47 bp (CD genotype) with frequencies 39.0%, 16.0% and 45.0% respectively. Allelic frequency of C & D alleles were 0.615 and 0.385, respectively. The DRB3/*Hae*III PCR-RFLP assay revealed five types of banding pattern (genotypes); 170, 82, 52 bp (AA); 222, 170, 82 & 52 bp (AB), 222 & 82 bp (BB), 222, 193, 82 & 29 bp (BD) , 170 & 134 bp bands (EE genotype) with frequencies 56.0%, 20.0%, 5.0%, 7.0% and 12.0%, respectively in screened cattle and 20.0%, 43.3%, 13.3%, 10.0% and 13.3%, respectively in screened Murrah buffaloes and allelic frequency of A, B, D and E were 0.660, 0.185, 0.035 and 0.120, respectively in screened cattles and 0.417, 0.183, 0.050 and 0.133, respectively in investigated Murrah buffaloes. In association studies of CD14/*Hin*fI gene, D allele was responsible for higher TMY and lower DP. CD genotype had low SCC than DD and CC in screened cattle

population. Association studies of *Hae*III/DRB3 genotypes with production traits showed that BD genotype was significantly associated with lower CI and higher (TMY) and PY in both Haryana & Sahiwal cattle. Association studies of *Hae* III/DRB3, BD genotype had higher TMY and MY300 in first Lactation in total investigated Murrah buffalo population.

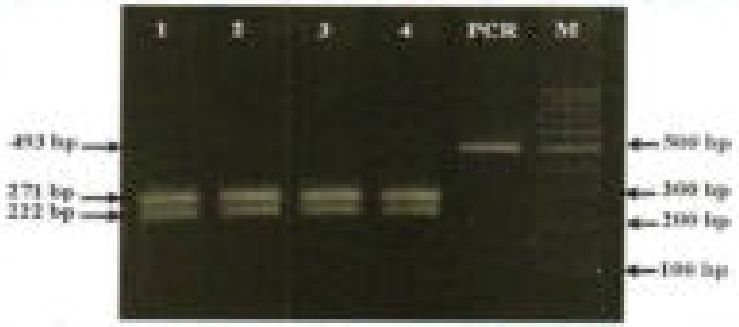


Fig 1. TLR4/*Hae*III PCR-RFLP assay showing monomorphic pattern in 2.0% agarose gel; Lanes 1- 4: BB genotype (222 and 271bp); Lane-PCR: Undigested PCR product (493bp); Lane M= Marker (100 bp ladder.

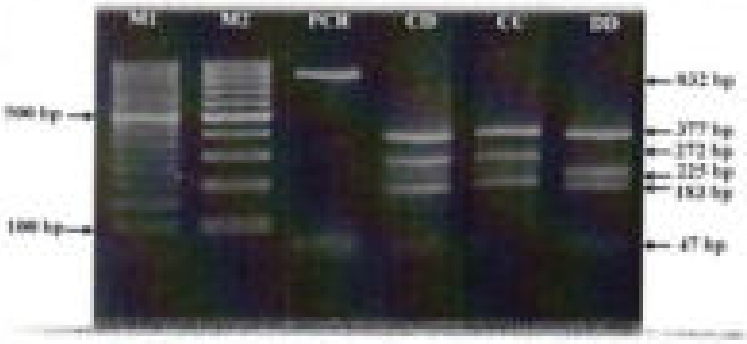


Fig 2. The CD14/*Hinf*I PCR-RFLP assay showing genotype pattern in 2.0% agarose gel; Lanes M1=50 bp ladder, M2=100 bp ladder, Lane PCR: undigested PCR product (832bp), Lane CD: CD genotype (377, 225, 183 & 47bp), Lane CC: CC genotype (377, 272 & 183 bp), Lane DD: DD genotype (377, 272, 225, 183 & 47bp).

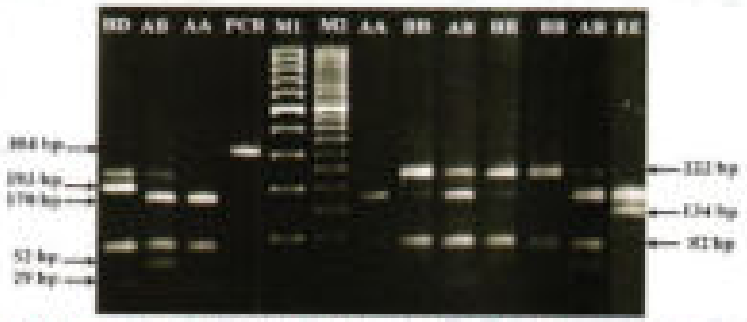


Fig 3. The *Hae*III/PCR-RFLP assay in cattle and buffalo revealed five types of banding pattern (genotypes); one of them was of 170, 82, 52 bp (AA genotype); second of 222 & 82 bp (BB genotype), third of 170 & 134 bp (EE genotype) and heterozygous pattern have 222, 170, 82 & 52 bp bands (AB genotype) & 222, 193, 82 & 29 bp bands (BD genotype) M1=100 bp ladder, M2=50 bp ladder

27. Genetic polymorphism of kappa-casein and beta- lactoglobulin genes in Sahiwal, Hariana cattle and Murrah buffalo

In the present study, identification of Kappa-Casein (K-Cs) and Beta- Lactoglobulin (B-Lg) gene polymorphism and its association with milk production traits was undertaken in 130 animal including Sahiwal (n=50), Hariana (n=50) cattle and Murrah (n=30) buffalo maintained at ILFC, DUVASU, Mathura by using PCR-RFLP technique. The amplified fragments of the K-Cs and B-LG genes

revealed 350 and 247 bp, respectively. The K-Cs/*Hin*fI PCR-RFLP assay of K-Cs gene revealed three types of genotypes AA, BB and AB with genotypic frequencies 61.0%, 23.0% and 16.0%, respectively and allelic frequency of A and B alleles as 0.69 and 0.31, respectively. The screened buffalo population used in the present study was monomorphic in nature with only B allele (1.0). Similarly, B-Lg /*Hae*III PCR-RFLP assay of B-Lg gene revealed three types of genotypes AA, AB and BB with genotypic frequencies 19.0%, 20.0% and 61.0%, respectively and allelic frequency as 0.29 (A) and 0.71 (B). The screened buffalo population was monomorphic for this gene also with both types of alleles A (0.50) and B (0.50). On χ^2 analysis, screened Sahiwal and Hariana cattle population was not found in Hardy- Weinberg equilibrium. Association studies of K-Cs/*Hin*fI genotypes with milk production traits showed that gestation period (GP), lactation period (LP), calving interval (CI), peak yield (PY) and days to reach peak yield (DRPY) had non-significant variation among all the three genotype over first and second lactation. However, a significant difference was found among three genotypes for total milk yield (TMY), dry period (DP) and milk yield in 300 days (MY300). The BB genotype showed higher milk yield value than AA and AB in first lactation. GP, LP, DP, CI, PY and DRPY showed non- significant variation among three genotypes over first and second lactation on association studies of B-Lg/*Hae*III genotypes with milk production traits but significant difference (*P<0.000*) were found among three genotype for TMY and MY300 with AA genotype showing higher milk yield value than BB and AB in first lactation.

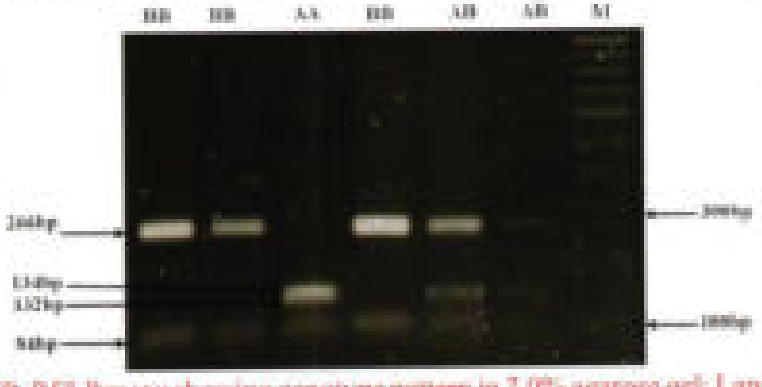


Fig 1. K-Cs/*Hin*fI PCR-RFLP assay showing genotype pattern in 2.0% agarose gel; Lanes 1, 2, 4: BB genotype (266 and 84 bp); Lane 3: AA genotype (134, 132 and 84 bp); Lanes 5, 6: AB genotype (266, 134, 132 and 84 bp); M=Marker (100 bp)

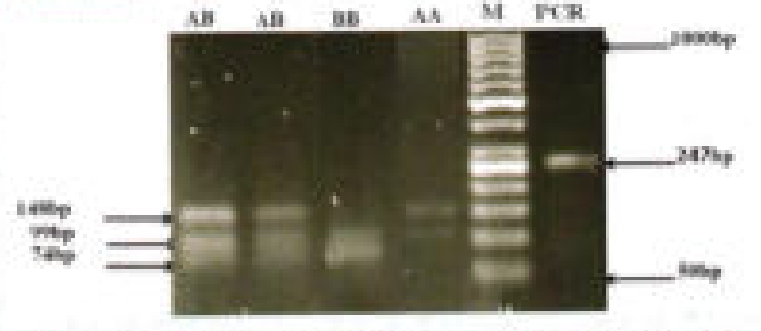


Fig 2. β-Lg/*Hae*III PCR-RFLP assay showing genotype pattern in 2.0% agarose gel; Lane 1 and 2: AB genotype (148, 99 and 74bp); Lane 3: BB genotype (99 and 74bp); Lane 4: AA genotype (148 and 99 bp); M = Marker (50bp) and Lane 6: Undigested PCR product (247bp)

