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ANNUAL REPORT

2015-2016

उ.प्र. पं. दीनदयाल उपाध्याय पशु चिकित्सा विज्ञान विश्वविद्यालय एवं गौ अनुसंधान संस्थान, मथुरा

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

Livestock sector plays a significant role in the welfare of Indian rural population as it engages major section of the rural population including women and provides livelihood to them. India's livestock sector is one of the largest in the world with a holding of 11.6% of world livestock population. 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 Vishwavidayalaya Evam Go Anusandhan Sansthan (DUVASU), Mathura has pledged itself for continuing service to veterinary profession. It is a matter of great pride for the University that DUVASU has been ranked among top 100 (62nd) Universities in the country by Ministry of Human Resource Development, Government of India. It is a matter of great pleasure for me to present the Annual Report of DUVASU highlighting the main activities of the academic departments and administrative units during 2015-16. The report gives details of the teaching programmes, admission and pass out statistics, research papers presented in national and international meetings and conferences, publications, corporate social responsibility functions and financial statement of the University.

Animal health services were provided to livestock owners and farmers through the Teaching Veterinary Clinical Complex (TVCC), clinical camps and ambulatory services. Facilities of TVCC were further strengthened by installation of phaco machine, coloured doppler and USG machine. 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, animal farm, animal nutrition and livestock products technology under experiential learning programmes. The research mandate of the University is being supported by the grants from State Government, ICAR and Government of India. Presently, nine externally funded research projects are running in different departments. The University has been proving its commitment towards its mandate of extension and has undertaken several trainings to address the problems of farmers and livestock owners.

Fifth convocation of the University was held on 17th November, 2015 to confer the degrees to successful candidates. The occasion was graced by Hon'ble Chancellor and a number of eminent persons from different arenas.

I am thankful to Hon'ble Governor, Uttar Pradesh and Chancellor of U.P. Pt. Deen Dayal Upadhayaya Pashu Chikitsa Vigyan Vishwavidayalaya Evam Go Anusandhan Sansthan, Mathura, Shri Ram Naik ji for giving me an opportunity to serve this prestigious

University and pave the way for further improvement in quality of education, research and extension so as to produce bright and talented students who will be the future leaders, innovators, public servants, and contributors to our society.

On behalf of the University, I express my sincere thanks and gratitude to the State Government and ICAR, New Delhi for adequate financial support. The support from Government of Uttar Pradesh and ICAR, New Delhi has really changed the shape and destiny of our University. 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. My thanks are also due to all Senior Officers of the University, staff members and students for their cooperation, sincere efforts and contributions in the progress of University and I am confident that they will continuously lend their support to the University in its venture of advancement. I am confident that the painstaking efforts by the Chief Editor, Coordinator, Communication Centre and editorial team in bringing out this report would be reflected in its utility to all the concerned.

K M L Pathak

(K.M.L. Pathak)

प्राक्कथन

पशुधन क्षेत्र भारतीय ग्रामीणों के जीवन में एक महत्वपूर्ण भूमिका निभाता है क्योंकि यह देश के एक बड़े ग्रामीण वर्ग जिसमें महिलायें भी सम्मिलित हैं को रोजगार दिलाता है तथा फसल उत्पादन हेतु जमीन के एक बड़े हिस्से को जोतने के लिये पशुशक्ति प्रदान करता है। भारत का पशुधन क्षेत्र दुनिया के पशुधन आबादी का 11.6 प्रतिशत होने के साथ ही दुनिया के पशुधन का एक सबसे बड़ा हिस्सा है। सकल घरेलू उत्पाद के राष्ट्रीय अर्थव्यवस्था में पशुधन और मत्स्यपालन के क्षेत्रों का योगदान क्रमश: 4.1 और 0.8 प्रतिशत है। उत्तर प्रदेश भारत के कुल पशुधन आबादी में 15 प्रतिशत के सार्थक योगदान के साथ-साथ देश में दुग्ध एवं मॉस उत्पादन मेंअग्रणी स्थान पर है। उ.प्र. पंडित दीनदयाल उपाध्याय पशुचिकित्सा विज्ञान विश्वविद्यालय एवं गो-अनुसंधान संस्थान मथुरा, पशु चिकित्सा एवं पशुपालन के क्षेत्र में लगातार अपना योगदान देने हेतु प्रतिबद्ध है। यह विश्वविद्यालय के लिये गर्व का विषय है कि मानव संसाधन विकास मंत्रालय द्वारा देश के 100 शीर्ष विश्वविद्यालयों में हमारे विश्वविद्यालय को 62वॉ स्थान प्राप्त हुआ है। विश्वविद्यालय की मुख्य गतिविधियों एवं क्रियाकलापों की झलकियाँ को दुवासू वार्षिक प्रतिवेदन के माध्यम द्वारा प्रस्तुत करने में मुझे अत्यधिक हर्ष की अनुभूति हो रही है। यह प्रतिवेदन विश्वविद्यालय के विभिन्न पाठ्यक्रमों का विवरण, प्रवेश के ऑकड़े, स्नातक एवं स्नात्तकोत्तर स्तर की पढ़ाई के ऑकड़े, विभिन्न संकायों के आचार्यो द्वारा अंतर्राष्ट्रीय एवं राष्ट्रीय बैठकों और सम्मेलनों में शोध पत्र प्रस्तुत करने विषयक, विभिन्न प्रकाशन, सामाजिक जिम्मेदारी तथा वित्तीय एवं बजट के बारे में जानकारी प्रस्तुत करता है।

किसानों एवं पशुपालकों को राज्य के पशुधन से संबंधित पशुचिकित्सा स्वास्थ्य सेवाएं, वैटेरिनरी क्लीनिक्स, चिकित्सा शिविरों, सचल पशुचिकित्सालय द्वारा प्रदान की जाती हैं। पशुचिकित्सालय की सुविधाओं को इस वर्ष फेको मशीन, रंगीन डोपलर, अल्ट्रासाउन्ड मशीन द्वारा अधिक सुदृढ़ बनाया गया। बुनियादी ढॉचे 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, पशु फार्म, पशुपोषण और पशु उत्पादों के प्रसंस्करण के क्षेत्र में व्यवहारिक ज्ञान प्रदान किया। विश्वविद्यालय की अनुसंधान परियोजनाएं राज्य सरकार, 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 ने अपने प्रसार जनादेश के प्रति अपनी प्रतिबद्धता को भी साबित किया है। पशुपालकों को नवीनतम जानकारी प्रदान कर किसानों एवं पशुपालकों के समस्याओं के समाधान हेतु विभिन्न प्रशिक्षण आयोजित किये।

विश्वविद्यालय का पाँचवां दीक्षांत समारोह 17 नवम्बर 2015 को आयोजित किया गया जिसमें छात्रों को डिग्री प्रदान की गयी। इस अवसर पर मा0 कुलाधिपति तथा विभिन्न विषयों के प्रख्यात व्यक्तियों ने उपस्थित होकर समारोह की शोभा बढ़ाई।

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 मुझे इस प्रतिष्ठित पद पर बैठने का तथा प्रतिभाशाली छात्रों के जीवन को उज्ज्वल बनाने का एक सुअवसर प्रदान किया, जो कि भविष्य के महान नेता, अविष्कारक, सामाजिक कार्यकर्ता बनकर हमारे समाज में अपना योगदान देंगे।

विश्वविद्यालय की ओर से मैं राज्य सरकार तथा भारतीय कृषि अनुसंधान परिषद का पर्याप्त वित्तीय सहायता प्रदान करने के लिये पूर्ण ईमानदारी से धन्यवाद एवं आभार व्यक्त करता हूँ । उत्तर प्रदेश एवं भारतीय कृषि अनुसंधान परिषद द्वारा मिलने

वाली वित्तीय सहायता से सचमुच हमारे विश्वविद्यालय की उन्नति को नई दिशा मिली है। मैं मा0 कुलाधिपति के मुख्य सचिव तथा मुख्य सचिव पशुपालन विभाग उ0प्र0 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 प्रस्तुत करता हूँ तथा मुझे पूर्ण विश्वास है कि वे निरंतर विश्वविद्यालय की उन्नति तथा उसे अपना लक्ष्य प्राप्त करने में योगदान देंगे। इस प्रतिवेदन को तैयार करने हेतु मुख्य सम्पादक, समन्वयक, संचार केन्द्र तथा सभी सम्पादकीय सदस्यों द्वारा किये प्रयास अत्यधिक प्रशंसनीय हैं।

(के. एम. एल. पाठक)

CONTENTS

EXECUTIVE SUMMARY

TEACHING

- College of Veterinary Science and Animal Husbandry and College of Biotechnology are running their regular academic programmes.
- During 2015-16, College of Veterinary Science and Animal Husbandry admitted 75 students in B.V.Sc. & A.H programme. Out of which 33.33% were girls. In M.V.Sc. and Ph.D programmes, 33 and 08 students, respectively, were admitted. During the year, 67 Graduate, 21 Postgraduate and 04 Doctorate students completed their degrees. 45 and 49 students were admitted in Diploma in Veterinary Pharmacy (DVP) and Diploma in Livestock Extension (DLE) programmes, respectively while 40 and 38 students completed their DLP and DLE programmes respectively.
- During 2015-16, College of Biotechnology admitted 23 students in B.Sc. Biotechnology and 02 students in B.Sc. Industrial Microbiology. In addition to this, 07 girls students were admitted in PhD biotechnology. In M.Sc. Biotechnology, 02 boys were admitted.
- Teaching Veterinary Clinical Complex (TVCC) is well equipped with modern facilities including 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. In addition to these, Phaco machine, coloured Doppler and USG machine were also procured during 2015-16 to further strengthen the facilities in TVCC.
- The diseases diagnostic laboratory of TVCC is well equipped with semiautomatic blood and biochemical analyzer, urine analyzer and electrolyte machine in addition to other conventional facilities for diagnosis of animal diseases. During 2015-16, 2162 clinical samples were processed in diagnostic laboratory. Out of these, 1614 blood samples for CBC, 471 samples for serum biochemical analysis, 77 samples of urine and 32 samples of milk were analysed.
- During 2015-16, 9992 clinical cases were treated in TVCC. Out of these, 4009 were large ruminants, 115 small ruminants, 255 equines, 3965 pets and 395 other animals. Total revenue generated during the year was Rs 4, 22,370.
- During the year under report, 09 clinical camps were organized in Mathura and adjoining districts with the help of gram panchyats and local veterinary officers in which 532 animals were treated, which included 132 cattle, 344 buffaloes and 56 other animals like sheep, goat and pigs. Out of 532, 16 were surgical cases, 385 medicine cases and 131 gynecological cases which were treated in these camps.
- 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 2015-16, total revenue generated through experiential learning unit was Rs 2,47,530/-. To promote the backyard poultry farming, chabro, Japanese quail chicks and guinea fowl chicks were distributed to 114 families in Mathura and adjoining areas of Rajasthan through LUPIN Human Welfare Research Foundation.

- Department of LPT trained undergraduate students of B.V.Sc. &A.H. and post-graduate 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. During 2015-16, a net profit of Rs 30,936 was generated under revolving fund scheme established under ELU.
- Under another experiential learning programme on feed manufacturing, Department of Animal Nutrition imparted training to 516 B.V.Sc. & A.H. students in compounding animal feed and preparation of urea mineral molasses blocks. During 2015-16, a total of 11,241 quintals of dairy cattle concentrate feed was prepared.
- Library provided "on line journal facility (www.cera.jccc.in) to students and faculty.
- AKMU in the University has 30 computer systems with internet connectivity for students and faculty members. The wireless internet facility was extended to S.N. Hostel after its complete renovation during the year. The website of University was redesigned to make it more informative. Internet facility is available to all the students in their respective hostels.

RESEARCH

- University is running ten externally funded projects in various Departments of College of Veterinary Science and Animal Husbandry. Out of these, 07 projects are from ICAR and 02 projects from Goverenmant of India and one project from Dhampur Sugar Mill Pvt. Ltd.
- During the year, 08 University funded projects were completed while 05 projects are in progress.
- Academic research in various departments has resulted in submission of four Ph.D and 23 M.V.Sc. theses in College of Veterinary Science and Animal Husbandry.

EXTENSION

- During 2015-16, Directorate of Extension with the assistance of faculty of College of Veterinary Science and Animal Husbandry organized six trainings on the campus, five trainings in Pashu Gyan Chaupal and five trainings at the door steps of farmers. Through these trainings, 413 farmers, Veterinary Officers, Scientists (SMS), Assistant Professors of SAU's and army personnel were trained.
- Directorate of Extension organized one day "Mustard Seed Production and Swasth Pashu Pratiyogita Mela" in collaboration with Directorate of Rapeseed-Mustard Research, Bharatpur on 16th Feb, 2016 at Madhurikund Farm, Mathura where more than 1100 farmers from Mathura and its adjoining districts and Rajasthan participated.

- 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 also provided to farmers regarding animal husbandry practices.
- KVK organized 60 on-campuse and 53 off-campus trainings in which 1172 and 1142 Farmers / Farm Women, rural youth and extension functionaries, respectively were trained. 107 and 431 Front line demonstrations of Kharif and Rabi season crops respectively were organized on various crops, vegetables, cereals, oilseeds, flouriculture and fodder crops. Four OFT's on weed management in paddy and wheat and one OFT on productivity enhancement were conducted during this year by the subject matter specialists in various locations of the adopted villages.
- Gosthies, Diagnostic visits, Kisan Samman Diwas were organized for improving connectivity with farmers. During this year, Soil Testing Laboratory of KVK analyzed 903 soil samples of 574 farmers from 61 villages and furnished recommendations on optimal use of fertilizers. Live demonstration units of Napier and Guinea grass, vermi compost, NADEP compost, crop cafeteria were also demonstrated to farmers.

UNIVERSITY FARMS:

- Dairy farm of Veterinary College produced 1,91,574 liters of milk and generated a revenue of Rs. 53,68,586.
- Poultry farm of Veterinary College maintained a 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. 3, 32, 827 through sale of spent hens, Japanese quails, Japanese quails ckicks, birds and eggs.
- Madhuri Kund farm produced a total of 6341.93 quintals of paddy, til, jowar, jau, mustard seed, wheat, chana, bhusa and jai and generated a total revenue of Rs. 1,09,62, 314.
- Through the auction of jowar and production of wheat seed, pasture unit of the University generated a revenue of Rs 2,24,000 / -.
- During 2015-16, KVK generated a revenue of Rs. 11,24,056 / - through the sale of farm products.

HUMAN RESOURCE DEVELOPMENT

- One day National Seminar on "Strategies for conservation of indigenous cattle breeds of semiarid region for augmenting milk production" was organized on Feb. 1, 2016 in collaboration with SESHIS, H.P.
- Ten days training on "Use of Functional and Molecular Tools in Pharmacodynamic and Cyto-toxicity Studies" was organized by the Department of Pharmacology and Toxicology from Feb. 8-17, 2016.
- Dr. Yajuvendra Singh and Dr. Shalini Vaswani attended 10 weeks International Training Programme in Netherlands.
- Dr. S.K.Yadav attended three days 5th World Congress on Virology in Spain (Feb. 10-12, 2016).

STUDENTS' WELFARE

- During 2015-16, 21 students participated in CATC-39 NCC camp. In addition to this twenty nine students participated in "B" certificate and fifteen students participated in "C" certificate examination.
- Fresher's Day of B.V.Sc. & A.H., Diploma and B.Sc. Biotechnology students were organized.
- 8th Zydus All India Drawing and Painting competition 2015 was organized on 08.09.2015 in which Dr. Deepanka, Ms Kavisha Gangwar and Ms Sakshi Singh were declared first, second and third, respectively.
- Literary and Cultural festival was organized from 21st to 26th September 2015 in which students from COVSc. and AH, COB and Diploma Programme participated.
- 'Cultural Night' on the occasion of 5th Convocation was organized by Directorate of Students Welfare in which students of College of Veterinary Science & A.H., Diploma and College of Biotechnology participated.
- All India Educational Tour of 5th year students of B.V.Sc. & A.H. was organized to enrich their professional knowledge, wherein students visited Madras Veterinary College, Bombay Veterinary College and Veterinary Colleges at Bangalore, Hyderabad, Thrissure and Pookote and Fisheries Institute, Goa.
- Educational tour of College of Biotechnology was also organized. The students visited Biochemical and Physiotherapy Department, Patanjali Yogapeeth (Haridwar), Museum of Forest Research Institute (Dehradun), Central Molecular Research Laboratory, SGRRI Dehradun, College of Biotechnology, Sardar Vallabh Bhai Patel University of Agriculture and Technology, Meerut.
- 14th Annual Sports Meet of the University was organized on 01st -2nd March, 2016. Mr. Mahesh Kumar, 3rd Year BVSc and AH and Miss Abhinika Yadav, 2nd Year BSc (Biotech.) respectively were adjudged the best male and female athletes of the year.
- Ninteen 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.

- One Ph.D student of Department of Pharmacology & Toxicology of Veterinary College received INSPIRE fellowship granted by DST, Govt. of India.
- 03 students of B.V.Sc. & A.H. got National Talent Scholarship from Indian Council of Agriculture Research, New Delhi.

OTHER HIGHLIGHTS AND ACTIVITIES

- University successfully conducted the Pre Veterinary Test-2015 in two phases viz. Preliminary Examination and Mains Examination.
- Oath taking ceremony of Veterinary Graduates of the 2010 batch was organized on July 10, 2015 in which sixty-seven (67) graduates administered professional oath.
- 5th Convocation of U.P. Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go Anusandhan Sansthan (DUVASU), Mathura was organized on 17th Nov, 2015. Hon'ble Governor of Uttar Pradesh and the Chancellor of the University, Shri Ram Naik Ji, presided over the function and Prof. M.L. Madan, Former DDG (A.S.) ICAR, New Delhi and Former Vice Chancellor PDKV, Akola and DUVASU, Mathura, was the Chief guest on this occasion.
- During 5th Convocation, Honoris causa (Doctor of Science) degree was conferred upon Prof. K.M.L. Pathak DDG (A.S.) ICAR, New Delhi and Prof. A.K. Srivastava, Director, NDRI, Karnal.
- 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.
- Prof. K.M.L. Pathak Former DDG (Animal Science) joined U.P Pandit Deen Dayal Upadhyaya Pashu-chikitsa Vigyan Viswavidyalaya Evam Go-Anusandhan Sansthan, Mathura, U.P as the 5th regular Vice Chancellor of this University on 3rd March, 2016.

AWARDS AND HONOUR / ACHIEVEMENTS

- Dr. Satish K. Garg, Dean College of Veterinary Science and Animal Husbandry received ISVPT Fellowship at 15th Annual Convention of ISVPT held at National Dairy Research Institute, Karnal, Haryana held from 14-16 January, 2016.
- Dr. Satish K. Garg, Prof. & Head Pharmacology and Toxicology and Dean College of Veterinary Science and Animal Husbandry delivered the Challappe Memorial Oration lecture during 15th Annual Conference of ISVPT held at NDRI, Karnal from 14-16 January, 2016.
- Dr. Satish K. Garg, Professor & Head, was elected as the President of Society of Toxicology (STOX), India for the second consecutive term (2016-2018).
- Dr. Rajesh Nigam Professor and Head Biochemistry was felicitated by Society of Veterinary Biochemists and Biotechnologists of India (SVBBI) in Annual Convention and National Symposium held at College of Veterinary Science & Animal Husbandry, OUAT, Bhubaneswar on 11th – 12th March, 2016.
- Department of Pharmacology filed one Patent (Number: 201611011035 dated 30.03.2016) on “Buffalo uterine artery as an ideal alternative to laboratory animals for demonstration of effect of vasoactive drugs”.

FINANCE AND BUDGET

- During 2015-16, University received Rs. 52,18,000 and Rs. 26,71,33,000 under Plan and non-plan schemes, respectively under the salary head from Govt. of U.P.
- During the year, University received Rs. 2,00,00,000 and 2,50,00,000 under Plan and non-plan, respectively in contingency head from Govt. of U.P.
- Indian Council of Agricultural Research, New Delhi granted Rs. 3,93,70,000 as development grant and Rs. 3,06,26,000 for various ongoing research projects and KVK.
- During the year, total receipt generated by the University was Rs. 4,80,33,881.

ESTATE ORGANIZATION

- During 2015-16, 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. In addition to this, New ladies toilets were also constructed in three departments of College of Veterinary Science and Animal Husbandry.

RIGHT TO INFORMATION ACT

- In compliance of the order of Govt. of Uttar Pradesh and provision of RTI Act 2005, PIO received 92 applications out of which 82 applications were cleared and rest are under consideration for disposal.

कार्यकारी सारांश

पाठयक्रम

- पशु चिकित्सा विज्ञान एवं पशुपालन महाविद्यालय एवं जैव प्रौद्योगिकी महाविद्यालय अपने शैक्षणिक सत्र चला रहा है।
- वर्ष 2015–16 के दौरान 75 विद्यार्थियों ने बी0 वी0 एस0 सी0 एण्ड ए0 एच0 कोर्स में प्रवेश प्राप्त किया जिसमें 33.3% छात्राओं ने प्रवेश प्राप्त किया। एम0 वी0 एस0 सी0 तथा पी0 एच0 डी0 में क्रमश: 33 और 08 विद्यार्थियों ने प्रवेश प्राप्त किया। इसी वर्ष 67 स्नातक, 21 स्नातकोत्तर, 04 पी0 एच0 डी0 विद्यार्थियों ने परीक्षा उत्तीर्ण की। क्रमश: 45 तथा 49 विद्यार्थियों ने वैटरिनरी फार्मासिस्ट डिप्लोमा तथा पशुधन प्रसार डिप्लोमा कार्यक्रम में प्रवेश प्राप्त किया। इसी दौरान 40 तथा 38 छात्रों ने क्रमश: वेटेनरी फार्मासिस्ट एवं पशुधन प्रसार डिप्लोमा परीक्षा उत्तीर्ण की ।
- वर्ष 2015–16 में जैव प्रोद्यौगिकि महाविद्यालय में 23 विद्यार्थियों ने बी0 एस0 सी0 बायौटैक्नोलोजी तथा 02 विद्यार्थियों ने बी0 एस0 सी0 इन्डस्ट्रियल माइक्रोबायालॉजी में प्रवेश प्राप्त किया। इसके साथ ही पी0 एच0 डी0 बायौटैक्नोलोजी में 07 छात्राओं ने तथा एम0 एस0 सी0 बायौटैक्नोलोजी में 02 छात्रों ने प्रवेश प्राप्त किया ।
- टी0 वी0 सी0 सी0 सभी आधुनिक रोग निदान की सुविद्याओं सें सुसज्जित है तथा इसमें छोटे तथा बड़ें जानवरों के लिए शल्य क्रिया हेतु कमरा, पालतू पशुओं के लिए आई0 सी0 यू0 परिकल्पना निदान यूनिट, दन्त चिकित्सा यूनिट, शल्य अणुविक्षण यंत्र, लैपरोस्कोपिक शल्य क्रिया यूनिट, हड्डी जोड़ तोड़ शल्य क्रिया यूनिट, नेत्र शल्य क्रिया यूनिट हेतु उपकरण तथा नेम्बुलाईजर की सुविद्या उपलब्ध है। इसके साथ ही वर्ष 2015–16 में फेको मशीन, रंगीन डोपलर, अल्ट्रासाउण्ड मशीन भी क्रय की गयी है।
- टी0 वी0 सी0 सी0 की रोग निदान प्रयोगशाला सेमीआटोमेटिक ब्लड एनालाइजर, बायोकेमिकल एनालाइजर, यूरिन एनालाइजर उपकरणों से सुसज्जित है। वर्ष 2015–16 में 2162 नमूनों का परीक्षण किया गया जिनमें 1614 नमूने सामान्य खून जाँच, 471 नमूने बायोकेमिकल एनालिसिस, 77 नमूने पेशाब के तथा 32 नमूने दूध के जाँचे गए।
- वर्ष 2015–16 के दौरान 9992 रोगी पशुओं का उपचार किया गया जिनमें से 4009 रोमन्थी पशु, 115 छोटे रोमन्थी पशु, 255 अश्व प्रजाति के पशु , 3965 पालतू पशु तथा 395 अन्य पशु शामिल थे। इन सेवाओं से टी0 वी0 सी0 सी0 को रू0 4,22,370 (चार लाख बाईस हजार तीन सौ सत्तर रू0) का राजस्व प्राप्त हुआ।
- 2015–16 में टी0 वी0 सी0 सी0 की सचल पशु चिकित्सा द्वारा मथुरा तथा निकटवर्ती जिलों में ग्राम पंचायत तथा पशु चिकित्सकों के सहयोग से 09 शिविरों का आयोजन किया गया, जिसमें 532 पशुओं का ईलाज किया गया, इनमें 132 गौवंशीय पशु, 344 महीष वंशीय पशु तथा 56 अन्य पशु जैसे भेड, बकरी एवं सूअर शामिल थे। इन शिविरों में 16 शल्य चिकित्सा, 385 औषधि रोगी एवं 131 मादा पशु रोगों का उपचार किया गया।
- पोल्ट्री विभाग के प्रयोगिक प्रशिक्षण यूनिट में मौजूद पोल्ट्री ब्रीडिंग फार्म, लेयर फार्म तथा हेचरी द्वारा अधोस्नातक तथा स्नातक छात्रों को उचित शिक्षा प्रदान करने हेतु तथा उनको मुर्गी पालन एवं प्रबन्धन व अण्डे सेवन सम्बन्धित विषयों का व्यवहारिक ज्ञान प्रदान करने में महत्वपूर्ण भूमिका निभाता है। वर्ष 2015–16 में प्रयोगिक प्रशिक्षण यूनिट द्वारा विश्वविद्यालय को 247530/– रूपयों का राजस्व प्राप्त हुआ।
- पशुधन प्रौद्योगिकि विज्ञान विभाग द्वारा बी0 वी0 एस0 सी0 एवं स्नातक विद्यार्थियों को दुग्ध एवं परीक्षण हेतु प्रशिक्षण दिया गया तथा इसके अन्तर्गत दुग्ध प्रसंस्करण एवं दुग्ध निर्मित उत्पाद तथा मॉस निर्मित उत्पादों जैसे चिकिन नगेट, चिकिन पेटिज, संगठित लस्सी इत्यादि बनाने हेतु प्रशिक्षण दिया गया। वर्ष 2015–16 में प्रयोगिक

प्रशिक्षण युनिट के अन्तर्गत स्वचालित रिवोलविंग फंड स्किम द्वारा रू0 30936.00 (तीस हजार नौ सौ छत्तीस) रूपयों का राजस्व प्राप्त किया।

- प्रायोगिक प्रशिक्षण योजना के अन्तर्गत, फीड मेन्यूफेक्चरिंग यूनिट द्वारा प्रथम वर्ष के 516 छात्रों को पशु आहार एवं यूरिया मोलेसिस की ईटों को बनाने का प्रशिक्षण प्रदान किया गया। वर्ष 2015-16 में 11,241 क्विन्टल पशु आहार का उत्पादन किया गया।
- पुस्तकालय द्वारा विद्यार्थियों को विभिन्न जनरलों के अवलोकन हेतु ऑनलाइन सर्विस सेवा द्वारा प्रदान की गयी।
- ए0 के0 एम0 यू0 में 30 कम्प्यूटर इन्टरनेट सुविधा से परिपूर्ण छात्रों एवं विभिन्न संकायों के आचार्यों हेतु संचालित है। वर्ष 2015-16 में वायरलैस इन्टरनेट की सुविद्या एस0 एन0 छात्रावास को प्रदान की गई। विश्वविद्यालय की बैबसाईट को आकर्षक बनाने हेतु उसे पुन:संरचना प्रदान की गई।

अनुसंधान

- विश्वविद्यालय में पशु चिकित्सा एवं पशुपालन महाविद्यालय के विभिन्न संकायों में दस बाह्य परियोजनाएँ जिसमें से 07 भारतीय कृषि अनुसंधान परिषद् द्वारा, 02 भारत सरकार के अनुदान द्वारा तथा 01 परियोजना धामपुर सुगर मिल द्वारा पोषित है ।
- इस वर्ष विश्वविद्यालय अनुदान द्वारा पोषित 08 योजनायें पूर्ण हो चुकी हैं तथा 05 योजनायें चल रही हैं।
- विभिन्न विभागों में चलने वाले अनुसंधान कार्यों पर आधारित विषयों पर 04 पी0 एच0 डी0, 23 एम0 वी0 एस0 सी0 के शोधग्रंथ पूरे किए गए।

प्रसार

- वर्ष 2015-16 में प्रसार निदेशालय ने पशु चिकित्सा विज्ञान एवं पशुपालन महाविद्यालय के सहयोग से छ: प्रशिक्षण विश्वविद्यालय के प्रागंण में, पाँच पशु ज्ञान चौपाल में तथा पाँच प्रशिक्षण किसानों से सीधे सम्पर्क द्वारा (गाँव) में आयोजित किए। इन प्रशिक्षण कार्यक्रमों द्वारा लगभग 413 किसान, पशु चिकित्सक, वैज्ञानिक (विषय वस्तु विशेषज्ञ) विभिन्न विश्वविद्यालयों के सहायक आचार्य एवं सेवानिवृत भारतीय सेना के जवान लाभान्वित हुए।
- प्रसार निदेशालय ने सरसों अनुसंधान निदेशालय भरतपुर के सहयोग से एक दिवसीय किसान मेला 'सरसों बीज उत्पादन एवं स्वस्थ पशु प्रतियोगिता' माधुरी कुण्ड फार्म पर आयोजित की। 1,100 से अधिक किसानों ने मथुरा तथा निकटवर्ती जिलों एवं राजस्थान से इसमें भाग लिया ।
- 'Imparting Scientific knowledge of animal hearing for better production through technology transfer to Livestock owner' नामक उपकार द्वारा पोषित परियोजना का संचालन निदेशालय प्रसार द्वारा किया जा रहा है।
- इस वर्ष प्रसार निदेशालय द्वारा किसानों एवं चिकित्सकों के शैक्षणिक प्रशिक्षण भ्रमण आयोजित किए गए । यह भ्रमण पशुपालन विभाग, कृषि विभाग, गन्ना विभाग, उ0प्र0 एवं आत्मा (ATMA) द्वारा आयोजित की गई।
- निदेशालय प्रसार द्वारा किसानों के लिए प्रशिक्षण पुस्तिका सूचना पत्र एवं किसान उपयोगी रचनाएँ निर्मित किए तथा किसानों को वितरित किए गए।
- किसानों तथा पशुपालकों को बेहतर पशुपालन सम्बन्धित सुझाव दिए गए तथा पशुपालन से सम्बन्धित पुस्तक एवं सुझाव पत्र बाँटे गए।

- कृषि विज्ञान केन्द्र द्वारा 60 ऑन कैम्पस, 53 ऑफ कैम्पस प्रशिक्षण आयोजित किए गए जिसमें क्रमश: 1172 एवं 1142 किसानों एवं महिला किसानों ने भाग लिया।
- गॉव के युवाओं तथा प्रसार कार्यकर्ताओं के लिए 107 तथा 431 फ्रंट लाईन डिमान्स्ट्रेशन आयोजित किए गए । चार फसलों पर गोष्ठी, पौधों में रोग निदान, भ्रमण, किसान सम्मान दिवस जैसे अनेक कार्यक्रम कृषि विज्ञान केन्द्र द्वारा आयोजित किए गए जिसमें किसानों से सीधे सम्पर्क स्थापित किया गया। कृषि विज्ञान केन्द्र की मृदा विश्लेषण प्रयोगशाला में 61 गॉवों से 574 किसानों द्वारा लाई गई 903 मृदा नमूनों की जाँच की गई तथा आवश्यकता अनुसार फर्टिलाइजर के प्रयोग के बारे में जानकारी दी गई।

विश्वविद्यालय फार्म प्रक्षेत्र

- आई0एल0एफ0सी0 के पशुधन फार्म पर 1,91,574 लीटर दूध हुआ जिससे 53,68,586 रूपयों का राजस्व प्राप्त हुआ।
- महाविद्यालय के कुक्कुट फार्म पर विभिन्न प्रजातियों की मुर्गियों जैसे चाबरो, असील, कड़कनाथ, नेक्ड नेक, जापानी तीतर, टर्की, गिन्नी फॉऊल, ऐमू का पालन किया गया। इनके अण्डों, चूजों तथा कुक्कुट इत्यादि बेचने से कुल 3,32,827 रूपयों का राजस्व प्राप्त हुआ।
- माधुरी कुण्ड फार्म ने कुल 6341.93 क्विंटल धान, तिल, जौ, सरसों का बीज, गेहूँ, चना, भूसा एवं जौ का उत्पादन किया तथा रू. 1,09,62,314 अर्जित किए।
- चारागाह विभाग द्वारा ज्वार बेचकर तथा गेहूँ बीज उत्पादन द्वारा रू. 2,24,000 का राजस्व प्राप्त किया।

