ANNUAL REPORT
वार्षिक प्रतिवेदन

DUVASU

2012-13

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

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

DIGNITARIES VISITED

Dr. R. K. Mittal, Assistant Director General (E.Q.R.) ICAR, New DelhiiInaugurating Renovated ILFC Farm on 07.04.2012

Dr. C. Dev Kumar, Assistant Director General (E.P.D.) ICAR, New Delhi inaugurating Milk Processing Plant on 04.08.2012

Dr.(Smt) B. Meena Kumari, DDG (Fisheries), ICAR, New Delhi inaugurating Fisheries Unit on 13.10.2012

Dr. Arvind Kumar, DDG (Education) ICAR, New Delhi inaugurating new wing of Kasturba Girls Hostel on 10.12.2012

Dr. D. Dev Swarup, Director, CIRG, Makhdoom, Mathura inaugurating Small Animal House on 19.12.2012

Dr. S.K. Bandopadhayaya, Member ASRB, ICAR, inaugurating Lecture cum Examination Hall on 18.01.2013

दुवासु

वार्षिक प्रतिवेदन

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उत्तर प्रदेश पंडित दीन दयाल उपाध्याय पशु चिकित्सा विज्ञान विश्वविद्यालय एवं गौ अनुसंधान संस्थान (दुवासु), मथुरा – 281001 (उ0प्र0) भारत

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

DUVASU ANNUAL REPORT 2012-13

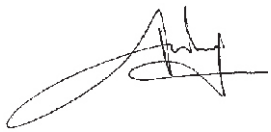
CONTENTS

FOREWORD

It is a matter of great satisfaction for me to present the Annual Report of U.P. Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalya Evam Go-Anusandhan Sansthan (DUVASU), Mathura highlighting the achievements and progress University has made in areas of teaching, research, extension and infrastructure development during 2012-13. Since inception in 2001 University has added physical infrastructure for the benefit of students, staff and society at large. Support of the subordinate staff and efforts of faculty members has resulted in noteworthy development and we have been able to extend our services in the mandated areas including upbringing of student which is evident from the number of students who have qualified ICAR JRF, research publications, clinical camps organized, number of outbreaks attended etc.

Annual Progress Report enables not only self evolution but peers to gauze the advancement and developments. Concerted efforts have resulted in sanction of RKVY project for starting diploma courses for Livestock Extension Officers and Veterinary Pharmacists. Teaching Veterinary Clinical Complex achieved a big leap through treatment of more than 8000 cases apart from organization of 21 animal welfare and health camps in different districts of U.P. and reaching to farmers. Milk processing plant, fish seed production unit, seed processing plant and poultry hatchery were inaugurated and dedicated in the service of mankind. A new wing of the girls hostel, squash court and examination hall-cum-lecture theatres were also added to augment student amenities. All hostels were connected through wireless net connectivity for providing faster access to internet to students. Grant of adhoc research project by GOI on 'Conservation and genetic improvement of Muzaffarnagari sheep for multiplication of superior germplasm' is testimony to the expectations and faith of the government in the institution. Efforts of faculty and staff bore fruit in the form of 34 JRFs out of a batch of 56 graduates apart from impressive performance in All India Youth Festival at NDRI. University farms generated revenue of more than 160 lacs through milk and farm produce. Successful organization of PVT and PGET – 2012 and human resource development through organization of 11th Annual Convention of NAVS, Conference of UP Chapter of ISVS, 23rd Annual Review Meet of AICRP on FMD and CP-FMD as well as Workshop-cum-Training Programme on CeRA were other highlights of athe activities of the university.

On behalf of the University, I express sincere thanks and gratitude to State Government and Indian Council of Agricultural Research, New Delhi for ample financial support. Our sincere thanks are also due to Hon'ble Dr. S. Ayappan, Secretary DARE and D.G., ICAR, New Delhi, Dr. Arvind Kumar, DDG (Education), Dr. R. K. Mittal, ADG (EQR), Dr. C. Dev Kumar, ADG (EPD) for supporting the university in its venture of advancement. Chief Editor Prof. Satish K. Garg, Dean, COVSc & AH, Editors Dr. A.K. Madan, Associate Professor, Physiology, Dr. Archana Pathak, Coordinator, Printing & Publication Division, Dr. Gulshan Kumar, Assistant Professor, Surgery and Radiology & Dr. Vikrant Sudan, Assistant Professor, Parasitology deserve appreciation for their efforts in compilation of this report.