28. Molecular and functional characterisation of voltage-gated sodium channels in sperms of bulls.

In the current study, molecular and functional characterisation of Nav 1.8 and Nav 1.4 were carried out in spermatozoa of Hariana bulls. Forty ejaculates were collected from four bulls and were used for series of experiments. Immunoblotting and immunocytochemistry were employed for the

molecular characterisation of Nav 1.8 and Nav 1.4. Immunoblotting reported a single band of 260kDa for Nav 1.8 and 220 kDa for Nav 1.4 confirming the presence of Nav 1.8 and Nav 1.4 in Hariana bull spermatozoa. Positive immunoreactivity was seen in head, neck, middle piece and tail parts of the spermatozoa for both Nav 1.8 and Nav 1.4. Selective blocking of NaV 1.8 by using the selective blocker A-803467 at 6 and 8 µM concentration significantly ($P<0.05$) decreased sperm motility in a time dependent manner, whereas, blocking with high concentration (10 and 15 µM) induced spermatozoa hypermotility after 2 hrs of incubation. Immunoblotting and immunocytochemistry confirmed the presence of tyrosine phosphorylated proteins along with B- pattern of spermatozoa in Chlortetracycline assay confirming the hypermotility was due to selective blocking of Nav 1.8 with high concentration. Treatment with veratridine showed concentration and time dependent increase in sperm motility which remained sustained up to 6 hrs. Veratridine at high concentration (10 and 15 µM) induced spermatozoa hypermotility after 2 hrs of incubation. Immunoblotting and immunocytochemistry confirmed the presence of tyrosine phosphorylated proteins along with B- pattern of spermatozoa in Chlortetracycline assay confirming the hypermotility was due to activation of Nav channels. The induction of hypermotility due to antagonist and agonist were mediated by different sets of tyrosine phosphorylated proteins. Both antagonist and agonist regulated high mitochondrial transmembrane potential in concentration and time dependent manner. At high concentrations of both antagonist and agonist (10 and 15 µM) induced bent neck condition in the spermatozoa along with lost membrane integrity (HOST negative). Treatment of spermatozoa with both antagonist and CPA significantly reduced progressive motility in a dose and time dependent manner. From the study, it was concluded that, voltage gated sodium channels are present in Hariana bull spermatozoa and are involved in regulation of sperm motility along with spermatozoa function in terms of mitochondrial transmembrane potential. Further studies are required to have an insight in to the mechanism of action of NaV channels in regulation of Calcium fluxing, pH regulation and process of capacitation.

29. A comparative study on expression profile of HSP genes during different seasons in goat breeds.

Heat shock proteins (HSP) are well conserved proteins, expressed in response to stress and play crucial role in stress tolerance and adaptation. The present study was conducted to examine differential expression pattern of HSP genes (HSP60, HSP70 and HSP90) and adaptability in Indian goat breeds of semi-arid region. The study was conducted in five animals from each breed *viz.* Barbari, Sirohi and Jhakrana during winter (temperature humidity indices (THI)-59.63), thermo-neutral (THI-72.1) and summer (THI-82.63). The rectal temperature (RT) and respiratory rate (RR) of the goats were recorded at 09:00 hours during the study period. The blood samples were collected for RNA isolation, cDNA synthesis and quantitative analysis of HSP genes expression by quantitative RT-PCR. The RR increased significantly ($P<0.01$) during summer as compared to winter and thermo-neutral season however, RT did not change ($p>0.05$) during different seasons. The HSP genes expression was significantly ($p<0.01$) increased during summer (high THI) as compared to thermo-neutral season in all the goat breeds. Among HSPs, only HSP90 was upregulated ($p<0.01$) in Jhakrana goats during winter as compared to thermo-neutral season. The deviation in expression of HSP genes during summer with respect to thermo-neutral season was minimum (*HSP60*: Barbari < Jhakrana < Sirohi; *HSP70*: Barbari < Sirohi = Jhakrana; *HSP90*: Barbari = Sirohi < Jhakrana) in Barbari goats and corresponding deviation for HSP90 gene expression during winter was maximum in Jhakrana goats. Therefore, it can be concluded that all the goat breeds under the study were more vulnerable to summer stress than winter stress. Barbari goats possessed better adaptability during summer as compared to Sirohi and Jhakrana goats, and Barbari and Sirohi goats exhibited better adaptability as compared to Jhakrana goats during winter season in semi-arid climatic conditions of India.

EXTENTION

A. DIRECTORATE OF EXTENSION

1. Trainings Organized in College of Veterinary Science and Animal Husbandry

S.N.	Theme of Training	Duration	No. of Trainees	Beneficiaries	Funding Agency
1	Advances in Sheep & Goat Production & Management	21st-25th June 2016	19	Veterinary Officers of UP	UPLDB, Animal Husbandry Dept. Lucknow
2	Advances in Sheep & Goat Production & Management	26th-30th June, 2016	19	Veterinary Officers of UP	
3	Infertility Management of Female Dairy Animals	25th-27th July 2016	15	Veterinary Officers of UP	Sahaj Milk Producers Company Ltd Agra (U.P)
4	Vaigyanik Paddhati Se Pashuon ka Prabhandhan	19th-23rd September, 2016	25	Selected Farmers	ATMA, Mandi, HP
5	Kamdhenu Prashikshan "Vyawasaik Dairy Palan Ke Aadhaarbhut Siddhant"	24th-28th October, 2016	24	Selected farmers under Kamdhenu/ Mini-/Micro Kamdhenu Scheme	UP Animal Husbandry Dept/ Self
6	Kamdhenu Prashikshan	08th-12th November, 2016	16	Selected farmers under Kamdhenu/ Mini-/Micro Kamdhenu Scheme	UP Animal Husbandry Dept/ Self
7	Kamdhenu Prashikshan "Unnat Dairy Palan Ke Mahatwapurna Siddhant"	13th-17th December, 2016	23	Selected farmers under Kamdhenu/ Mini-/Micro Kamdhenu Scheme	UP Animal Husbandry Dept/ Self
8	Kamdhenu Prashikshan "Unnat Dairy Palan Ke Mahatwapurna Siddhant"	19th-23rd December, 2016	25	Selected farmers under Kamdhenu/ Mini-/Micro Kamdhenu Scheme	UP Animal Husbandry Dept/ Self
9	Artificial insemination in Dairy Animals	20th-29th March, 2017	05	Selected Veterinary Officers of UP	UPLDB, Lucknow

2. Trainings organized at door step of farmers and for Women Empowerment under UPCAR Project

S.N.	Name of Village	Date of Training	No. of Farmers	Activity
1	Ading Dist- Mathura	31/07/16	46	1. Delivered the lecture on animal health, management, treatment about various disease causing organism & parasites to improve animal productive & reproductive performance. 2. Distribution of mineral mixtures, de-wormers, literature, leaflet to the farmers
2	Shehzadpur Dist- Mathura	01/08/16	31	
3	Rajpur Block- Goverdhan Dist- Mathura	25/02/2017	54 (43 Women)	

3. Extension Project

Directorate of Extension is undertaking one UPCAR funded project (Rs14.812 lacs) titled "Imparting Scientific Knowledge of Animal Rearing for Better Production through Technology Transfer to Livestock Owner".

4. Visits of Farmers/Students/Officials

S.N.	Date of Visit	Number & Address of Farmer	Sponsoring Agency	Remarks
1	06/04/2016	40 farmers under scheme of Krishak Kaushal Yojana Dist. Bemetara of Chhattisgarh	Pashudhan Vikas Vibhag Chhattisgarh	Provided information & literature regarding dairy farming & visit of PGC and University dairy farm.
2	30/04/2016	55 Farmers from Village-Bhureka, Mathura	Self/DUVASU	
3	14/05/2016	50 Women Goat Farmer from Jaipur (Rajasthan)	Rajasthan Agriculture Department	Provided information & literature regarding dairy farming & visit of PGC and University dairy farm.
4	20/05/2016	Dr. R. Parashar Ex.GMC, Parag Dairy, U.P.Coop Federation, Lucknow	Self	Provided information & literature regarding different schemes & project for betterment of indigenous cows
5	26/05/2016	Shri Shiv Singh Kuntal, Village- Rampur	Self	Provided information regarding dairy farming and suitable breeds for dairy farming
6	11/07/2016	07 Farmers from district Balod of Chhattisgarh	Animal Husbandry Deptt. Chhattisgarh	Provided information & literature regarding dairy farming & visit of PGC and University dairy farm.
7	22/07/2016	One Farmer (Shri Prem Singh) from Krishnadham Aurangabad, Madhura		Provided information & literature regarding dairy farming & visit of PGC and dairy
8	12/08/2016	22 Farmers from Bilaspur district of Chhattisgarh	Department of Animal Husbandry Chhattisgarh	Provided information & literature regarding dairy farming & visit of PGC and University dairy farm.