मानव संसाधन विकास

- दुवासु मथुरा द्वारा 01 फरवरी 2016 को एक दिवसीय कार्यशाला 'स्ट्रेटजीस फॉर कनजरवेशन ऑफ इण्डीजीनस ब्रीडस आँफ सेमीएरिड रीजन फॉर आग्यूमैन्टिंग मिल्क प्रोडक्शन' का आयोजन किया गया।
- 'यूज ऑफ फंक्शनल एण्ड मॉलीक्यूलर टूल्स इन फार्माकोडाएनामिक्स' नामक दस दिवसीय प्रशिक्षण का आयोजन फरवरी 8-17, 2016 को भैषज्य विज्ञान विभाग द्वारा किया गया।
- डा0 यजुवेन्द्र सिंह एवं डा0 शालिनि वासवानी ने नीदरलैण्ड में 10 सप्ताह के इन्टरनेशनल ट्रेंनिग प्रोग्राम में भाग लिया।
- डा0 एस0 के0 यादव ने स्पेन में तीन दिवसीय 5वीं वर्ल्ड कांग्रेस ऑन वायरोलॉजी में भाग लिया।

खेल सहपाठ्क्रम एवं अतिरिक्त पाठ्क्रम क्रियाऍ

- वर्ष 2015-16 में 21 विद्यार्थियो ने एन.सी.सी. के CATC-39 शिविर में भाग लिया। 15 विद्यार्थियो ने 'B' सर्टीफिकेट तथा 15 विद्यार्थियो ने 'C' सर्टीफिकेट प्राप्त किए।
- बी0 वी0 एस0 सी0 एण्ड ए0 एच0, डिप्लोमा तथा बी0 एस0 सी0 बायौटैक्नोलोजी के विद्यार्थियो ने 'फेशर्स डे' का आयोजन किया ।
- वर्ष 2015 की 8 वीं ऑल इन्डिया जाइडस ड्राईगं एण्ड पेन्टिंग प्रतियोगिता दिनांक 08-09-2015 को विश्वविद्यालय में आयोजित की गई जिसमें डा0 दीपांका ने प्रथम, कवीशा गंगवार ने द्वितीय तथा साक्षी सिंह ने तृतीय स्थान प्राप्त किया।

- लिट्रेचर कल्चरल फैस्टिवल का आयोजन दिनांक 21 से 26 सितम्बर 2015 को हुआ जिसमें पशु चिकित्सा विज्ञान एवं पशुपालन महाविद्यालय, जैव प्रौद्योगिकी महाविद्यालय एवं डिप्लोमा के छात्रों ने भाग लिया।
- ऑल इण्डिया टूर के दौरान बी0वी0एस0सी एण्ड ए0एच0 के पंचम वर्ष के छात्रों ने मद्रास वेटरिनरी कालेज, चैन्नई, बाम्बे वेटरिनरी कॉलेज, मुम्बई तथा वेटरिनरी कॉलेज, बैंगलोर, हैदराबाद, त्रिसुर, व पुकुट तथा मत्स्य संस्थान, गोवा का भ्रमण किया।
- जैव प्रौद्योगिकी महाविद्यालय के छात्रों का भी शैक्षणिक भ्रमण आयोजित किया गया। जिसमें छात्रों ने जैवरसायन व फिजियोथेरपी विभाग, पतंजली योग पीठ हरिद्वार, संग्रहालय, वानकीय संस्थान, देहरादून, क्रेन्द्रीय आणविक शोध प्रयोगशाला, एस0जी0आर0आई0 देहरादून, सरदार बल्लभ भाई कृषि एवं प्रौद्योगिकी विश्वविद्यालय, मेरठ का भ्रमण किया।
- 01 तथा 02 मार्च 2016 को वार्षिक खेल-कूद प्रतियोगिता आयोजित हुई जिसमें छात्रों वर्ग में बी0वी0एस0सी एण्ड ए0एच0 के तृतीय वर्ष के छात्र श्री महेश कुमार तथा छात्राओं के वर्ग में जैव प्रौद्योगिकी महाविद्यालय में अध्ययनरत् द्वितीय वर्ष की छात्रा कु0 अभिनिका यादव सर्वश्रेष्ठ एथलीट चुने गए।
- दुवासु के 19 छात्र तथा छात्राओं ने 31 मार्च 2016 से 02 अप्रैल 2016 को गोबिन्द बल्लभ पंन्त कृषि एवं प्रौद्योगिकी विश्वविद्यालय द्वारा आयोजित ऑल इण्डिया इन्टर वेटरिनरी कॉलेज्स बैडमिंटन एण्ड टेबल टेनिस प्रतियोगिता में भाग लिया।
- एक पी0एच0डी छात्र को विश्वविद्यालय अनुदान आयोग द्वारा इन्सपायर फैलोशिप से सम्मानित किया गया।
- बी0वी0एस0सी एण्ड ए0एच0 के तीन छात्रों ने भारतीय कृषि अनुसंधान परिषद, नई दिल्ली द्वारा आयोजित राष्ट्रीय प्रतिभा छात्रवृत्ति प्राप्त की।

अन्य झलकियाँ एवं कार्यकलाप

- विश्वविद्यालय में वर्ष 2015 की प्री वेटरिनरी परीक्षा का आयोजन सफलतापूर्वक किया गया।
- वेटरिनरी स्नातक छात्रों का शपथ ग्रहण समारोह 10 जुलाई 2015 को आयोजित किया गया जिसमें 67 छात्रों ने शपथ ग्रहण की।
- विश्वविद्यालय का पंचम दीक्षांत समारोह 17 नवम्बर 2015 को आयोजित हुआ जिसमें उत्तर प्रदेश के राज्यपाल श्री राम नाईक जी तथा भूतपूर्व उप महानिदेशक (ए0एस0) भारतीय कृषि अनुसंधान परिषद, नई दिल्ली एवं भूतपूर्व कुलपति दुवासु मथुरा प्रो0 एम0 एल0 मदन ने उपस्थित होकर दीक्षांत समारोह की गरिमा बढाई। पंचम दीक्षांत समारोह में प्रो0 के0 एम0 एल0 पाठक, पूर्व डी0 डी0 जी0 एनिमल साईसं तथा प्रो0 ए0 के0 श्रीवास्तव निदेशक एन0 डी0 आर0 आई0 करनाल को 'डाक्टर ऑफ सांईस' से सम्मानित किया गया।
- विश्वविद्यालय ने अम्बेडकर जयन्ती, वर्ल्ड वैटरिनरी डे, स्वतन्त्रता दिवस, गॉधी जयन्ती, गणतन्त्र दिवस तथा बसन्त पंचमी हर्षोल्लास से मनाई ।
- प्रो0 के0 एम0 एल0 पाठक, पूर्व डी0 डी0 जी0 एनिमल साईसं ने उत्तर प्रदेश पण्डित दीन दयाल उपाध्याय पशु चिकित्सा विज्ञान विश्वविद्यालय एवं गौ अनुसंधान संस्थान दुवासु के कुलपति का कार्यभार 03 मार्च 2016 को ग्रहण किया।

पुरस्कार एवं सम्मान

- डा0 सतीश कुमार गर्ग, अधिष्ठाता पशु चिकित्सा विज्ञान एवं पशुपालन महाविद्यालय को 15 वीं एनुअल कन्वेन्शन ऑफ आई0 एस0 वी0 पी0 टी0 तथा राष्ट्रीय सेमीनार ऑन 'न्यूट्रीशनल फार्माकॉलाजी एण्ड टॉक्सीकोलॉजी बीयान्ड केलोरिस' एन0 डी0 आर0 आई0 करनाल में आई0 एस0 वी0 पी0 टी0 फैलोशिप द्वारा सम्मानित किया गया।
- डा0 सतीश कुमार गर्ग, आचार्य एवं विभागाध्यक्ष फार्माकॉलाजी एण्ड टॉक्सीकोलॉजी को दूसरी बार सोसाइटी ऑफ टॉक्सीकोलॉजी का अध्यक्ष चुना गया।
- डा0 राजेश निगम, आचार्य एवं विभागाध्यक्ष जीवरसायन विज्ञान विभाग को सोसाइटी ऑफ वेटरिनरी बायोकैमिस्ट्री एण्ड बायोटैक्नालाजिस्ट ऑफ इण्डिया द्वारा एनुअल कन्वेनशन एवं नेशनल सिम्पोसियम भुवनेश्वर में सम्मानित किया गया।
- फार्माकॉलाजी विभाग ने एक पेटेन्ट सं0 201611011035 दिनांक- 30-03-2016 हेतु आवेदन किया।

परिवर्धित संसाधन

- वर्ष 2015-16 में भारतीय कृषि अनुसंधान परिषद, नई दिल्ली द्वारा प्रदान वित्तीय सहायता से अनेक पुनरोद्धार कार्य जैसे पशुचिकित्सा विज्ञान एवं पशुपालन महाविद्यालय के मुख्य भवन की छत, टीचर्स होम, शौचालय, स्नातक एवं स्नातकोत्तर प्रयोगशालाओं का पुनर्निर्माण किया गया । इसके साथ ही पशुचिकित्सा विज्ञान एवं पशुपालन महाविद्यालय के तीन विभागों में महिला शौचालयों का निर्माण किया गया ।

वित्त एवं बजट

- वर्ष 2015-16 में विश्वविद्यालय को क्रमशः रू. 52,18,000 एवं रू. 2,67,13,300 करोड़ प्लान एवं नॉन प्लान के अन्तर्गत सेलरी हेतु बजट प्राप्त हुआ।
- इस वर्ष विश्वविद्यालय को क्रमशः रू. 2 करोड़ एवं रू. 2.5 करोड प्लान एवं नॉन प्लान के अन्तर्गत कन्टीजैन्सी हेतु बजट प्राप्त हुआ।
- भारतीय कृषि अनुसंधान परिषद, नई दिल्ली द्वारा रु. 3,93,70,000 तथा रु. 3,06,00,000 की वित्तीय सहायता विकास एवं सुदृढीकरण के लिए प्रदान किए।
- इस वर्ष विश्वविद्यालय को कुल रु. 4,80,33,881 राजस्व की प्राप्ति हुई।

जनसूचना अधिकार

- उत्तर प्रदेश सरकार के निर्देशों तथा आर0 टी0 आई0 एक्ट 2005 के अनुपालन के क्रम में 92 प्रार्थना पत्र प्राप्त हुए, जिनमें से 82 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 veterinary and allied education, undertake need-based and basic research, integrate education and research and offer efficient extension services for the 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 motivating 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; and
- 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;
- Undertaking 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; and
- 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 technologies and industry and business management through designated colleges / faculties; and
- To augment University financial resource 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 all buildings of Veterinary College, residential complex, hostels, dairy farm and agriculture land. University is having 782.34 acres prime land in Mathura, and another agriculture farm of around 1400 acres at Madhurikund, about 25 Km from the main campus.

After establishment of the University in 2001, the University offices which were located in the Administrative block of the Veterinary College were shifted to newly constructed Administrative Block in the New campus. The building was inaugurated by Hon'ble Governor of Uttar Pradesh, Shri T.V. Rajeshwar, on Feb 24, 2009. The building of College of Livestock Products Technology was inaugurated by Hon'ble Chancellor of University and Governor of Uttar Pradesh, Shri Ram Naik ji, on Sept. 21, 2014.

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. However, these colleges could not be started inspite of the best efforts of the University due to financial constraints and non-sanctioning of any teaching or other positions by the Government.

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.

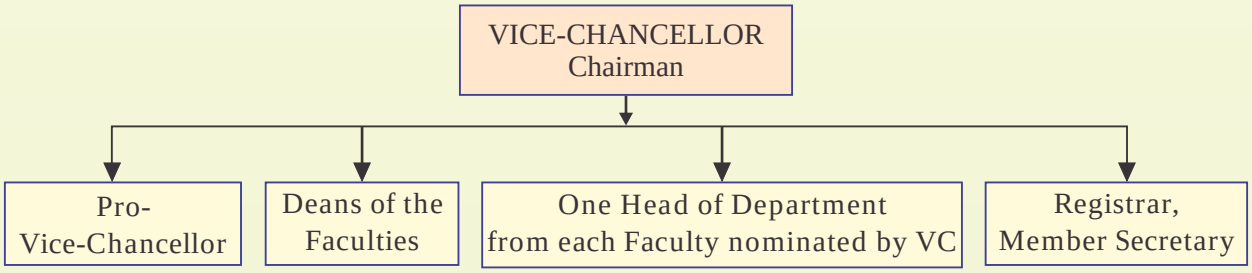
A. AUTHORITIES OF THE UNIVERSITY :

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 Pro-Vice Chancellor, Secretary Animal Husbandry and Fisheries, Secretary Finance, 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.

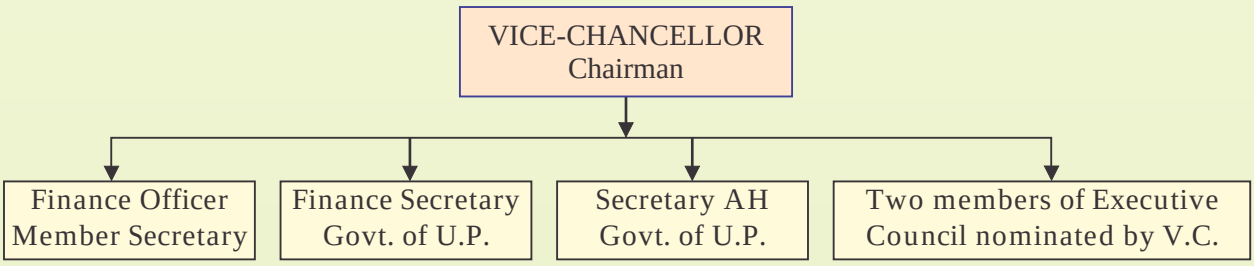
2. Academic Council

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



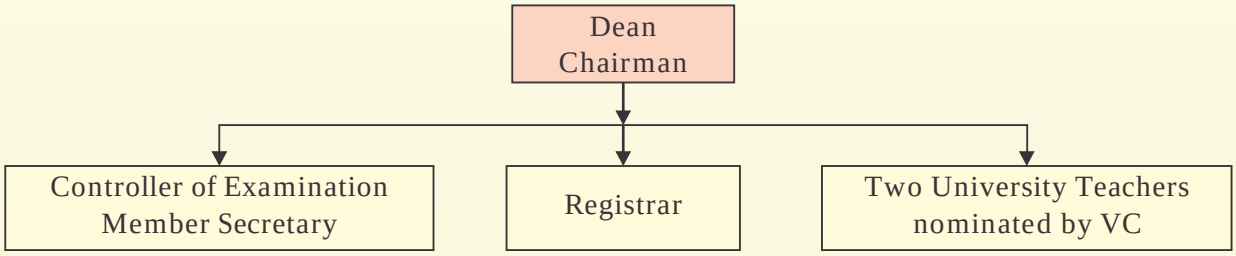
3. Finance Committee

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 :

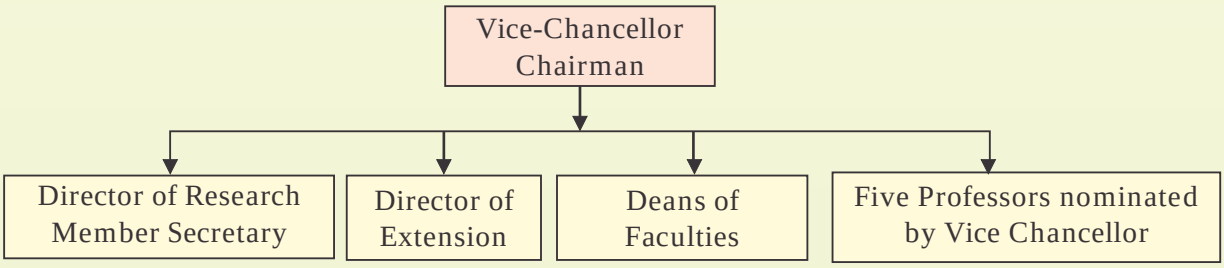


5. Board of Faculty

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.

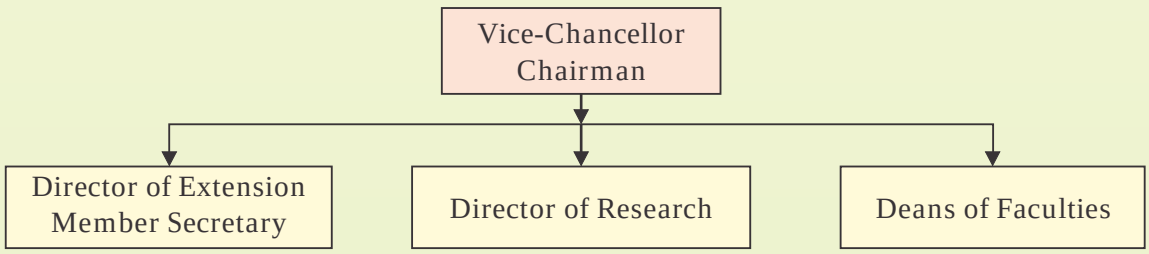
6. Research Advisory Committee

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 :



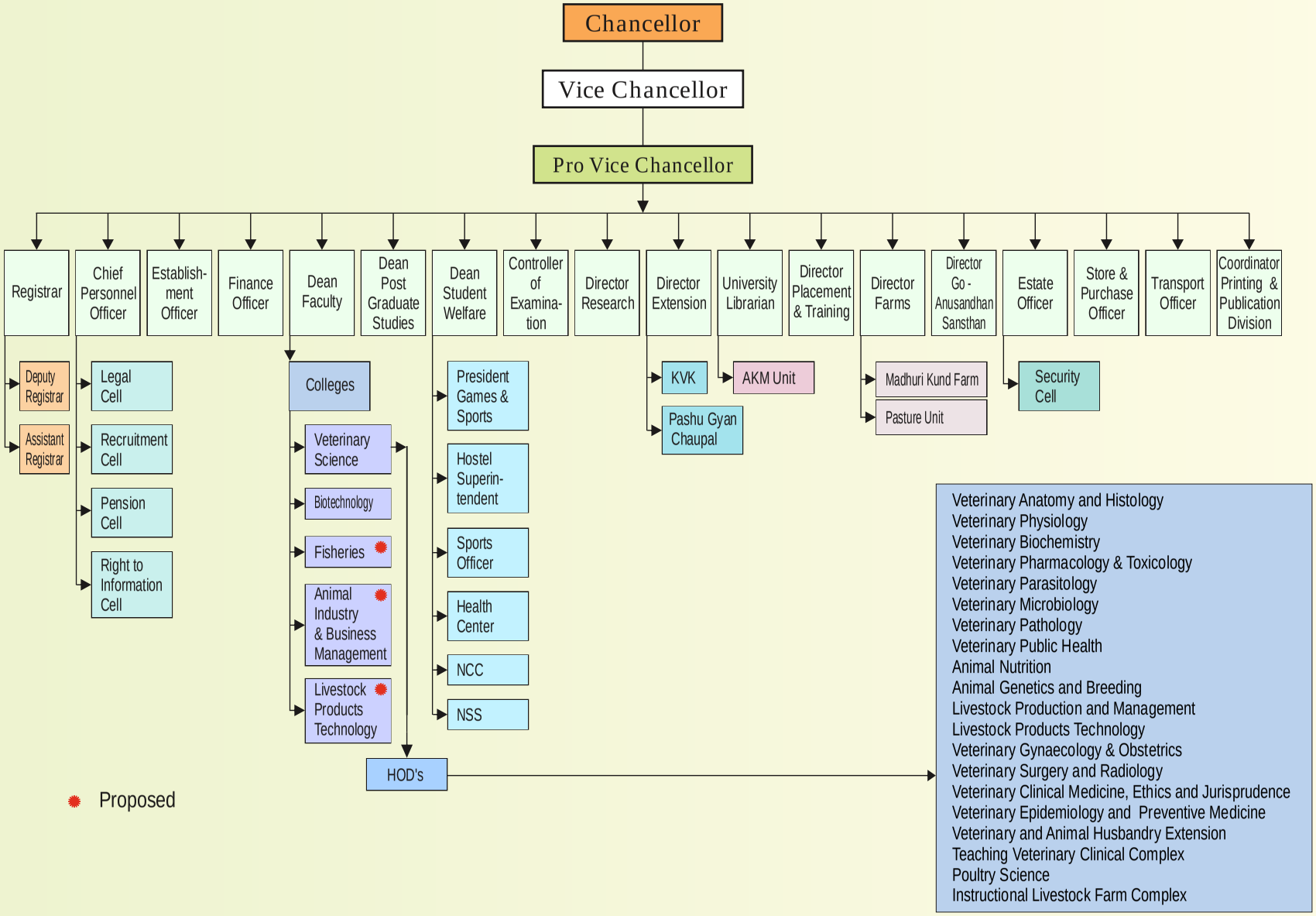
7. Extension Advisory Committee

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 Vishwavidyalya Evam Go-Anusandhan Sansthan (DUVASU), Mathura



B. Organizational Meetings

S.No.	Authority	Meeting No.	Date	Venue
1.	Executive Council	24th	24.08.2015	Mathura
2.	Executive Council	25th	16.11.2015	Mathura
3.	Academic Council	54th	05.08.2015	Mathura
4.	Academic Council	55th	06.08.2015	Mathura
5.	Academic Council	56th	15.03.2016	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. A.C. Varshney	Feb. 20, 2013	Mar. 03, 2016
		Prof. K.M.L. Pathak	Mar. 03, 2016	Continuing
3.	Registrar	Sh. S.K. Sharma	June 11, 2014	Continuing
4.	Deputy Registrar	Dr. Brijesh Yadav	June 21, 2014	Continuing
5.	Finance Officer	Sh. R.P. Singh	Nov. 05, 2014	June 22, 2015
		Sh. M.K. Jain	June 22, 2015	Continuing
6.	Controller of Examination	Dr. Daya Shankar	Aug. 29, 2012	Continuing
7.	Dean, CVSc. & A.H.	Prof. Satish K. Garg	June 30, 2009	Continuing
8.	Dean, College of Biotechnology	Dr. Rajesh Nigam	Feb. 05, 2013	Continuing
9.	Dean PGS	Dr. P.K. Shukla	Jan. 15, 2013	Continuing
10.	Director of Rescarch	Dr. Atul Saxena	Nov. 24, 2009	Continuing
11.	Director of Extension	Dr. Sarvajeet Yadav	Nov. 24, 2009	Continuing
12.	University Librarian	Dr. Vikas Pathak	May 27, 2013	May 20, 2015
		Dr. Udit Jain	May 21, 2015	Mar. 31, 2016
13.	I/C Student's Welfare	Dr. A.K. Madan	Nov. 20, 2012	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 2015-16 was 78. 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 as 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). These diploma programmes were started in 2013-14 under RKVY project with the annual intake of 60 students in each programme. During 2015-16, five instructors were appointed on contractual basis for teaching of various courses in diploma programmes. The first batch of each programme successfully passed out in August, 2015.

Admissions and turn-out of students during 2015-16

Academic programme	Intake capacity	Students admitted			Students turn out		
		Male	Female	Total	Male	Female	Total
B.V.Sc. & A.H.	78	50	25	75	54	13	67
M.V.Sc.	36+17 (ICAR)	25	08	33	14	07	21
Ph.D	20	07	01	08	04	00	04
DVP	60	35	10	45	34	06	40
DLE	60	44	05	49	36	02	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. Three faculty members were appointed on contractual basis for teaching of undergraduate courses during 2015-16, whereas the 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.

Admissions and turnout of students during 2015-16

Degree programme	Intake capacity	Students admitted			Students turn out		
		Male	Female	Total	Male	Female	Total
Ph.D. Biotechnology	08	00	07	07	00	00	00
M.Sc. Biotechnology	25	02	00	02	00	00	00
B.Sc. Biotechnology	45	10	13	23	00	00	00
B.Sc. Ind. Microbiology	15	01	01	02	00	00	00

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, diagnostic laboratory, animal dentistry unit and also renders ambulatory services. It is the center for providing hands on training to students of B.V.Sc. & A.H degree programme for diagnosis of diseases and treatment of animals. Students are well exposed to different types of medicine, gynaecological and surgical clinical cases under the guidance and supervision of learned faculty members. Clinical services were provided to farmers and animal owners in TVCC and also at the doorsteps of farmers through weekly ambulatory services. Imaging diagnostic unit is equipped with 500 mA fixed and 100 mA mobile X-ray machines, ultrasonography machines, 9" C-Arm image intensifier and digital radiography unit apart from endoscopy facilities. Besides these, operating microscope, laproscopic surgery unit, orthopaedic surgery instruments, eye surgery instruments, diathermy, multiparameter monitor, oxygenators, nebulizers and general surgery facilities are also available. During 2015-16 automatic blood analyzer has been purchased. In addition to this, phaco machine,

coloured doppler, USG machine are also available.

During 2015-16, total 9992 clinical cases were treated in TVCC. Out of these, 4009 were large animals, 115 small ruminants, 3956 pets, 255 equines and 395 other animals which included porcine, poultry etc. The total revenue generated during the year was Rs 4, 22,370/-. Emergency clinical services were also 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. TVCC also actively participated in celebration of World Veterinary Day, wherein free antirabies vaccine was provided to pets.

2. 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 2015-16, 2162 samples were processed in diagnostic laboratory. Out of these, 1614 samples were of blood for CBC, 471 for serum and biochemical analysis, 77 samples of urine and 32 milk samples were examined. Based on the laboratory test reports, animals were accordingly treated for respective diseases.

3. Ambulatory Services and Clinical Camps

TVCC also provided ambulatory clinical services in nearby villages and gaushalas. Ambulatory clinical services were rendered on roaster basis in which group of students along with the teachers visited villages. Clinical camps were also organized in Mathura and adjoining districts with the help of Gram Pradhans and local Veterinary Officers. Students learnt to practice their clinical knowledge under field conditions. During 2015-16, 532 cases were treated in clinical camps, which included 16 surgical cases, 385 medicine cases and 131 gynaecological cases. During the year, nine clinical camps were also organized, in which 132 cattle, 344 buffaloes and 56 other animals, which included sheep, goats and dogs, were treated.

D HANDS ON TRAINING OF STUDENTS UNDER EXPERIENTIAL LEARNING PROGRAMME

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. Hands on training was also imparted to internship students on rearing of chabro birds and layers in Experiantial Learning Unit during the internship training. In addition, the students were also trained on hatchery operations.

The resources of ELU viz. dead birds and embryonated eggs of different stages of development were used for educational and research needs of students and staff of departments of Anatomy, Pathology, Biotechnology and Microbiology. During 2015-16, Entrepreneurial training on poultry production was conducted for B.V.Sc. & A.H. 2nd year students from 16.03.2015 to 01.05.2015, 20.08. 2015 to 11.10.2015 and 11.02.2016 to 17.03.2016 and from 16.03.2015 to 01.05.2015 and 11.02.2016 to 17.03.2016 for 3rd year students. The 2nd year, 3rd year and Internship students were also trained on hatchery management in which 8143 day old chicks were obtained in 15 hatchs during the year. During 2015-16, the total revenue generated through Experiential Learning Unit at farm was 2,47,530 (Two lacs forty seven thousand five hundred thirty) through sale of eggs, spent hens, japanese quails, japanese quail chicks, japanese quail eggs, chabro eggs, chabro chicks and chabro birds. The Department of Poultry Science supplied chabro chicks, Japanese quail chicks and guinea fowl day old chicks to 114 beneficiaries (families) in Mathura and adjoining areas of Rajasthan through LUPIN Human Welfare Research Foundation to promote backyard poultry farming as a means of livelihood for poor and marginal farmers.

Milk and Meat Processing Unit

Under-graduate students of Veterinary College and post-graduate students of the Department of LPT were imparted practical training on milk pasteurization and processing of milk and also preparation of value added products of milk and meat. Students were involved in preparation of different livestock products like paneer, khoa, flavoured lassi, chicken nuggets, chicken meat patties etc. on routine basis. The products so prepared were sold to students and staff of the University under 'Revolving Fund Scheme' of the Department as per approved rates. During the year 2015-16, a net profit of Rs. 30,936/- (Rupees Thirty thousand nine hundred thirty six only) was generated under the ongoing Revolving Fund Scheme of the Department started under experiential learning programme.

Feed Production and Processing

Under this project, a total of Rs 55.6 lacs was sanctioned. A feed processing-store-cum hall costing about 35 lacs was constructed (85x 25') and two units namely feed processing unit (Rs 6.76 lacs) and urea molasses mineral block units (Rs 13 lacs from NDDB) were installed. A total of 11241 qt dairy cattle concentrate feed was prepared by this Unit from July 2012 to March 2016. 516 students were imparted practical training regarding different sieves size and course or fine grinding. Urea molasses mineral block unit is for preparing UMM block which is a good source of mineral and readily soluble carbohydrates and nitrogen to ruminants. Practical training of student to make them self dependent and it is serving as microenterprise for students who get trained and can start their own ventures after B.V.Sc. & A.H., if desire.

Dairy Farm Management and Practices

An experiential learning unit on 'Dairy farm management and practices' is running in the Instructional Livestock Farm Complex of the College of Veterinary Science and Animal Husbandry. The unit was sanctioned in the financial year 2010-11, with a grant of

Rs 94.60 lacs. Pure breed Sahiwal cows and Murrah buffaloes along with farm machineries were purchased and some farm buildings were repaired in this project. An instructional herd was established. During 2015-16, students of BVSc & AH degree programme and diploma programmes were trained by providing hands on training on the various aspects of farm management. Students were trained on the various farm activities like cleaning, feeding, fodder harvesting, milking and record keeping etc. The facility created is also being utilized as a demonstration unit for farmers and livestock keepers and as a research station for conducting various researches by MVSc and PhD students and for teaching. Establishment of this unit has increased the income of the University as the milk produced at the farm and the surplus progeny is being sold.

E OTHER ACADEMIC SERVICES/ ACTIVITIES

Library

University library is housed in double storey building of the erstwhile Veterinary College. 125 students can be accommodated easily at the same time in different sections of the library. It opens on all working days from 10 a.m. to 5 p.m. Presently, there are 33,395 books in the library. Out of these 33117 books are of various subjects of Veterinary Science & Animal Husbandry and Biotechnology and 278 books are on general studies. Online journal facility (www.cera.jccc.in) is also available in the library for students and faculty through which large number of journals can be accessed on line. In addition to this, library also provides photocopier facility @ 0.50 paisa / page to students. Six hindi news papers, two english newspapers, weekly and monthly magazines like Employment News, Pratiyogita Darpan, Chronicle, Competition Success Review were also subscribed and regularly received in the library during the year 2015-16.

Agricultural Knowledge Management Unit (AKMU)

Agricultural Knowledge Management Unit has 30 computer systems with internet connectivity for use by students and faculty members of University. Internet connectivity is available at University campus through NKN (National Knowledge Network) and ERNET which is distributed to Hostels, Departments and Offices etc. through LAN and wireless access. During 2015-16, Internet connectivity was also extended to the newly renovated SN Hostel through wireless. Website of the University was also redesigned to make it more informative and appealing.

Directorate of Counseling, Training and Placement

Students of Veterinary Science excelled in National Level Fellowship Examination-2015

1. ICAR-JRF:

   Students of College of Veterinary Science and A.H. performed very well in the ICAR-JRF examination-2015. Seventeen students qualified in Animal Sciences and five students in Veterinary Sciences groups. Twenty students secured their admission in the different SAUs and two in deemed universities through ICAR.

2. Campus interviews

Name of the Company	No. of students Selected
Brooke (India)	25
Saahaj milk producer company	02
Cargill feed MNC	02
Omar International PVT Ltd Bijnor	06

3. Five diploma students were placed as LEO in Saahaj dairy in western U.P. area.

   Along with the placement in above companies, the students were regularly informed about various job opportunities in different sectors like feed companies, pharmaceutical companies, slaughter houses, Educational institutes etc.

4. Training / refresher courses

   Tutorial training classes were organized for the students of internship batch of BVSc & AH for preparation of ICAR-JRF examination. Classes were arranged separately for Animal Science and Veterinary Science groups from January 2015 to March 2015.

5. Student Welfare Office conducted personality development training programmes for 4th year BVSc & AH and 2nd year PG students of MSc & MVSc on 8th & 9th Jan. 2016. They further conducted similar personality development training programme for rest of the PG students of MSc & MVSc on 9th & 10th Feb. 2016.

6. Placement cell also organized English classes regularly as a non-credit compulsory course for the 1st year BVSc & AH students.