(A.C. Varshney)

Vice-Chancellor

प्राक्कथन

मुझे उत्तर प्रदेश पंडित दीन दयाल उपाध्याय पशु चिकित्सा विज्ञान विश्वविद्यालय एवं गौ अनुसंधान संस्थान (दुवासु), मथुरा की 2012-13 की वार्षिक प्रतिवेदन विवरणी जिसमें वि0 वि0 द्वारा गत वर्ष में शिक्षा, अनुसंधान, प्रसार एवं संसाधन परिवर्धन में हुए सर्वांगीण विकास का विहंगा व लोकन किया गया है को प्रस्तुत करने में अत्यधिक संतोष की अनुभूति हो रही है । 2001 में वि0 वि0 के स्थापना के साथ ही इसके विद्यार्थी, शिक्षक एवं समस्त समाज की भलाई के लिए इसकी भौतिक संसाधन में परिवर्धन किया जाता रहा है । संकाय सदस्यों और गैर शिक्षा कर्मियों की मदद् से हमने अपने अपेक्षित क्षेत्रों में जैसे कि विद्यार्थियों के सुप्रबंधन व सुशिक्षा में आशातीत प्रगति की है । जो कि इस विद्यालय के छात्रों द्वारा आई0 सी0 ए0 आर0 परीक्षाओं में ऊँची रैंक अनुसंधान पत्रों, उपचार शिविरों और महामारी के रोकथाम में किये गये कार्यों से परिलक्षित है।

वार्षिक प्रगति प्रतिवेदन हमें अपने कार्यों के निष्पादन मात्र का ज्ञान ही नहीं कराता वरन् यह हमें अपने भविष्य के मार्ग प्रशस्ति में भी सहायक होता है । वि0 वि0 के पुरजोर कोशिशों के फलस्वरूप आर0 के0 वी0 वाई0 परियोजना के द्वारा वेटेरिनरी फार्मासिस्टों एवं लाइव स्टाक एक्सटेंशन आफिसरों के लिए डिप्लोमा कोर्स शुरू किया जा सका है । टी0 वी0 सी0 सी0 की सेवायें 8000 से अधिक पशुओं का उपचार करके व उ0 प्र0 के तमाम जिलों में एनिमल वेलफेयर एवं हैल्थ कैंप आयोजित करने का एक अनूठा उदाहरण प्रस्तुत किया है । दूध प्रसंस्करण संयंत्र, मतस्य बीज उत्पादन इकाई, बीज प्रसंस्करण यत्रं एवं मुर्गी-अण्डा सेचन केन्द्रों का मानव सेवा के लिए लोकार्पण हुआ । कन्याओं के लिए छात्रावास का नया भवन, स्कवैश कोर्ट और परीक्षा व व्याख्यान कक्ष के निर्माण से विद्यार्थियों को प्राप्त सुविधाओं में विकास हुआ । सभी छात्रावासों में विद्यार्थियों को इण्टरनेट सुविधा दी गई है। मुजफ्फरनगरी भेड़ के नस्ल सुधार पर भारत सरकार द्वारा प्रदत्त परियोजना संस्कार की इस वि0 वि0 की विकासो-मुख उपलब्धियों में तीक्ष्णानुवेषण और आर्शीवाद का प्रतीक है । शिक्षकों व विद्यार्थियों के मिले जुले उपलब्धियों का असर है, 56 में से 34 सफल विद्यार्थी जो आई0 सी0 ए0 आर0 की फैलोशिप प्राप्त करेंगे । राष्ट्रीय डेयरी अनुसंधान संस्थान, करनाल में वि0 वि0 के विद्यार्थियों का अद्भुत प्रदर्शन अतिश्लाध्य है । वि0 वि0 के फार्म पर दूध एवं दूध के उत्पादों द्वारा 160 लाख रूपये की वित्त अर्जित हुई । पी0 वी0 टी0 व पी0 जी0 ई0 टी0 - 2012 का सफल आयोजन, मानव संसाधन परिवर्धन, एन0 ए0 वी0 एस0 की 11वीं दीक्षान्त समारोह का आयोजन, आई0 एस0 वी0 एस0 के उ0 प्र0 चैप्टर की मीटिंग, ए0 आई0 सी0 आर0 पी0 आन फुट एण्ड माउथ व फुट एण्ड माउथ कन्ट्रोल व प्रिवेंशन की 23वीं वार्षिक समीक्षा तथा सेरा द्वारा आयोजित कार्यशाला वि0 वि0 की क्रियाओं का सम्यक उद्बोधन है ।