9	17/10/2016	One Farmer (Shri Shiv Kumar Gaur) from Jatipura, Mathura	Official visit	Provided information & literatures regarding scientific dairy farming
10	18/10/2016	40 Farmers from Ganna Kisan Sansthan Gonda (UP)	Official visit	Provided information & literature regarding animal husbandry & Visit of PGC & dairy
11	20/10/2016	38 Farmers from Ganna Kisan Sansthan Prashikshan Kendra, Shahzahanpur (UP)	Official visit	Provided information & literature regarding animal husbandry at Seminar hall of PGC & visit of dairy
12	25/10/2016	40 Farmers from Uttar Pradesh Ganna Kisan Sansthan Prashikshan Kendra, Kudaghat (Gorakhpur	Official visit	Visit to PGC, Dairy Farm & Poultry Farm and provided information & literature regarding animal husbandry at seminar hall of PGC
13	11/11/2016	45 Farmers from Rajya Stariya Krishak Prashikshan Kendra, Agra, Mainpuri & Firozabad	Self	Visit to PGC, Dairy Farm and provided information & literature regarding animal husbandry at seminar hall of PGC
14	16/12/2016	One Army Man (Shri Bhoopendra Thakur) from NHL,Mathura		Visit to PGC, Dairy Farm and provided information & literature regarding animal husbandry
15	03/02/2017	35 farmers under scheme of Krishak Kaushal Yojana from Dist. Bemetara of Chhattisgarh	Pashudhan Vikas Vibhag, Chhattisgarh	Provided information & literature regarding dairy farming & visit of PGC and University dairy farm.
16	08/02/2017	40 farmers under scheme of Krishak Kaushal Yojana, Rajya ke Bahar Shaikshanik Bhraman Dist. Bilaspur of Chhatisgarh		
17	13/02/2017	15 Farmers under scheme of Krishak Kaushal Yojana, Rajya ke Bahar Shaikshanik Bhraman Dist. Mungoli of Chhattisgarh		
18	13/02/2017	10 Farmers under scheme of Krishak Kaushal Yojana, Rajya ke Bahar Shaikshanik Bhraman Dist. Raigarh of Chhattisgarh		

19	17/02/2017	Shri Sagar Sen, Vrindavan, Mathura	Self	Provided information & various schemes regarding opening of dairy & provided literature.
20	21/02/2017	02 Farmers (Shri Tejpal Singh & Shri Rajveer Singh) Naujheel, Mathura	Self	Distribution of various leaflets, Pashudhan Patrika & 01 Booklet of Kamdhenu Training
21	01/03/2017	45 Farmers from Dist. Sitapur (Uttar Pradesh) under Pradhanmantri Krishi Yojana in leadership of Shri Vidya Sagar Sharma	Agriculture Department, UP	Provided information & literature regarding dairy farming & visit of PGC and University dairy farm.
22	05/03/2017	04 Members from ATMA dist. Panna (M.P.)	ATMA, MP	Provided information & literature regarding dairy farming & Visit of PGC and University dairy farm.
23	07/03/2017	24 Farmers from District-Durg, Chhattisgarh state under RKVY exposure visit	Animal Husbandry Department, Chhattisgarh	
24	18/03/2017	01 Farmers (Shri Girish Kumar Rawat) Village-Dayanathpur, Dist. Hathras (UP)	Self	Provided information regarding Indigenous cow & its milk.
25	20/03/2017	24 Farmers from Ganna Kisan Sansthan, Varanasi	Ganna Kisan Sansthan, Varanasi (U.P.)	Provided information & literature regarding dairy farming & visit of PGC and University dairy farm.
26	23/03/2017	08 Farmers from dist. Nuh (Haryana) under ATMA Scheme	ATMA/ Agriculture Deptt. Haryana	Provided information & literature regarding dairy farming & visit of PGC and University dairy farm.
27	30/03/2017	35 Women farmers from Rajasthan	Rajasthan Krishi Pratispardhatmak Pariyojana, Jaipur	

5. Extension literature developed for farmers

S. No.	Title of Traning
1	डेयरी पशुओं हेतु पशुशाला निर्माण के लिये आवश्यक प्रक्षेत्र
2	दुग्ध सह-उत्पादों से बनने वाले प्रमुख उत्पाद
3	दूध एवं दुग्ध पदार्थों में मिलावट की पहचान
4.	स्वस्थ एंव बीमार पशुओं के लक्षण
5	दुधारू भैंसों हेतु संतुलित आहार निर्धारण चक्र
6	दुधारू गायों हेतु संतुलित आहार निर्धारण चक्र
7	पशुओं का वार्षिक स्वास्थ्य कैलेन्डर
8.	पशुओं का वर्ष भर हरे चारे की उपलब्धता कलेन्डर
9.	बकरीपालन:-ग्रामीण क्षेत्र के लिये एक वरदान
10.	बकरियों के प्रमुख रोग एवं उनसे बचाव

6. Other activities

- Provided extension aids for distribution and demonstrations to farmers during Pt. Deen Dayal Upadyaya Janm Diwas Samaroh organized at Nagla Chandrabhan, Farah, Mathura (25-29th September, 2016)
- Organized 23rd group meeting of AICRP on Rapeseed & Mustard in collaboration with Directorate of Rapeseed and Mustard Research (ICAR-DRMR) from 5th-7th August, 2016.




B. DEPARTMENT OF VETERINARY AND ANIMAL HUSBANDRY EXTENSION

This department was created in the year 1962 to flood livestock owners with information and innovative knowledge by adopting improved technologies that may enhance their skills, increase their productivity, provides more employment opportunities and thereby making them economically sound. The department provides under-graduate and post-graduate teaching to the students to equip them with methodologies to diffuse innovative researches among livestock owners in order to make them economically viable.

1. Trainings coordinated

i. Training programmes for paravets

S. No.	Title	Number of participant	Venue / Date
1.	MAITRI (Multi-Purpose AI Technician in Rural India) training programme on "Artificial Insemination in dairy animals and their management"	30	01-09-2016 to 30-10-2016, DUVASU, Mathura
2.	MAITRI (Multi-Purpose AI Technician in Rural India) training programme on "Artificial Insemination in dairy animals and their management"	30	01-11-2016 to 30-12-2016, DUVASU, Mathura
3.	MAITRI (Multi-Purpose AI Technician in Rural India) training programme on "Artificial Insemination in dairy animals and their management"	30	01-01-2017 to 01-03-2017, DUVASU, Mathura

ii. Training programme for army officials

S. No.	Title	Number of participant	Venue / Date
1.	Practical training on Basic Veterinary Cadre Course for trainees of Sashastra Seema Bal	48	14th – 16th Feb, 2017 DUVASU, Mathura

2. Exhibition of technologies in events organized outside the university

S. No.	Title	Place	Date
1.	Krishi Evam Gram Vikas Pradarshani, Deen Dayal Dham	Village: Nagala Chandrabhan, Block: Farah, District: Mathura	25th – 29th September, 2016
2.	Rabi Fasal Jagrukata Abhiyan Evam Pradarshni	Village : Dagetha, Block : Baldeo, District: Mathura	5th December, 2016
3.	Krishak Jagrukata Abhiyamn Evam Pradarshani	Block : Barsana, District: Mathura	23rd December, 2016
4.	Krishi Gosthi Evam Pradarshani	Village : Bhureka Block : Naujheel District: Mathura	27th December, 2016

3. Exposure visit of farmers conducted

S.No.	Place (District and state)	Number of farmers	Staff
1.	UP Institute of Sugar Cane Training Center, Shahjanpur dated 20/10/16	38	02
2.	Animal Husbandry Department, Bastar, CG dated 02/02/2017	35	03
3.	Animal Husbandry Department, Pathariya, CG dated 13/02/2017	13	02
4.	Animal Husbandry Department, Raigarh, CG dated 13/02/2017	10	02
5.	Animal Husbandry Department, Durg, CG dated 07/03/17	23	01

4. Special Achievement

A memorandum of understanding has been signed with Agriculture Skill Council of India by the University to conduct training programmes in the area of animal husbandry under the Pradhan Mantri Kaushal Vikas Yojana (PMKVY) scheme under the Ministry of Skill Development and Entrepreneurship and the participants will be awarded with National Skill Qualification Framework (NSQF) level certificate

5. Forth coming events

a. Workshop on **"Mentoring Young Extension Professionals for Conduct of Scientific Research"** at College of Veterinary science and Animal Husbandry, U.P. Pt. Deen Dayal Upadhyaya Pashu-Chikitsa Vigyan Vishwavidyalaya Evam Go-Anusandhan Sansthan, Mathura – 281001 (U.P.) from 12th – 13th April, 2017.

b. Establishment of ***Community Radio Station*** in the University Premises.

c. Development of ***Mobile apps*** for various animal husbandry activities.

d. Development of ***New Generation Innovation & Entrepreneurship Development Centre*** (NewGen IEDC).

e. Skill oriented training programmes for the livestock owners of Mathura district.