RESEARCH

A. ONGOING/COMPLETED EXTRAMURAL PROJECTS

S. No.	Name of the Project	Name of the 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	Dept. of A. H., Dairying and Fisheries, Ministry of Agri. and Farmers Welfare, GOI	79.66
2.	Diagnostic imaging and management of surgical conditions in animals	Dr. Vivek Malik Dr. Sanjay Purohit Dr. Gulshan Kumar	ICAR	288.00
3.	Isolation, purification and characterization of antimicrobial peptides of gaumutra (cow urine) in indigenous and crossbred cows.	Dr. Rajesh Nigam	ICAR	30.00
4.	All India co-ordinated research project for epidemiological studies on FMD	Dr. Rashmi Singh Dr. Ajay Pratap Singh	ICAR	03.00
5.	FMD-Control Programme	Dr. Rashmi Singh Dr. Ajay Pratap Singh	ICAR	06.00
6.	Niche Area of Excellence Programme on “Toxicodynamic studies on impact of environmental pollutants on bovine reproduction with particular reference to regulatory pathways”	Dr. Satish K. Garg	ICAR	467.00
7.	Out-reach Programme on Ethnoveterinary Medicine “Pharmacological studies and development of a poly herbal formulation for reproductive disorders in animals.”	Dr. Satish K. Garg	ICAR	80.00
8.	Out reach Programme on Zoonotic Diseases-Verocyto toxic *E. coli*	Dr Basanti Bist Dr Udit Jain	ICAR	73.04
9.	Studies on feasibilty of distillery raw or biomethanated spent wash as animal feeds supplement	Dr. Vinod Kumar	Dhampur Sugar Mill Pvt Ltd	05.00

10.	Integrated indigenous cattle centre for conservation and improvement of indigenous milch breeds of cow. (Rashtriya Gokul Mission under NPBBDD)	Dr. Sharad K. Yadav	DADF, Ministry of Agri. and Farmer's Welfare, GOI	421.00

Project-1: Conservation and Genetic Improvement of Muzaffarnagari Sheep for Multiplication of Superior Germplasm

Muzaffarnagari is one of the heaviest and largest mutton breeds in India. Initially nucleus herd was created with 50 healthy purebred Muzaffarnagari sheep (40 female and 10 male) of age between 12-18 months in March, 2013. Muzaffarnagari sheep being a regular breeder, animal were bred throughout the year to achieve faster multiplication of the germplasm. The selective breeding was practiced at the farm. Mating plan was designed in such a way so that inbreeding could be avoided. Being large sized, the twinning rate in Muzaffarnagari sheep at DUVASU, Mathura farm was about 5%. Continuous efforts were made and will be continued in future to improve the twinning rate in Muzaffarnagari sheep through selective breeding and proper screening of breeding rams responsible for multiple births. Upto now, we have obtained 101 lambs which have led to more than 200% increase in the total flock size.

Project-2: All India Network Programme on Diagnostic Imaging and Management of Surgical Conditions in Animals (AINP-DIMSCA)

During the period under report a total of more than 11000 clinical cases of cattle, buffalo, equine, canine, ovine, caprine and other species were reported at the TVCC. More than 2600 cases were diagnosed and treated for various surgical affections utilizing the diagnostic modalities like 2D ultrasound, digital radiography and endoscopy. Apart from this more than 2100 digital radiographic and more than 200, 2D ultrasonographic images generated from such clinical cases have been stored and archived for future reference. Procurement of Ultrasonography Color Doppler unit for large and small animals and phacoemulsification unit have been establishrd from the budget provided under AINP DIMSCA equipment head. Following salient findings were recorded during the period under report.

B-mode ultrasonography is excellent for diagnosis of space occupying lesions in the abdomen whether of mural or extramural origin. For the lesions of urogenital system that produce clinical signs similar to GI tract disorder like vomiting, US examination of abdomen was superior diagnostic modality. For physical and functional digestive tract obstructions barium contrast radiography was superior to US examination of abdomen. In normal healthy subjects of different breeds FS has been recorded to be 25% to 43% and EF as 57% to 80% by various scientists. GSD aged 2.5 y with EF 28.9% and FS 13.3% had spleenomegaly and prostatic tumor. Poodle male aged 9 with EF 46.9% had right atrial dilatation, ventricular wall hypertrophy. Spitz male aged 11 y with EF 24.4% and FS 14.0% had UB and testicular neoplasia. Breed wise echocardiographic indices and color doppler cardiac function study shall be continued in the next year to localize cardiac abnormalities.

Computed tomography (CT) of eight dogs showing hind quarter weakness or paralysis was performed and scans of head did not reveal any sign of intracranial haemorrhage or presence of space occupying lesion in any of eight dogs. In six of the dogs, vertebral column did not show any identifiable lesion that could be correlated with the clinical condition on 2D images or even after 3D reconstruction of the images. No fracture / dislocation or narrowing of neural canal at any level could be identified in six dogs having hind quarter paralysis. In one dog space occupying opacity in neural canal was seen at sacral level and one dog had fracture dislocation resulting in over-riding of the vertebral column at T12-T13 level. In one dog, having no identifiable lesion of the column, one rib fracture was identified as an incidental finding as depicted in figures above.

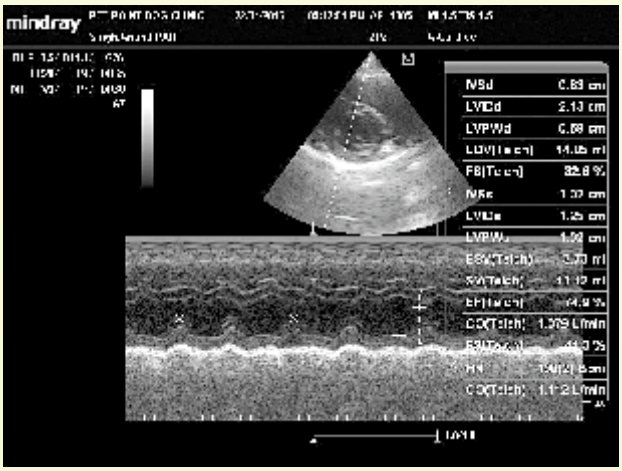
An anaesthetic study was conducted on twenty four client owned dogs of different breeds and sex in two groups of different age groups. Group A comprised of twelve animals of age less than eight years, whereas, twelve animals aged more than eight years were included in group B. Preanaesthetic combination (Glycopyrrolate (0.01 mg / kg IM) + Dexmedetomidine (5 mcg / kg IM) + Butorphanol (0.1 mg / kg IM) was found better in comparison to combination (Glycopyrrolate (0.01 mg / kg IM) + Dexmeditomidine (5 mcg / kg IM) + Fentanyl (4 mcg / kg IM) 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. No significant difference was noted in the values of the doses of induction and maintenance agents and other induction and recovery parameters, when comparison was made between the animals of A and B groups.

Dental morphometric and ophthalmic echobiometric studies in buffaloes produced reference values for bubaline dental morphometric indices and showed no significant difference between the morphometric and radiographic mean. Radiographic measurements thus can be employed in clinical conditions for making comparisons with normal. Ocular echo-morphometric parameters provided base line data to evaluate the clinical condition. All the echo-biometric parameters were increased with age and did not depend on gender except Lens Thickness in female. The left side of eye showed more number of affections followed by right eye and then both eyes.

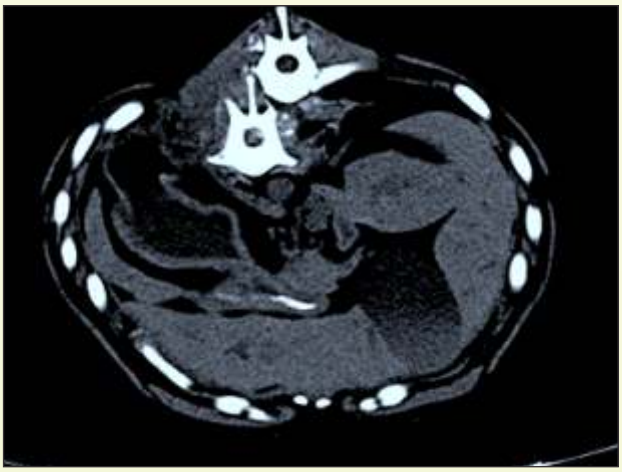
Urethro-cystoscopic protocols were standardized in buffaloes and the study revealed that endoscopic examination of the urinary bladder, urethra and the external genitalia requires epidural anaesthesia, especially while examining heifers. Rigid endoscope (2.7 mm fore-oblique and 5 mm, straight) can be successfully used for the endoscopic examination of the urinary bladder and the urethra in female buffaloes.

Oesophageal rupture

Spleenic tumour



Echocardiography in canines



CT scan shows vertebral dislocation

Hands on training for veterinary officers

Endoscopic image of the bladder showing a lobulated lump along with a slimy stringy mucus

However, to prevent any damage to the endoscopes due to sudden jerky movements by the buffalo, an appropriate sheath is necessary to be placed first into the urethra / urinary bladder. Although, the 2.7 mm, fore-oblique endoscope can easily pass through the urethra, its short length and limited illumination are major constraints during examination of a full urinary bladder. The 5 mm straight endoscope appears better since it provides better illumination and manoeuvrability to examine the urinary bladder. A 10 mm rigid endoscope can be used successfully for vaginoscopy in buffaloes. The endoscopic images compiled during this study can be used as reference images. On the basis of the findings of

urethraocystoscopy, 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, and a cyst beneath the rectum, and two cases were diagnosed as having purulent cystitis and urethritis.

Under human resource development component of the project, one training programme (5days) on "Ultrasonographic Diagnosis of Diseases in Large and Small Animals" was conducted for the veterinary officers of Animal Husbandry Department of Uttar Pradesh.

Project-3: Isolation, purification and characterization of antimicrobial peptides of Gaumutra (cow urine) in indigenous and crossbred cows.

During the period under report, the budget received under project was utilized for procurement of chemicals, reagents, plastic and glass wares, and other consumables. In addition, one Iso-electric focussing unit required for the 2-D gel electrophoresis of proteins / peptides was also procured under this project. The project was initiated with determination of physico-biochemical properties, antioxidant and antibacterial activity of fresh urine of indigenous cow breeds. For this urine samples were collected from six Hariana cows reared under standard management conditions at ILFC, Mathura and pooled together and stored at 4°C. The pooled urine sample was analyzed for pH, specific gravity, urobilinogen, bilirubin, ketone body, blood, protein, nitrite, leukocytes and glucose by qualitative test using the strip test method (Piramal Healthcare Ltd.) and simultaneously, microscopic examination was also done for the presence of casts, crystals, blood cylinduria etc. The antioxidant activity of urine was determined by DPPH (2,2-diphenyl-1-picrylhrazyl) radical scavenging activity and antibacterial activity of urine samples against the test organisms was done by disc diffusion assay. The urine sample was also analyzed for the presence of amino acids using paper chromatography technique and urinary proteins / peptides by SDS-PAGE. The physico-biochemical analysis of urine showed normal constituents of urine in normal range. The DPPH (2, 2-diphenyl-1-picrylhrazyl) radical scavenging activity revealed significant antioxidant activity in fresh cow urine. The antimicrobial activity of urine revealed significant antibacterial activity against E. coli and Salmonella bacterial species. The chromatogram of paper chromatography was observed for the presence of amino acid spot and the Rf value which indicated the presence of a mix of amino acids namely serine, arginine and glutamine.

Project-4: All India Co-ordinated Research Project for Epidemiological Studies on FMD

Four FMD incidences were attended and monitored. Three were caused by FMDV type "O" and one from FMDV type "A". Fifteen clinical samples were collected from four FMD incidences. Eight samples were typed as virus type "O" and six as virus type "A" by Sandwich ELISA. 107 villages / farms / gaushalas were visited by the project officials in different districts of Uttar Pradesh for FMD surveillance work. A total of 1450 random serum samples collected from different districts of Uttar Pradesh were tested for determination of antibody against O, A and Asia-1 serotype by sdLPB ELISA. The overall percent animals having e"1.8 log10 antibody titre was 34.0 %, 42.06 % and 70.34 %, against FMDV serotypes O, A and Asia-1, respectively. A total of 8050 serum samples from

different districts of Uttar Pradesh were tested for the presence of anti-3AB3NSP antibodies against FMDV to study the carrier status of animals. 18.85 % animals were found positive in DIVA ELISA test.

Project-5: FMD-Control Programme

A total of 3648 post vaccination serum samples (FMD-CP Phase XVI) from different districts of Uttar Pradesh were processed by sdLPB-ELISA for sero-monitoring against FMDV serotypes O, A and Asia-1 by single dilution LPB-ELISA (sdLPB-ELISA). The overall percent sero-conversion (e"1.8 log10 antibody titre) was 37.70%, 43.4 % and 50.3 %, against FMDV serotypes O, A and Asia-1, respectively in cattle and buffaloes together. A total of 8840 pre vaccination serum samples (FMD-CP Phase XVII) from different districts of Uttar Pradesh were processed by sdLPB-ELISA. The overall percent sero-conversion (e"1.8 log10 antibody titre) was 30.7%, 49.1%, 63.29% against FMDV serotypes O, A and Asia-1, respectively in cattle and buffaloes together.

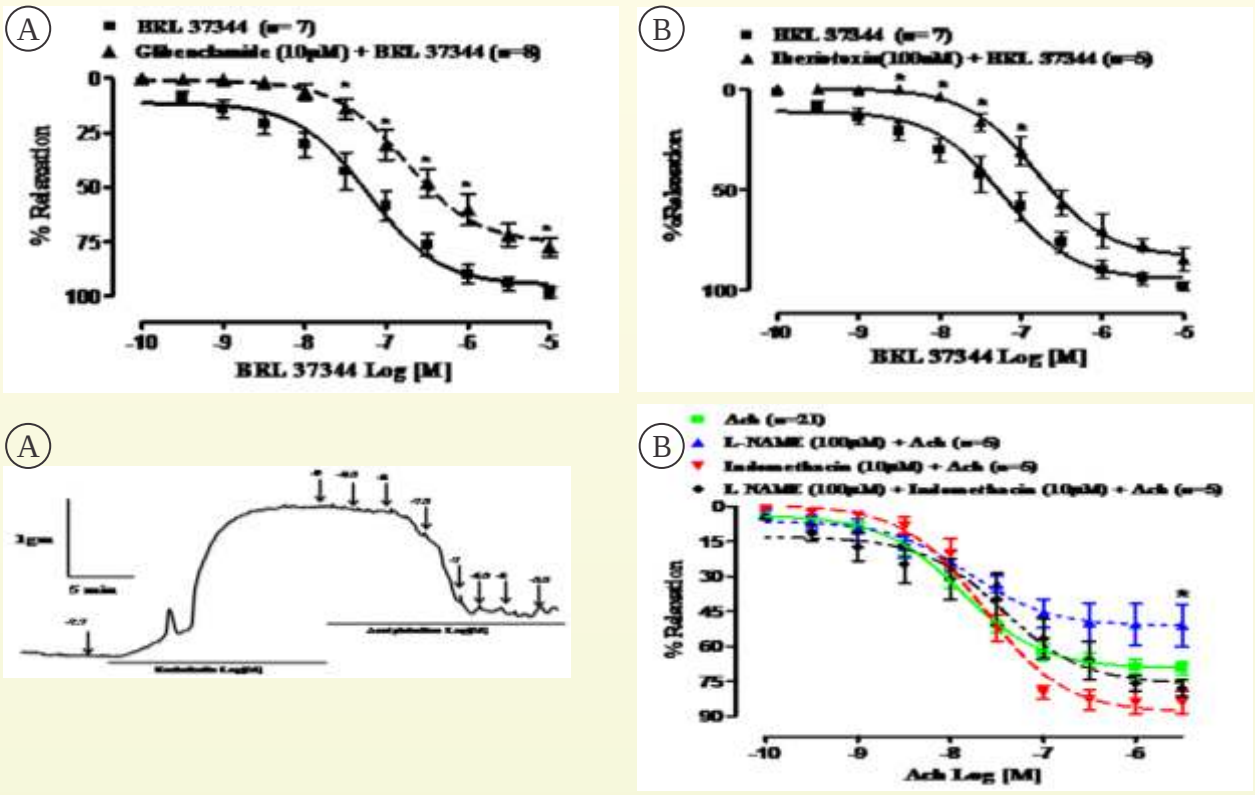
Project-6: Niche Area of Excellence Programme on "Toxicodynamic studies on impact of environmental pollutants on bovine reproduction with particular reference to regulatory pathways"

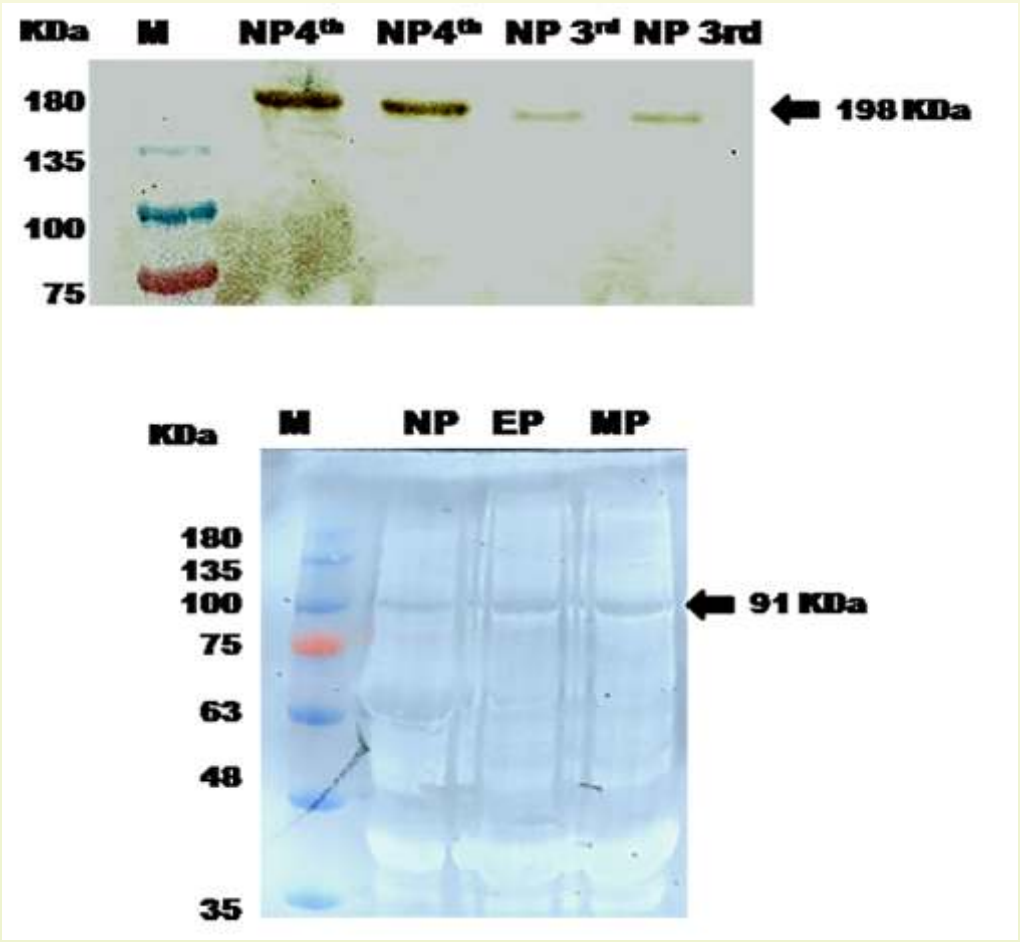
During this year, we have characterized the functional and molecular existence of beta3-adrenoceptor in buffalo myometrium for the first time. It has also been reported that beta3-adrenoceptors are coupled with KATP and BKCa channels to mediate tocolytic effect in buffalo myometrium. The cellular localization of KATP channels in cholesterol-rich caveolae of uterine membrane has been proved with functional evidence. We have also characterized the functional existence of T-type calcium channels and TRV-4 channels in buffalo myometrium.

Buffalo uterine artery can be used as an alternative to isolated vascular ring preparation of rats and mice to study the effect of vasoactive drugs. Among different contractile agents, endothelin-1 seems to be more potent and produces sustained contraction in uterine arterial rings and thus a very suitable experimental model for vascular studies. Acetylcholine (ACh) produced endothelium-dependent relaxant effect on uterine arterial rings of non-pregnant buffaloes. Blockade of either endothelium-dependent nitric oxide synthase (eNOS) or prostacyclin (PGI_2) significantly reduced ACh-induced relaxation in uterine artery, however, simultaneous blockade of both eNOS and PGI_2 attenuated ACh-induced relaxation in uterine arterial rings. Interestingly, denudation of endothelium potentiated SNP-induced relaxation in uterine arterial rings.

TRPV-4 channels are functionally present in uterine artery from non-pregnant buffaloes. TRPV-4 seems to be present in both endothelium and vascular smooth muscle. However, denudation of endothelium reduced the vaso-relaxation efficacy of TRV-4 agonist.

Molecular characterization of eNOS, cyclooxygenase-1 (COX1), small conductance Ca^{2+} - activated K^+ - channels (SKCa), intermediate conductance Ca^{2+} - activated K+ - channels (IKCa) and big conductance Ca^{2+} - activated K^+ - channels (BKCa) at their protein level were done in buffalo uterine arterial rings. These proteins are essential for endothelium-dependent and independent vasorelaxation of uterine artery.





Immunoblot images of TRPM3 (A) and TRPV4 (B) in membrane protein of buffalo uterine artery.

Hydrogen sulphide (H_2S) was found to be a potent modulates uterine myogenic activity in buffalo myometrium. The precursor of H_2S, L-cystine, produces relaxant effect in myometrium while biphasic response (initial contraction followed by relaxation). L-cystine-induced myometrial activity is completely reversed by blockade of either cytathionine ß- synthase or cystathionine ?-lyase. The donor of H_2S, sodium hydrogen sulphide (NAHS), also exerts relaxant effect in myometrium. Further, L-cystine-induced uterotonic action is extracellular calcium dependent while relaxant action is mediated through activation of KATP channels and possibly BKCa channels.

Project-7: ICAR Out-reach Programme on Ethnoveterinary Medicine "Pharmacological studies and Development of a Poly herbal formulation for Reproductive disorders in Animals.

a) Clinical efficacy trail

The herbal capsule formulated by the Department under ICAR-EVM- Outreach Programme was found to be highly effective against clinical pyoderma cases in dogs and even recurrent cases and not even a single case of recurrence has been reported even after one year of the treatment.

Pre-treatment

Post-treatment

Pre-treatment

Post-treatment

b) Safety evaluation of Herbal capsule

Male Wistar rats were divided in three groups of six animals each and the herbal preparation was administered orally @ 100 mg / kg b.wt, 300 mg / kg b.wt. and 1000 mg / kg b.wt, respectively for 28 days. Gr-I was treated as control. No significant changes in body weight, absolute and relative weight of vital organs were observed in herbal capsule-treated groups compared to control. There was a no-significant alteration in hematological, blood biochemical and parameters related to liver and kidney functions.

Histopathological examination of brain, liver, kidney, lung, adrenal gland and testes revealed that the herbal constituents of capsule even at very high dose (1000 mg / kg .b.wt) did not produce any adverse or toxic effects in rats, thus suggesting that the formulation is very safe.

c) Efficacy of DA-7B leaves extract against experimentally-induced endometritis in rats

Based on the Gram staining and biochemical tests, it was found that approximately 60% of the isolates from clinical cases on bovine endometritis were *E. coli* and rest 40% were Staphylococci. Thus experimental endometritis was induced in female Wistar rats by inoculating the mixture of these two isolates into uterus. The endometritic animals were treated orally with either DA-7B leaves (@ 25 mg / kg b.wt) or cefixime (@10 mg / kg b.wt) for seven days. The relative weight of uterus, uterine secretion index and bacterial load were significantly higher in endometritic rats compared to control which were significantly reduced following treatment with Eucalyptus leaves. Rise in the level of iNOS, nitric oxide (NO), COX-2, MPO, TLR-4, TLR-9 and serum amyloid protein (SAA) in endometritic rats were significantly attenuated in DA-7B treated group which were statistically comparable to that of cefixime-treated group. However, we have not observed any significant alteration in COX-1, ICAM-1, IL-1ß and TNFa level as well as in oxidative stress parameters in other vital organs like liver, kidney, spleen, brain etc. In nutshell, the efficacy of this plant extract was found to be almost comparable and in certain cases better than the cefixime-treated group as evidenced by significant alterations in parameters and biomarkers of inflammation and found to be highly effective in alleviating endometritis in rats.

Sham-operated

Endometritic

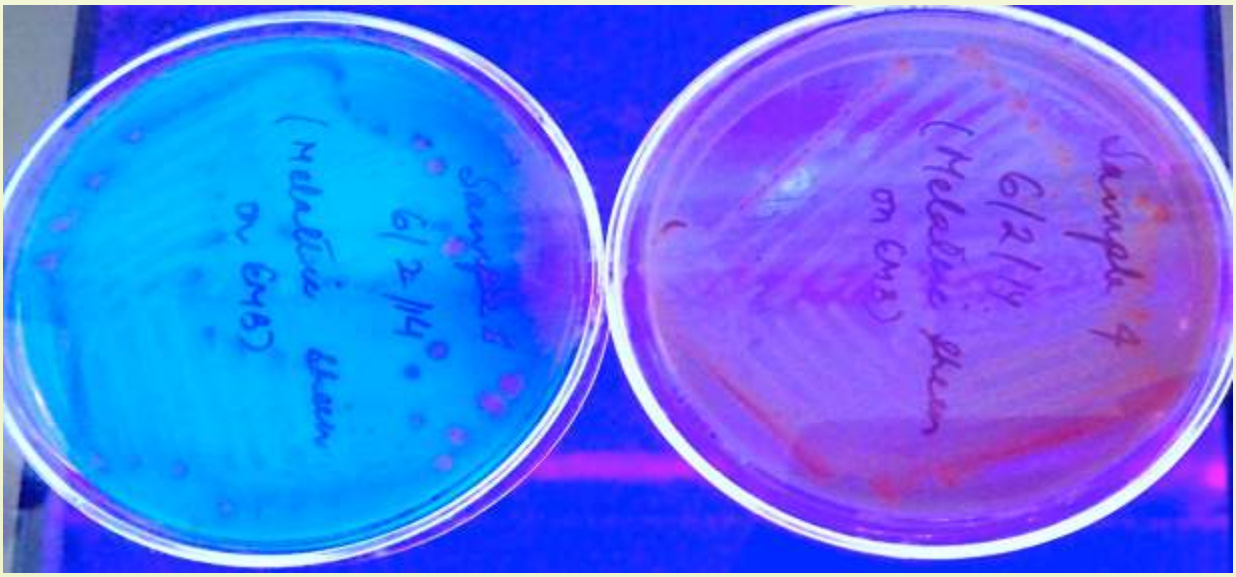
DA-7B-treated

Cefixime-treated

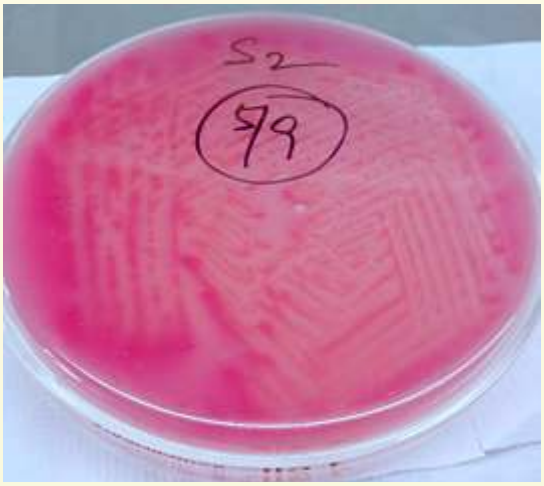
Project - 8: Outreach Programme on Zoonotic Diseases

A total of 1340 samples comprising of Milk (200), Milk products (470), Water (500), Human Urine samples (100) and Environmental sources (Hand swab of milkers, Utensils swabs and Udder swabs) (70) were collected. Of 1340 samples, 317 (23.65%) E.coli was isolated and 53 isolates were found positive for VT genes with 3.95%. Overall positivity of VTEC in Milk samples was 18.00% (18 / 100) in wet season that was much higher than Dry as 7.00% (7 / 100).

The positivity of VTEC in Raw Milk alone was found highest (15.00%) among all sources collected during the study period. In Pasteurized milk samples, the percent positivity was found 10.00% next to the Raw milk samples. All the four genes (vt1, vt2, eaeA and hlyA) were found positive in the Paneer sample collected from Hathras district. Presence of all the four genes in paneer indicates that it might be source of highly pathogenic VTEC for humans if consumed as raw. In Water samples, Overall positivity of VTEC was 2.60% (13 / 500). The highest positivity of VTEC was recorded in Restaurants water samples as 10.00% (2 / 20). In Human Urine samples (collected from pathology labs), the positivity of VTEC was 2.00% (2 / 100). The overall percent positivity of VTEC was 2.85% (2 / 70) in Environmental sources. Congo red dye binding ability of VTEC isolates was found positive in 46 isolates out of 53 (86.79%). All 53 VTEC isolates were screened for O157:H7 strain on MUG sorbitol agar, only 04 VTEC isolate were found positive phenotypically. Of 53 VTEC isolates, 4 were found positive to O157 gene (Raw milk-3 and Hand swab of milker-1). No sample was found positive to O111 gene. 53 VTEC isolates has been sent for serotyping. A total of 20 PCR products of genes (vt1, vt2, eaeA, hlyA and O157 genes) were sequenced by Invitrogen Bioservices India Pvt. Ltd Gurgaon Haryana. 8 VT genes were successfully submitted to NCBI GenBank and got Accession Numbers. Most sensitive drugs for VTEC isolates were found Imepenam with 88.67% followed by Chloramphenicol 86.79% and Amikacin 67.92%. The Most Resistant drugs for VTEC isolates were found Cefixime and Erythromycin with 94.33%.

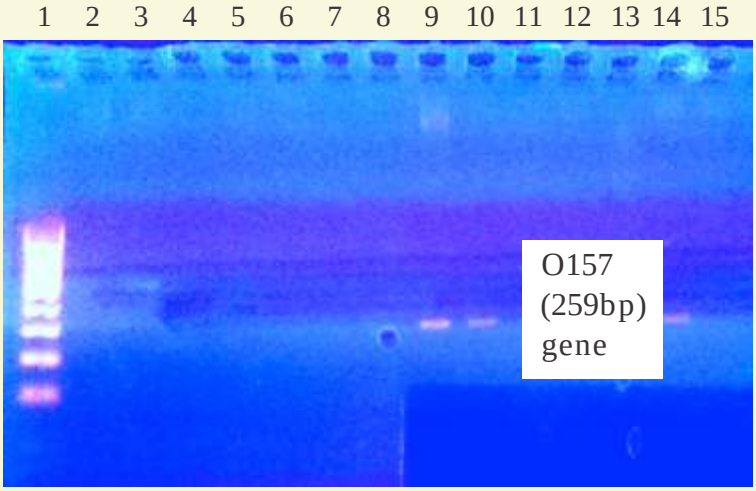


Colonies of verotoxic E. coli (Non O157 and O157) on MUG- sorbitol showing fluorescent and non fluorescent colonies.



Pink colour colonies showing lactose fermentation on MLA media.

Showing Antibiotic sensitivity test.



Lane 1: 100 bp DNA Ladder

Lane 9,10,14: O157 (259bp) genes

Showing O157 genes (259bp) in Agarose gel electrophoresis.

Project-9: Studies on feasibilty of distillery raw or biomethanated spent wash as animal feeds supplement.

Supplementation of spent wash or biomethanated spent wash (Levels 1) improved in vitro organic matter digestibility, rumen ammonia utilization and total volatile fatty acid production. Use of spent wash or biomethanated spent wash as cereal replacer in concentrate mixture improved feed conversion ratio and average daily gain in growing heifers. Heifers fed spent wash replacement levels 1 (IPR issue) increased plasma urea concentration, increased ALT level, and total immunoglobulin concentration. Biomethanated distilleries spent wash had lower plasma urea nitrogen concentration and increased plasma P, total protein and total immunoglobulin concentration. However, increased plasma albumin and glucose concentration was observed in biomethanated distilleries spent wash (Level 2) fed growing animals. Overall results revealed that feeding of spent wash or biomethanated spent wash as cereal replacer in concentrate mixture improved growth performance without any adverse effect in growing heifers.