वि0 वि0 की तरफ से मैं राज्य सरकार एवं आई0 सी0 ए0 आर0 का आभार प्रकट करता हूँ जिन्होंने वि0 वि0 को मुक्त वित्तीय अनुदान प्रदान किया । मैं डा0 एस0 अयप्पन, डी0 जी0, आई0 सी0 ए0 आर0 व सचिव डेयर, डा0 अरविन्द कुमार डी0 डी0 जी0 (एजूकेशन), डा0 आर0 के0 मित्तल ए0 डी0 जी0 (ई0 क्यू0 आर0), डा0 सी0 देव कुमार ए0 डी0 जी0 (ई0 पी0 डी0) का आभारी हूँ जिन्होंने वि0 वि0 के विकास कार्यों में हमेशा सहयोग किया । डा0 एस0 के0 गर्ग डीन वेटेरिनरी (मुख्य संपादक) एवं डा0 ए0 के0 मदान सह प्राध्यापक (संपादक), डा0 अर्चना पाठक समन्वयक प्रिंटिंग एवं पब्लिकेशन डिवीजन, डा0 गुलशन कुमार सहायक प्राध्यापक, डा0 विक्रान्त सूदन सहायक प्राध्यापक ने प्रतिवेदन को रूप देने में अथक परिश्रम किया है वो निश्चय ही बधाई के पात्र हैं ।

(अखिलेश चन्द्र वार्ष्णेय)
कुलपति

EXECUTIVE SUMMARY

Govt. of Uttar Pradesh established U. P. Pandit Deen Dayal Upadhyaya Pashu-Chikitsa Vigyan Vishwavidyalaya Evam Go Anusandhan Sansthan, Mathura on 25.10.2001 with the erstwhile UP College of Veterinary Science & A.H., Mathura as its main constituent College through U. P. Act. No. 27 of 2001, to promote livestock production and productivity and address animal health through integrated teaching, research and extension programmes. University has 782.34 acres land at Mathura and around 1400 acres at Madhurikund, about 20 km from the main campus in addition to one Krishi Vigyan Kendra at Mathura. Presently, there are two faculties- College of Veterinary Science & Animal Husbandry and College of Biotechnology. As envisaged in Act of the University, three other constituent Colleges, namely- College of Fisheries, College of Livestock Products Technology and College of Animal Industry and Business Management are likely to start in near future.

During the period under report (2012-13), six meetings of Academic Council were held.

TEACHING :

- DUVASU, Mathura has two functional colleges, namely - College of Veterinary Science & Animal Husbandry and College of Biotechnology. Three more colleges, i.e. College of Livestock Products Technology, College of Fisheries and College of Animal Industry and Business Management are likely to start in near future.
- During 2012-13, College of Veterinary Science and Animal Husbandry admitted 67, 23 and 13 students in BVSc & AH, MVSc and PhD programmes respectively. 56 Graduates and 22 Post Graduates completed their degrees.
- College of Biotechnology admitted 3 students in MSc Biotechnology and 7 students completed their degree.
- Diploma Courses for Veterinary Pharmacists and Livestock Extension Officer (LEO) is proposed to be started from the academic session 2013-14.
- Teaching Veterinary Clinical Complex (TVCC) is well equipped with operation theaters for small and large animals, state-of-the-art equipments for diagnosis, anaesthesia and surgical operations and a computer-assisted teaching room for instructing students and interns. Indoor facility for small and large animals and intensive care unit for serious indoor patients in TVCC.
- During 2012-13, total no. of 8574 cases were treated in TVCC and 1610 samples were processed by diagnostic laboratory for diagnosis and treatment of diseases. TVCC generated a total revenue of Rs 4,23,635.00.
- The ambulatory services and clinical camps were extended to nearby villages of Mathura and adjoining districts on roaster basis. A total no. of 1273 gynecological cases, 2455 cases of medicine and 156 surgical cases were treated in clinical camps.
- Emergency clinical services were provided round the clock and manned by undergraduate and postgraduate students under supervision of teachers. During this year, 1362 emergency cases were treated.
- On World Veterinary Day, 101animals were vaccinated and treated for different ailments.
- Under Experiential Learning Programmes, hands on training were provided to students on feed production and UMMB preparation, broiler production, milk and meat production and on dairy management.
- Hatchery was started on 07 Jan. 2013, which is providing more than 80 percent hatchability. Interns were also imparted a hands-on training on various farm activities pertaining to poultry management and hatchery operations.
- During 2012-13, 5497.50 litres of milk was processed into value added products like, paneer, khoa, ice-cream, lassi and cream. In addition, value added meat products like meat nuggets, patties, blocks were also produced. A net profit recorded of Rs. 32,363.00 was till end of financial year.
- 56 students underwent an exhaustive internship training programme under departments of surgery, medicine, gynaecology, L.P.M, L.P.T and at poultry farm and semen processing laboratory within campus and BP section Lucknow, Zoological Park Kanpur, National Institute of Animal Welfare Faridabad, CIRG Makhdoom and 1 UP R&V SQN, NCC, Mathura.