C. Other Extension Activities by the College of Veterinary Science and Animal Husbandry

1. Disease Outbreaks

Date of Visit	District	Attended by
17.04.16	Etawah Wildlife Safari Park, Etawah	Prof. R. P. Pandey
23.07.16	Kamdhenu Dairy Pariyojana, Vill. Odan Mainpuri	Dr. Rashmi Singh Dr. Shankar K Singh Dr. Rahul Kumar
24.09.16	Kamdhenu Dairy Pariyojana, Juncity, Shahapur,	Dr. MK Shrivastava Dr. Udit Jain Dr. Shyama Narayan Prabhu
19.12.16	Shree Krishna Gaushala, Dhorera, Bangar, Vrindavan Road, Mathuira	Dr. Vivak Malik Dr. Shankar K Singh

2. Clinical and Animal Welfare Camps

Faculty members from the Department of Veterinary Medicine, Veterinary Surgery and Radiology and Veterinary Gynaecology and Obstetrics attended the clinical camps in different villages of Mathura district as per the details given below:

S.No.	Date	Name of Village	Total number of animals treated	No. of Clinical Cases		
				Surgery	Medicine	Gynae
1.	22.10.16	Bandi	66	6	35	25
2.	10.11.16	Chhiyoli	41	3	16	22
3.	05.11.16	Karav	35	12	13	10
4.	03.12.16	Jhandipur	72	-	57	15
5.	07.12.16	Jachoda	51	4	22	25
6.	24.12.16	Parkham	75	9	40	26
7.	27.12.16	Bhureka	135	8	99	28
Total			475	42	282	151

D. Krishi Vigyan Kendra

Krishi Vigyan Kendra conducted various on-campus and off-campus trainings, frontline demonstrations for Rabi and Kharif crops and other 'gosthies' for the benefit of farmers, youth and women during the reporting period.

1. Trainings

Clientele	No. of Courses	Male	Female	Total participants
Farmers & farm women	98	1560	749	2309
Rural youths	8	71	80	151
Extension functionaries	7	195	54	249
Vocational Training	2	30		30
Total	115	1856	883	2739

2. Frontline demonstrations

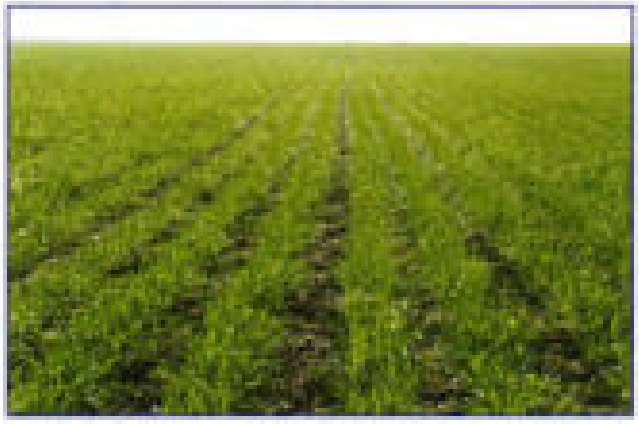
During the reporting period, 247 frontline demonstrations covering an area of 84.8 ha, were organized by the KVK scientists to showcase the yield potential and other characteristics of interventions on farmers field. Likewise, 110 FLDs on animals, kitchen gardening and on safe food grain storage were conducted.

Enterprise	No. of Farmers	Area (ha)	Units/Animals
Oilseeds	50	20	-
Pulses	63	30	-
Cereals	59	22.8	-
Vegetables	22	8	-
Other crops (berseem)	53	4	-
Total	**247**	**84.8**	-
Livestock & Fisheries	10	-	10
Other Enterprises (Kitchen gardening)	90	-	-
Food Grain Storage	10	-	10
Total	**110**	-	**20**
Grand Total	**357**	**84.8**	**20**


3. Technology Assessment & Refinement/ On Farm Testing (OFTs)

To identify location specificity solutions, 11 OFT's at different locations were conducted to showcase the importance of weed management, evaluation of new varieties, integrated nutrient management and disease management etc.

Category	No. of Technology Assessed & Refined	No. of Trials	No. of Farmers
Technology Assessed			
Crops	8	71	71
Livestock	1	5	5
Various enterprises	2	13	13
Total	**11**	**89**	**89**




4. Soil Sample Analysis

During the reporting period 561 soil samples and 23 water samples were analysed in KVK laboratory and the result with recommendation for balance fertilization were given away to the farmers.

5. Seed Production

During the reporting period KVK produced 640.74 q. breeder seed of wheat crop worth Rs. 1921300/- which was supplied to IARI, New Delhi. Besides, Til 7.18 q. worth Rs. 35500/- and Jawar for fodder worth Rs. 204000/- were also produced.

6. Other extension activities of KVK

S.No.	Date	Name of Programme	Venue	No. of Participants
1	30/04/2016	Pradhan Mantri Fasal Beema Yojana	University Campus, Mathura	1200
2	05/12/2016	World Soil Health Day	Daghenta, Baldeo	800
Jai Kisan Jai Vigyan/ Technology Week Celebration (23-29/12/2016)				
3	23/12/2016	Kisan Samman Diwas, Krishi Pradarshini evam Kisan Gosthi	Barsana , Nandgaon	500
4	27/12/2016	Kisan Gosthi , Exhibition and Animal Health Camp	Bhoureka, Naujheel	400 120 animals
5	29/12/2016	Training to farmers & visit to KVK Farm	KVK Seminar Hall	50

UNIVERSITY FARMS

A. INSTRUCTIONAL LIVESTOCK FARM COMPLEX (ILFC)

At ILFC Mathura, the total numbers of animals on 31.03.2017 was 645. It included Haryana cattle (211), crossbred cattle (62), Sahiwal cattle (285) and Murrah buffalo (87). During 2016-17, total milk production of farm was 1, 96,879.00 liters, out of which, the production of cow milk was 1, 60,747.50 liters and buffalo milk was 35, 058.50 liters. The average milk production was 539.39 liters per day.

B. POULTRY FARM

Birds of different species, breeds and varieties were maintained in poultry farm of the Department of Poultry Science during 2016-17.

S. No.	Species, Breeds and Varieties	Flock Population
1.	Layers	75
2.	Chabro breeders	323
3.	Chabro chicks	487
4.	Aseel Peela birds	9
5.	Kadaknath birds	17
6.	Naked Neck	33
7.	Japanese quail	628
8.	Turkey	47
9.	Guinea Fowl	23
10.	Emu	3
11.	Other breeds (Black Rock, White Rock, Red Cornish, Dahlem Red, Barred Rock, Punjab Brown)	90

During 2016-17, the farm generated a revenue of Rs. 2,90,596.00 (Two lac ninety thousand five hundred ninty six) by the sale of Guinea fowls, desi birds, turkeys, desi chicks, Aseel and Kadaknath chicks, Turkey eggs, desi eggs, Chabro birds, and Turkey meat.

C. DIRECTORATE OF FARMS

1. Madhuri Kund Agriculture Farm following crops were cultivated at Madhuri Kund farm.

Season	Name of Crop	Area of Production (Acre)	Production (quintal)	Expected Income (Rs.)
Kharif 2016				
	Sesame	27	3.70	16853.50
	Paddy (PS 1509)	81	853.90	19,49,887.00
Rabi 2016-17				
	Mustard (DMR Seeds)	302	1585.20	76,18,600.00
	Mustard (DMR Mixture Seed)	-	12.05	38560.00
	Wheat (HD 2967)	139	1861.75	41,88,937.50
	Barley	172	1202.96	16,84,144.00
RKVY				
	Oat (Seed)	54	400.87	14,00,805.00
	Berseem(TL Seed)	32	7.0	70,000.00
	Berseem (Fodder)	Auctioned from fields		3,73,725.00
		Total	5,727.93	1,73,41,512.00

Total grain, seed and fodder production during 2016-17 was 5727.93 quintals and the gross revenue receipt of Rs.1,73,41,512.00 (One crore Seventy three lakhs fourty one thousand five hundred twelve) is expected.

2. Pasture Unit

Total fodder grain, wheat straw and green fodder production during FY 2016 – 17 of university's fodder research section was 1566.22 quintals and that of Instructional Livestock Farm Complex was 13998.38 quintal with estimated sales revenue of Rs. 13,11,903/- (thirteen lakh eleven thousand nine hundred and three rupees) and Rs. 24,54,883/- (twenty four lakh fifty four thousand eight hundred eighty three rupees) respectively. This includes green fodder production of 14733.0 quintal, seed/grain production of 300.90 quintals and wheat straw production of 248.60 quintals. The unit procured a Swaraj 744 FE tractor for Rs. 4,88,485.73 from Madhuri Kund farm revolving fund.A herval garden of medicinal plant was established which was inaugurated by Sri Radha Mohan Singh Hon'ble Minister of agriculture Govt. of India on September 26th 2016.The unit has established a collaboration centre with ICAR –IGFRI (Indian Grassland and Fodder Research Institute, Jhansi) for research on different varieties of cowpea.