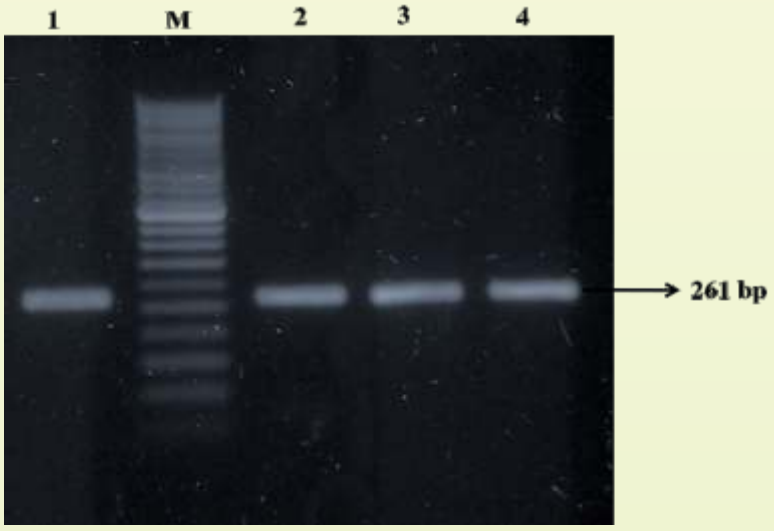
B. UNIVERSITY FUNDED PROJECTS SANCTIONED / ONGOING / COMPLETED DURING 2015-16

S. No.	Name of the Project	Name of the PI & Co-PI	Budget (Rs in lacs)
1.	Association between polymorphisms of Solute carrier 27A1 (SLC27A1) gene with milk production traits in Sahiwal and Hariana cattle	Dr. Madhu Tiwari Dr. Deepak Sharma Dr. S.P. Singh Shri Rakesh Goel	1.45
2.	Hematology of the Muzaffarnagri sheep	Dr. Archana Pathak Dr. M.M. Farooqui Dr. Abhinov Verma Dr. Deepak Sharma Dr. Ambika Sharma	0.50
3.	Molecular characterization and phylogenetic analysis of different isolates of trypanosomes in and around Mathura.	Dr. Vikrant Sudan Dr. Amit Jaiswal Dr. Daya Shankar	1.75
4.	Growth performance, rumen fermentation, biomarkers of heat stress, immune status and endocrine variables in summer exposed growing calves supplemented with different sources of chromium	Dr. Debashish Roy Dr. Muneendra Kumar Dr. Vinod Kumar	1.00
5.	Effect of supplementation of inorganic and organic form of copper on growth performance, nutrient utilization and blood parameters in growing cattle	Dr. Shalini Vaswani Dr. Vinod Kumar Dr. Raju Kushwaha Dr. Atul Prakash	1.00
6.	Screening of milk of different breeds for nutritional and health providing components	Dr V.P.Singh Dr. Vikas Pathak	1.50
7.	Association of bovine leptin gene polymorphism with production and reproduction traits in primiparous dairy cows.	Dr. Vijay Pandey Dr. Rajesh Nigam Dr. S.P. Singh	1.50
8.	Development of native whole cell lysate based ELISA kit for trypanosomosis in cattle and buffaloes	Dr. Amit Kumar Verma Dr Amit Jaiswal Dr. Vikrant Sudan	1.00
9.	Growth performance and body measurements of Sahiwal and Hariana calves during summer season	Dr. Deep Naryan Singh Dr. Rajneesh Sirohi Dr. Yajuvendra Singh Dr. Ajay Kumar Dr. Mamta	0.35
10.	Deciphering the thermal stress associated deprotamination and DNA compaction in Bull Sperm	Dr. Dilip Kumar Swain Dr Sarvajeet Yadav Dr Atul Saxenna	2.00

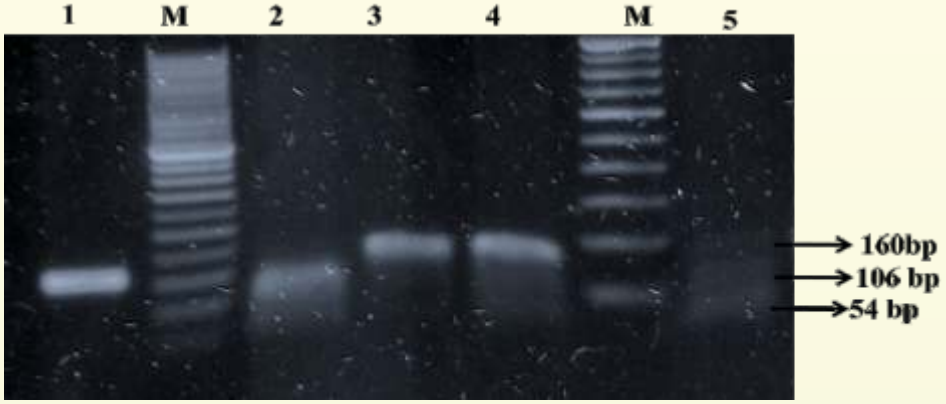
11.	Effect of different seasons on production performance, biomarkers of environmental stress and other biochemicals in indigenous dairy cattle	Dr J Kumar Dr A K Madan, Dr Brijesh Yadav, Dr Rajnish Sirohi, Dr Yajuvendra Singh, Muneendra Kumar,	3.00
12.	Cryoprotective effect of low density lipoproteins in extenders on the post thaw semen quality in pure breed Hariana bulls	Dr Mukul Anand, Dr Sarvajeet Yadav Dr Vijay Singh	1.00

Project - 1 : Association between polymorphisms of solute carrier 27A1 (SLC27A1) gene with milk production traits in Sahiwal and Hariana cattle

The objective of this study was to find out polymorphisms of SLC27A1 gene in Sahiwal and Hariana cattle breeds by PCR-RFLP and association between polymorphic genotypes and milk production traits. Accordingly, the SacII/PCR-RFLP assay revealed that the cattle used in the present study were monomorphic for this SNP and the BsaHI/PCR-RFLP assay revealed that the cattle populations under study were polymorphic with two types of alleles-C and T. The heterozygous animals (CT genotypes) performed better in production traits as compared to homozygous animals. Moreover, homozygous animals with CC genotype performed better over homozygous animals with TT genotypes. C allele of this gene had over-dominant effect over T allele. Sahiwal and Hariana cattle with predominantly C allele for SLC27A1 gene can be used as candidate gene for marker associated selection in these breeds.



SLC27A1-I/SacII PCR-RFLP assay pattern in 2.0% agarose gel; Lane 1: Undigested PCR product, M: Marker (50 bp ladder), 2, 3 & 4: RE digested uncut PCR products.



SLC27A1-II/BsaHI PCR-RFLP assay showing genotype pattern in 2.0% agarose gel; Lane 1: Undigested PCR product, M: Marker (50 bp ladder), 2: CC genotype (106 & 54 bp), 3 & 4: TT genotype (160 bp), M: Marker (100 bp ladder) 5: CT genotype (160, 106 & 54 bp).

Project-2: Hematology of Muzaffarnagri sheep

The project work is in progress. The sampling has been started and their hematolgical parameters and cytological study is in progress.

Project-3: Molecular characterization and phylogenetic analysis of different isolates of trypanosomes in and around Mathura

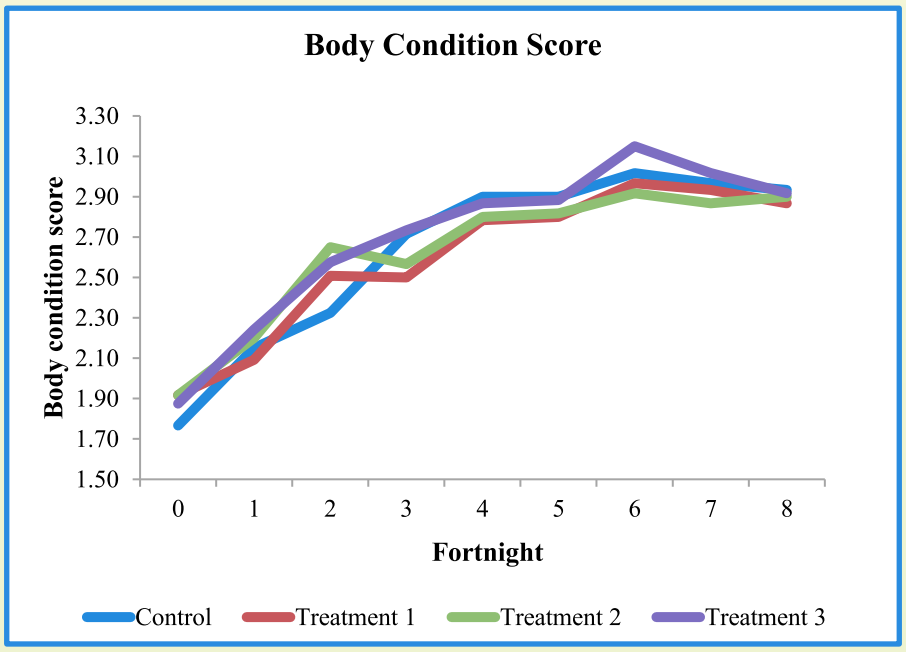
DNA was extracted from Trypanosoma evansi isolated from buffalo, cattle, dog and horse host species. Later on, primer based PCR amplification of cysteine protease and variable surface glycoprotein (VSG) genes was done. The PCR products were purified and cut by various restriction endonucleases enzymes and were ligated into InsTA and Puregene TA cloning vectors, respectively and subsequently transformed into DH5α E. coli cells. The recombinant clones were screened by blue white screening, restriction digestion and colony PCR. The positive clones of these genes are send for sequencing to analyse the variations at the nucleotide levels.

Project-4: Growth performance, rumen fermentation, biomarkers of heat stress, immune status and endocrine variables in summer exposed growing calves supplemented with different sources of chromium

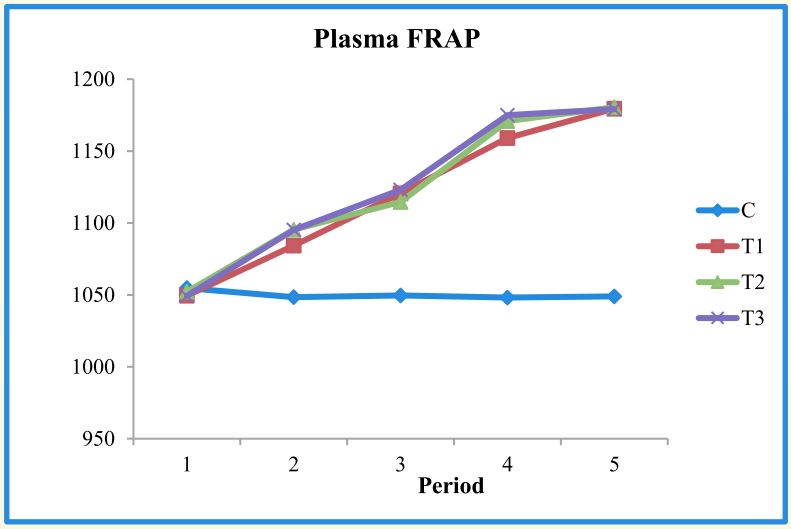
Objective of the project was to observe the effect of supplementation of organic chromium (Cr) sources i.e. Cr picolinate, Cr polynicotinate and Cr yeast in rumen fermentation parameters in vitro, growth performance, nutrient utilization, blood biochemical parameters and endocrine parameters of indigenous cattle heifers. In vitro rumen fermentation parameters remained unchanged in different dose levels (0.5, 1.0, 1.5, 2.0 and 2.5 ppm), 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 (Control, T1, T2 and T3) having 6 animals in each group, on body weight basis. 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. Average body weight, metabolic body weight,

body weight gain and body condition score 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 W0.75) improved ($P<0.05$) in chromium yeast supplemented group during digestion trial.

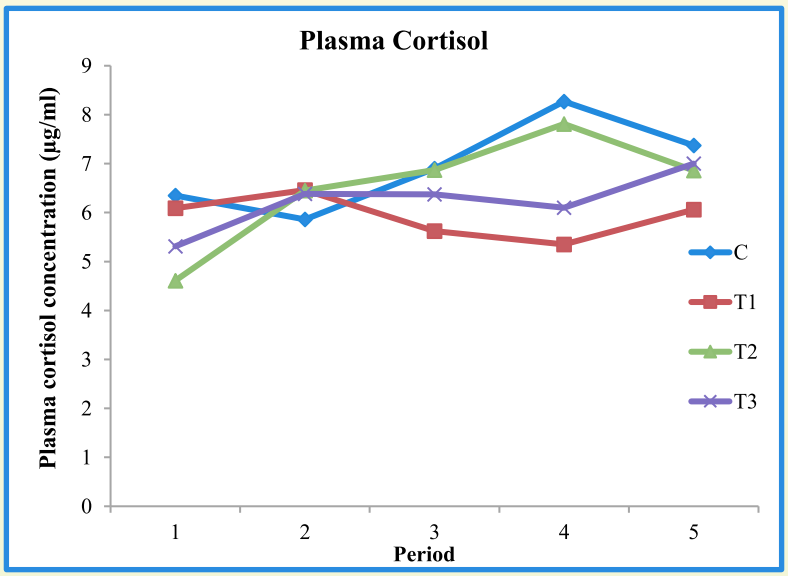
Absorption (%) of chromium and zinc was increased in supplemented groups than control. Absorption (%) of copper, iron and manganese was not impacted by supplementation of organic chromium sources. Haematological parameters like blood haemoglobin concentration and haematocrit values were not impacted 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 ($P<0.05$) 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 ($P<0.05$) 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.



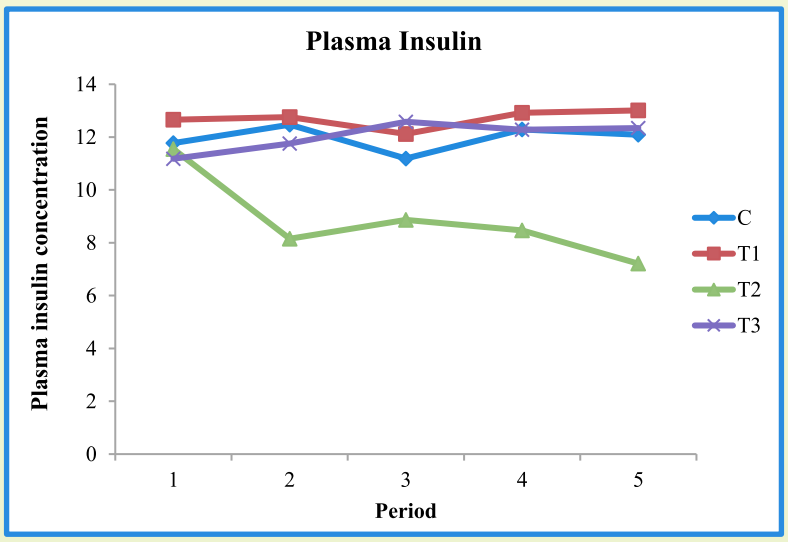
Body condition score of experimental animals



Plasma FRAP (Ferric reducing antioxidant power assay)



Plasma cortisol concentration



Plasma insulin concentration

Project-5: Effect of supplementation of inorganic and organic form of copper on growth performance, nutrient utilization and blood parameters in growing cattle

The efficacy of incorporating the organic forms of copper as copper-protein (copper proteinate) and copper-organic acid (copper propionate) in comparison to the traditional inorganic form (copper sulphate) was evaluated in terms of growth performance, nutrient utilization and blood parameters in the indigenous growing cattle. Three different dose levels of copper proteinate, copper propionate and copper sulphate (0.039 %, 0.078 %, 0.156 %) were incubated with strained rumen liquor and effect of different levels was studied on rumen fermentation parameters like total gas production, In vitro dry matter digestibility (IVDMD), In vitro organic matter digestibility (IVOMD), ammonia nitrogen (NH3-N), partitioning factor and microbial protein. The IVDMD was significantly ($P<0.05$) higher for 0.078% dose level for all the forms and sources of copper. All the other parameters such as, gas production, organic matter digestibility, partitioning factor and microbial biomass production also showed better results for this dose level. Thus dose level of 0.078% of copper proteinate, copper propionate and copper sulphate was selected for feeding at in vivo trial. Twenty-four Hariana heifers of 1 to 2 years of age were randomly allocated into 4 groups (Control, T1, T2 and T3) having 6 animals in each group, on body weight basis. The growing cattle were fed individually according to their body weight to fulfill the nutrient requirements as per NRC (2001) requirements. The basal diet comprises of concentrate mixture, wheat straw and maize fodder. Animals in T1, T2 and T3 group were fed basal ration with 0.78% copper proteinate, copper propionate and copper sulphate on DM basis, respectively. Fortnightly body weight, body condition score, average daily gain, feed conversion ratio of animals was recorded to observe changes in growth rate due to dietary supplementation of different form and sources of copper. Fortnightly body weight gain, average daily gain was found to increase in 3rd, 4th and 5th weeks in all groups. The feed conversion ratio was found to increase during the last two fortnight which shows that the Dry matter intake increased in that period of trial in all experimental groups. The linear trend of increase in score was seen till the sixth fortnight and after that is was seen constant in all the treatment groups.

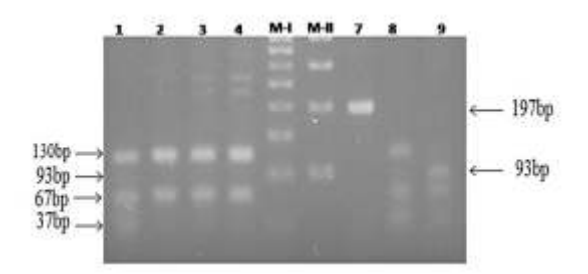
Project-6: Screening of milk of different breeds for nutritional and health providing components

The milk samples from Hariana and Sahiwal cows and Murrah buffalo were collected at monthly interval. These samples were then separately analyzed for nutritional and health components. On the basis of data compiled and statistically analyzed, it can be concluded that cow milk was having more health beneficial components than buffalo milk. On comparison with Hariana and Sahiwal, Sahiwal was showing higher fat and casein components than Hariana. Murrah buffalo milk was having greater quantity of fat, casein, lactalbumin, total solids, SNF and lactose as compared to cow.

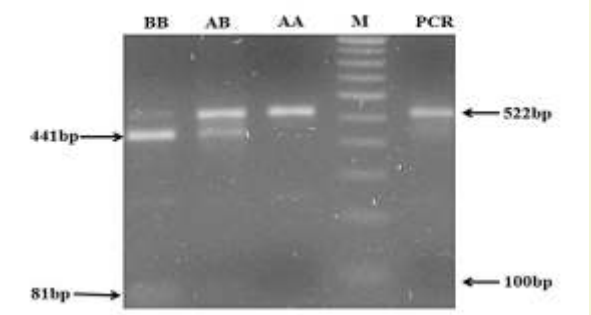
Project-7: Association of bovine leptin gene polymorphism with production and reproduction traits in primiparous dairy cows.

The present study was undertaken to determine the levels of plasma leptin hormone and a few additional biochemical indices during periparturient period in Hariana cows. In addition, genetic polymorphism by PCR-RFLP assay using BsaAI and BseGI restriction enzymes in LEP and LEPR genes, respectively and their associations with production and

reproduction traits were also elucidated. Blood samples were collected from 62 lactating cows for studying genetic polymorphism in LEP and LEPR genes and plasma samples were harvested from blood collected from 6 selected pregnant Hariana cows of same age group and parity during -30 day prepartum to +90 day postpartum at 15 days interval for biochemical study. Biochemical indices studied in periparturient cows showed sudden decline in levels of plasma leptin and glucose concentration at parturition and subsequent postpartum gradual rise whereas plasma urea showed lower prepartum levels than postpartum levels. Lipid profile revealed normal levels during pregnancy which increased near term except triglycerides which remained high during pregnancy and become lowest at term. The PCR-RFLP analysis using BsaAI and BseGI restriction endonuclease revealed genetic polymorphism in LEP and LEPR genes in Hariana cows. The genetic polymorphism of LEP / BsaAI assay demonstrated AA, AB and BB genotypes with 9.67%, 54.8% and 35.5% genotypic frequency, respectively and its association study revealed noteworthy 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 traits in studied Hariana cows. Additionally, the genetic polymorphism of LEPR / BseGI assay exhibited CC, CT and TT genotypes with 8.06%, 87.09% and 4.83% genotypic frequency, respectively and revealed significant effect of these genotypes on gestation period, lactation period, total milk yield and milk yield at 300 days in studied cows.



LEPR/BseGI PCR-RFLP assay showing genotype pattern in 2.0% agarose gel; Lane 1,8: CT genotype (130,93, 67& 37bp), 2,3,4: CC genotype(130&67bp),7: Undigested PCR prodnct(197bp), 9: TT genotype (93,67&37bp), 5(M-I): Marker (50bp ladder), ip-ll): Maiker(100bp ladder).



LEP/BsaAI PCR-RFLP assay showing genotype pattern in 2% agarose gel; Lanel: BB genotype(441&81bp),2: AB genotype (522,441&81bp),3: AAgenotype (522bp only), 4(M): Marker (lOObp ladder), 5(PCR): Undigested PCR product (522bp only).

Project-8: Development of native whole cell lysate based ELISA kit for trypanosomosis in cattle and buffaloes

Trypanosoma evansi, a unicellular eukaryotic haemoflagellate, causes a classical disease entity 'surra' in a wide range of farm and domestic animals. The disease is a severe constraint for livestock development and productivity in many tropical and subtropical countries of the world. The gold standard for diagnosis of trypanosomosis still remains the microscopical demonstration of parasites in blood smear, however, the method suffers from limitations of sensitivity. The DNA based molecular detection techniques are though reliable, their application in large through put epidemiological studies is not cost effective, especially for developing nations. For efficient sero-surveillance of trypanosomosis, a purified recombinant protein based test is more relevant and is perhaps the need of the hour. Therefore, the present study was taken to identify, isolate, purify and evaluate the native whole cell lysate based ELISA for early diagnosis of trypanosomosis in large ruminants. At present the screening of blood samples from clinical cases of bovines suspected for trypanosomiasis is going on to found the live trypanosomes for further

propagation in laboratory animals. The permission for use of experimental animals (mice) has been obtained from the ethical committee.

Project-9: Growth performance and body measurements of Sahiwal and Hariana calves during summer season

The results from the experiment revealed that there were non-significant differences in average body weight (kg), abdominal girth (cm) and heart girth (cm) in Hariana & Sahiwal calves during fortnightly interval, however average body height (cm) and body length (cm) in Hariana calves were significantly (>0.05) higher than Sahiwal calves at the end of experiment (60th day). The negative correlation was observed between meteorological parameters viz. afternoon DBT (ºC) & THI with body weight gain of Sahiwal & Hariana calves.

Project-10: Deciphering the thermal stress associated deprotamination and DNA compaction in bull sperm

In vitro exposure of sperms to higher temperature induces capacitation and acrosome reaction like changes in sperms along with induction of higher sperm apoptosis.Tyrosine phosphorylation was found to be the major signaling pathway in mediating the sperm physiology during thermal stress. Deprotamination was a major cause of DNA alteration during thermal stress. Hot humid season induced capacitation and apoptosis like changes in sperms along with deproatmination. Deprotamination was significantly increased during hot humid seasons indicating a negative regulator of fertility. Tyrosine Phosphorylated proteins were localized in sperm head and mitochondria during thermal stress both in vivo and in vitro. In vitro exposure of sperms to higher temperature induces capacitation and acrosome reaction like changes in sperms along with induction of higher sperm apoptosis.Sperm apoptosis was found to be regulated by the degree of sperm protamination. Tyrosine phosphorylation may be associated with induction of apoptosis in bull sperms during hot humid seasons.

Project - 11 : Effect of different seasons on production performance, biomarkers of environmental stress and other biochemicals in indigenous dairy cattle

Physical seminal attributes significantly decreased with increase in period of freezing and thawing. Spermatozoa exhibited significant reduction in acrosome intact sperms with increase in period of freezing and thawing. Capacitation like changes in spermatozoa significantly increased with increase in period of freezing and thawing. Acrosome reaction in spermatozoa increased significantly increase in period of freezing and thawing. Protein Tyrosine Phosphorylation was found to be one of the key pathways of spermatozoa capacitation. Tyrosine phosphorylated sperme were found in acrosome, middle piece and principal piece depending on the time freezing and thawing. Five tyrosine phosphorylated proteins (40, 42, 48, 68, 70 kDa) were identified in fresh and finally diluted semen. Nine / Ten tyrosine phosphorylated proteins (18,28, 42, 44, 48, 50, 68, 78, 84 and 94kDa)were identified in post thaw semen.

Project-12: Cryoprotective effect of low density lipoproteins in extenders on the post thaw semen quality in pure breed Hariana bulls

Effect of LDL as cryoprotectant was evaluated in cryopreserved Haryana bull semen. It was observed that 8% LDL supplementation improved motility, membrane integrity and viability.

C. PROJECTS OF POST GRADUATE STUDENTS COMPLETED DURING 2015-16

S. No.	Title of the Thesis	Name of the Student	Name of the Guide	Subject
PhD.				
1.	Genetic polymorphism of prolactin and leptin gene and their association with production and reproduction traits in Sahiwal cattle in India	Dr. Sumit Kumar	Dr. Deepak Sharma	Animal Genetics and Breeding
2.	Studies on susceptibility pattern in response to natural coccidial infection in goats of semi-arid region	Dr. Alok Kumar Singh	Dr. Daya Shanker	Veterinary Parasitology
3.	Development and quality assessment of functional chevon patties	Dr. Narendra Kumar Nayak	Dr. Vikas Pathak	Livestock Products Technology
4.	Comprehensive study on differentiation in meat quality of indegenous chicken breeds	Dr. Veer Pal Singh	Dr. Vikas Pathak	Livestock Products Technology
M.V.Sc.				
1.	Effect of feeding spent wash on growth performance and nutrient utilization in growing cattle.	Dr. Pradeep Kr Kesharwani	Dr. Vinod Kumar	Animal Nutrition
2.	Effect of feeding different levels of *Azolla Pinnata* on growth performance and carcass characteristics of broiler chicken.	Dr. Deepesh Bharat Mishra	Dr. Debashis Roy	Animal Nutrition
3.	Effect of feeding biomethanated spent wash on growth and nutrient utilization in growing cattle	Dr. Sanjay Singh	Dr. Muneendra Kumar	Animal Nutrition

4.	Development and quality evaluation of low fat fiber fortified milk slices	Dr. Neetu Pandit	Dr. Vikas Pathak	Livestock Products Technology
5	Evaluation of storage stability of extended chicken nuggets incorporated with natural antimicrobials	Dr. Saraswati Ojha	Dr. Vikas Pathak	Livestock Products Technology
6	Molecular epidemiology of campylobacteriosis in dogs	Dr. Iftekhar Ahmed	Dr. Amit Kumar Verma	Veterinary Epidemiology and Preventive Medicine
7	Comparative studies on serological and molecular diagnosis of bovine brucellosis	Dr. Neha	Dr. Amit Kumar Verma	Veterinary Epidemiology and Preventive Medicine
8	A comparative study to assess role of information and communication technology(ICT) among livestock owners	Dr. Rajiv Nayan	Dr. Sanjeev Kr. Singh	Extension Education
9	Study of environmental sound on reproductive performance of Hariana bulls.	Dr. Archana Yadav	Dr. Yajuvendra Singh	Livestock Production & Management
10	Studies on biomarkers of mercury-induced alterations in activity of rat myometrium with particular reference to muscarinic receptors	Dr. Swati Koli	Dr. Atul Prakash	Pharamacology and Toxicology
11	Studies on prevalence of verocytototoxic *E. coli* (VTEC) including O157H7 in domestic and wild ruminants with its public health significance	Dr. Raghvendra P. Mishra	Dr. Udit Jain	Veterinary Public Health
12	Clinico-epidemiological, diagnostic and therapeutic studies on *Trypanosoma evansi* infection in equines	Dr. R. K. Singh	Dr. Arvind Kumar Tripathai	Veterinary Medicine

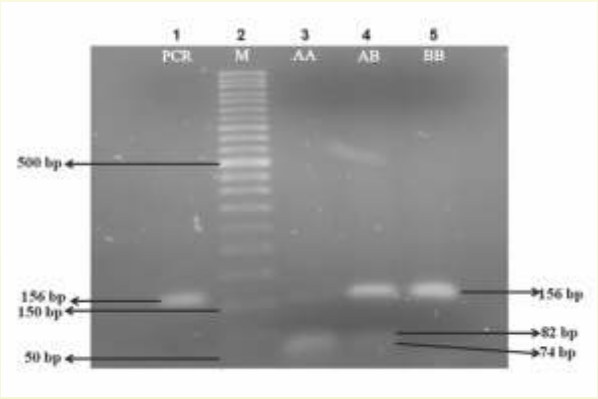
13	Effects of prepartum supplementation of antioxidants and anionic salt on metabolic and oxidative status of transition Sahiwal cattle	Dr. Brajesh Kumar Yadav	Dr. Shankar Kumar Singh	Veterinary Medicine
14	Phytochemical and clinical evaluation of plant extracts and its fraction against goat ticks (*Rhipicephalus* spp.)	Dr. Mahendra Kr. Chaudhary	Dr. Ashok Kumar	Veterinary Medicine
15	Studies on assessment of capacitation like changes in the cryopreserved sperms in Hariana bull.	Dr. Meena Verma	Dr. Vijay Singh	Veterinary Gynaecology
16	Studies on cystic ovarian follicles of bovine	Dr. Pramod Kumar	Dr. Ramsagar	Veterinary Gynaecology
17	B-mode ultrasonographic biometry of intraocular structures in Murrah buffalo (*Bubalus bubalis*)	Dr. Sudhir Singh	Dr. Sanjay Purohit	Veterinary Surgery and Radiology
18	Studies on orodental affections in buffaloes (*Bubalus bubalis*)	Dr. Ravindra Kumar	Dr. R.P. Pandey	Veterinary Surgery and Radiology
19	Clinical studies on the use of acepromazine, xylazine and butorphanol in different combinations for standing sedation in horses	Dr. Abhishek Rajkapoor	Dr. V. Malik	Veterinary Surgery and Radiology
20	Clinical studies on the effect of glycopyrrolate, xylazine, acepromazine, dexmedetomidine and butorphanol in different combinations on propofol- halothane anaesthesia in dogs	Dr. Saurabh Yadav	Dr. V. Malik	Veterinary Surgery and Radiology
21	Effect of azolla feeding on the performance of growing turkeys	Dr. Mayank Shukla	Dr. Amitav Bhattacharya	Poultry Science

22	Comparison of immunogenicity of foot and mouth disease vaccines in sheep and goat.	Dr. Yogesh Kumar	Dr. Rashmi Singh	Veterinary Microbiology
23	mecA and vanA gene based molecular characterization of methicillin resistant *Staphylococcus aureus*	Dr. Ritika Yadav	Dr. S.K. Yadav	Veterinary Microbiology

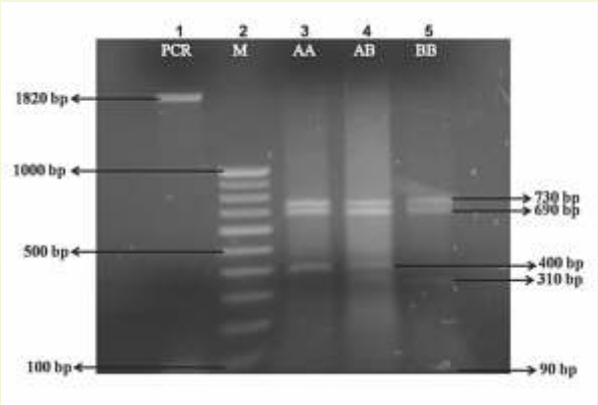
1: Genetic polymorphism of prolactinand leptin gene and their association with production and reproduction traitsin Sahiwal cattle in India

Prolactin (PRL) is one of the polypeptide hormones of the pituitary gland, regulates mammary growth, lactogenesis, reproductive & immunological functions, ûuid balance and cellular growth & differentiation, while Leptin (LEP), the fat derived protein hormone regulates the feed intake, energy balance, fertility, immune functions, important role in lactogenesis and its receptors have been found to be expressed in mammary epithelial cells. In the present study, identification of PRL and LEP gene polymorphism and its association with milk production and reproduction traits was undertaken in 154 Sahiwal cattle maintained at NDRI, Karnal and ILFC, DUVASU, Mathura by using PCR-RFLP technique. The amplified fragments of the PRL-I, PRL-II, LEP-I and LEP-II genes revealed 156, 857, 454 and 1820 bp respectively, the amplified products were digested with RsaI, HaeIII, HphI and Sau3AI restriction endonuclease enzymes respectively. The RsaI / PCR-RFLP assay of PRL gene revealed three types of genotypes; 156 bp fragment (BB genotype); 82 & 74 bp fragments (AA genotype) and 156, 82 & 77 bp fragments (AB genotype) with frequencies 22.58%, 60.48% and 16.94% respectively. Allelic frequency of A & B alleles were 0.472 and 0.528, respectively. DNA sequencing revealed A'!G substitution at RsaI recognition site GTAC. After $\chi 2$ analysis the selected population of Sahiwal cattle was found in Hardy- Weinberg Equilibrium. In restriction digestion of PRL 857 bp product with HaeIII revealed only one type of genotype. This revealed no polymorphism i.e. monomorphic in nature, Further the presence of the restriction site for HaeIII in PCR products confirmed by sequencing. The obtained sequence of PRL / HaeIII after aligning was revealed deletion of G from HaeIII recognition site GGCC. The HphI / PCR-RFLP assay of LEP gene revealed two types of genotypes; 309 and 145 bp fragments (BB genotype); 454, 309 and 145 bp fragments (AB genotype) with frequencies 70.97% and 29.03% respectively, whereas the AA genotype was not found in these samples (0.00%). The frequency of A and B alleles was 0.15 and 0.85, respectively. DNA sequencing revealed C'!T substitution at HphI recognition site GGTGA(N)8. After $\chi 2$ analysis the selected population of Sahiwal cattle was not found in Hardy- Weinberg Equilibrium. The Sau3AI / PCR-RFLP assay of LEP gene was revealed three types of genotypes; 730, 690 and 400 bp fragments (AA genotype); 730, 690, 400, 310 and 90 bp fragments (AB genotype); 730, 690, 310 and 90 bp fragments (BB genotype) with frequencies 40.32%, 58.87% and 0.81% respectively. The frequency of A and B alleles was 0.698 and 0.302, respectively.