- 34 students qualified ICAR Junior Research Fellowship out of these 25 students were offered JRF in Animal Science and 9 students in Veterinary Science.
- The University Library procured 364 books during the year under report and provided online journal facility through CeRA.
- AKMU is maintaining the University website (www.upvetuniv.edu.in) and providing internet connectivity to students, faculty, staff and other offices. Internet facility has been extended to all departments, boys hostels and girls hostels of university.
- English speaking classes were organized for BVSc & AH Ist year students.
- Campus Interviews were organized by Phoenix & Landmark groups and they selected 18 and 4 students respectively.
- Coaching classes were organized for ICAR and CSIR Junior Research Fellowships.

RESEARCH :

- 9 externally funded projects are in progress in various departments of College of Veterinary Science & AH.
- 7 University funded projects are running in different departments.
- Ongoing academic research in various departments resulted in submission of 20 M.V.Sc. thesis in College of Veterinary Science & AH and 7 M.Sc. thesis in College of Biotechnology.

EXTENSION :

- Phone-in programme through All India Radio was undertaken for direct benefit of livestock owners/farmers. In addition, booklets (04), folders (37) and leaflets (35) were prepared and published by Directorate of Extension containing valuable and handy information regarding animal health management and husbandry practices and were made available to livestock owners.
- Department of Veterinary and Animal Husba ndry Extension organized 10 training programmes /exposure visits in which 201 farmers and livestock keepers were benefited.
- Krishi Vigyan Kendra (KVK) organized 195 on-campus and 201 off-campus trainings benefiting 3278 and 7103 participants, respectively. It also organized frontline demonstrations on oilseeds, cereals, vegetables and fodder production, benefiting 326 farmers.
- Krishi Mela Evam Pashupradarshni was organized on 26.10.2012, in which more than 1000 farmers participated from Mathura and adjoining districts.
- Electronic media (radio talk, voice mail and TV programmes) was also put to use successfully to disseminate technical know – how for rural masses.
- 21 animal welfare and treatment camps and goshthi were organized in villages of the Mathura and adjoining districts.
- 1188 biological samples collected from clinical camps and processed, out of which 384 samples were found positive for various diseases.

SPORTS, CO-CURRICULAR AND EXTRACURRICULAR ACTIVITIES :

- All India Educational Tour was organized for IX semester BVSc & AH students. They visited COVSc Kolkata, Hyderabad, Bangalore, Mumbai and other places.
- North India Educational Tour was organized for VIII semester BVSc & AH students. They visited NDRI, NBGAR Karnal, CIRB, NRCE and Veterinary College Hisar, College of Veterinary Science, Palampur, Ludhiana and Amritsar.
- Annual Sport Meet was held on 5th & 6th March 2013, in which 41 sports events were organized.
- Annual Cultural Programme "Jhankar" was organized on 25th October, 2012. Before that literary events (quiz, debate, essay and extempore), fine art events (rangoli and painting) and cultural events were also organized.

- NCC Cadet Mr. Ram Kumar represented 1 UP R&V Sqn. on Republic Day held from 12th Dec. 2012 to Jan. 31st, 2013 at New Delhi. 24 and 36 cadets attended Army attachment camp at RVC Centre and College, Meerut and CATC-34 held at Veteri nary College, Mathura respectively. 30 cadets successfully cleared the NCC B-Certificate examination whereas, 17 cadets passed the NCC C-Certificate examination.
- Students participated in All India Veterinary College Competition at GBPUA&T, Pantnagar and bagged third place in Professional Quiz Competition.
- A team of 25 students represented university in All India Youth Festival, NDRI, Karnal- ' Reverie-2013' and won first prizes in essay writing, collage making and mime competition; second prizes in debate, skit, duet song, essay writing, antakshri, poem recitation, group song, extempore and shipwreck and also got best overall Hindi speaker award.
- Merit Certificates and a cash prize of Rs. 2000.00, 1500.00 and 1000.00 was awarded to three students in the 5th All India Zydus Drawing and Painting Competition 2012.