HUMAN RESOURCE DEVELOPMENT

Name of the event organized	Duration	Name of the department
Exhibition and Workshop on "Biotechnology Awareness"	2nd to 3rd July, 2016.	College of Biotechnology, DUVASU, Mathura
North India Zonal Level SAPI Physiology Quiz	8th Nov. 2016	Department of Veterinary Physiology
10 days short course on "Strategies in development of functional livestock products"	21st Nov. 2016 to 30th Nov. 2016	Department of Livestock Products Technology
21days Winter School on "Advance Techniques in Pharmaco-Toxicodynamic Studies: An Analytical, Functional, Molecular and Cyto-genotoxicity Approach"	01st December, 2016 to 21st December 2016	Department of Veterinary Pharmacology

Training programmes

Department of Livestock Products Technology

Department of LPT organized an ICAR sponsored 10 days short course on "*Strategies development of functional livestock products*" from 21st to 30th November, 2016. Eighteen scientists/teachers from all over the country attended the short course. Dr. Nagendra Sharma, former Director IVRI, CIRG, NDRI,Former Vice-chancellor, SKUAST-J was the Chief Guest and Dr. U.D. Gupta, Director, JALMA Institute of Leprosy and other microbial diseases was the Guest of Honor of the inaugural session. Total 25 lectures and 9 practica classes were taken by eminent resource persons. A field trip to Allana meat factory of Frigerio Conserva Allana Ltd. and Bhole Baba Dairy Industries Ltd. was also organized as a part of course curricula. In the valedictory function, Dr. M.B. Chetti, ADG (HRD), Education Division, ICAR was the Chief Guest of the occasion.

Department of Pharmacology and Toxicology

Twenty-two participants from all over India participated in a 21 days Winter School on "*Advance Techniques in Pharmaco-Toxicodynamic Studies: An Analytical, Functional, Molecular and Cyto-genotoxicity Approach*" sponsored by ICAR, New Delhi from 1st to 21st December, 2016 in the Department of Pharmacology and Toxicology, DUVASU, Mathura. Hon'ble Vice-Chancellor, Professor K.M.L. Pathak, inaugurated the 21 days training. Course director Prof S. K. Garg along with other resource persons updated the knowledge and technical skills of the participants.

College of Biotechnology

A two days workshop on "Biotechnology Awareness" was organized by College of Biotechnology on 2nd - 3rd July, 2016. Prof. D. S. Chauhan, Vice-Chancellor, GLA University, Mathura graced the occasion as the Chief Guest and Hon'ble Vice-Chancellor Prof. K. M. L. Pathak, DUVASU, Mathura presided over the function. Dr. Rajesh Nigam, Dean, College of Biotechnology welcomed the gathering. Inaugural guest lecture on biotechnology awareness was delivered by Dr. Hemant Agrawal, Director Flow Cytometery Solution Pvt. Ltd. Mumbai. A total 136 participants from different prestigious institutions participated. 76 students participated in quiz competition on biology. Hands on training on DNA Isolation, SDS-PAGE, Western Blotting were successfully conducted. Prize distribution ceremony was held which was graced by Prof. S. K. Garg, Dean, Veterinary Faculty, Prof. P. K. Shukla, Dean, PG Studies and Prof. Rajesh Nigam, Dean, College of Biotechnology.

Various models and posters were exhibited by the students on various topics like: Geoengineering, Biosensor, Genetically Engineered Insulin, Biotech Smart City. The creativity and efforts of the students was appreciated by the gathering.

Krishi Vigyan Kendra

On & off campus training for farmers, farm women & rural youth was conducted by KVK, DUVASU w.e.f July 2016 to December 2016. Total 38 training programmes were organized in which 944 farmers, farm women and rural youths participated. Four courses with latest knowledge and technologies were designed in which 101 extension functionaries from line department participated.

Frontline Demonstrations , On Farm Trial (OFT), Analysis of different soil samples were demonstrated to the farmers by KVK scientists wherein 218 demonstrations covering 187 hectares of land was covered for frontline demonstrations, eight technologies at 39 locations for OFT were tested and 401 soil samples were collected from 347 farmers and analyzed respectively. Application of balanced fertilizer was also recommended to the farmers.

PARTICIPATION OF FACULTY MEMBER IN INTERNATIONAL/ NATIONAL CONFERENCES AND SYMPOSIA

Sl. No.	Name of candidate	Title of Event	Year	Date
International				
1	Prof. S.K.Yadav	World Congress on Biotechnology and Bioengineering, Dubai, UAE	2017	March 28th-30th 2017
		Participated in ACSE Annual Conference held at Deira, Dubai, UAE.	2016	August 10th-11th 2016
2	Dr Ruchi Tiwari	Participated in Online International Satellite Symposium (ISS) on "Advances in Animal Sciences and Biomedicine in 21st Century" by International Academy of Biosciences (IAB), UK	2016	October, 12th 2016
3	Dr. Rajneesh Sirohi Dr. Amitav Bhattacharyya	*"10th International Poultry Show and Seminar 2017"* held at World's Poultry Science Association-Bangladesh Branch (WPSA-BB)	2017	March 2nd-4th 2017
National				
1	Dr. Rajneesh Sirohi	National Symposium on *"Rural Poultry for Livlihood, Nutritional & Economic Security"* held at College of Veterinary Science, Assam Agricultural University, Khannapra, Guwahati, Assam	2016	Nov. 3rd-5th 2016
2	Dr. Rajneesh Sirohi	XXX Annual conference of SAPI & National Symposium on *"Physiological changes in changing global scenario for the sustainable production and reproduction of livestock and poultry"* held at College of Veterinary Science, Mhow, MP	2016	Dec. 21st-23rd 2016
3	Dr. Rajneesh Sirohi	National Convention on *Agriculture for Prosperity and Sustainable Development*, NASC Complex New Delhi	2017	March 25th-26th 2017
4	Dr. Shanker K. Singh	35th Annual Convention of Indian Society For Veterinary Medicine and National Symposium on "Innovative Techniques, Emerging Issues and Advancement in Veterinary Medicine to Meet the Challenges: Present and the Future"	2017	Feb. 22nd-24th 2017
5	Dr. Vinod Kumar Dr. Muneendra Kumar	Participated in Xth ANA conference on "Newer Perspective in Animal Nutrition Research for Augmenting Animal Productivity	2016	Nov. 9th-11th 2016
6	Dr. Vinod Kumar	Attended National Convocation on Agriculture for Prosperity and Sustainable Development organized by Vidyarthi Kalyan Nyas, Bhopal and ICAR held at NASC New Delhi	2017	March 25th-26th 2017

7	Dr. Rahul Kumar	Advances in diagnosis of emerging and re-emerging diseases of avian species, held at Sri Venkateshwara Veterinary University, Tirupati.	2016	July, 15th-16th 2016
8	Dr. Dilip Kumar Swain	National Seminar on "Biotechnological Approaches in Management of Health and Reproductive Disorders in Livestock for Sustainable Production" and IV Annual Convention of SVSBT, held at Veterinary College, AAU, Anand, Gujarat	2016	Dec. 16th-17th 2016
9	Dr. Jitender Kumar Dr. Arun Kumar Madan Dr. Brijesh Yadav	XXV Annual National Conference cum National symposium on "Physiological Challenges in the Changing Global Scenario for the Sustainable Production and Reproduction of Livestock and Poultry" held at COVS and AH, Mhow, NDVSU (MP)	2016	Dec. 21st-23rd 2016
10	Dr. Brijesh Yadav	Brain Storming Session at UPCAR held at Mandi Bhawan, UPCAR, Lucknow (Uttar Pradesh)	2017	March 21st 2017
11	Dr. Udit Jain	Participated in X Annual Conference cum Workshop of Indian Association of Mycoplasmologists organized by Div. of Plant Pathology, IARI, New Delhi and Dept. of Microbiology, AIIMS, New Delhi at conference hall, AIIMS, New Delhi.	2017	March 20th-21st 2017
12	Dr. Ajay Prakash Dr. M.M. Farooqui Dr. Archana Pathak Dr. Shriprakash Dr. Abhinov Verma	XXXI Annual Convention & National Symposium, Hyderabad	2016	Dec. 21st-23rd 2016
13	Prof. Vikas Pathak	Meeting of Coordinators of Experiential Learning Programme	2016	Oct. 5th-6th 2016
14	Prof. Vikas Pathak	International congress on "Post harvest technologies of agriculture produce for sustainable food and nutritional security"	2016	Nov.10th-12th 2016

DIGNITARIES VISITED

- Dr PS Pandey ADG (EP&HS), ICAR, New Delhi
- Smt. Hema Malini Hon'ble Member of Parliament, Mathura
- Hon'ble Minister of State (Micro, Small and Medium Enterprises GOI) Shri Giriraj Singh Ji
- Shri Pradeep Bhatnagar, APC, U.P. Govt.
- Dr. Kusumakar Sharma, Former ADG, ICAR

Dr. PS Pandey ADG (EP&HS), ICAR, New Delhi visited DUVASU, Mathura

Dr PS Pandey ADG (EP&HS), ICAR, New Delhi visited DUVASU, Mathura on 2nd September 2016. He visited the ILFC, Kothari Hospital, Hostels and different departments. During his visit he interacted with faculty as well as teaching staff and advocated the requirement of training pertaining to personality development of the students.

Smt. Hema Malini Hon'ble Member of Parliament Mathura visited DUVASU

Hon'ble Member of Parliament, Mathura, Smt. Hema Malini was the Chief Guest and inaugurated the farmer's fair. While addressing the farmers, she emphasized on the major features of the scheme and thanked the Prime minister of India for launching farmer friendly new crop insurance scheme and appealed the farmers to derive maximum benefits out of it. She said that crop insurance scheme may change the lives of farmers and encouraged the farming community to adopt intercropping, mixed cropping system, organic farming, water conservation, judicious use of water in crop, use of neem coated urea and animal rearing. She appreciated the role of Veterinary University Mathura in making this programme a success as well as for the establishment of Gokul Gram to conserve indigenous cattle through Go-Anusandhan Sanathan of the University. Prof. K. M. L. Pathak, Vice Chancellor, DUVASU, welcomed the Chief Guest and briefed about the activities being taken up by the University for enhancing the income and profitability of farming community of Mathura region. More than one thousand farmers including 100 women framers from different parts of Mathura District participated in the fair.