DNA sequencing revealed C'!T substitution at Sau3AI recognition site GATC. After χ2 analysis the selected population of Sahiwal cattle was not found in Hardy- Weinberg Equilibrium. In Association studies of PRL / RsaI gene, AB genotype was associated with the shorter Age at first calving, while BB genotype was associated with the smaller Dry period, Calving interval and Days reach to peak yield but larger Total milk yield, milk yield at 300 days and Peak yield. In Association studies of AB and BB genotypes of HphI / PCR-RFLP assay of LEP gene showed significant differences for Age at first calving, Dry period, Peak yield, Calving interval and Days reach to peak yield, while BB genotype was associated with the shorter Age at first calving, Dry period, Calving interval and Days reach to peak yield but large peak yield. In Association studies of AB Genotype of LEP gene by Sau3AI / PCR-RFLP assay was associated with the shorter Age at first calving, dry period and calving interval, while AA genotype was associated with the larger 300 days milk yield.



PRL/RsaI PCR-RFLP assay showing genotype pattern in 2.0% agarose gel; Lane 1: Undigested PCR product, 2: Marker (50 bp ladder), 3: AA genotype (82 & 74 bp), 4: AB genotype (156, 82 & 74 bp), 5: BB genotype (156 bp only).



LEP/Sau3AI PCR-RFLP assay showing genotype pattern in 2.0% agarose gel; Lane 1: Undigested PCR product, 2: Marker (100 bp ladder), 3: AA genotype (730, 690 & 400 bp), 4: AB genotype (730, 690, 400, 310 & 90 bp), 5: BB genotype (730, 690, 310 & 90bp)

2: Studies on susceptibility pattern in response to natural coccidial infection in goats of semi-arid region

The present study was designed to analyze susceptibility to coccidiosis in kids of Barbari and Jamunapari maintained semi intensive system in semi-arid region. During study period, a total of 1422 feacal samples (777 from autumn season and 645 from spring season) were collected at different age group; 3.5, 6.0 and 7.5 from Central Institute for

E.arloingi

E.ninakohlyakimovae

E.hirci

E.caprina

E. christenseni

Identification of different Eimeria oocysts

Research on Goat, Farah, Mathura, U.P. Oocyst per gram (OPG) was used to find out the prevalence of coccidian infection in goats. The overall coccidian oocysts were found in 94.37% population. Age wise average prevalence of OPG was found 1426.79, 563.97 and 1227.64 at 3.5, 6.0 and 7.5 month of age, respectively. The sex wise average prevalence were found higher in female (1145.44) as compared to male (998.29).The average seasonal prevalence of OPG was highest in autumn season (1235.93) as compared to spring season (876.28). During the year 2012-2015 average temperature ranged from 20.42 – 46.31 (minimummaximum) in summers and (4.60 – 31.58) in winters. The average rainfall was 38.60 mm. The relative humidity ranges between 21.67- 84.06 (%). Five Eimeria species were identified viz, Eimeria arloingi, E. ninakohlyakimovae, E.hirci, E.christenseni and E.caprina. Eimeria arloingi was the predominant species in semi-arid region in response to natural coccidian infection in semi intensive management. Jamunapari goat observed to be more resistance (10.43%) than Barbari (6.32%).There was no significant differences observed in haemato-biochemical parameters in response to natural coccidian infection in Barbari and Jamunapri goat. The challenge study was performed to use a standardized dose of 3x104 sporulated oocyts. The first oocysts were observed on the day 8th after the inoculation of the sporulated oocyst. Feacal score also observed i.e. diarrhoea (foul smelling diarrhoa, shooting diarrhoea, watery diarrhoea, bloody diarrhoea and mild diarrhoea) along with clinical symptom like, cough, nasal discharge, fever. The highest

oocysts were observed on day 23rd . Different anticoccidial treatment such as,Toltrazuril, Amprolium, Sulphadimidine and combination of herbal were used to test their efficacy. Toltrazuril was found higher efficacious than other combination. A rise in WBC, Hct and Hb and fall in, ALP, Na+, Cl- and K+ were observed in infected kids. The super oxide dismutase (SOD) level was decreased in infected kids whereas, the level of Interferon-γ and Cortisol were increased in infected kids. Body weight and gain was observed higher in treatment groups as compared to control.

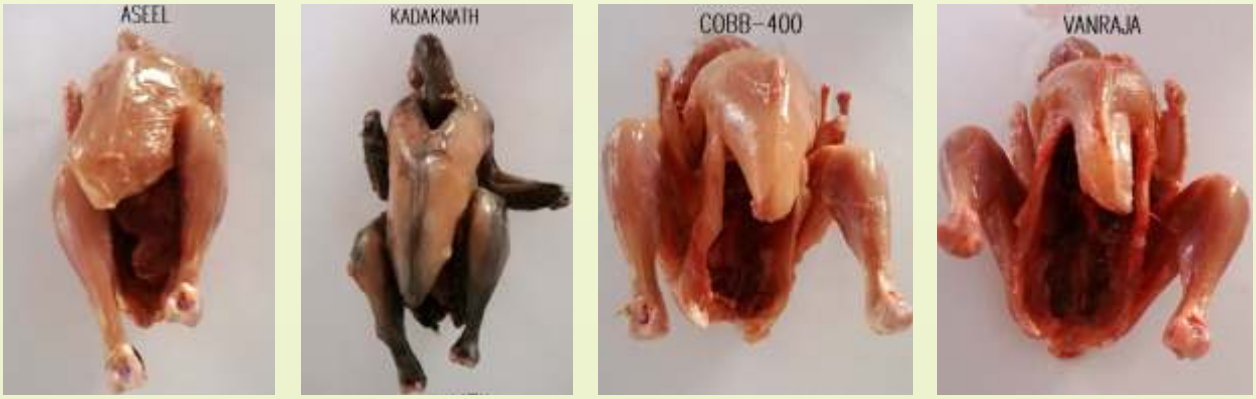
3: Development and quality assessment of functional chevon patties

The study was carried out with the prime objective of reducing fat and sodium content and simultaneously preserving its quality by incorporating natural antioxidants. Efficacy of fat replacers viz carrageenan (0.3%,0.6% & 0.9), poppy seed (1%, 3% & 5%) and sago flour (1%, 3% & 5%) were assessed for development of low fat chevon patties. Emulsion stability and cooking yield increased with the increasing levels of each fat replacer. Significantly ($P<0.05$) lower fat and cholesterol contents and higher moisture and fat retention were observed in formulation with various fat replacers. Lowest fat and cholesterol contents were recorded in CG2.. Moisture and fat retention was also significantly ($P<0.05$) higher in CG2. The flavor score was significantly ($P<0.05$) higher for CG2 compared to PS3 and SF2. The chevon patties with 0.6 % carrageenan were selected. Selected variant from previous experiment was incorporated with various salt substitutes (NaCl, KCl, CaCl2 & Mushroom extract) in different combination. Significantly ($P<0.05$) lower sodium and higher potassium content was observed in chevon patties substituted with different salt blends compared to control. Sodium content was reduced from 35.86% to 38.07% in the salt substituted chevon patties. Calcium content was significantly ($P<0.05$) higher in LS2, LS3 and LS4 salt substituted chevon patties. Mean score for flavor and saltiness were reduced significantly ($P<0.05$) in LS1, LS3 and LS4 compared to control. However, flavor, juiciness and saltiness as well overall acceptability scores for LS2 were comparable to control. Hence, treatment LS2 was selected as most suitable salt blend to develop chevon patties enriched with antioxidant. Three different natural antioxidants viz; noni juice, plum puree and pomegranate rind extract at 1%, 3% and 5% each were attempted in the formulation. The pH value was gradually decreased with the increasing levels of natural antioxidant and differed significantly ($P<0.05$) in noni juice and pomegranate rind extract incorporated chevon patties. Potassium and iron content was increased significantly ($P<0.05$) with the increasing level of pomegranate rind extract. Sensory attributes were comparable and most acceptable for NJ2, PP2 and PE2 variants within each treatment group and compared among each other. The cooking yield, moisture retention, general appearance and juiciness differed significantly ($P<0.05$) between different natural antioxidants and highest for NJ2.Sensory panelists also rated highest scores for NJ2 and widely accepted. Therefore, chevon patties with 3% noni juice was chosen as functional patties and evaluated for storage stability under refrigeration. The pH, TBA, FFA, peroxide value and microbial counts of functional chevon patties was significantly ($P<0.0.5$) lower as compared to control during storage. With the advancement of storage time these were increased significantly ($P<0.05$). However, rate of oxidation in functional chevon patties were considered lower than control as evidenced in estimated value of FFA and PV. Functional chevon patties showed significantly ($P<0.05$) higher

scores for flavor, juiciness and texture from 12th day of storage period. It was concluded that the developed low fat low sodium enriched with antioxidants chevon patties may be considered as health full functional product which was very well accepted up to 15 day under refrigeration.

4: Comprehensive study on differentiation in meat quality of indigenous chicken breeds

A comprehensive study was undertaken to evaluate the quality variations in meat of indigenous chicken breeds like Vanraja, Aseel and Kadaknath in comparison to Cobb-400. The carcass values recorded for Cobb-400 were significantly ($P<0.05$) higher than those of all indigenous chicken breeds. In indigenous chicken breeds. Aseel exhibited higher carcass among indigenous breeds. The total by-products yield was significantly ($P<0.05$) higher in Vanraja as compared other breeds of chicken while Cobb-400 recorded significantly ($P<0.05$) lower total by-product yield than all indigenous chicken breeds. Shear force value as well as shear energy requirement was highest for Aseel and lowest for Vanraja in both raw as well cooked meat. L* value of Cobb-400 meat was higher than indigenous breeds while a* and b* values were higher in Aseel for raw as well as cooked meat. Kadaknath revealed lowest values of L*,a* and B*. Breast muscle fibre and bundle diameter was noticed highest in Cobb-400 while thigh muscle fibre diameter was highest in Vanraja, however, the highest thigh muscle bundle diameter was seen in Kadaknath. Endomysium diameter of both breast and thigh muscle was higher in Cobb-400 than all other breeds while perimysium diameter of breast and thigh was highest in Aseel and Kadaknath respectively. Collagen was found to be highest in thigh muscle of Vanraja and breast muscle of Cobb-400 while minimum collagen was seen in Cobb-400 thigh and Kadaknath breast muscle. Elastic fibre and reticular fibre was higher in thigh than respective chicken breasts. Breed wise Cobb-400 was having highest elastic fibres and lowest content was observed in Kadaknath. Reticular fibres were highest in Vanraja thigh and Cobb-400 breast while lowest content was seen in Aseel in both breast as well as thigh. Moisture was non significantly and fat was significantly ($P<0.05$) higher in Cobb-400 while protein was significantly higher in native chickens than Cobb-400. Drip loss, pH and ash content values were higher in Vanraja than all studied chicken breeds. Sodium and potassium content was non significantly higher in Cobb-400 while iron and zinc were significantly ($P<0.05$) higher in Vanraja and manganese in Aseel. Indigenous breeds were having higher contents of MUFA and PUFA than Cobb-400 while later was found richer in SFA. On PCR-RFLP with MspI Aseel was showing heterozygote with Cyt-b while other RE was showing monomorphic patterns.



M.V.Sc.

1: Effect of feeding spent wash on growth performance and nutrient utilization in growing cattle

Spent wash (SW) is the waste product of sugarcane or brewers distillery industry and can be use as supplement or replacement with livestock feed. The present study was planned to evaluate the effect of spent wash on growth performance and nutrient utilization in growing cattle. The study was conducted in two phases i.e. in vitro and in vivo study. In in vitro study, the experiment was designed to evaluate the effect of different levels (0, 5, 10, 15 and 20%) of SW containing concentrate and roughages diet in 40: 60 ratio. Microbial protein synthesis (mg) was higher in spent wash treated group than control. NH3-N, TVFA and partitioning factor values of all groups were similar (P>0.05). IVDMD and IVOMD were reported to be higher in for 10, 15, 20% spent wash treated group. TGP, TGDM (ml / g) and TGDDM (ml / g DDM) of various groups did not show any significant difference. On the basis of in vitro findings, it was concluded that 10 and 20% spent wash treated group had showed best results and hence selected for further 150 days growth trial (in vivo) in Hariana heifers. In phase II (in vivo study), an experiment was conducted on 18 Hariana heifers randomly distributed on body weight basis into three groups of six animals each. The heifers in three groups were fed different dietary treatments, Control: (basal diet); 10% SW (basal diet with 10% spent wash containing concentrate) and 20% SW (basal diet with 20% spent wash containing concentrate). All animals were fed test diet for a period of 150 days. Fortnightly DMI, body weight changes and monthly blood plasma samples were analyzed for blood biochemical and minerals. Average body weights of heifers in kg or metabolic body weight (kgW0.75) periodically were similar (P>0.05). Fortnightly weight and ADG were similar (P<0.05) in control and spent wash groups. No significant effect on DMI in kg / d and on percent body weight basis was observed. The FCR and FCE were found similar control and spent wash treated groups. DM, DCP and TDN intake were similar in all groups. OM, EE and NDF digestibility also improved in spent wash groups. Blood hematological parameter like RBCs and WBCs count non significantly differed (P>0.05) in all groups and PCV and Hb concentration similar in both control and spent wash groups. Plasma creatinine, glucose, cholesterol (mg / dl), albumin, globulin, ALT and ALP (IU / L) activity in experimental heifers were statistically similar (P>0.05) among three groups. The total protein, AST and urea values were significantly higher (P<0.05) in spent wash treated group. The plasma Ca, P and Mg levels were not affected by spent wash treatment groups. Immunoglobulin concentration has no significant effect in all groups but numerically better in spent wash treated groups. FRAP assay and NEFA concentration value was not different in all groups. The results revealed that that feeding of 10% spent wash containing concentrate in basal diet improved growth performance and utilization of nutrient without any adverse effect in growing heifers.

2: Effect of feeding different levels of *Azolla pinnata* on growth performance and carcass characteristics of broiler chicken

The present study was conducted to see the effect of feeding different levels of Azolla meal on blood biochemicals, hematology and immunocompetence traits of Chabro chicken.The study was conducted on 160 Chabro chicks, which were randomly divided

into four treatment groups each with four replicates of 10 birds. The first treatment (T1) served as a control in which basal diets was offered without Azolla supplementation while in T2, T3, and T4 groups, basal diet was replaced with Azolla meal at 5%, 7.5%, and 10% levels, respectively. A feeding trial was conducted upto 8 weeks. At the last week of trial, blood samples were collected randomly from one bird of each replicate and plasma was separated to estimate certain biochemical parameters, some blood metabolites, minerals and enzymes like alanine aminotransferase and aspartate aminotransferase (AST). Hematological parameters such as hemoglobin, packed cell volume, total leukocytes count and differential leukocytes count were estimated in fresh blood just after collection. The humoral immune response was measured against sheep red blood cells,and cell-mediated immune response was measured against phyto hemagglutinin lectin from Phaseolus vulgaris (PHA-P). The study showed that hematological profile of the Chabro bird was not affected by any treatment except heterophil and lymphocyte which was found higher in T2 and T3 groups and eosinophil was found higher in a T3 group than control. Blood glucose, creatinine, cholesterol, total protein, albumin, uric acid, and triglycerides were found similar in all the groups and within the normal values for broiler chicken. Liver enzymes and macro mineral content in blood were found similar in all the treatment groups and within normal physiological range. Although AST was found higher in 10% replacement group than control, the value was within normal range for broiler chicken. Although antibody titer was found similar in all the experimental groups in the present study, cell-mediate immune response (response to PHA-P) was found higher in 5%, 7.5%, and 10% replacement groups than control($p<0.05$).

3: Effect of feeding biomethanated spent wash on growth and nutrient utilization in growing cattle

The aim of present study was to evaluate the effect of biomethanated distilleries spent wash (BDS) supplementation on rumen fermentation parameters in vitro, growth performance, nutrient utilization, haematological and blood biochemical and economic of feeding in calves. Entire study was conducted in two phase, phase I as in vitro study and phase II as in vivo study. In phase I study, effect of replacement of 0, 5, 10, 15 and 20% of substrate with BDS was studied on IVTDMD, IVTOMD, pH, in vitro gas production, PF, NH3-N, Total N, MBP and EMBP. Results revealed that there was no significant effect ($P>0.05$) of incorporation of different levels BDS on IVTDMD, pH, IVTGP, PF, Ph, total VFA production and efficiency of microbial biomass production was not affected by treatment. However, treatment with different levels of BDS had significant effect ($P>0.05$) on IVTOMD and molar proportion of acetate and propionate. Incubation of substrate having 10, 15 and 20% BDS had significantly ($P>0.05$) lower NH3-N concentration and the decreased was reported maximum in group treated with 10% BDS. In contrast to NH3-N concentration, amount of total N was reported highest in 10 % BDS treated groups. On the basis of findings of in vitro study, 10 and 20% levels of BDS were used for feeding of experimental claves of phase II study. Eighteen growing calves were selected from the herd of cattle maintained at Instructional Livestock Farm Complex, DUVASU, Mathura. Selected calves were randomly allocated into three groups (n=6) on body weight basis and duration of experiment was 150 days. Feeding regimen was same in all the groups except that the energy ingredients of concentrate mixture of treatment group were replaced with

10 and 20% BDS. Effect of supplementation of 10 and 20% BDS were recorded on physiological variables, daily DMI, fortnightly body weight change and feed utilization efficiency. Blood samples were collected at monthly intervals and analysed for haematological and blood biochemical attributes. At the end of study, a digestion trial of 6 days was conducted to study the effect of treatment on digestibility of nutrients. Replacement of concentrate mixture with 10 and 20% BDS did not had any effect on physiological variables, DMI, FCR and FCE while ADG was significantly (P>0.05) higher in 10% BDS supplement calves. Dietary supplementation of BDS did not exert (P>0.05) any effect on RBCs and WBCs counts, Hb concentration and PCV. The effect of supplementation of different levels of BDS had non significant effect on liver function test which was evidented from similar AST, ALT and ALP activity in control, 10 and 20% BDS supplemented calves. The significant decreased (P>0.05) plasma urea and increased plasma total protein and plasma albumin concentration were observed in treatment group. Feeding concentrate mixture replaced by 10 and 20% BDS did not affects plasma concentration of cholesterol, triglycerides, creatinine, Ca, FRAP and NEFA. However, plasma glucose, P and total immunoglobulin showed positive correlation with dietary supplementation of BDS. The feeding of concentrate mixture replaced by 10 and 20 % BDS was economic as compare to animal fed on basal diet having compounded concentrate mixture without BDS. Furthermore, ADG was also higher in BDS supplemented calves. The results of present findings indicated that 10% of energy ingredients of concentrate mixture can be replaced with BDS in growing calves without any adverse effect.

4: Development and quality evaluation of low fat fiber fortified milk slices

The study was envisaged to standardize the processing technology of milk slices, a milk based snack food. Milk with 6% fat was used to prepare coagulum and the final time-temperature combination for cooking was optimized as 121°C (Steam cooking) for 35 minutes followed by setting of product under refrigeration for 15 minutes, based on several preliminary trials. Three variants were prepared using milk with different fat levels viz. F1 - milk with 4.5% fat, F2 - milk with 3% fat and F3 - milk with 1.5% fat. The cooking yield increased while cooking losses decreased significantly (P<0.05) with reduction in fat levels of milk. Significant (P<0.05) increase in moisture, protein and ash contents of milk slices were observed whereas fat content of milk slices was significantly (P<0.05) lowered. Sensory studies revealed that there was significant (P<0.05) increase for color and appearance scores and non significant increase for saltiness scores, whereas, flavor, texture and overall acceptability scores were decreased non significantly in milk slices prepared with three different milk fat levels. Further reduction in fat content of milk slices (F3) were attempted by use of fat replacers i.e. carrageenan with three different levels viz. C1 (0.1%), C2 (0.2%) and C3 (0.3%) and sodium alginate at three different levels viz. T1 (0.1%), T2 (0.2%) and T3 (0.3%) replacing 30, 40 and 50% of vegetable oil. The cooking yield increased non-significantly with increased levels of both carrageenan and sodium alginate. The moisture, protein and fat content of milk slices increased while fat percentage decreased significantly (P<0.05) with increased levels of fat replacers in the formulation. Milk slices incorporated with 0.2% sodium alginate (T2) were selected for fiber fortification based on sensory scores. Three different fiber sources i.e. sorghum (S1, S2, S3), oat (O1, O2, O3) and ragi (R1, R2, R3) at three different levels viz. 5, 10 and 15% were also tried to

improve the functionality of product. Mean cooking yields were increased significantly (P<0.05) whereas cooking loss values were decreased significantly (P<0.05) with increased levels of floor in the milk slices. The estimated moisture, ash and fiber content of milk slices increased significantly (P<0.05) while protein and fat values decreased significantly (P<0.05) with increased percentage of all flours. The mean color and appearance, flavor and overall acceptability scores were found to be decreased significantly (P<0.05), whereas texture and saltiness scores were decreased non significantly (P>0.05) and the scores for all the sensory attributes were comparable upto 5% incorporation of sorghum, oat and ragi flours in milk slices. The best variant from each flour viz. sorghum (S1), 5% oat (O1) and 5% ragi flour (R1) were taken for storage studies along with T2 which served as control. The estimated pH, TBA and FFA values increased significantly (P<0.05) with the progression of storage. Total Plate Counts, Psychrophilic counts and Yeast & mold counts were highest in T2. Coliform count was not detected during whole storage period in any of the variants. There was no significant difference between control and treatments for all sensory attributes throughout the storage period, however scores for all attributes decreased significantly (P<0.05) at later stage of storage. The overall acceptability scores were the highest for T2=R1>S1>O1. The product was acceptable for 9 days under refrigeration temperature (4±2 °C). The overall cost for the production of 250g of low fat fibre fortified milk slices was Rs 87.50 for T2, 84.50 for S1, 86.75 for O1 and 86.50 for R1.

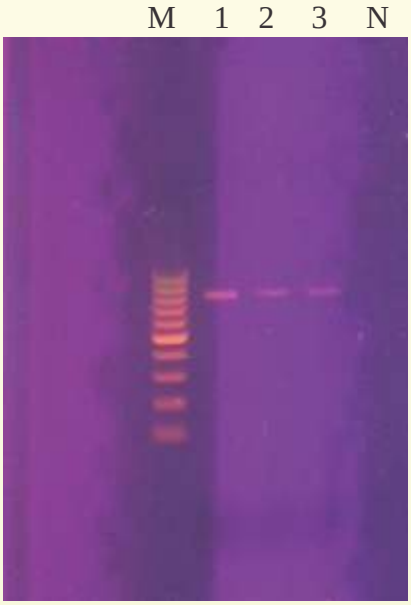
5: Evaluation of storage stability of extended chicken nuggets incorporated with natural antimicrobials

The present study was envisaged to develop chicken nuggets by the incorporation of various extenders viz. common bean, cowpea, jackfruit and natural antimicrobials viz. amla leaf powder, drumstick leaf powder, curry leaf powder to inprove storage stability simultaneously cutting off the cost of formulation. Four different treatments of nuggets i.e. C, CB1, CB2 and CB3 containing 0, 10, 15, 20 percent common bean were evaluated for various physicochemical properties and sensory attributes. The scores of all the sensory attributes were observed to be highest in CB1 (10%) among all treatments. In the next experiment, four different treatments of nuggets i.e. C, CP1, CP2 and CP3 containing 0, 10, 15, 20 percent cow pea were formulated. The scores for all the sensory attributes decreased (P<0.05) with increased levels of cow pea, however, CP1 was found to be comparable with control. The nuggets were also extended with jackfruit by formulating four treatments i.e. C, J1, J2 and J3 containing 0, 10, 15, 20 percent jackfruit. The overall mean scores for all sensory attributes except overall acceptability of J1 were comparable to control. The selected variant from each extender were compared among each other for physico-chemical properties and sensory attributes. The physico-chemical parameters viz. pH, cooking yield and moisture were highest for J1 (10%). The juiciness and overall acceptability of J1 were higher and comparable to control. Three different natural antimicrobials viz. amla leaf powder, drumstick leaf powder and curry leaf powder at three different levels viz.0.25%,0.5% and 0.75% were added in the selected treatment of chicken nuggets i.e. J1. There was significant (P<0.05) decrease in pH of both raw emulsion and chicken nuggets with amla leaf powder incorporation. All the sensory attributes decreased non significantly with increased levels of amla leaf except appearance and color, texture and overall acceptability which decreased significantly (P>0.05) for A3. A1 had

comparable sensory scores with control. Incorporation of drumstick leaf powder resulted in significantly (P<0.05) higher cooking yield, protein and ash content in D3 as compared to control. The sensory scores for different parameters decreased with increase in levels of drumstick leaf powder, however, the scores for all the sensory attributes except overall acceptability of D1 were comparable with J1. There was no significant (P>0.05) decrease in pH of both raw emulsion and chicken nuggets with curry leaf powder incorporation. Similar trend was recorded for other physico-chemical parameters except moisture and ash content which was found to be significantly (P<0.05) different among variants. Cy1 had comparable sensory scores with control. The finally selected variants i.e. A1, D1 and Cy1 along with J1(control) were further evaluated for storage stability and quality characteristics for a storage period of 9 days at every 3 day interval. The mean pH, TBA and FFA values of control and treatments increased significantly (P<0.05) during whole storage period. The highest and the lowest pH values were recorded for J1 (control) and A1 throughout storage period. The minimum TBA and FFA values were recorded for A1 on all storage days. Overall mean TPC and pschyrophillic count were significantly (P<0.05) higher in J1. Overall mean yeast and mould count reported to be highest of J1 followed by CY1>D1>A1. The Coliform and Salmonella were not detected during entire storage. The mean scores for overall acceptability were found to be highest for A1. It can be concluded that chicken nuggets prepared with incorporation with 10% jackfruit and 0.25% amla leaf powder had enhanced nutritional value and was acceptable upto 9th day of storage under refrigeration.

6: Molecular epidemiology of campylobacteriosis in dogs

Campylobacteriosis is a major cause of gastroenteritis in humans and some studies have suggested that dog ownership is a risk factor for the condition. To determine the prevalence, species distribution, antibiogram and risk indicators for Campylobacter spp. infecting dogs attending veterinary practice in Mathura, India, faecal samples were collected in a cross–sectional study from 134 dogs with and without clinical signs. The prevalence of Campylobacter spp. was 28.36% (38/134). Twenty six (68.42%) of the 38 Campylobacter strains were classified as C. jejuni by PCR, no strains (0.00%) were classified as C. upsaliensis and twelve strains (31.57%) were classified as other species in the Campylobacter genus. Susceptibility of the isolates to 19 antibiotics was determined by disc diffusion technique. Of the 19 antibiotics, amoxycillin, ampicillin, aztreonam, cefotaxim, lincomycin, oxytetracycline, penicillin, streptomycin and tetracycline revealed no zone of inhibition suggestive of resistance against these nine drugs, while high rate of resistance was observed against pefloxacin (92.11%), chloramphenicol (86.84%), ciprofloxacin (84.21%), nitrofurazone (78.94%), ofloxacin (76.32%), norfloxacin (73.68%) and cefaclor (73.68%) based on zone of inhibition as per manufacturer guidelines. Only few antibiotics viz., enrofloxacin (31.58%), gentamicin (23.68%) and amikacin (18.42%) revealed zone of inhibition suggestive of sensitivity.



PCR assay for detection of Campylobacter spp in dogs

Lane M: 100 bp DNA ladder

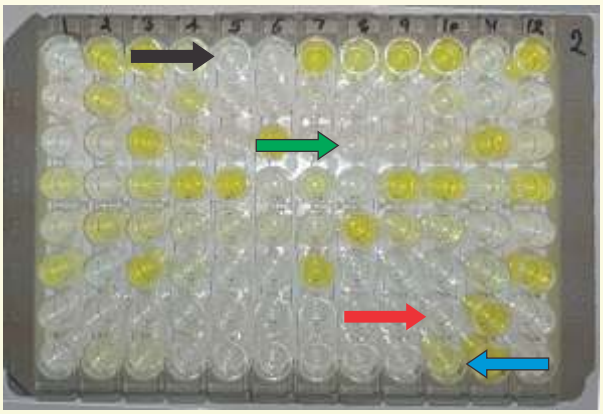
Lane N: Negative control

Lane 1-3: Campylobacter isolates

Risk factor analysis indicated that non-descript dogs and younger dogs were more likely to carry campylobacters and the high prevalence of this pathogen supports the hypothesis that dogs, particularly younger animals, may be an important source of campylobacter infection for humans. Association of campylobacteriosis and health status of dogs revealed that prevalence of campylobacteriosis was significantly higher in diarrheic dogs in comparison to non-diarrheic dogs. The prevalence of campylobacteriosis was significantly higher in dogs, which shared their habitat with other dogs in comparison to those of which do not share their habitat with other dogs. In further studies, dog owners may be sampled for excretion of campylobacters. Dog, their owners and human population in general should also be screened for presence of campylobacters, to detect correlation (if any) in the prevalence of infection in dogs and their contacts.

7: Comparative studies on serological and molecular diagnosis of bovine brucellosis

In this cross-sectional study, out of 924 serum samples from dairy animals (cattle and buffaloes) of different age, sex at districts place (districts), rearing pattern and health status were screened for seroprevalence of brucellosis using Rose Bengal Plate Test (RBPT) and Indirect ELISA. An overall sero-prevalence of brucellosis in dairy animals was found to be 8.55% and 20.45%, respectively. Risk factors such as species, age, sex, place, rearing practice and health status of dairy animals were assessed. The study indicated that the species, age, sex, districts, rearing practice and health status especially reproductive disorders had significant effect on seropositivity of brucellosis. A total of 89 animals showing symptoms of reproductive disorders were tested by three different diagnostic techniques, i.e. RBPT, I-ELISA and PCR. Out of 89 samples, 44 were positive by ELISA, 18 by RBPT and amplicons of 498bp were detected in 21 samples by polymerase chain reaction PCR. Different tests viz., RBPT and PCR were compared and sensitivity,

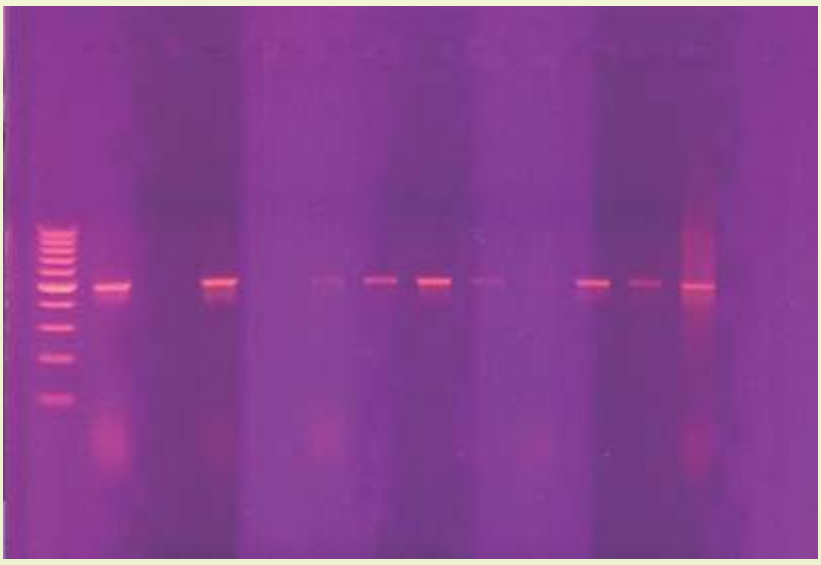


Positive Control
Negative Control
Positive test serum
Negative Test Serum

Indirect ELISA with Brucella antigen showing positive control, negative control and test samples

specificity, predictive value (positive) and predictive value (negative) of different tests when compared with i-ELISA considering it as "Golden Standard technique" were calculated. Sensitivity of PCR was the higher (47.73%) than that of RBPT (29.55%). Specificity of PCR was 100%, while the specificity of RBPT was 88.89%. RBPT, ELISA and PCR were compared against each other by applying kappa statistic and concordance percentage. There seems to be fair agreement between PCR and ELISA, while a slight agreement was observed between RBPT and ELISA; and RBPT and PCR (Table 15). Analysis of concordance percentage indicated a higher concordance percentage of 77.6% between PCR and ELISA. From the present study, it can be concluded that I-ELISA can be routinely used for an accurate and efficient diagnosis of brucellosis, because the chances of non-detection of an infected animal in I-ELISA are minimal. PCR alone cannot be used for routine diagnosis of brucellosis using serum as starting material. However, PCR can be used in combination with I-ELISA to complement the serological diagnosis for detection of bovine brucellosis.

M P N 1 2 3 4 5 6 7 8 9 10



PCR assay for detection of brucellosis in dairy animals

Lane M: 100 bp DNA ladder

Lane P: Positive control (Brucella abortus vaccine)

Lane N: Negative control (Foetal calf serum)

Lane 1-10: Cell lysate (Serum samples)

8: A Comparative study to assess role of information and communication technology (ICT) among livestock owners

The present study was conducted to assess role of ICT with special reference to enhanced livestock production, disease control, entrepreneurial development in two districts Mathura and Gautam Buddha Nagar in Uttar Pradesh. Eight villages were selected randomly from four blocks of two districts. Out of total respondents (200), twenty five respondents were selected from each village. Respondents were selected from each selected village and detailed information was collected through interview schedules as per the objectives of the study. Data collected through personal interviews were analyzed using appropriate statistical tools. Majority of respondents belongs to middle aged group have nuclear family, literate, possessed fair number of ICT tools. Majority of the respondents have primary occupation small and medium size land holding, small to medium size herd size with high milk production, total annual income and spent 1- 2 hrs on ICT tools. Regarding the role of ICT in enhancing livestock production, majority of respondents in Mathura and Gautam Buddha Nagar reported the information of galactogogue ,information of balanced ration, production and management in disaster provides major role of ICT in enhancing livestock production. However role of ICT in disease control, seasonal management of cross breed dairy animals, information of disease control were important roles in Mathura and Gautam Buddha Nagar respectively .However respondents at Mathura and Gautam Buddha Nagar reported the information on export import of livestock products like milk, meat etc and government policies placed important role of ICT in marketing, price information, rural credit, supply chain management. Majority of respondents accepted role of ICT in entrepreneurial development, rural governance, forest governance, land administration. Thus it reflects effectiveness of role of ICT in various aspects to farmers. In respect to constraints, educational illiteracy of respondents, complex nature of content, frequent fault in computer, electricity availability and trained staff illiteracy of respondents, language dominance of English in ICT contents were major constraints. The result of this study will be helpful in starting various programmers for farmers and policy makers.

9: Study of environmental sound on reproductive performance of Hariana bulls

The present investigation was performed to observe the effect of two different beats (100 and 150) of musical sound signals (with intensity below 85 dB) on reproductive (seminal, behavioral and endocrine attributes) performance of Hariana bulls maintained at semen biology lab of DDD Farm within the premises of Instructional Livestock Farm Complex (ILFC). The present experiment was carried out for an aggregate time period of three months (within autumn season) and was accomplished in three phases / conditions. In order to avoid individual effect of bulls as well as to overcome the limitations of limited numbers of bulls at the experimental farm, the same four Hariana bulls were used as experimental animals in all the three phases / conditions of the present experiment.

During the first (control) phase of experiment the bulls weren't exposed to any additional source of sound except the normal environmental sound of semen collection site. In second and third phase, bulls were exposed to a musical instrumental sound signal of 100 and 150 BPM with intensity below 85 Db. All the three phases lost for a period of one month (four weeks) one after other in continuation, but, the third phase was started after a gap of two weeks from the second in order to cancel out the persistent effect of sound exposure to bulls during second phase of investigation. The effect of exposure of sound signals on volume, concentration, mass and progressive motility, head, middle piece, tail and overall morphological abnormality of sperm and HOST (%) was highly significant ($P<0.01$). But, no significant ($P>0.05$) effect could be observed for seminal pH and percentage of live sperms. Exposure of sound signals also reflected highly significant ($P<0.01$) effect on erection time and score, protrusion time and score, reaction time to first mount, intensity of thrust, time of first ejaculation, dismounting time and libido score, but, the effect on temperament score of bulls was observed to be non significant ($P>0.05$). In present investigation a significant effect of individuality of bulls on semen volume, sperm concentration, head abnormality, percentage of live sperms ($P<0.05$); and tail, overall morphological abnormality and HOST (%) was observed. Similarly, the effect of individuality of bulls was also observed to be significant on temperament score, erection time and score, protrusion time, reaction time to first mount, time of first ejaculation, dismounting time, libido score ($P<0.01$); and on intensity of thrust and protrusion score ($P<0.05$). The days of observation in present investigation did not reflect any significant ($P>0.05$) effect on any of the seminal or behavioral attribute, except on erection time and score. No significant ($P>0.05$) effect of exposure of sound signals, individuality of bulls as well as days of observation on mean plasma concentration of both hormones (cortisol and testosterone) could be observed in present investigation. The exposure of an instrumental musical sound signal of 150 BPM with intensity below 85 dB improvised almost all the seminal and behavioral attributes of experimental Hariana bulls in present investigation. The mean values of seminal (volume, pH, concentration, mass and progressive motility, overall, head, middle piece and tail abnormality, percentage of live sperms and HOST) and behavioral (temperament score, erection time and score, protrusion time and score, reaction time to first mount, intensity of thrust, time of first ejaculation, dismounting time and libido score) attributes of Hariana bulls exposed to a sound signal of 150 BPM were 6.58±0.29ml, 6.65±0.04, 1018.72±49.92millions / ml, 3.98±0.07, 72.97±0.80%, 5.13±0.40%, 1.93±0.21%, 0.63±0.15%, 2.56±0.28%, 81.95±0.77%, 79.22±0.69 and 3.06±0.11, 0.48±0.15 min, 3.28±0.09, 0.79±0.22 min, 3.44±0.11, 1.27±0.27 min, 1.66±0.08, 1.55±0.27 min, 1.64±0.27 min and 8.09±0.13, respectively. Thus, from the present investigation it could be concluded that the trend of non significant increase in plasma concentration of testosterone and non significant decrease in plasma concentration of cortisol as a consequence of this exposure indicated that exposure of a sound signal of 150 BPM with intensity below 85 dB caused a favorable change in plasma concentration of sex and stress hormones which in turn brought positive changes in seminal and behavioral attributes.

10: Studies on biomarkers of mercury-induced alterations in activity of rat myometrium with particular reference to muscarinic receptors

Present study was undertaken to evaluate the toxicity of mercury (@ 5, 50 and 500 ppb) with particular reference to its effect on signal transduction mediated through

muscarinic receptors in rat myometrium. The study was conducted in two phases- phase I (In vivo study in rats intoxicated with mercury for a period of 28 days). Adult female Wistar rats weighing 150-200 g divided in to four groups [Control (deionized water); Group II (5 ppb Hg); Group III (50 ppb Hg) and Group IV (500 ppb Hg)] containing eight animals in each were used. Mercury was dissolved in deionized water and given through drinking water. In phase II (In vitro study, a total of 30 female Wistar rats were used for isolation of myometrium and assessing the effect of different concentrations of mercury in presence of muscarinic agonists and antagonists and other signaling molecules). After 28 days of exposure period, mercury did not show any apparent sign of toxicity and body weight of rats, absolute and relative weight of organs. However, non-significantly reduced body weight was observed in 500 ppb intoxicated group and increase in absolute weight of ovary and brain was recorded at 50 and 500 ppb respectively.

Creatinine, cholesterol, uric acid, bilirubin (direct and indirect), albumin, globulin and total protein did not differ significantly, except glucose and uric acid. Serum estradiol and progesterone levels were also not altered among groups. Residual concentration of mercury in kidney, liver, ovary & uterus and calcium level in kidney ovary and blood did not differ significantly compared to control. In uterus, dose dependent accumulation seen with significant reduction in residual calcium. In kidney, accumulation of mercury was reduced with increasing dose. In blood, highest mercury level was observed at 500 ppb dose however, it was reduced at 500 ppb. Highest concentration of mercury observed in blood compared to other tissues. In uterine myometrial study, mercury has been shown to induce myometrial contractility. Mercury at lowest dose (5ppb) significantly increased MIT and decreased frequency. Mercury at lowest dose (5ppb) markedly / significantly potentiated calcium chloride / KCl induced myometrial contractility. Mercury decreased the contractile response of ACh, PGF2α, oxytocin and Bay K8644 except potentiation of effect of Bay K8644 at 500 ppb.

In conclusion, mercury seems to have affinity for accumulation in kidney, liver, ovary, uterus and blood levels can be considered as biomarkers of exposure to mercury. Mercury-induced myometrial contractility seems to be regulated through cholinergic neurotransmission pathway / receptors (M2 and M3 muscarinic receptor). Mercury-induced myometrial contractions seem to be Calcium dependent, Involve VDCC or Involve Rho-kinase, PKC and PLC pathway.

11: Studies on prevalence of verocytototoxic *E.coli* (VTEC) including O157H7 in domestic and wild ruminants with its public health significance

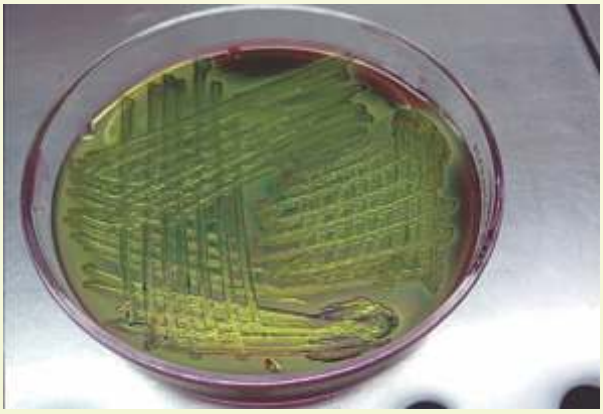
In present study, a total 420 samples comprising of faecal (n=240), soil (n=60), water (n=60) and 60 human stool samples were processed for VTEC. Out of 420 samples, 291 E. coli isolates were obtained. All E.coli isolates were subjected to multiplex polymerase chain reaction assay. Of these, only 37 E.coli isolates were found positive for VTEC. These isolates were obtained from various sources (faeces 27, soil 6 and water 4). 2 isolate from faecal sample of cattle was found to be positive for stx1 gene (180 bp) and 6 isolates was found to be positive for stx1 and stx2 (180 & 255 bp). In buffalo 3 sample positive for stx1 gene (180 bp) and 5 isolates was found to be positive for stx1 and stx2 (180 & 255 bp), in sheep out of 4 VTEC, 1 found to be positive for stx1 gene (180 bp) and 3 isolates was found to be positive for stx1 and stx2 for cattle (180 & 255 bp) and in deer out of 7 VTEC 1 found

to be positive for stx1 gene (180 bp), 1 isolates was found to be positive for stx2 , (255 bp) 4 eae (384 bp)and one stx1 with eae (180 & 384 bp). In present study the prevalence of VTEC in soil was 10 %. In the 60 sample, 1 isolate from soil was found to be positive for stx1 gene (180 bp), 1 isolates was found to be positive for stx2 (255 bp), 2 positive for stx1 and stx2 (180 & 255 bp) and 2 have eae gene (384bp). In 60 sample water, one isolate was found to be positive for stx2 (255 bp), 1 isolates was found to be positive for hly gene (534 bp), 2 positive for stx1,stx2 and hly (180, 255 and 534 bp) .

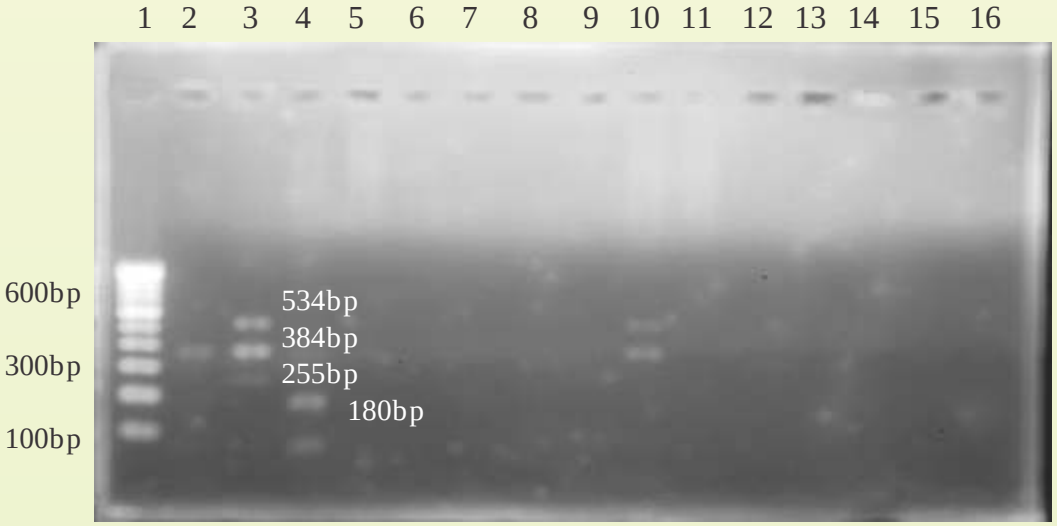
In present study, the overall haemolytic activity and congo red dye binding ability of 37 VTEC was found to be 56.75% and 83.7% respectively.

All VTEC strains carried out for antibiotic sensitivity test against 16 commonly used antibiotic discs. Of these, Ciprofoxacin and Imipenem was found to be hundred percent sensitive followed by cefotaxim / clavulanic acid (86.48%), Gentamicin (83.78%), Amikacin (83.78%), Chloramphenicol (81.09%) and norfloxacin (78.37%), were found highly sensitive against VTEC strains. Enrofloxacin (81.09%) showed highest resistance followed by Cefixime (62.16%), Erythromycin (59.4%) and Tetracycline (54.05%).

E. coli colonies showing lactose fermentation on MLA agar



E. coli colonies with characteristics greenish metallic sheen on EMB agar.



Agarose gel showing PCR amplified product for VTEC genes isolates from soil and water

Lane 1: 100bp DNA ladder, Lane 2: eaeA, Lane 3: stx2, eaeA and hlyA Lane 4: stx1 stx1 = 180bp, stx2 = 255bp, eaeA = 384bp, hlyA = 534bp

12: Clinico-epidemiological, diagnostic and therapeutic studies on *Trypanosoma evansi* infection in equines

Trypanosomiasis, an arthropod born blood protozoan disease commonly known as Surra is caused by Trypanosoma evansi and transmitted mainly by Tabanus spp. The present study was conducted to investigate the various diagnostic techniques (viz. giemsa stained thin blood smear, buffy coat method, TE-LAT and Ab-ELISA) used in the diagnosis of trypanosomiasis in equines, clinical epidemiology of trypanosomiasis in equines and comparative efficacy of various anti-trypanosomal drugs (viz. diminazene aceturate, quinapyramine sulphate and isometamidium chloride hydrochloride) alone and along with vitamin-E as an antioxidant. The order of decreasing diagnostic efficacy of various methods during present investigation was found as: Ab-ELISA (22.33) >TE-LAT (21.16%) > Buffy Coat method (9.90%) > Giemsa stained thin blood smear (6.99%). The maximum prevalence was recorded during the month of September followed by the month of October and the least prevalence was recorded in the month of June. It has been found that prevalence of trypanosomiasis in equines does not vary with the sex, age, species pregnancy status and months of pregnancy. Predominant clinical signs observed in trypanosomiasis with highest frequency were reduced performance (92.83%), fever (82.61%), petechial hemorrhages (76.52%), anorexia (75.65%), depression (72.17%), pallor of mucous membrane (70.43%), congested mucous membrane (69.57%), emaciation (67.83%), anemia (61.74%), with moderate degree of frequencies were respiratory distress (34.78%), circling (33.04%) and localized paralysis(posterior paresis) and with lowest frequencies were ocular discharge (27.83%), nasal discharge (25.22%), superficial lymph node swelling (24.35%), excitement (21.74%), frequent urination (19.13%), head pressing (18.26%), ileus (16.52%), diarrhoea (14.78%), colic/ abdominal pain (13.04%), corneal opacity (07.83%), abortion (5.88%) and generalized paralysis (1.74%). There was a reduction in Hb, PCV, TEC and lymphocyte count and increase in TLC and neutrophil counts in all the positive cases before treatment, however, no significant variation in basophils, monocyte and eosinophils percentage were recorded. In biochemical study the values of serum globulin, creatinine, BUN, ALT and LPO in all the positive cases were found significantly higher while blood glucose, serum albumin, SOD and catalase values were found lower, however, no alteration in total protein, AST and ALP was recorded before treatment. In terms of improvement in hematological and biochemical values after treatment of positive cases, best recovery was assessed in the treatment with diaminazine aceturate along with vitamin-E followed by isometamedium chloride HCl with vitamin-E and least with quinopyramine sulfate alone or along with vitamin-E. On the basis of clinical improvement in terms of disappearance of clinical signs & parasitological examination, diminazine aceturate alone or along with vitamin-E was found as most effective anti-trypanosomal drug followed by isometamidium chloride hydrochloride alone or along with vitamin-E and quinapyramine sulphate alone or along with vitamin-E was found to be least effective.

13: Effects of prepartum supplementation of antioxidants and anionic salt on metabolic and oxidative status of transition Sahiwal cattle

In the current study apparently healthy twenty four Sahiwal cows in the last trimester of pregnancy were enrolled and randomly allocated into four groups (group 1, 2,

3 and 4) having six cows in each one. The cows of group 2 were supplemented with 25 g of antioxidants mixture daily from 21 days before parturition to till day of parturition. Cows of group 3 were supplemented with 60 g of anionic salt with same regimen. Cows of group 4 were supplemented with the both 25 g of antioxidants and 60 g of anionic salt with same regimen. However, cows of group 1 were not supplemented with any supplements and were kept as standard control. Remarkable alterations in serum metabolites, lipid dynamics and oxidant/antioxidant balance in control cows were recorded during the transition period. The control cows suffered from production diseases and their milk quality was also differed from the supplemented cows. The cows prepartal supplemented with antioxidants and/or ammonium chloride revealed remarkable amelioration of metabolites and oxidative damage and have superior milk quality. These cows have a smooth transition period and were free of production diseases. Among these groups the cows supplemented with the both antioxidants and anionic salt revealed the best mitigating potential over the transition stress and metabolomic changes. Therefore, prepartal supplementation with antioxidants and anionic salts could be one of the best strategies to curb transition induced physiological aberrations and thus production diseases in Sahiwal cows.

14: Phytochemical and clinical evaluation of plant extracts and its fraction against goat ticks (*Rhipicephalus* spp.)

The present study was conducted to test the acaricidal efficacy of plant extracts and its fraction against goat tic *Rhipicephalus* spp. Thev acricidal property of *Anona aqumoa* leaves, *Lantana camara* leaves, *Melia azedarach* leaves, *Embelia ribes* seed, *Calotropis procera* leaves, *Azadirachta india* leaves, *Pongamia glabra* seeds, *Vitex negundo* leaves, *Butea frondosa* seed, *Nicotiana tobacum* leaves and *Eucalyptus* leaves were studied by using methanolic crude extract and subsequently with solvent fraction. Percent yield of crude extract were found 21, 36.5, 27/14, 8, 12, 31, 13.5, 26.5,8, 15, 40% respectively. LC 50 % of anona aqumoa, lantana camara, calotropis procera and vitex negundo in BSLT test were 4.17, 14.24, 19.64 and 14.15 mg/ml respectively. On adult mortality test we found LC50 of anona aqumoa, lantana camara, calotropis procera and vitex negundo were 11.58, 43.66, 30.62, 29.84 mg/ml respectively. In egg hatch assay anona aqumoa was most effective with LC 50 value of 7.31 mg/ml. the other LC 50 were calotropis procera (9.96 mg/ml), vitex negundo (9.96mg/ml) and lantana camara (11.93mg/ml). in larval mortality assay fourv plants shoed excellent efficacy with LC 50 of *Anona aqumoa* (0.26 mg/ml), *Lantana camara* (0.41 mg/ml), *Calotropis procera* (0.32 mg/ml) and *Vitex negundo* (1.24 mg/ml). On fecundity test *Anona aqumoa*, and *Calotropis procera* reduced egg reduction. On phytochemiacl analysis , the *Anona aqumoa* was positive for alkaloid glycodides fixed oil and fats. *Vitex negundo* was positive for flavinoids, saponin, glycodides. *Lantana camara* was positive for flavinoids, alkaloids, saponins, steroids, tannins. *Calotropis procera* was positive for alkaloids, glycodides. On clinical evaluation the mean percent reduction of tic was observed 18.99%, 39.2%, 58.23%, 100% at 10 mg/ml concentration and at 50 mg/ml, the mean mortality % was recorded 23.46%, 40, 74 %, 69.14%, 100% at 1,2,4 and 24 hr. post spray.

15: Studies on assessment of capacitation like changes in the cryopreserved sperms in Hariana bull

The present study was accomplished with the participation of four Hariana bulls aged between 5.5 – 6.5 years and weighing more than 450 – 500 kg. Forty ejaculates were collected from each bull during the period of study with the use of artificial vagina. The study was designed with two objectives firstly to cryopreserve Hariana bull spermatozoa in 0.25 ml straws using tris egg yolk glycerol extender and secondly to study the protein tyrosine phosphorylation in the fresh and cryopreserved Hariana bull spermatozoa. Percent live sperms, progressive motility, HOS reactive sperms, CTC positive sperms and acrosome intact sperms significantly reduced with the stages of freezing (fresh with initial dilution, semen with final diluation and post thaw). Capacitation and acrosome reaction in post thaw sperms were significantly higher as compared to neat and extended semen. SDS–PAGE of fres semen samples showed 84, 82, 80, 78, 76, 75, 72, 60, 58, 54, 50, 45, 42, 40, 38, 20 and 14 kDa protein bands when resolute in SDS–PAGE. Similar pattern of bands were also shown by the protein of finally diluted semen samples. The resolved gel showed protein bands of molecular weight (150, 140, 120, 110, 90, 84, 82, 80, 78, 76, 75, 72, 60, 58, 54, 50, 45, 42 and 40 kDa) with in thawed semen. Five high molecular weight proteins having molecular weight 150, 140, 120, 110 and 90 kDa were found only in thawed semen samples. Protein of 38 kDa was absent in the thawed semen samples. Fresh and finally diluted semen samples revealed 5 tyrosine specific phosphorylated proteins as evident from immune–blotting. The proteins identified were p40, p42, p48, p68 and p70. Immuno–blotting of post thawed semen samples exhibited nine proteins which were appeared to be tyrosine phosphorylated. The proteins identified were p28, p42, p44, p48, p50, p68, p78, p84 and p94. Tyrosine specific phos[phorylated proteins were found to be localized on the sperm flagella and in specific, tyrosine phosphorylated proteins were confined to middle and principal piece of sperms. The study concluded that with freezing capaciation of sperms occur and it is associated with phosphorylation of tyrosine containing proteins. Further studies are required to identify these specific proteins and their role in sperm function and capacitation.

16: Studies on cystic ovarian follicles of bovine

This research was designed to study the incidence of cystic condition in cows and buffaloes as one of the cause of infertility in the present scenario, their association with biochemical, mineral and hormonal profile and the effectiveness of hormone GnRH and progesterone towards treatment of cystic condition. Cystic animals were selected on the basic of history of infertility followed by confirmation with ultrasonography examination. Seleceted animals belong to University farm (ILFC) and daily OPD of University clinics (TVCC). The cystic animals were divided into two groups and treated with GnRH (Receptal, 0.02 mg I/M, Treatment 1) & progesterone (Triu B, 948 mg Intra-vaginaly, Treatment 2). Beside, normal cyclic cows and buffaloes were kept as control. Blood sample from these animals were collected for biochemical, mineral and hormonal studies on three occasions i.e on the day of detection of cyst (day 0), 14th after treatment and at induced estrus. For normal cyclic animals blood collection schedule was on the day of estrus and 14 day post estrus. The study reveals the incidences of cystic condition in cows as 22.29% (37/166) and in buffaloes' as 23.15% (22/95). Comparison of biochemical parameters of

cystic animals (cows and buffaloes) with normal cyclic animals (cows and buffaloes) reveal significant difference for glucose, cholesterol, total protein , albumin, AST and ALT however, no significant difference was observed for blood urea nitrogen, creatinine . For mineral profile significant difference was observed for zinc, manganese and magnesium, however, no significant difference was observed for copper, iron, calcium and phosphorus. Concentration of hormone progesterone differs significantly however, estrogen was found to differ significantly in buffaloes only. Cystic cows treated with GnRH (T1) responded 100% to treatment and resulted in 60% pregnancy taking 2.50±0.37 service per conception. The average duration from induction to conception was 53.4±7.77 days. In progesterone treated group (T2), 95% animals responded to treatment and resulted in 63.16% pregnancy taking 2.00±0.23 service per conception. The average duration from induction of estrus to conception was 41.62±5.63 days. In cystic buffaloes for GnRH treatment group (T1), 100% responded to treatment resulting in 66.66% pregnancy taking 3.16±0.27 service per conception. The average duration from induction of estrus to conception was 78.50±21.28 days. In progesterone treated group (T2) 90% animals responded to treatment resulting in 77.78% pregnancy taking 2.29±0.22 service per conception. The average duration from induction of estrus to conception was 24.30±9.25 days.

17: B-mode ultrasonographic biometry of intraocular structures in murrah buffalo (*Bubalus bubalis*)

Ultrasonography is a relatively easy, safe and non-invasive examination method which can be used in diagnosis of ocular disorders as complementary to routine ophthalmic examinations. As there has been no collated study undertaken on the normal echo-morphometric measurements of ocular structures in live murrah buffalo (Bubalus bubalis), obtaining these measurements could be a benchmark to diagnose some of the diseases and eye problems of this breed. Transcorneal ultrasonographic scanning of left and right eyes in male and female of calf as well as adult healthy buffaloes (n=6) was performed. Qualitative echo-biometric findings of the eyes were described and measurements of the ocular structures were obtained. In present transcorneal intraocular echo-biometric studies five parameters were measured i.e. aqueous chamber depth (ACD), lens thickness (LT), vitreous chamber depth (VCD), axial globe length (AGL) and scleroretinal rim thickness (SRRT) by 6-8 MHz convex transducer at 6-9 cm scanning depth with suitable gain. Non-significant (Pd”0.05) difference was observed in all parameters when compared left and right eye of male as well as female calf and male and female calf. The same finding was observed in case of adults except LT which was significantly (Pd”0.05) higher in female than male and VCD was non-significantly (Pd”0.05) lower in female than male. The result of the present study revealed that parameters of the eye such as the aqueous chamber depth, lens thickness, vitreous chamber depth and axial globe length were significantly (Pd”0.05) increased with age. A prospective study of ocular affections in murrah buffaloes was carried out. Five types of ocular affection were diagnosed in 15 buffalos and evaluated on echo-morphometric finding, out of which 3 (20%) were male and 12 (80%) were female buffaloes. Left eye (46.66%) had more affections than right eye (33.33%) and both eyes (20%). Traumatic lesions (39.98%) showed higher percentage of affection followed by tumour/dermoids (26.66%), blepharitis/

conjuncitivitis (20%), corneal opacity (6.66%) and ectropion (6.66%). Therefore, it can be documented that the obtained values as the standard parameters of eye in buffaloes. The present study provides an inside echo-morphmetric view of the inner ocular structures in healthy as well as in certain eye affections where ophthalmoscopic examination was not possible.

18: Studies on orodental affections in buffaloes (*Bubalus bubalis*)

The present study was carried out on the cadaver specimens of adult buffalo head and selected clinical cases with oral / dental affections as well as normal healthy buffaloes presented during the study period at TVCC and ILFC, DUVASU, Mathura.

A total of 10 cadaver specimens of adult buffalo heads were collected from abattoir or from hospital casualty cases. The morphometric and radiographic measurements for the crown and root length, total tooth length, oral cavity width, occlusal surface dimension and diastema were measured using a vernier calipers to the nearest 0.5 mm, needle point divider and scale. The radiographic measurements were done using image works 10.09 software on Konica regius 110 CR system.

Morphometric and radiographic study of the dental arch of buffalo revealed deeply and firmly anchored 8 incisors in lower jaw. The length of root was 0.8 times to that of the crown in the incisors. The morphometric measuremens were non significantly higher than the radiographic measurements except second premolar of the lower jaw and first premolar of the upper jaw. The crown length, root length and total tooth length of maxillary teeth was consistently more than that of mandibular cheek tooth.

The oral cavity width ranged from 5.24 cm to 9.23 cm. The oral cavity was V shaped on the lower jaw and oval on the upper jaw with maximum width at the level of 1st molar tooth. Comparison of morphometric and radiographic measurements as well as morphometric measurements done on the lower and upper jaw was done. It was found that there is no significant difference in the mesiodistal measurements of upper and lower jaw premolar and molar teeth but when the bucco lingual measurements of the same teeth were compared the difference was highly significant and the mean values obtained for the lower jaw (0.95 ± 05 cm) were markedly less that those of the upper jaw (1.37 ± 07 cm).

The oral cavity examination was performed in 10 healthy buffaloes and 07 clinical cases reporting at TVCC. In healthy animals the saliva pH was 8.5 in 30% and 9.0 in 70% animals. Color of mucus membrane was pink in 60% and pale in 40% cases. Plaque index was grade 0 in 50%, grade I in 30% and grade II in 20% cases. Gingivitis index was grade 0 in 80% and grade I in 20% animals. Dental caries and super numerary teeth was found in one animal i.e. 10% only. Calculus, tooth mobility, sharp molar, odontoma, facial / mandibular swelling were not seen in any of the healthy normal animals.

In clinical cases, the saliva pH was 8.5 in 28.5% i.e. 2 animals and 9.0 in 71.5% i.e. 5 animals. Color of mucus membrane was pink in 71.5% and pale in 28.5% cases. Plaque index grade 0 in 28.5%, grade I in 57.1% and grade II in 14.2% cases. Gigivitis index grade 0 in 57.1 % and grade I in 42.8% cases. Sharp molar and odontoma was seen in 28.5% and abnormal eruption of tooth in 14.2%. Dental caries, calculus, abnormal tooth mobility and super numerary teeth were not seen in any case.

19: Clinical studies on the use of acepromazine, xylazine and butorphanol in different combinations for standing sedation in horses

The aim of this study was to investigate the sedative, clinicophysiological, hematological and biochemical effects of acepromazine, xylazine and butorphanol in different combinations in clinical cases of standing horses. Twenty four adult, mixed-breed horses of either sex weighing 200 ± 400 kg were used for the purpose. The animals were divided into 4 groups viz A, B, C and D comprising six animals in each group. The intravenous sedative combinations used were: acepromazine (0.04mg / kg) + butorphanol (0.02mg / kg) in group A, xylazine (0.5mg / kg) + butorphanol (0.02mg / kg) in group B, acepromazine (0.04mg / kg) + xylazine (0.5mg / kg) in group C and acepromazine (0.03mg / kg) + xylazine (0.5mg / kg) and butorphanol (0.02mg / kg) in group D. To objectively asses the depth of sedation, a variety of behavioral and clinical parameters were assessed and transferred to a scaled score system. Among the four groups, highest sedation score was observed in the animals of group D. Excellent sedation was observed in animals of this group with characteristic signs of sedation. None of the animals among in these four groups showed any sign of excitement during the observation period. All the animals of A, B, C and D groups do not exhibit any signs of ataxia and animals remained in standing position, without any incoordination during the period of observation. All four combinations induced significant decrease in heart rate, respiratory rate and mean arterial blood pressure. Body temperature and SpO2 were also decreased. All four combinations induced non significant decrease in haemoglobin (Hb), packed cell volume (PCV) and total leukocyte count (TLC). However, these parameters fluctuated within normal range. Biochemical attributes were within physiological limits, however a non significant increase in blood glucose, ALT and AST values were observed. The values returned to normal during recovery ruling out any renal or hepatic toxicity. The study indicates that none of the sedative combination used in the present study produced any serious deleterious effect on various clinicophysiological and haemato-biochemical parameters indicating their safety on various vital organ functions, hence all of these sedative drug regimens can safely be used in routine clinical cases of surgery of short duration under field conditions. Drug combination of Acepromazine (0.02 mg / kg) + xylazine (0.5 mg / kg)+ butorphanol (0.02 mg / kg) used for standing sedation in the animals of group D was found best in terms of the duration and quality of sedation among the four combinations used in the present study. On the basis of the results of the present study it is recommended to conduct further investigations using higher dose rates of different drugs in different combinations to produce sedation of higher quality and of more duration.