Hon'ble Minister of State (Micro, Small and Medium Enterprises, GOI) Shri Giriraj Singh Ji visited DUVASU

Minister of State (Micro, Small and Medium Enterprises GOI, Shri Giriraj Singh Ji visited DUVASU on 23rd June 2016. Prof K. M. L. Pathak, Hon'ble Vice-Chancellor of the University welcomed Shri Giriraj Singh Ji. A interactive meeting was held in the Vice-Chancellor's committee room with the Vice-Chancellor, senior officers and the teaching faculty of animal science stream. Hon'ble minister also planted Moringa sapling in and around Pasture division and appraised the gathering about its use in the form of green fodder for animals. He said that every part of the plant i.e. roots, shoot, leaf, fruit and seeds have medicinal value.During this year it is proposed to plant Moringa in the 2 acre land of the University.

Shri Pradeep Bhatnagar, APC., U.P. Govt., visited DUVASU

Shri Pradeep Bhatnagar, APC, U.P. Govt., visited DUVASU on 22nd Feb, 2017. He advocated that the Gokul Mission will be helpful in breed upliftment of the indigeneous cattle. During his vist they visted Kothari Hospital, Dairy and poultry farm, Aushdhi Vatika. He planted Arjun tree in Aushdhi Vatika and advocated the importance of herbal medicine in treatment of animals and human.

ICAR team visited DUVASU

A committee of four members of ICAR, New Delhi visted DUVASU, Mathura on 17th March, 2017 for assessing the utilization of budget allocated to the University in 12th Five Year Plan. Team included Dr. Kusumakar Sharma, Chairmain of Committee along with Dr. K. L. Khurana and Dr Vanita Jain of ICAR New Delhi and D. D. Verma F. O. NDRI Karnal. The inspected the library, development of the construction work, instruments purchased in labs and teaching and research activities going on in the University.

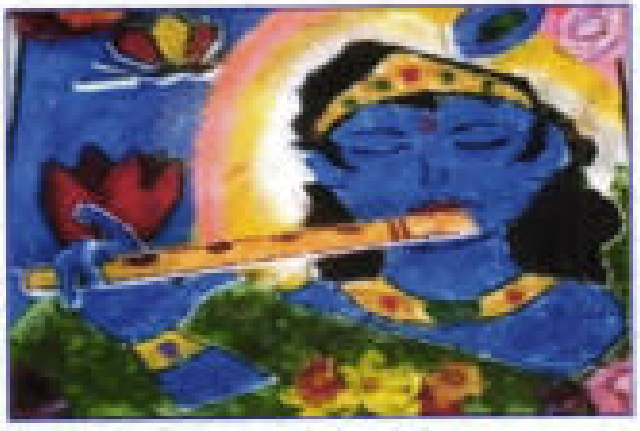
STUDENTS WELFARE

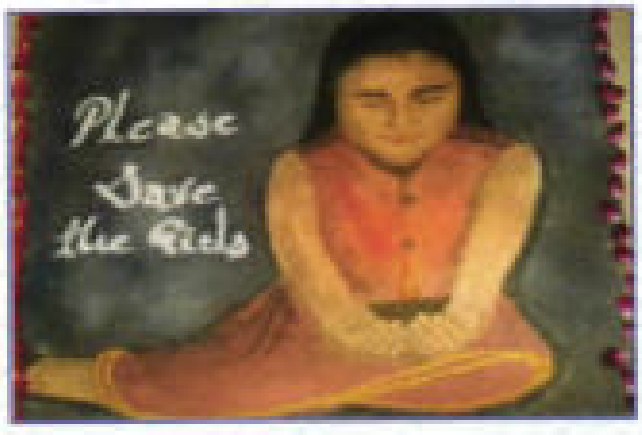
National Cadet Corps

During 2016-17, 'B' & 'C' certificate examinations were successfully cleared by 80 and 26 cadets, respectively. 108 students of the university participated in Combined Annual Training Camp-39 of National Cadet Corps organized at DUVASU, Mathura from 15.09.2016 to 24.09.2016. On the occasion of 6th Convocation of the University held on 17th Nov., 2016 NCC students gave 'Guard of Honour' to the Hon'ble Governor of Uttar Pradesh on 17.11.2016 under the leadership of Associate NCC Officer Lt. Rajneesh Sirohi. NCC cadets also escorted and provided 'Guard of Honour' to the Hon'ble Vice Chancellor of the University on Republic day.

Literary and Cultural festival

Literary and Cultural festival was organized from 28 Oct to 14 Nov 2016 in which students from COVS and AH, COB and Diploma Programme participated. During this, events like Drawing and Painting competition, Collage Making, Clay Modeling, Essay Writing, Rangoli Competition, Poster Competition, Song competition, Debate, Declamation, General Knowledge Quiz, Antakshari and Extempore speech competitions were held. The students participated with gusto and enjoyed. The festival concluded with prizes distribution by Dean, COVS and AH and Dean, PGS.





Orientation Programme

One day Orientation Programme was organized for the 1st year student of the B.V.Sc & A.H. admitted in this session. While welcoming the admitted students, Hon'ble Vice-Chancellor of the University and Dean of the College wished them best of luck and assured of their safety and comfortable stay on the campus and providing best possible amenities within the means of the University. Senior teachers and the officers of the University apprised the students about the degree course they had joined, VCI curriculum, examination and evaluation system, hostels, Veterinary college, the University, Mathura city, rules and regulations etc in the orientation programme.

Educational Tours

South India Education Tour

Educational tour plays a very pivotal role in student's life. Thirty seven final year B.V.Sc & A.H. students visited veterinary colleges at Hyderabad, Tripatai, Kozikode, Chennai, Bangalore, Madgao, Mumbai and Gujarat etc within a period of eighteen days (from 17th June to 4th July 2016). The visit of various institutes helped in upgrading their theoretical and technology knowledge. Dr. Anuj Kumar, Assistant Professor, Department of Veterinary Gynecology and Obstetrics and Dr. Neeraj Gangwar, Assistant Professor, Veterinary Pathology acted as the tour leaders.

15th Annual Sports Meet

Annual sports meet 2017 of the university was inaugurated by the Chief Guest of the ceremony Professor K.M.L Pathak, Hon'ble Vice-Chancellor of the University on 2nd March 2017. The meet was declared open by Hon'ble Vice-Chancellor following march past, salutation and sports oath. Doves were released as token of peace and freedom. Dr. Dayashankar, President Games and sports welcomed the chief guest, other guests, teachers and students. Majority of inter class competition of in-door and out-door games and sports were completed on 26.02.2017 and remaining athletics events were organized during 2nd and 3rd March 2017. Mr. Gaurav Bhoiya, student of 4th Year B.V.Sc and A.H and Miss Nikita Chaudhary, student of 1st Year College of Biotechnology were adjudged best male and

female athletes of the sports meet, respectively. Slow cycling, musical chair for ladies and tug of war between teachers and students were the special attraction of the sports meet. The Closing ceremony was held on 3rd March 2017 in which Professor K.M.L Pathak Hon'ble Vice-Chancellor of the University was the Chief Guest and distributed prizes to the winners.




Participation in All India Inter-Veterinary College Badminton and Table Tennis Tournament and All India Professional Quiz Competition, Pantnagar

Nineteen student from College of Veterinary Sciences and Animal Husbandry participated in All India Inter Veterinary College Badminton and Table Tennis Tournament and All India Professional Quiz Competition organized by GB Pant University of Agriculture and Technology, Pantnagar from 23rd to 25th March 2017. Dr. Dilip Kumar Swain, Assistant Professor, Department of Veterinary Physiology, COVSc & A.H accompanied the students.

Participation in National level Inter-University Debate Competition, Pantnagar

Five students of College of Veterinary Sciences and animal husbandry participated in National level Inter-University Debate Competition held from 14th -15th January 2017 organized at GB Pant University of Agriculture and Technology, Pantnagar. Dr. Madhu Tiwari, Assistant Professor, Department of AGB, College of Veterinary Sciences & Animal Husbandry was the tour leader.

Participation in AGRIUNIFEST, Bikaner

Twenty two students of B.V.Sc & A.H participated in AGRIUNIFEST organized at RAJUVAS, Bikaner from 22nd – 25th February 2017. Dr. Jitendra Kumar, Associate Professor, Department of Physiology and Dr. Barkha Sharma, Assistant Professor, Department of Epidemiology were the tour leader.

Scholarships received by the students of DUVASU, Mathura

- 338 applications of students of DUVASU, Mathura were forwarded by the office of Dean Student Welfare for Uttar Pradesh Government Scholarship. It included 88 applications of students of general category and 189 applications of OBC category. It also included 09, 49 and 03 applications of students belonging to minority, scheduled caste and scheduled tribes groups, respectively.

- Total twelve students, out of which eleven students of M.V.Sc. and one student of B.V.Sc. & A.H., received University Merit Scholarship.

- 07 students of B.V.Sc. & A.H. and 09 M. V. Sc. students got National Talent Scholarship provided by Indian Council of Agriculture Research (ICAR), New Delhi.