20: Clinical studies on the effect of glycopyrrolate, xylazine, acepromazine, dexmedetomidine and butorphanol in different combinations on propofol-halothane anaesthesia in dogs

Three anaesthetic protocols were evaluated in three groups (I, II and III) of dogs of either sex presented for various surgical procedures. Each group consisted of 6 dogs. As preanaesthetics combination a mixture of glycopyrrolate (0.01mg / kg), xylazine (0.5mg / kg) butorphanol (0.2 mg / kg) was administered intramuscularly in the animals of group I. In the animals of group II, a mixture of glycopyrrolate (0.01mg / kg), dexmedetomidine (0.005mg / kg) and Butorphanol (0.2 mg / kg) was administered

intramuscularly and in the animals of group III, a mixture of glycopyrrolate (0.01mg/kg), acepromazine (0.05 mg/kg) and butorphanol (0.2 mg/kg) was administered intramuscularly. In all anaesthetic protocols, 15 min after administration of preanaesthetic, anaesthesia was induced with propofol (10 mg/ml) given slow intravenously, to effect until a plane of anaesthesia suitable for endotracheal intubation was achieved. Maintenance of anaestheisia in all groups was started with halothane in 100% oxygen using semiclosed rebreathing system of anaesthesia with a oxygen flow rate of 30ml/kg/min. The effects of these anaesthetic combinations were evaluated on the basis of alteration in behavioural, clinicophysiological, haematological and blood biochemical parameters. These parameters were recorded at base line, fixed time intervals and at complete recovery of drug administration. All the three preanaesthetics- xylazine, dexmedetomidine and acepromazine produced mild to moderate sedation in the animals. Premedication in all the three groups decreased the requirement of propofol for anaesthetic induction. However, group III premedicated with acepromazine, required the highest dose of halothane for maintenance followed by group I premedicated with xylazine and group II premedicated with dexmedetomidine. Palpebral reflex and pedal reflex was light to abolished during the different time intervals in the course of observation in all the groups. Complete recovery time was the highest in group II administered with dexmedetomidine. Clinicophysiologica, haematological and biochemical parameters in animals of all groups altered within physiological limit and nearly normalised at complete recovery, indicating non significant alteration in body systems. Preanaesthetic combination of glycopyrrolate (0.01 mg/kg), butorphanol (0.2 mg/kg) and dexmedetomidine (5 mcg/kg) was found best among three combination in terms of the quality of sedation, early onset of sedation and dose sparing effect on induction and maintenance agents. However, the recovery time was highest in this group. All the three 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.

21: Effect of azolla feeding on the performance of growing turkeys

A study was conducted to evaluate the utilization of dried *Azolla pinnata* vis-a-vis raw azolla as choice feeding for turkeys under intensive system. A total of (n=72), 8 weeks old grower turkey poults were randomly distributed into three dietary treatments having three replicates each with eight birds. The birds of the control group (T1) were fed a basal diet (CP- 19.71% & ME-2789.79 Kcal/ kg), while the other group (T2) and choice feeding group (T3) were fed 5% of basal diet replaced by dry azolla powder on DM basis and adlibitum azolla along with the basal diet respectively. There was no significant difference ($p>0.05$) in body weight and body weight gain among the treatment group during 8-16 weeks of age. Feed consumption was significantly lower in T2 &T3 compared to control group at 9th & 11th weeks of age. Similarly, average weekly feed consumption on DM basis was significantly lower ($P<0.01$) in both the azolla fed groups compared to the control group at 9th and 11th week of age. Feed consumption was numerically lower in the choice

feeding group compared to the other two treatment groups during 8-12 weeks, 12-16 weeks and 8-16 weeks of age. The total dry matter intake was significantly higher (P<0.05) in the T3 group compared to the T2 & T1 group at 10th week of age. Further, dry matter intake was apparently higher in the choice feeding group compared to the other two treatment groups during 8-12 weeks, 12-16 weeks and 8-16 weeks of age. In addition, it was observed that 18.61%, 11.02% and 14.01% of feed was replaced by azolla on DM basis by the birds themselves during 8-12 weeks, 12-16 weeks and 8-16 weeks of age respectively in the choice feeding group. FCR was significantly better (P<0.01) in the choice feeding group compared to the other two experimental groups during 8-12 weeks of age (2.34 vs 2.86 & 2.64. Further, FCR was numerically better in the choice feeding group compared to the other two experimental groups during 12-16 weeks of age. In addition, over all FCR was significantly better (P<0.05) in the choice feeding group compared to the other two experimental groups during 8-16 weeks of age (2.83 vs 3.21 & 3.28). HA and IgM response to 1% SRBC (log2 titre) was comparatively better in the choice feeding group compared to the 5% azolla fed group and control group. There was no significant difference in the cell mediated response to PHA-P among the treatment groups.

There was no significant difference among the treatment groups in the carcass quality characteristics and cut-up-parts group. Percent small intestine weight was significantly higher (P<0.01) in both azolla fed groups compared to control group at 16 weeks of age. Feed cost for 1 kg gain in live weight of the bird was comparatively lower in the azolla fed groups compared to the control group. Further, the decrease in feed cost was more pronounced in the choice feeding group compared to the 5% azolla fed group. Thus, it may be concluded that azolla feeding did not have any adverse effect on the growth, immunocompetence and carcass quality characteristics of grower turkeys. Further, cost of production of turkey grower was comparatively lower in the choice feeding group followed by other two treatment groups. Thus, choice feeding with azolla and basal diet may be economic for profitable turkey farming.

Taking Azolla from pond

Mixing of Azolla Powder in Feed

Feeding of fresh azolla to grower turkeys in the choice feeding group

Determination of HA, IgG and IgM titre against 1 % SRBC

22: Comparison of immunogenicity of foot and mouth disease vaccines in sheep and goat

FMD is a contagious disease of cloven footed animals including cattle, sheep, goat and others. FMD is caused by virus of family Picornaviridae, genus Apthovirus. FMDV has seven serotypes O, A, C, Asia 1, SAT 1, SAT 2 and SAT 3. In India, most of the outbreaks is due to serotype O, A, C and Asia 1. Since last 20 years there is no report of FMD outbreak due to serotype C. The disease is very severe in cattle and buffalo while in sheep and goat it is subclinical in nature. But small ruminants have epidemiological importance in spreading the disease. In the present study, a total 43, sheep (n=16) and goat (n=27) were included. They were divided in three groups separately. Group 1 received combined triovac vaccine (FMD, HS and BQ), group 2 received monovac (FMD only) vaccine and group 3 were used as control. The serum samples were collected on day 0, 30, 60 and 90. NSP based 3 AB3 DIVA ELISA was performed for day 0 samples. A total 12.5% of sheep and 0% of goat were found positive suggesting a mild viral activity. Serum samples were also evaluated by LPB- ELISA to know the humoral immune response. Both monovac and combined vaccines showed peak immune response on day 30 (except for serotype O in combined vaccine) in goat. In sheep, serotype O and Asia 1 in monovac vaccine and serotype O in combined vaccine got peak immune response on day 30. While serotype O in monovac and serotype A and Asia 1 in combined vaccine showed peak immune response on day 60 in sheep. No significant difference was found between the monovac and combined vaccine in both sheep as well as in goat ($p<0.05$). There was also no significant difference between sheep and goat for combined as well as for monovac vaccine ($p<0.05$). It can be concluded that combined vaccines can replace the monovac vaccine but further study for antigens other than FMD, is needed in evaluation of immune response. It can be concluded that small ruminants should be brought under FMD surveillance and control programmes to prevent FMD dissemination from them.

23: mecA and vanA gene based molecular characterization of methicillin-resistant *Staphylococcus aureus*

The commensal presence of *S. aureus* to reside in the anterior nares of wild and domestic animals and of humans worldwide and its ability to overcome the antimicrobial

effects it always remains the centre of attraction for the researchers. Non pathogenic as well as non resistant *S. aureus* can acquire resistant form against various antibiotics like methicillin and vancomycin (MRSA, VRSA). The presence of such pathogens in the environment is posing a great challenge to the Veterinary profession, particularly in India, where animals are reared in the close vicinity of animal owners with minimum hygienic measurements. Moreover, the report of Increasing trend in prevalence of MRSA in cattle in India and also the presence of VRSA in Kolkata (India) in 2005 are of great concern not only for veterinarians but also for medical field so the present study was planned with the following objectives to establish present status of MRSA as well as VRSA from the pyogenic clinical cases in animals and also the presence of mecA gene and vanA gene in respective isolates. 100 pus samples from cattle, buffalo and dogs were examined for the presence of S. aureus bacteria. Forty isolates of *S. aureus* were found out of 100 pus samples. On the basis of species the prevalence of *S. aureus* in cattle, buffalo and dog pus samples are 38%, 38.09% and 50% respectively and the species based prevalence of MRSA among the S. aureus isolates are found to be 37.5%, 58.3% and 62.5% in cattle, buffalo and dog, respectively. The antibiotic sensitivity reveals that in bovines the S. aureus isolates are most sensitive for chloramphenicol, streptomycin, gentamicin, cefoxitin, and most resistant for cefotaxime and amoxicillin while in case of dogs most sensitive is gentamicin, amikacin, and most resistant for amoxicillin. nuc gene based molecular characterization confirmed prevalence of 38 % and 50 % S. aureus in bovines and dogs, respectively. mecA gene based molecular characterization confirmed the prevalence of 37.5%, 58.2 % and 62.7 % MRSA among *S. aureus* in cattles, buffaloes and dogs, respectively. The amplification of coa gene revealed the polymorphism with the amplification of more than one amplicon. Out of 40 isolates of *S. aureus* only 19 showed the presence of coa gene. Thus this study provides us the evidence that *S. aureus*, particularly MRSA is present in high proportion in the pyogenic samples specially in dogs and buffaloes.

EXTENSION

1. DIRECTORATE OF EXTENSION

Directorate of Extension organised six trainings on the campus, five trainings at Pashu Gyan Chaupal and five trainings at door steps of farmers during the year 2015-16.

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

S.N.	Name of the Training	Duration	No. & Details of Beneficiaries	Sponsoring Agency
1.	Infertility & Artificial insemination	May 11-15, 2015	08 (Veterinary Officers from UP A.H. Deptt.)	UPLDB
2.	Unnat Dairy Farming Prashikshan-IV	July 13-17, 2015	59 (Selected farmers under Kamdhenu / Mini / Micro Kamdhenu)	U.P Animal Husbandry Department
3.	MTC Training on "Effect of climate change on productive & reproductive performance of dairy animals"	Oct. 28- Nov. 04, 2015	22 (Nominated Scientist / SMS of KVK / Vety. officers / Assistant Professors of SAU's	Ministry of Agriculture Govt. of India
4.	Artificial Insemination in Bovines & Livestock Management	Jan. 12-25, 2016	08 (Nominated Veterinary Officers from UP A.H. Deptt.)	UPLDB
5.	Dairy Vyawasay Ki Vaigyanik Padhhati	Mar. 14-18, 2016	28 (Selected farmers under Kamdhenu / Mini / Micro Kamdhenu)	U.P. Animal Husbandry Department
6.	Dairy Vyawasay Ki Vaigyanik Padhhati	Mar 29-Apr. 4, 2016	28 (Selected farmers under Kamdhenu / Mini / Micro Kamdhenu)	U.P Animal Husbandry Department

B. Trainings Organized at Pashu Gyan Chaupal under UPCAR project:

S.No.	Name of Training	No. of beneficiary	Name of Village	Date of Training	Funding Agency
1.	Pashupalan Prashikshan	24	Shehzadpur	26.08.2015	UPCAR, Lucknow
2.		27	Karnawal	19.09.2015	
3.		20	Kanchanpur	08.01.2016	
4.		17	Dhannapur	12.01.2016	
5.		20	Karnawal	29.03.2016	

C. Trainings organized at the door step of farmers under UPCAR project:

S.No.	Name of Village	No. of beneficiary	Date of Training
1.	Shehzadpur	41	25.08.2015
2.	Karnawal	25	18.09.2015
3.	Kanchanpur	32	07.01.2016
4.	Dhannaapur	33	11.01.2016
5.	Karnawal	21	28.03.2016

D. Kisan Mela

Directorate of Extension in collaboration with Directorate of Rapeseed-Mustard Resaerch, Bharatpur organized one day Mustard Seed Production & Swasth Pashu Pratiyogita Kisan Mela at Madhuri Kund Farm, Mathura on 16th Feb, 2016. More than 1100 farmers from Mathura and its adjoining districts and Bharatpur, Rajesthan participated in mela and benefitted.

E. 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”.

F. Visits of Farmers/Students/Officials :

S.N.	Date of Visit	Name of Village / Place	Sponsoring Agency	Remarks
1.	04.04.2015	One farmer from Village-Rasoolpur, Dhorli, Meerut	-	Provided information & literature regarding goat keeping
2.	10.04.2015	Fourteen farmers from Vety. Hospital Balauta Bajar, Bhatpara	Animal Husbandry Department	Provided information & literature regarding Dairy farming & Kamdhenu / Mini / Micro Kamdhenu Scheme
3.	13.04.2015	One farmer from Chhata, Mathura	-	
4.	28.04.2015	Twenty five farmers from Mandi District, Himachal Pradesh under leadership of Dr. Chaudhary Ram (SMS)	Agriculture Department	
5.	08.05.2015	Four farmers from Balajipurum, Aurangabad, Sarang Vihar & Sanjay Vihar	-	
6.	15.05.2015	Mathura District One farmer from Village-Shahpur, Chainpur, District-Mathura	-	Provided basic theoretical & practical information regarding dairy animal management & provided literature of scientific dairy farming and visit of PGC & Dairy
7.	16.06.2015	Thirty Army personnel from Sahastra Seema Bal (SSB)	Govt. of India	
8.	26.07.2015	Two farmers from village-Virjapur, Mathura	-	
9.	21.08.2015	One farmers from village-Parsauli, Tehsil-Naujhil	-	
10.	16.09.2015	Sixteen farmers from Surajpur District of Chhatisgarh State	Department of Agriculture	
11.	19.09.2015	One farmer member of ICAR residing at Yamunapuram, Bulandsahar	-	
12.	26.09.2015	One Assist. Professor of Animal Husbandry & Dairying, Nehru PG College, Lalitpur (UP)	-	
13.	29.09.2015	Ten farmers from Veterinary Hospital, Pratapur - Surajpur (Chhatisgarh)	Krishak Kaushal Yoja	
14.	28.10.2015	One Farmer from, Gopi ki Nagariya, Mahavan, Mathura	-	

15.	24.11.2015	One farmer from Rampur, Mathura	-	
16.	02.12.2015	Fifty seven students of Nagaland University	Educational tour	Provided information regarding important dairy breeds of India & their management with Visit of PGC, Dairy farm & poultry Farm
17.	03.12.2015	One farmer from Murari Nagar, Bulandshehar	-	Provide information & literature regarding Pig farming.
18.	05.12.2015	Sixteen farmers from District-Umaria (Madhya Pradesh) under leadership of Shri Deepak Patel (ATMA)	ATMA	Provided information & literature regarding dairy farming and Visit of PGC & Dairy
19.	08.12.2015	One farmer from Village-Nagla Khan Surajpur, Tehsil-Rupwas, Bharatpur (Rajasthan)	-	Provided information & literature regarding Goat farming and CIRG, Farah.
20.	12.01.2016	Thirty farmers from Chhatisgarh state (Pendra Block-20 Farmers & 10 Farmers from Haniyari Block)	UP Animal Husbandry department	Provided information & literature regarding dairy farming and Visit of PGC & Dairy
21.	19.01.2016	Two farmers from village Bajana, Mathura	UP Animal Husbandry Department	
22.	04.02.2016	Fourty five farmers from Durg district of Chhatisgarh State Patan Block- 11 Farmer Durg Block- 15 Farmer Dhamdha Block- 19 Farmer	Department of Agri. (Gramin Prasar Vibhag)	
23.	07.02.2016	Ninteen farmers from Dani Ka Bas & Nagla Singhi Veterinary Hospital, Block- Tundala, Firozabad (UP)	ATMA	
24.	11.02.2016	Twenty two farmers from DDVS, Gwalior under leadership of Dr. G. R. Goyal	ATMA, MP Exposure Visit	

25.	20.02.2016	Thirty six farmers from VAS-Berda, Bemetra, Chhatisgarh under leadership of Dr. Anil Kumar Shukla	Krishak Kaushal Yojana	
26.	21.02.2016	Fifty two farmers from Bharatpur, Rajasthan under leadership of Narendra Kumar	ATMA, Bharatpur (Rajasthan)	
27.	25.02.2016	Seventeen farmers from VAS-Vaikundhpur, Koria Chhatisgarh under leadership of Dr. Raghvendra Sharma & Dr. Mahesh Gupta	Animal Husbandry Department Chhatisgarh	Provided information & literature regarding Animal Husbandry activity and dairy & PGC Visit
28.	27.02.2016	One Farmer from Village-Nagla Teja Sihora, Mathura	-	
29.	10.03.2016	Two Farmers from Goverdhan, Mathura	-	
30.	21.03.2016	30 Farmers from Kisan Kalyan Evam Krishi Vikas, Shyopur (Madhya Pradesh) under leadership of R.L. Sakhwar	ATMA, Kisan Kalyan Dist-Shyopur (MP)	

G. Extension Publication

Popular Article

- जय सिंह एवं दीप नारायण सिंह (2015)। ग्रामीण क्षेत्र में महिलाओं का पशुपालन में योगदान। पशुधन पत्रिका, नवम अंक, द्वितीय संस्करण। दुवासु पब्लिकेशन नं0 122, पृ0सं0. 2।

Booklet

- डा0 दीप नारायण सिंह, डा0 यजुवेन्द्र सिंह, डा0 अमिताभ भट्टाचार्य, डा0 रजनीश सिरोही, डा0 अजय कुमार, डा0 ममता एवं डा0 पी0 के0 शुक्ला (2016)। बकरी पालन का किसानों के सामाजिक एवं आर्थिक विकास में महत्व। अखिल भारतीय समन्वयक खुरपका एवं मुँहपका परियोजना द्वारा वित्त पोषित एवं जनजातीय उप-योजना (TSP) के अन्तर्गत मुद्रित। पेज नं0 1-8।
- डा0 अमिताभ भट्टाचार्य, डा0 दीप नारायण सिंह एवं डा0 पी0 के0 शुक्ला। कुक्कुट पालन : खाद्य सुरक्षा एवं आर्थिक अर्जन का एक मजबूत आधार। अखिल भारतीय समन्वयक खुरपका एवं मुँहपका परियोजना द्वारा वित्त पोषित एवं जनजातीय उप-योजना (TSP) के अन्तर्गत मुद्रित। पेज नं0 1-8।

Leaflets

- डा. यजुवेन्द्र सिंह, डा. अमित सिंह, डा. दीप नारायण सिंह एवं डा. जयसिंह (2016)। स्वस्थ एवं बीमार पशुओं के लक्षण। उपकार योजनान्तर्गत मुद्रित। दुवासु पब्लिकेशन नं0-139।

- डा. यजुवेन्द्र सिंह, डा. अमित सिंह, डा. दीप नारायण सिंह एवं डा. जयसिंह (2016)। डेयरी पशुओं हेतु पशुशाला निर्माण के लिए आवश्यक प्रक्षेत्र। उपकार योजनान्तर्गत मुद्रित। दुवासु पब्लिकेशन नं0-140।
- डा. वी. पी. सिंह, डा. विकास पाठक, डा. डी. एन. सिंह एवं डा. जयसिंह (2016)। दुग्ध सह-उत्पादों से बनने वाले प्रमुख उत्पाद। उपकार योजनान्तर्गत मुद्रित। दुवासु पब्लिकेशन नं0-141।

H. Compilation & Editing of Training Manuals/Compendia

S.No.	Title	Compiled and edited by
1.	Infertility & Artificial insemination	Dr. Atul Saxena, Dr. Anuj & Dr. Amit Singh
2.	Unnat Dairy Palan Prashichhan Pustika	Dr. Sarvajeet Yadav, Dr. Rajneesh Sirohi, Dr. Satyendra Pal Singh & Dr. D. N. Singh
3.	MTC Training on "Effect of climate change on productive & reproductive performance of dairy animals"	Dr. Brijesh Yadav & Dr. Sarvajeet Yadav
4.	Artificial Insemination in Bovines & Livestock Management	Dr. Sarvajeet Yadav, Dr. Anuj, & Dr. Amit Singh.
5.	Dairy Vyawasay Ki Vaigyanik Padhhati	Dr. Sarvajeet Yadav, Dr. Amit Singh & Dr. Yajuvendra Singh

Others Expert Services provided by Directorate of Extension

- Transfer of technology and knowledge in Pashupalan Jagrukata Shivir organized by Hindustan College of Science & Technology, Farah, Mathura in association with C.O.V.Sc. & A.H. , Mathura at Hindustan College of Science & Technology, Farah (10th June, 2015) and distribution of mineral mixture and extension literature published by Directorate to the farmers free of cost.
- Transfer of technology & knowledge in Gau Sammelan at Shri Jadkhor Kamad Shodh Sansthan, Jadkhor as a expert to deliver a lecture on "Importance of Indigenous cattle breeds and their management to improve production efficiency" (05th March, 2016).

2. DEPARTMENT OF VETERINARY AND ANIMAL HUSBANDRY EXTENSION

Department of Veterinary and Animal Husbandry Extension organized ten exposure visits for the 172 farmers from Chattisgarh, Madhya Pradesh and Bihar.

S.No.	Place (District and state)	Total number of farmers
1.	Koriya, Chhattisgarh	11
2.	Bilaspur, Chhattisgarh	10
3.	Rajasthan	34
4.	Surajpur, Chhattisgarh	16
5.	Pratapur, Chhattisgarh	10
6.	Gonada, Chhattisgarh	40
7.	Sagar, Madhya Pradesh	20
8.	Umaria, Madhya Pradesh	15
9.	Koriya, Chhattisgarh	17
10.	Navada, Bihar	09

Faculty members of Department also participated in Krishi and Gram Vikas Pradarshani Mela held at Farah, Mathura for 3 days (9th to 11th Oct. 2015) and also in one day Mustard Seed Production and Swasth Pashu Pratiyogita Kisan Mela organized at Madhurikund farm on Feb. 16, 2016.

3. OTHER EXTENSION ACTIVITIES BY THE COLLEGE OF VETERINARY SCIENCE AND ANIMAL HUSBANDRY

- The faculty of Department of L.P.T delivered many lectures and organized practical demonstrations for farmers for detection of various adulterants in milk and processing of milk for value added products in the training programmes organized by the University. The department also established an 'Exhibition Stall' in National Seminar on "Strategies for conservation of indigenous cattle breeds of semi-arid region for augmenting milk production" held at DUVASU, Mathura.
- Extension activity under Tribal Sub Plan, AICRP-FMD, ICAR.

  Two programmes for Tribal Sub Plan (TSP) activities for the Scheduled Tribes in Lalitpur district in Talbehat Block on 24/2/2016 and 18/3/2016 with the collaboration of Animal Husbandry Department, Lalitpur, UP. Sixty Schedule tribe families were identified and day old Chabro chicks were distributed among the beneficiaries for backyard poultry farming. Twenty one ST families were distributed Jamunapari/ Barbari bucks for goat farming. The families were given information about FMD vaccination and control programme and livestock management and rearing practices by the experts during the FMD awareness camp held.


Distribution of bucks under Tribal Sub Plan (TSP) for the Scheduled Tribes in Talbehat block, Lalitpur


Distribution of chicks under Tribal Sub Plan (TSP) for the Scheduled Tribes in Talbehat block, Lalitpur

- Disease outbreaks

Date of visit	District	Attended by
2.5.2015	Rajabpur, Amroha	Dr. Ajay Pratap Singh
13.5.2015	Kamdhenu Dairy Pariyojna, Lenin Dairy Farm, Sadabad, Hathras	Dr. Rashmi Singh, Dr. Udit Jain, Dr. Arvind Tripathi
9.1.2016	IVRI, Bareilly	Dr. Ajay Pratap Singh
20.1.2016	Pinhat, Agra	Dr. Ajay Pratap Singh
20.1.2016	Gadhi Gosai, Agra	Dr. Ajay Pratap Singh
24.2.2016	Talbehat block, Lalitpur (TSP activity)	Dr. Ajay Pratap Singh, Dr. Amitabh Bhattacharya, Dr. Deep Narayan Singh.
18.3.2016	Talbehat block, Lalitpur (TSP activity)	Dr. Ajay Pratap Singh, Dr. Amitabh Bhattacharya, Dr. Deep Narayan Singh.

- 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.	12.04.15	Ayerakheda	10	00	04	06
2.	28.04.15	Rawal	250	02	236	12
3.	06.11.15	Bati	05	00	02	03
4.	16.01.16	Dhannapur	30	02	14	14
5.	23.01.16	Bati	29	00	03	26
6.	30.01.16	Karnawal	67	05	30	32
7.	06.02.16	Bandi	50	02	27	21
8.	20.02.16	Karav	25	02	18	05
9.	27.02.16	Shahpur	66	03	51	12
	Total		532	16	385	131

4. KRISHI VIGYAN KENDRA, DUVASU, MATHURA

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.

A. Trainings

a. On-Campus Trainings

Type of training	No. of Courses	No. of beneficiaries		
		Male	Female	Total
Farm & Farm women	42	684	170	854
Rural Youth	12	139	40	179
Extension Functionaries	6	132	7	139
Total	60	955	217	1172

b. Off-Campus Training

Type of training	No. of Courses	No. of beneficiaries		
		Male	Female	Total
Farm & Farm women	38	626	145	771
Rural Youth	8	94	31	125
Extension Functionaries	7	229	17	246
Total	53	949	193	1142

B. Frontline Demonstrations

Kharif

To showcase the yield potential and other characters of latest varieties 107 demonstrations on various crops and vegetables covering an area of 61 acres in Kharif were conducted in different adopted villages. The details of the demonstrations are:

S. N.	Name of the crop	Variety	Area (acre)	No. of demonstrations
1	Paddy	Pusa Sugandhi-4	15	15
	Paddy (Salt resistant variety)	CSR-36	15	15
2	Bajra (Weed management) use of Atrazine	Dhanya hybrid MP2967	12.5	12
3	Til	Guj-2	12.5	21
4	Tomato (IPNM)	Kashi Aman	6	6
5	Kitchen Gardening (Veg.)	-	-	38
	Total	-	61.00	107

Rabi

Likewise, 431 demonstrations each on cereals, oilseeds, vegetables and fodder crops covering an area of 212.75 acres in rabi were conducted in different adopted villages to showcase the yield potential and other characters of latest varieties. The distribution of mineral mixture and deworming of animals were also conducted. The details of the demonstrations are given below.

S. N.	Name of the crop	Variety	Area (acre)	No. of demonstrations
1	Barley	NB-2	12.5	13
2	Wheat	DBW-17	12.5	12
3	Mustard	RH-749 & RH-406	100	94
4	Chickpea	RSG-895 (Arpita)	50.25	51
5	Cauliflower	Pusa Snowball	10	10

6	Berseem	Vardan	7.5	40
7	Wheat (Micronutrient)	HD-2733	20	20
8	Mineral Mixture	-	-	40
9	De-worming	-	-	121
10	Kitchen gardening (Veg.)	-	-	30
	Total	-	212.75	431

C. On Farm Testings (OFT)

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

Four OFT's, of which, two on Paddy, one each on Mustard and Cabbage under Varietal Evaluation to enhance productivity of these crops were conducted. One OFT each on Foliar Spray of NPK on Mustard and Onion and one OFT on Weed Management in Wheat were conducted. Micro Nutrient Management in Cauliflower, Pest Management in Chili and Disease Management on Potato were tested during this year by the Scientists at various locations of the adopted villages.

D. Other Extension Activities

- Gosthies: Scientists of KVK participated in Regional, District and Block level gosthies organized by various line departments like Agriculture, Horticulture, NGOs, and Banks etc.
- **World Soil Health Day:** The World Soil Health Day was celebrated on December 05, 2015 at Vati village of Mathura block. The Director Extension distributed 254 Soil Health Cards in the village. The PC, KVK along with other scientists participated in the programme. A Gosthi on importance of Soil Testing was also organized.
- Krishi Unnati Mela: To ensure participation of farmers of Mathura district, 8 Buses carrying more than 400 farmers thronged IARI, PUSA, New Delhi to participate in Krishi Unnati Mela on 19th March, 2016.
- Diagnostic Visit: During the reporting period, more than 30 diagnostic visits to different villages to inspect the ailing crops of the farmers were under taken and the report with remedies were submitted.
- Radio/TV talk: Scientists have given their talk on All India Radio and got the recording for ETV on various need based topics.
- Farmers Visit to KVK: Farmers from different states of the country visited under exposure visit cum training. The farmers were provided training and appeared with the facilities existing in KVK.
- Kissan Samman Diwas: On 23 Dec., 2015 Kissan Samman Diwas was organized on the birth anniversary of Ch. Charan Singh at Mathura Block HQ in which Scientists participated and put up stall.

- Publication: Following publications were made by KVK in 2015-16 -
  (a) Monthly news letter titled "What to do this month" for the benifit of farmers.
  (b) Annual edition of 'Braj Main Krishi Evam Pashupalan'
  (c) Four folders also published.

Soil Testing Laboratory

Soil Testing Laboratory established at KVK office analyzed 903 soil samples of 574 farmers of 61 villages and gave recommendations on balance use of fertilizers.

Live Demonstration Units:

- Napier & Guinea grasses: To meet out & promote the fodder requirement the Napier grass and Guinea grass under the demonstration unit on 2.5 acre of land has been put up at DDD Farm. The root stock of these grasses has also been sold out.
- Vermi-compost: To improve the soil health a demonstration unit of Vermi-composting at DDD Farm has also been established where around 3 q. of vermi-compost was produced and made available to University farms and farmers.
- Nadep compost: To showcase the technology of making compost with roughages and other biodegradable material using very less dung is also put on demonstration at KVK office.

Crop Cafeteria:

To showcase the potential of various high yielding varieties a crop cafeteria on crops, vegetables, flowers, fodders and nutritional kitchen gardening is also put up according to season.

Instructional Farm:

KVK has an instructional farm of 42.50 acres located near ILFC, DUVASU on Nalva Path Road where seed production of district specific major crops is being taken. The detail of the crops grown during the reporting period is given below.

Season	Crop	Variety	Area (acre)	Quantity (q.)	Amount (Rs.)
Zaid	Jawar (Fodder)	Desi (Poorvi)	15	-	1,25,000.00
Kharif	Til	Guj-2	10	450	10,080.00
Rabi	Wheat	HD-2967	42.0 (Approx.)	450 (Approx)	20,00,000.00

Participation in Workshop

Dr. S.K.Mishra, PC, KVK Participated in Mid Term Review Workshop organized at ICAR-ATARI, Kanpur and presented the Half Yearly Progress Report and the Annual Action Plan for 2016-17 of KVK Mathura.

UNIVERSITY FARMS

A. INSTRUCTIONAL LIVESTOCK FARM COMPLEX (ILFC)

At ILFC Mathura, the total number of animals on 31.03.2016 were 514. It included Haryana cattle (204), crossbred cattle (59), Sahiwal cattle (172) and Murrah buffalo (79). During 2015-16, total milk production at the farm was 1,91,574.00 liters, out of which, the production of cow milk was 1,60,785.50 liters, buffalo milk was 30, 788.50 liters. The average milk production was 524.86 liters per day which was approximately 1.03% more than the average daily milk production of the previous year. The total revenue generated through the sale of milk during the year was Rs 53,68,586 (Fifty three lac sixty eight thousand five hundred eight six.) as compared to revenue of Rs 53,45,633 (Fifty three lacs forty five thousand six hundred thirty three) during 2014-15.

At ILFC farm, production of jau, jai, bhusa and green fodder were 188.65, 61.25, 248.60 and 13,518 quintals, respectively. These were used for feeding of animals. During the year, one grinding machine and one submersible motor was also purchased at the farm. In addition to this, one hand-pump was installed at the Buchari block.

B. POULTRY FARM

The different species, breeds and varieties of birds maintained in poultry farm of the Department of poultry science during 2015-16 were

S. No.	Species, Breeds and varieties	Flock Population
1.	Layers	443
2.	Chabro breeders	255
3.	Chabro chicks	1513
4.	Aseel Peela birds	54
5.	Kadaknath birds	49
6.	Naked Neck	7
7.	Japanese quail	304
8.	Turkey	164
9.	Guinea Fowl	32
10.	Emu	3
11.	Other breeds (Black Rock, White Rock, Chandigarh Broiler, Red Cornish, Dahlem Red, Barred Rock, PB Broiler, PB-1 Layer, Punjab Brown, Chandigarh Black)	355

During 2015-16, the farm generated a revenue of Rs. 85,297 (Eighty five thousand two hundred ninty seven) by the sale of guinea fowls, desi birds, turkeys, desi chicks, aseel and kadaknath chicks, turkey eggs, desi eggs, and turkey meat.

C. DIRECTORATE OF FARMS

1. Madhuri Kund Agriculture Farm

During 2015-16, following crops were cultivated at Madhuri Kund farm and the gross receiepts received from the farms were as follows.

Season	Name of Crop (Acre)	Cultivated area (quintal)	Expected production
Kharif-2015	Peddy-1509	48.75	415.55
	Peddy-sugandh 4 (seed)	21.00	255.25
	Til (seed)	31.00	14.70
	Auction of jwar as green fodder	46.00	-
	Total		
Rabi-2015	Sarson-DMR (seed)	162.50	646.43
	Sarson –commercial	03.00	10.00
	Wheat DBW-17 (seed)	230.00	2150
	Jau (seed)	176.00	1475
	Chanas		300
	Bhusa	-	800
RKVY	Jai (seed)	51.00	265.00
	Barseem	24.00	10.00
	Green barseem	-	-
	Total		6341.93

The total grain / seed production during 2015-16 was 6341.93 quintals and the gross receipt of Rs. 1,09,62,314 (One crore nine lakhs sixty two thousand three hundred fourteen) is expected.

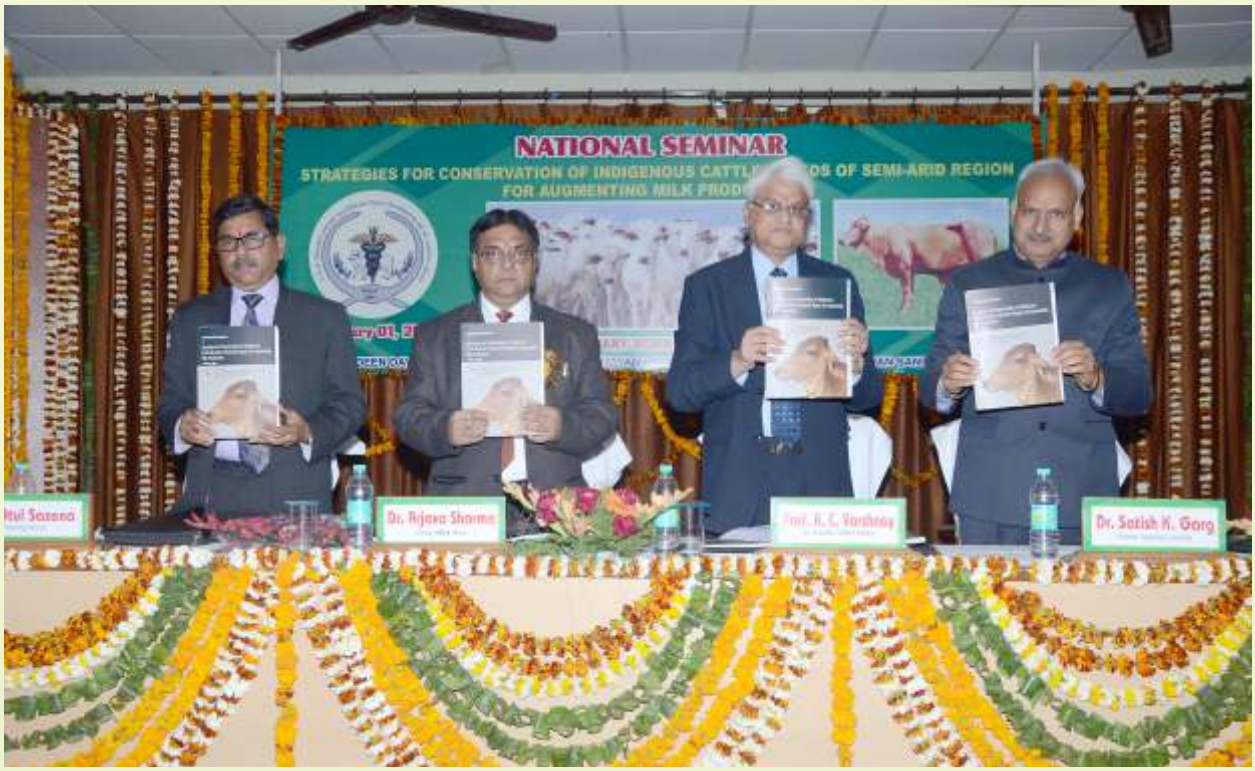
2. Pasture Unit

During 2015-16, the revenue generated through auction of jwar was Rs 80,000. The breeder Wheat seeds of variety HD3086 was produced which generated a revenue of Rs 11,34,000.

HUMAN RESOURCE DEVELOPMENT

National Seminar on Strategies for conservation of indigenous cattle breeds of semiarid region for augmenting milk production

DUVASU- Mathura in Collaboration with SESHIS, H.P. organized one day National Seminar on "Strategies for conservation of indigenous cattle breeds of semiarid region for augmenting milk production" on Feb 01, 2016 with the intention to create awareness amongst the gaushala managers, cattle owners, progressive farmers etc about the basics of conservation and breed improvement highlighting importance of indigenous cattle. The seminar was attended by over 250 participants which included, gushalas managers from Mathura and Rajasthan and adjoining districts of Mathura, progressive farmers, farmers groups engaged in organic farming, representative and owners of Mini dairies, and Veterinarians from Animal Husbandry Department, Uttar Pradesh. Representative of gaushalas, organic farmers and University also took part in the seminar to present their work related to conservation of cows as well as their products through exhibitions and live demonstrations. The key speakers were Dr Arjava Sharma, Director, NBAGAR, Dr D.K. Sadana, Former Principal Scientist AGBB, Karnal, Dr Hitesh Jani, Head Panchkarma, Shree G.A. College, Gujrat Ayurved University, Jamnager, Dr P.K. Singh, Principal Scientist, NBAGR, Karnal, Shri Sunil Mansinghka Ji, Chairman, Gau-Vigyan Anusandhan Kendra, Nagpur. From University, the speakers were Dr Atul Saxena, Dr Vinod Kumar and Dr Rajnesh Sirohi. An interactive session was also convened between the participants and the constituted committee of experts for assessment and problem solving. The seminar was inaugurated by Dr Arjava Sharma, Director, NBAGR. Fifteen progressive farmers and gaushala managers were felicited by the Chief Guest and Vice Chancellor, DUVASU, Mathura.



Training on "Use of Functional and Molecular Tools in Pharmacodynamic and Cyto-toxicity Studies" organized

Department of Pharmacology organized a 10 days (8-17th Feb, 2016) training programme under Niche Area of Excellence Programme on "Use of Functional and Molecular Tools in Pharmacodynamic and Cyto-toxicity Studies". A total 31 participants including postgraduate students and faculty members from different SAUs, Veterinary University and Central Universities of India have attended the training programme. Hon'ble Vice Chancellor has inaugurated the training programme. Several research techniques and methodologies including COMET assay, TUNEL assay, DNA fragmentation test, Western Blot, thermocycling, functional pharmacological study, fluorescent microscopy, blood pressure recording etc. have been demonstrated to the trainees.

PARTICIPATION OF FACULTY MEMBER IN INTERNATIONAL AND NATIONAL TRANINGS/ WORKSHOPS

S.No.	Name of Faculty	Title of event and place	Date
INTERNATIONAL TRAININGS			
1.	Dr. Yajuvendra Singh	6th International training programme on modern dairy farm management, held at Oenkerk, Netherlands	Sept.14- Oct. 23, 2015
2.	Dr. Shalini Vaswani	10 weeks International Training Programme on Dairy Nutrition - (ITPDN-2015) held at Laboratory for Animal Nutrition and Animal Product Quality, Faculty of Bioscience Engineering, Netherlands	Oct. 02- Dec.02, 2015
NATIONAL TRAININGS/WORKSHOP			
1.	Dr Shalini Vaswani Dr Muneendra Kumar	Regional Workshop on "Nutrition and feeding strategies for goats: Linking climate resilient feeding and poverty alleviation" held at CIRG, Makhdoom Farah, Mathura	June 01, 2015
2.	Dr. Ajay Pratap Singh Dr. Rashmi Singh	Two day training program on "Online FMD Disease Decision Support System" held at Project Directorate on FMD, Mukteswar	June 25-26, 2015
3.	Dr. Atul Prakash	10 days short course on "Recent Advances in Pharmacological Techniques" held at IVRI, Izatanagar Bareilly	Sept. 7-16, 2015
4.	Dr. Amit Singh	Model Training course on "Effect of climate change on productive and reproductive performance of dairy animals" held at DUVASU, Mathura	Oct. 28- Nov.04, 2015
5.	Dr. Shriprakash	21 days training on "Prospects and Retrospects in Assisted Reproductive Technologies" held at IVRI, Izatnagar	Jan. 08-28, 2016
6.	Dr. Brijesh Yadav Dr. Dilip Kumar Swain	National Workshop on "Innovative Strategies of Physiological Genomic Research" held at IVRI, Izatnagar Bareilly	Jan. 18, 2016
7.	Dr.Vikrant Sudan	Molecular Cloning and Characterization of Receptors and Ion Channels , Hands on Training on "Cytogenotoxity assays and use of functional and molecular tools in Pharmacodynamic studies" held at DUVASU, Mathura	Feb.08-17, 2016
8.	Dr. Udit Jain	5 days National Workshop on "Diagnostic Approaches for Zoonotic Diseases" organized under the ICAR –Niche Area of Excellence Project on "Center for Zoonoses" at Nagpur Veterinary College, Nagpur.	March 8-12, 2016

PARTICIPATION OF FACULTY MEMBER IN INTERNATIONAL/ NATIONAL CONFERENCES AND SYMPOSIA

S.No.	Name of Faculty	Title of event and place	Date
INTERNATIONAL			
1.	Dr. S.K.Yadav	5th world Congress on Virology, Madrid, Spain	Feb. 10-12, 2016
NATIONAL			
1.	Dr. Mukesh Kr. Srivastava	National congress on canine practice and 12th convention of Indian Society for Advancement of Canine Practice and National symposium in diagnosis and management of emerging diseases of canines organized by Indian Society for Advancement of Canine Practice at Allahabad	June 17-19, 2015
2.	Dr. Jitender Kumar Dr. Mukul Anand	2nd International Conference on "Multi-disciplinary research for the achievement of excellence in higher education and industry" held at Ravindra Bhawan, Goa	Oct. 26-27. 2015
3.	Dr. Amit Kumar Verma	National conference on "Global research initiatives for sustainable agriculture and allied sciences" organized at Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior	Dec.12- 13, 2015
4.	Dr. Ajay Prakash Dr. Varsha Gupta Dr. Prabhakar Kumar	XXX Annual Convention of IAVA and National Symposium on " Recent advances in veterinary anatomy and their application in the field of animal health production and biotechnology held at WBUAFT, Kolkatta	Dec. 16-18, 2015
5.	Dr Soumen Choudhury	International Conference on "Cutting–edge Pharmacology: Contemporary issues and Future Challenges" and 48th Annual Conference of Indian Pharmacological Society (IPS) at Saurashtra University, Rajkot, Gujarat.	Dec. 18-20, 2015
6.	Dr. Vinod Kumar Dr. Debashis Roy Dr. Muneendra Kumar	XVI Biennial Animal Nutrition Conference on theme "Innovative approaches for Animal Feeding & Nutritional Research" at NDRI, Karnal.	Jan. 06-08, 2016
7.	Dr. Satish K. Garg Dr. Soumen Choudhury Dr. Rajkumar Singh Yadav	XV Annual Convention of ISVPT and National seminar on "Nutritional Pharmacology and Toxicology beyond calories" held at NDRI, Karnal, Haryana	Jan. 14-16, 2016
8.	31 faculty members from DUVASU, Mathura	National seminar on "Strategies for conservation of indigenous cattle breeds of semiarid region for augmenting milk production" held at DUVASU, Mathura.	Feb. 01, 2016

9.	Dr. Shanker Kr. Singh Dr. Arvind Tripathi	34th Annual Convention of ISVM and the National Symposium- organized at GADVASU, Ludhiana	Feb. 17-19, 2016
10.	Dr. Vikas Pathak Dr. V.P. Singh	16th Indian Veterinary Congress & XXIII Annual conference of IAAVR & National Symposium on "Strengthening of governance in animal health and production activities for the benefit of farmers and livestock owners " held at OUAT, Bhubaneswar	Feb. 27-28, 2016
11.	Dr. Mukesh Kr. Srivastava, Dr. Alok Kr. Chaudhary	National conference on New Horizons of Veterinary and Medical Forensic Medicine. Organized by Department of Veterinary Clinical Medicine Ethics and Jurisprudence, College of Veterinary Science, RAJUVAS, Bikaner	Mar. 5-6, 2016
12.	Dr. Rajesh Nigam Dr. Vijay Pandey	Annual Convention of Society of Veterinary Biochemists & Biotechnologists of India (SVBBI) and National Symposium on "Use of Advanced Technologies of Biochemistry and Biotechnology in Livestock Health, Production and Reproduction" held at College of Veterinary Science & Animal Husbandry, OUAT- Bhubaneswar (Odisha)	Mar. 11–12, 2016

DIGNITARIES VISITED

List of Dignitaries:

Shri Ram Naik Ji, Hon'ble Governor of Uttar Pradesh and Chancellor of DUVASU.

Dr. Sanjeev Balyan, Hon'ble State Agricultural Minister, GOI.

Smt. Hema Malini, Hon'ble Member of Parliament, Mathura.

Dr. S. Ayyappan, Direcor General, ICAR, New Delhi.

Dr. K.M.L. Pathak, DDG (Animal Sciences), ICAR.

Dr. N.S. Rathore, Deputy Director General (Agricultural Educaion), ICAR.

Dr. A.K. Srivastva, Director, NDRI, Karnal.

Dr. M.L. Madan, Former Vice Chancellor, DUVASU, Mathura.

Dr. Rajesh Varshney, Director Animal Husbandry, U.P.

Dr. B.B.S. Yadav, Chief Executive Officer, UPLDB.

Dr. Umesh Chandra Sharma, President Veterinary Council of India.

Dr. S.K. Agarwal, Director, CIRG, Makhdoom.

Dr. Dinesh Kumar Singh, District Judge , Mathura.

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

Hon'ble Member of parliament (M.P.) Mathura, Smt. Hama Malini ji visited the University on April 28, 2015 and inaugurated Go Anusandhan Sansthan Parisar and dedicated it to the service of nation. The mandate of Go Anusandhan Sansthan is to carry out research on conservation of native breeds of cattle in India, to improve the production of cattle and to prepare various products by value addition in cow milk. Hon'ble Vice Chancellor Prof. A.C. Varshney welcomed her and briefed about various academic and other activities of the University. On this occasion Prof. S.K. Garg, Dean College of Veterinary Science and Animal Husbandry, made a brief presentation about the overall University activities. Hon'ble M.P. visited museum and dairy farm of the University. She expressed her happiness on the ongoing activities in the University.

Hon'ble State Agriculture Minister Dr. Balyan Visited DUVASU

Hon'ble State Agriculture Minister, Dr. Sanjeev Balyan visited DUVASU on June 15, 2015. He interacted with Hon'ble Vice Chancellor and Senior Officers on various issues of the University and Rashtriya Gokul Mission Project. Hon'ble Dr. Balyan also visited the museum and New campus of DUVASU.

Dr. S. Ayyapan inaugurated building of Department of Poultry Science

Dr. S. Ayyapan, D.G. ICAR, New Delhi inaugurated the renovated building of Department of Poultry Science on 2nd Feb., 2016 in the presence of Prof. A.C. Varshney, Vice Chancellor DUVASU, Dean College of Veterinary Science, Dean, College of Biotechnology, Dean PGS and other Senior Officers of the University, teaching and non-teaching staff and students.

Dr. S. Ayyapan, Secretary DARE, GOI and Director General ICAR inaugurated the New Laboratory Block in Department of Pharmacology and Toxicology

Dr. S. Ayyappan, Hon'ble Secretary DARE, GOI and Director General ICAR inaugurated the New Laboratory Block in Department of Pharmacology and Toxicology on February 02, 2016 in the presence of Prof A.C. Varshney, Hon'ble Vice Chancellor of the University and other officers, faculty members and students of the University.

The New Laboratory Block was constructed with the financial assistance of Rs. 125 lacs from ICAR under Niche Area of Excellence Programme and Rs. 25 lacs from State Govt. under Rashtriya Krishi Vikas Yojana. With the addition of this laboratory block, the Department of Pharmacology and Toxicology has become the centre of attraction for students and faculty members not only from within the University but also from other SAUs and Central Institutes being the best and the largest Department in the country.

STUDENTS WELFARE

National Cadet Corps

During 2015-16, 29 students participated for "B"certificate exam and 15 students for "C" certificate exam. 20 students of the university participated in Combined Annual Training Camp-38 of National Cadet Corps organized at Hindustan College of Engineering and Technology, Farah, Mathura from 25.08.2015 to 03.09.2015. Further 21 students of the University participated in CATC-39 organized at Jaswant Singh Bhadoria Institute of Technology, Kosi Khurd, Bharatpur Road, Mathura from 08.10.2015 to 17.10.2015. On the occasion of 5th Convocation of the University NCC students gave 'Guard of Honour' to the Hon'ble Governor of Uttar Pradesh on 17.11.2015 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 and Independence day.

Fresher's Day Celebrated by the B.V.Sc. & A.H. Students, Diploma Students and B.Sc. Biotechnology Students

Students of 2nd Year B.V.Sc & A.H along with senior students, faculty and staff formally welcomed the newly admitted students of 2015 batch to Veterinary fraternity on 21.08.2015. First year students presented different cultural events. Hon'ble Vice-Chancellor graced the occasion and distributed the prizes. Speaking on the occasion, Hon'ble Vice-Chancellor Prof. A.C Varshney advised the students to work hard and understand their responsibility on being admitted to Veterinary profession. Dr. Satish Kumar Garg, Dean, College of Veterinary Sciences & Animal Husbandry presided over the function while Dr. Pankaj Kumar Shukla, Dean, Post Graduate Studies. Dr. Rajesh Nigam, Dean College of Biotechnology and other officers of the University also graced the occasion.

Students of 2nd Year Diploma Programme along with faculty and staff formally welcomed the newly admitted students of 2015 batch to Diploma fraternity. Hon'ble Vice-Chancellor Prof. A.C. Varshney was the Chief Guest on this occasion. Dr. Satish Kumar Garg, Dean, College of Veterinary Sciences and Animal Husbandry presided over the function while Dr. Vikas Pathak, Chief Coordinator, Diploma Programme facilitated the students to organise the event.

Students of 2nd Year Biotechnology along with faculty and staff formally welcomed the newly admitted students of 2015 batch to Biotechnology fraternity on 28.09.2015. First

Year Students presented different cultural programmes. Hon'ble Vice-Chancellor Prof A.C Varshney was the Chief Guest on this occasion. Dr. Rajesh Nigam, Dean, College of Biotechnology presided over the function.

8th Zydus All India drawing and Painting Competition 2015

Zydus drawing and Painting completion 2015 was organized on 08.09.2015. Dr. Deepanka, Miss. Kavisha Gangwar & Miss. Sakshi Singh were declared first, second and third respectively in the competition and Prize money of Rs 2000.00, Rs. 1500.00 & Rs. 1000.00 were distributed to the concerned.

Literary and Cultural festival

Literary and Cultural festival was organized from 21st to 26th September 2015 in which students from COVS and AH, COB and Diploma Programme participated. During this week, 12 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.

Educational Tours.

South India Educational Tour of B.V.Sc. & A.H. students

37 students of 5th Year B.V.Sc & A.H went to All India Educational tour (26.12.2015 to 07.01.2016) and visited Madras Veterinary College, Chennai; Bombay Veterinary College, Mumbai; Veterinary College, Bangalore; Veterinary College Hyderabad, Thrissure and Pookote as well as Fisheries Institute, Goa. The tour was not only an excursion programme but also enabled students to know about facilities available and recent development in these institutes. Dr. Amit Singh and Dr. Ruchi Tiwari, Assistant Professors, Department of Veterinary Extension and Veterinary Microbiology, respectively, were the tour leaders.

Educational tour of College of Biotechnology students

An Educational tour was organised by College of Biotechnology for B.Sc. Biotechnology 1st and 2nd year students from 13.12.2015 to 18.12.2015. Total 37 (12 Girls + 25 Boys) students of 1st and 2nd year participated in this tour under the supervision of five faculty members. During the tour, the institutes visited were - Biochemical and Physiotherapy Department, Patanjali Yogapeethe Haridwar, Forest Research Institute Dehradun, Central Molecular Research Laboratory, SGRRI Dehradun and College of Biotechnology, Sardar Vallabh Bhai Patel University of Agriculture and Technology Meerut.

14th Annual Sports Meet

14th Annual Sports Meet 2016 of the University was inaugurated by Prof. A.C Varshney, Hon'ble Vice-Chancellor of the University on 01st March, 2016. The meet was declared open by Hon'ble Vice-Chancellor after the march-past, salutation and sports oath. Doves were released as a token of peace and freedom. A number of sports events were organised in which students from different programmes participated. Mr. Mahesh Kumar, 3rd Year BVSc and AH and Miss Abhinika Yadav, 2nd Year BSc (Biotech.) respectively, were adjudged as the best male and female athletes of the year. Slow cycling, musical chair of ladies and "Tug-of-war" between teachers and students were special attractions of the afternoon. The closing ceremony was held on 02nd March 2016, where Sh. Dinesh Kumar Singh, District Judge, Mathura was the Chief Guest.

Zydus All India Veterinary College Badminton, All India Table-Tennis Tournament and Venkys All India professional Quiz Championship.

All India Veterinary College Badminton, All India Table-Tennis Tournament and Venkys All India Quiz Championship were organized by Govind Ballabh Pant University of Agriculture & Technology, Pantnagar from 31st March to 02nd April 2016. Nineteen Students (10 girls and 09 boys) from DUVASU, Mathura participated in thee different tournaments. Team of Mr. Manu Jaiswal, Mr. Abhinit Kumar, Miss Mamta Mishra and Miss Prabha Sharma stood runner up in professional quiz competition amoung 14 teams from different institutes while team of Miss Poonam Yadav, Miss Anamika Sahu, Miss Nivedita Patel and Miss Isha Agrawal were runner up in Table Tennis (girls). Dr. Jitendra Tiwari, Assistant Professor, Department of Parasitology and Dr. Madhu Tiwari, Assistant Professor, Department of Animal Genetics and Breeding, College of Veterinary Sciences & Animal Husbadnary were the tour leaders.

Scholarships received by the students of DUVASU, Mathura

- 354 applications of students of DUVASU, Mathura were forwarded by the office of Incharge Student Welfare for Uttar Pradesh Government Scholarship. It included 78 applications of students of general category and 184 applications of OBC category. It also included 14, 75 and 03 applications of students belonging to minority, scheduled caste and scheduled tribes groups, respectively.
- Total seventeen students, out of which ten students of M.V.Sc. and seven students of B.V.Sc. & A.H., received University Merit Scholarship.
- 03 students of B.V.Sc. & A.H. got National Talent Scholarship provided by Indian Council of Agriculture Research (ICAR), New Delhi.
- One Ph.D students of Department of Pharmacology of Veterinary Science received INSPIRE fellowship of DST, GOI.

Inauguration of Gautam Hostel

On completion of renovation work in Gautam Hostel, it was inaugurated by Dr. N.S. Rathore, DDG (Edn) Indian Council of Agricultural Research in presence of Prof. A. C. Varshney, Hon'ble Vice Chancellor, DUVASU, Mathura, Dean, COVS and AH, Dean, CoB, Dean, PGS and other officers of the University.

OTHER HIGHLIGHTS AND ACTIVITIES

PVT-2015 conducted

DUVASU, Mathura conducted Pre-Veterinary Test-2015. It was conducted in two phases. PVT-preliminary examination was conducted on 17th May 2015 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, 2015 at two centers of Mathura in which 299 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 2015-16.

Oath taking ceremony 2015

Oath taking ceremony of B.V.Sc. & A. H. 2010 batch students was organized on July 10th 2015 in which sixty-seven (67) graduates stood and swore oath which was admistered by Prof. Satish K. Garg, Dean of the College, in Pant hall of Department of Gynecology & Obstetrics, College of Veterinary Science & Animal Husbandry, DUVASU which was filled with well-wishers, faculty, staff and administrators.

Dr. Umesh Chandra Sharma, President, VCI was the Chief Guest of the function. Honorable Vice-Chancellor of the University Prof. A.C.Varshney presided over the function. Choudhary Charan Singh Rastriya Pratibha Puruskar was awarded to the first and second position holders of the batch by Kisan Trust, New Delhi. The students who qualified ICAR-JRF examination were awarded 'Certificates of Appreciation' also for their performance.

Independence Day

Independence day was celebrated on 15th August 2015, wherein, Professor A.C Varshney, Hon'ble Vice-Chancellor DUVASU Mathura unfurled the national flag. Two saplings of palm were also planted in front of main building of College of Veterinary Sciences & Animal Husbandry, Mathura.

Gandhi Jayanti

Gandhi Jayanti was celebrated on 2nd October 2015 with offering of floral tribute to the father of the nation in front of College of Veterinary Sciences and Animal Husbandry, Mathura by the officers, teachers and employees of the University.

5th Convocation

The 5th Convocation of U.P. Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go Anusandhan Sansthan (DUVASU), Mathura was organized on 17th Nov., 2015. Hon'ble Governor of Uttar Pradesh and the Chancellor of the University Shri Ram Naik Ji presided while Prof. M.L. Madan, Former DDG (A.S.) ICAR, New Delhi and Former Vice Chancellor PDKV, Akola and DUVASU, Mathura was the Chief guest. In the convocation, Hon'ble Chancellor conferred *Honoris Causa* the degree (Doctor of Science) to Prof. K.M.L. Pathak DDG (A.S.) ICAR, New Delhi and Prof. A.K. Srivastava, Director, NDRI, Karnal for their excellent contributions in the field of Veterinary Science and Animal Husbandry. Besides this, Hon'ble Chancellor conferred degrees to 89 students. Out of these, 3 students received their Ph.D. degree, 18 students received their M.V.Sc. degree, 67 students received their B.V.Sc. & A.H. degree and 1 student received M.Sc. Degree in Biotechnology. Ten students received different medals on the basis of their excellent performance in academics and extracurricular activities. Hon'ble Governor and the Chancellor of the University congratulated the degree recipients and medal winners. The Chief Guest of the occasion, Prof. M.L. Madan delivered the Convocation address. Smt Hema Malini, Hon'ble Member of Parliament, Loksabha, Mathura also graced the occasion.




In the evening, a colorful cultural programme was organized by the students of DUVASU, Mathura from constituent colleges.

Republic Day

Republic Day was celebrated on 26th January 2016 at 10:00 am in front of College of Veterinary Sciences & Animal Husbandry. Prof A.C. Varshney, Hon'ble Vice-Chancellor, unfurled the National flag and addressed the gathering.

Prof. K.M.L. Pathak Joined as the new Vice Chancellor

Prof. K.M.L. Pathak joined U.P Pandit Deen Dayal Upadhyaya Pashu-Chikitsa Vigyan Viswavidyalaya Evam Go-Anusandhan Sansthan, Mathura, U.P as Vice Chancellor on 3rd March, 2016.

Born on 7th December 1953 in village Naraura, District Etah of Uttar Pradesh, Prof. K.M.L. Pathak did his B.V.Sc. & A.H, M.V.Sc. and Ph.D with academic excellence from G.B Pant University of Agriculture & Technology, Pantnagar. He obtained Post-Doc in Biotechnology from University of Salford, United Kingdom. He has served in various prestigious organizations since 1981 in different capacities namely Senior Research Fellow, Research Associate and faculty member at G.B.P.U.A.&T. Pantnagar; Professor, HOD and PG Faculty and Director Research at Rajasthan Agricultural University, Bikaner, Director, National Research Centre on Camel, Bikaner and Deputy Director General (Animal Sciences), ICAR, New Delhi, before taking over the reins of DUVASU.

AWARDS AND HONOUR/ACHIEVEMENTS

- Dr. Satish K. Garg, Dean, College of Veterinary Science and Animal Husbandry received ISVPT Fellowship at 15th Annual Convention of ISVPT and National seminar on "Nutritional Pharmacology and Toxicology beyond calories" held at National Dairy Research Institute, Karnal, Haryana held from 14-16 January, 2016
- Dr. Satish K. Garg, Professor & Head, was elected as the President of Society of Toxicology (STOX), India for the second consecutive term (2016-2018).
- Dr. Abhishek Sharma, PhD student, Department of Pharmacology and Toxicology received Best Poster Award at 15th Annual Convention of ISVPT and National seminar on "Nutritional Pharmacology and Toxicology beyond calories" held at National Dairy Research Institute, Karnal, Haryana held from 14-16 January, 2016
- Dr. Rajesh Nigam Professor and Head Biochemistry was felicitated by Society of Veterinary Biochemists and Biotechnologists of India (SVBBI) in Annual Convention and National Symposium held at College of Veterinary Science & Animal Husbandry, OUAT, Bhubaneswar on 11 – 12 March, 2016.
- Dr. Varsha Gupta Assistant Professor Anatomy received Dr. C. Vijayaragavan Memorial Silver Jubilee Medal and Award for The Best Paper in Developmental Anatomy at XXX Annual Convention of IAVA and National Symposium on " Recent advances in Veterinary Anatomy and their application in the field of animal health production and biotechnology held at WBUAFT, Kolkatta from 16-18 December, 2015.
- Dr. Amit Kumar Verma, Assistant Professor Veterinary Epidemiology received 'Best Poster Presentation Award' at National conference on Global research initiatives for sustainable agriculture and allied sciences organized at Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior held from December 12-13, 2015
- Dr. Yajuvendra Singh, Assistant Professor LPM Received NFP Fellowship of Neatherland.
- Dr. Jitendra Kumar, Associate Professor Veterinary Physiology received Excellence Award in Teaching during 2nd International Conference on Multidisciplinary Research for the achievement of excellence in higher education & industry,(IC-MRAEHEI-2015) at Ravindra Bhawan, Goa (October 26 – 27, 2015).
- Dr. Rajneesh Sirohi, Assistant Professor LPM received 'Best Poster Presentation Award' at 2nd International Conference on Multidisciplinary Research for the achievement of excellence in higher education & industry,(IC-MRAEHEI-2015) at Ravindra bhawan, Goa (October 26 – 27, 2015)
- Dr. Mukul Anand Assistant Professor Veterinary Physiology received 'Young Scientist Award' in Teaching in 2nd International Conference on Multidisciplinary Research for the achievement of excellence in higher education & industry, (IC-MRAEHEI-2015) at Ravindra bhawan, Goa (October 26 – 27, 2015).

- Dr Muneendra Kumar Assistant Professor Animal Nutrition received VIFRA-2015 Young Scientist Award, by Venus International Foundation, Chennai
- Dr Muneendra Kumar Assistant Professor Animal Nutrition received Dr. K. Pradhan Young Scientist Award-2016 of Animal Nutrition Society of India
- Dr Vinod Kumar, Associate Professor Animal Nutrition received "Excellence in Research-Special Mention Award" in 4th Academic Brilliance Awards-16 organized by EET CRS Research wing in Excellence in Professional Education & Industry on 7th Feb. 2016.
- Dr. Mukesh Srivastva, Assistant Professor Veterinary Medicine received 'Best Paper Award' during National Congress on Canine Practice and 12th Convention of Indian Society for the advancement of canine practice and National Symposium in diagnosis and management of emerging diseases of canines organized by Indian Society for advancement of Canine Practice held at Allahabad U.P. (17-19 June, 2015).
- Dr. Arvind Kumar Tripathi received 'Best Oral Paper Presentation Award' in the 34th Annual Convention of ISVM and National Symposia organised at GADVASU, Lidhiana (17-19 Feb., 2016).
- Patent Filed: Department of Pharmacology filed one patent (Number: 201611011035 dated 30.03.2016) on "Buffalo uterine artery as an ideal alternative to laboratory animals for demonstration of effect of vasoactive drugs".

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ESTATE ORGANIZATION

With the financial assistance from Indian Council of Agricultural Research, New Delhi during the year 2015-16, two toilets, three rooms of Nehru hostel as well as Television room and 23 rooms of Sampoornanand hostel were renovated. A part of roof replacement was done in the main building of College of Veterinary Science & Animal Husbandry. Teachers Home was renovated with the replacement of roof in four rooms and restoration of eight toilets. Ladies toilets were constructed in the Department of Anatomy, Microbiology & Physiology along with renovation of existing toilets. To strengthen teaching and research, renovation of Under Graduate laboratory of Department of Animal Nutrition, Post Graduate laboratory of Parasitology, Physiology and Kothari Hospital (TVCC) were done. In addition to this electrification of University Library was also carried out.

FINANCIAL STATUS

(Rs. in Lacs)

State Government	Salary		Contingency		Total
	Plan	Non Plan	Plan	Non Plan	
	52.10	2360.00	100.00	125.00	2637.10
	-	311.33	100.00	125.00	536.33
TOTAL	52.10	2671.33	200.00	250.00	3173.43

ICAR	Development Grant	Others	
	393.70	306.26	699.96

UNIVERSITY RECEIPT	480.34

RIGHT TO INFORMATION ACT

In compliance of the order of Govt. of Uttar Pradesh and provision of RTI Act, 2005, PIO received 92 applications out of which 82 applications were cleared and rest are under consideration for disposal.

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