DUVASU Premier League tournament

In the month of September 2016, DUVASU Premier League (DPL) cricket tournament among students, teaching and non-teaching staff was held. Offbeat teams, disparate names and different matches from September 17th to October 22nd 2016 jiggled the DUVASU family with enthusiasm and excitement. Teams *Orange Tigers* (Non-Teaching staff) and *Blue Whales* (B.V.Sc. & A.H. 3rd year) played the final match on 22nd October, 2016 and the DPL-2016 trophy was won by Orange tigers. Mr. Sanjay Kumar, Non-teaching staff received the *Orange cap* and Amit Verma, 2nd year B.V.Sc. & A.H. student, received the *Purple cap* and were declared as the best batsman and the best bowler of the tournament, respectively. Dr. Vijay Pandey, Dr. Rahul Kumar and Mr. Dinesh Rautela actively participated and successfully coordinated the organization of the DPL tournament.

OTHER HIGHLIGHTS AND ACTIVITIES

PVT-2016 conducted

University conducted Pre-Veterinary Test-2016. It was conducted in two phases. PVT preliminary examination was conducted on 17th May 2016 at five centers, namely - Allahabad, Kanpur, Barielly, Lucknow and Mathura in which total 3242 candidates appeared. Out of these, 354 candidates qualified the examination. The PVT main was conducted on 21st June, 2016 at two centers of Mathura in which 290 candidates qualified. Candidates were admitted to the B.V.Sc. & A.H. programme on the basis of their merit in the competitive examination under various categories as per availability of seats in the College of Veterinary Science & Animal Husbandry for session 2016-17.

Oath taking ceremony 2016

Oath taking ceremony of the outgoing B.V.Sc & A.H students was held on July 15th, 2016. Hard work, firm determination and a tuff round-the-clock schedule of the University shaped the graduates in such a refined way so that they excel high in their fields and serve the society with honesty and professionalism. Forty graduates batch stood and swore oaths in Pant hall, Department of Veterinary Gynecology and Obstetrics, College of Veterinary Science and Animal Husbandry, DUVASU. Hon'ble Vice chancellor Prof. K.M.L. Pathak was the chief guest and presided over the function. Choudhary Charan Singh Rastriya Paribha puruskar was awarded to the first and second position holders of the class :Priyanka Rajput and Manu Jaiswal respectively by Kisan trust, New Delhi.

Independence Day

"Saare jahan se accha, Hindustan hamara, Hum bulbulain hain iski, ye gulsitan hamara....."

DUVASU celebrated the joy and happiness of free India on 15th August 2016. Hon'ble vice-Chancellor, Professor K.M.L Pathak hoisted the National flag. Celebrating the National festival, the teaching, non-teaching staff of the university and the students gathered in front of the Main building in a festive mood. On this occasion, Honorable Vice-Chancellor alongwith higher officials of the university paid floral tribute to the portrait of Bapuji and saluted the freedom fighters. As trees help us to keep the ecological balance supplying oxygen, the celebration ended with plantation of saplings in the campus and distribution of sweets.

Pt. Deen Dayal Upadhayaya Jayanti

Pt. Deen Dayal Jayanti was celebrated on 25th September 2016 at DUVASU. Honorable Vice-Chancellor Professor K.M.L.Pathak garlanded the portrait of Pt. Deen Dayal ji and a speech was delivered by him in remembrance of his philosophy and vision. All the higher officials, teaching, non-teaching staff and students gathered and celebrated the occasion.

Gandhi Jayanti

To mark the occasion of the birthday of Father of the Nation, Mohandas Karamchand Gandhi, Ghandi Jayanti, a national festival was celebrated by DUVASU on 2nd October 2016. The portrait of Gandhiji was garlanded with floral tribute by Hon'ble Vice-Chancellor, Professor K.M.L. Pathak and other officer of the University.

Constitution Day

The 126th birth anniversary of Bharat Ratna Dr. B.R. Ambedkar was celebrated as "Constitution Day" on 26th November 2016 by DUVASU family. On this occasion, a speech competition was organized on the topic "*Samvidhan ki Samrachana*" in which the University students actively participated.

Environment conservation and plantation programme.

Environment conservation and plantation programme was organized on 17th February 2017 by planting hundreds of plant saplings at VC Office, Shastri, Gautam, Sampurnanand and Vivekanand Hostels and other locations by Hon'ble Vice-Chancellor Prof. K.M.L. Pathak, teachers, students and staff of the University.

Book Exhibition

Keeping in view that the library of our institution should be updated with quality educational and informative books so that students read and acquire knowledge on different subjects, the University library organized an attractive, informative exhibition on books of veterinary and allied subjects in the campus on 29th September 2016 .

Eight publishers/distributors including Satish Serial Publishing House, New Delhi participated in the exhibition with their sample books displayed in a large scale in which students, faculty and technicians gathered information which helped them to inculcate a feeling of loving and reading books.

The book exhibition was enjoyed by everyone and it was a spectacle to watch. Every stall was impressive with books on Veterinary Science and Animal Husbandry etc.

Van Mahotsav

"Clean campus, Green campus" was the slogan humming all over the University on 2nd August 2016. DUVASU family planted more than 1000 trees in the campus celebrating Van Mahotsav, *"the festival of trees"*. Shri Ramesh Tiwari, District Judge, Mathura was the chief guest of the occasion.

Swachhata Pakhawada

Keeping in view the fact that healthy mind requires a healthy body and healthy body requires a healthy environment the Swachhata Pakhawada was launched and celebrated from 01st to 15th November, 2016 by all the students, teachers, officials and non-teaching faculty of the university. The presentability of the campus was enhanced many times by adopting this programme.

Fresher's Day

As per the tradition of the university, 2nd year B.V.Sc. & A.H., B. Sc. Biotechnology and Diploma programme students gave a warm welcome to the newly admitted students of the corresponding colleges' of 2016 batch of the DUVASU fraternity.

World Soil Health Day

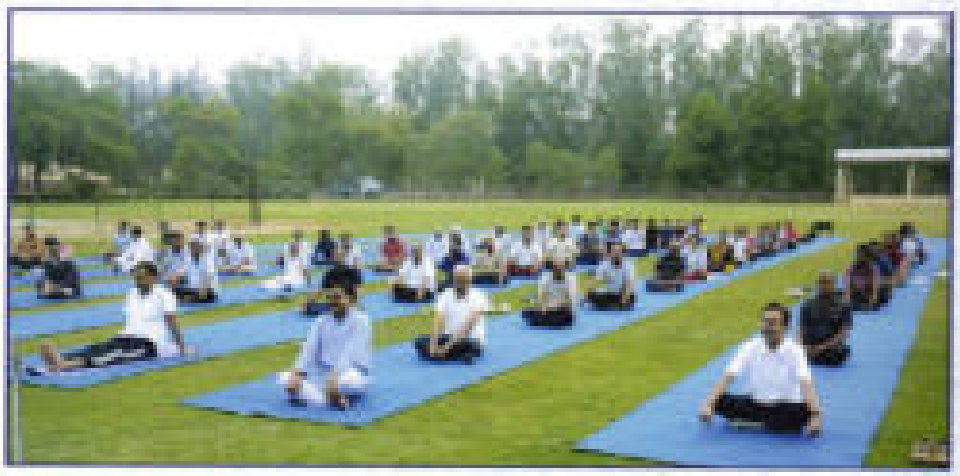
KVK, Mathura celebrated World Soil Health Day at village Daghenta (Baldeo) on 5th Dec., 2016. This function was presided over by Smt. Mamta Chaudhary, Chairperson of Zila Panchayat, Mathura. Shri Puran Prakash, MLA Baldeo, Shri Shyam Singh Aheria, former MLA, representative of Hon'ble MP, Mathura Shri Janardan Sharma along with Hon'ble Vice Chancellor, Finance Officer and other officers of DUVASU graced the occasion. During the programme 30 Soil Health Cards were also distributed to the farmers.

Jai Kisan Jai Vigyan Week

The birth anniversary of former Prime Minister Late Ch. Charan Singh & Shri Atal Bihari Vajpayee was celebrated by KVK, Mathura as "Jai Kisan Jai Vigyan" week from 23rd to 29th Dec., 2016. Kisan Smman Diwas was organized at Barsana (Nandgaon). Director, ATARI, Kanpur, Hon'ble Vice Chancellor and other University officers graced the function. Krishak Gosthi and Animal Health Camp at village Bhureka (Naujheel) were organized in which more than 100 animals were examined and treated. A training cum interaction meeting with farmers at KVK was organized on 29 Dec., 2016 in which more than 50 farmers participated.

International Yoga Day

On the occasion of International Yoga Day a Yog Shivir was organized in University on 21st June 2016. Hon'ble Vice-Chancellor Prof. K.M.L Pathak, officers of the University, teachers and students participated in the Yog Shivir with zeal and passion.



South India Education Tour

Thirty eight Students (34 boys and 04 girls) of 4th Year B.V.Sc & A.H went on South India Education Tour from 17th June 2016 to 04th July 2016 during which they visited Veterinary Colleges at Chennai, Mumbai, Bangalore, Hyderabad, Tirupati and Pookode, Kerala. The students were exposed to various facilities available and recent development in these institutions. Dr. Anuj Kumar, Assistant Professor, Department of Veterinary Gynecology and Dr. Neeraj Gangwar, Assistant Professor, Department of Veterinary Pathology accompanied the students in tour.

Laying Foundation

Auditorium

Hon'ble Union Minister of Agriculture and Farmers Welfare, Shri Radha Mohan Singh ji visited DUVASU on 26th October 2016 and laid the foundation stone of 500 seated **University auditorium**, being constructed with financial support of Rs. 10 crores from ICAR. **Gokul Gram** foundation was also laid by him which is a "Gokul Gram" project for the conservation of indigenous cows with the financial assistance of Rs. 4.33 crores from Department of Animal Husbandry, Dairy and Fisheries, Government of India. In addition to this,

Aushadhi Vatika, to enhance the awareness of medicinal properties of medicinal plants in treatment of various affections of animals, the foundation stone was laid by Hon'ble Union Minister of Agriculture and Farmers Welfare Shree Radha Mohan Singh ji on the same day. The occasion was graced by the presence of Shree Devendra Choudhary, Secretary, Animal Husbandry, Dairy and Fisheries, GOI; Dr. Trilochan Mahapatra, Secretary DARE and DG ICAR, New Delhi; Shree P.K. Mahanti, PS, Animal Husbandry, UP and Prof. K.M.L. Pathak Hon'ble Vice Chancellor, DUVASU, Mathura.

Foundation Day

University Foundation Day was celebrated on 25th Oct 2016. Former Vice-Chancellor Prof S.K. Garg was chief guest of the occasion. Chief Guest shared his experiences related to establishment of this University with students, non teaching staff and faculty members on this occasion.

6th Convocation of DUVASU, Mathura

The 17th of November 2016, the sixth convocation of DUVASU, Mathura was held. Hon'ble Governor of Uttar Pradesh and Chancellor of U.P. Pt. Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go Anusandhan Sansthan, Mathura Shri Ram Naik ji , Hon'ble Chief guest Professor Ramesh Chand, member NITI Aayog and Guest of Honour Shri Mohd. Ziauddin Rizvi, Hon'ble Minister, Animal Husbandry, Government of Uttar Pradesh graced the auspicious occasion. The proceedings of convocation commenced with lighting of lamp, Saraswati vandana followed by University song by students. The University progress report for 2015-16 was delivered by Hon'ble Vice-chancellor after a warm welcome to the dias dignitaries and gathering. Professor Ramesh Chand, member NITI Aayog was conferred Degree of Doctor of Science by Hon'ble chancellor of the University Shri Ram Naik ji.Hon'ble Chancellor conferred degrees to 77 students. Out of a total 77, 10students received their Ph.D. degree, 23 students received M.V.Sc., 40 B.V.Sc. & A.H. and 04 students received M.Sc. degree in Biotechnology. 10 students were awarded medals for their academic excellence and extra-curricular activities.

Hon'ble Chancellor, DUVASU blessed the degree recipients and encouraged them for their achievement and guided them to try harder to the serve the society.

Hon'ble Chief guest Professor Ramesh Chand, member NITI Aayog delivered the convocation address in which he called the graduating students as the stars of convocation and offered them a warm congratulation.In addition to this, he emphasized that wherever you will stand in your future endeavors,you will be the reflection of this University. So, you should contribute positively through your conduct to enhance the institute's reputation.

Hon'ble Guest of Honour Shri Mohd. Ziauddin Rizvi, Hon'ble Minister, Animal Husbandry, Government of Uttar Pradesh too addressed the gathering and stated that the younger generations are the vital parts of the country.

Hon'ble Chancellor of the University released few published books on several topics of Veterinary Science written in hindi language by the college faculty on:Murgi Paalan by Dr. P.K.Shukla & Dr.

Mukul Anand, Pashu Paalan by Dr. Mukul Anand , Dr. Shalini Vaswani & Dr. P.K.Shukla, Pasu Poshan by Dr. Shalini Vaswani and Pashu Prajanan by Dr. Mukul Anand & Dr. Sarvajeet Yadav.He appreciated the efforts of faculty who toiled harder to frame these books in hindi language and said that this will certainly help the farmers to understand the things better.

Hon'ble Chancellor Shree Ram Naik ji and Minister, Animal Husbandry, Government of Uttar Pradesh Shri Mohd. Ziauddin Rizvi ji also planted Arjun plant in aushadhi vatika on the occasion.

Republic Day

68th Republic Day was celebrated on 26th January 2017 in front of College of Veterinary Sciences & Animal Husbandry. Prof. K.M.L Pathak Hon'ble vice-Chancellor DUVASU Mathura, Chief Guest on the occasion, unfurled the National Flag. Floral tributes were paid to the Father of Nation Mahatma Gandhi. On the eve a Blood Donation Camp was organized under the patronage of Professor K.M.L Pathak, Hon'ble Vice-Chancellor of the University. The students, non teaching staff and faculty members of the University contributed seventy six units of blood during this camp

AWARDS AND HONOUR/ACHIEVEMENTS

Prof. Satish K. Garg was elected as President STOX and was Chief Guest at the Inaugral Function in 36th Annual Conference of Society of Toxicology (India) 2016, International Conference on New Insights & Multidisciplinary Approaches in Toxicological Studies at Amity Institute of Environmental Toxicology, Safety and Management (AIETSM), Amity University Uttar Pradesh (AUUP) Sector-125, Noida-201313, India held from 3-5 August, 2016.

Prof. Ajay Prakash, Dr. M.M. Farooqui, Dr. Archana Pathak, Dr. Shriprakash and Dr. Abhinov Verma received Dr. K.L. Suri Award and medal for best poster presentation in XXXI Annual convention & national symposium Hyderabad held from Dec. 21-23, 2016.

Dr. Shanker K. Singh was received Best Oral Presentation Award (2nd) in "Complementary and Alternative Medicine" session and Best Oral Presentation Award (3rd) in "Companion Animal and Infectious Diseases" session and Co-Chairman of a technical session in 35th Annual Convention of Indian Society For Veterinary Medicine and National Symposium on "Innovative Techniques, Emerging Issues and Advancement in Veterinary Medicine to Meet the Challenges: Present and the Future" held from 22-24th Feb 2017.

Dr. Sooraj V. Nair, MVSc Scholar received Dr. R. Natrajan Young Scientist Award for Best Paper presentation during XVI Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology held at College of Veterinary Science and Animal Husbandry, Navsari Agriculture University, Navsari-396450 (Gujarat) form 23-25 November, 2016.

Dr. Udayraj P. Nakade, Ph.D. Scholar received Best Poster Award during XVI Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology held at College of Veterinary Science and Animal Husbandry, Navsari Agriculture University, Navsari-396450 (Gujarat) form 23-25 November, 2016.

RESEARCH PUBLICATIONS

Ahmed, I., Verma, A.K., Kumar, A., Tripathi, A.K., Sharma, B., Neha and Bist, B. (2016). Prevalence and 16SrRNA gene based molecular characterization of thermotolerant Campylobacters in dogs attending veterinary practice. *Journal of Remount and Veterinary Corps*. 15-29.

Anand, M., Yadav, S., Vaswani, S., Shukla, P.K. and Madan, A.K. (2016). Assessment of membrane integrity and antioxidative enzyme status in fresh ejaculated barbari buck semen during breeding season. *International Journal of Science, Environment and Technology*, 5(5): 2935-2942.

Anand, M., Yadav, S. and Kumar, J. (2016). Kinematic Response of Barbari and Sirohi Buck Spermatozoa to High Egg Yolk Concentration in Semen Extender. *Journal of Animal Research*, 6(3):1-4.

Anand, M. and Yadav, S. (2016). Assessment of motion and kinematic characteristics of frozen-thawed Sirohi goat semen using computer-assisted semen analysis. *Veterinary World*, 9(2):203-206.

Anand, M. and Yadav, S. (2016). Effect of low density lipoproteins on motility and Path velocities of spermatozoa in Sirohi buck. *Indian Journal of Small Ruminants*, 22(1):40-43.

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ESTATE ORGANIZATION

With the financial assistance from Indian Council of Agricultural Research, New Delhi during the year 2016-17, construction of auditorium (369.47 lacs), major renovation work in S. N. Hostel including dinning hall and covered approach to dinning hall of the hostel (81.285 lacs), major renovation work in Nehru Hostel, roof replacement of Toilets (62.2235 lacs) and construction of Soak Pit in Girls Hostel (0.73019 lacs) were done. On other hands, approximately 62.00 lacks were sepnt on road work at V.C. camp office, administrative block and ILFC; repair of Shed at ILFC, Renovation work at Teachers Guest House, roof replacement of COVSc main building, along with renovation work at Department of Animal Nutrition, parasitology, Kothari Hospital and COE office, UG , PG lab and toilets in department of Biochemistry, tissue culture lab in college of Biotechnology, drain from C-Type block new campus to main sewerage, and KVK for set up of IT

FINANCIAL STATUS (Rs in Lacs)

State Government	Salary		Contengency		Total
	Plan	Non Plan	Plan	Non Plan	
	55.29	3253.90	632	250	4191.19
ICAR- Developmental Grant					956.728
University Receipt					683.75

RIGHT TO INFORMATION ACT

In compliance of the order of Govt. of Uttar Pradesh and provision of RTI Act, 2005, PIO received 65 applications out of which 57 applications were cleared and rests are under consideration for disposal.

उ.प्र. पं. दीनदयाल उपाध्याय पशु चिकित्सा विज्ञान विश्वविद्यालय
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