UNIVERSITY FARMS :

- Madhurikund farm produced 6638.79 quintals of sarson, wheat, jau, tarameera, jai and berseem and generated the revenue of Rs. 1.12 crores.
- Agricultural farm at Instructional Livestock Farm Complex (ILFC) produced 15364.60 quintals green fodder and 418.65 quintals dry fodder.
- At the Livestock farm at ILFC, 169751.00 litres of milk was produced and the revenue generated was Rs. 43.86 lacs.
- Receipt of Rs. 7,53,641.00 was generated from cultivation of jowar, til and barley from Pasture division of Veterinary College.
- At Poultry farm, 45 students were exposed to various farm activities like feeding, watering and management of broilers in 2 batches of 24 and 21 respectively and earned a profit of Rs. 19801.00 by raising 500 broilers. In addition, 4580 broiler chicks were reared in eight cycles under experiential learning unit, thus department generated a revenue of Rs 47,529.00. Department also generated a profit of Rs. 54,357.00 through sale of its products like eggs and live birds of wide variety.
- The fish seed production unit established under RKVY project distributed 7,31,279 fish seeds to farmers at nominal rates. A receipt of Rs. 76,785.00 was generated from sale of fish seed.

HUMAN RESOURCE DEVELOPMENT :

- Renowned scientists and experts from ICAR, State Agricultural Universities and different state Animal Husbandry departmentss assembled in the University in 23rd Annual Review Meet of AICRP on FMD and FMD Control Programme on September 14-15, 2012. Prof. K.M.L. Pathak, DDG (AS), ICAR; Shri G.C. Pati, Secretary, AHD, GOI and Dr. A.S. Nanda, Commissioner (AH), GOI and other dignitaries discussed and reviewed status of FMD in India, its diagnosis, treatment and prevention measures and the progress of FMD Control Programme.
- Two days, 11th Annual Convocation of National Academy of Veterinary Science (India) and National Seminar on "Livestock Policy for National Food and Nutritional Security in the Scenario of WTO Regulations" was organized at DUVASU, Mathura on November 2-3, 2012. In this, six technical sessions were arranged in which 17 invited lectures were delivered by eminent scientists.
- One day conference of UP Chapter of Indian Society of Veterinary Surgery (ISVS) was organized on 29th December, 2012 in which strong linkage between Institution and field veterinarians was stressed for betterment of livestock and livelihood security of farmers.
- One day "Workshop-cum-Training Programme" on CeRA (Consortium of Electronic Resources in Agriculture) was organized at DUVASU, Mathura on 21st January, 2013 wherein Dr. A.K. Mishra,

Co Principal Investigator of CeRA gave an online demonstration of CeRA and 102 students and scientists from DUVASU and CIRG, Makhdoom participated.

- During 2012-13, fifty seven faculty members attended trainings/workshop for the augmentation of their professional competence.
- 45 faculty members attended different conferences/symposia/seminars organized in different institutes in India and presented their findings.

FINANCE AND BUDGET :

- University received Rs. 1990.90 lacs and Rs. 6955.00 lacs under plan and non plan budget respectively, from the state government.
- State Govt. provided Rs. 328.00 lacs for construction work of Colleges of LPT, Fisheries and Vice-Chancellor's Residence etc.
- Rs. 123.815 lacs were sanctioned for electricity, roads, pipeline, overhead water tank and repairing of houses by state government.
- Indian Council of Agricultural Research, New Delhi provided financial assistance of Rs. 400.00 lacs under strengthening and development grant for education.
- University received Rs. 174.00 lacs from ICAR, New Delhi for renovation, maintenance and upgradation of university buildings.

INFRASTRUCTURE ADDED :

- With the grants received from ICAR, Milk Processing Plant, New Girls Hostel, Squash Court, Lab Animal House, Hatchery and 2 Examination Halls-cum-Lecture Theatres were constructed and inaugurated. Anatomy Block, Seed Processing Plant and Seed Godown was also renovated with the grant received from ICAR.
- Under RKVY project, Fish Seed Production Unit and Pashu Gyan Chaupal were constructed, inaugurated and dedicated in the service of livestock owners and farmers added to the infrastructure of the university.

AWARD AND RECOGNITION :

- Two Scientists were conferred Young Scientists Awards from their Scientific Associations.
- Four Scientists received Best Paper Presentation Award in the Annual Conventions of Scientific Societies.
- One Scientist was elected as executive member in IMSA conference held at Hyderabad.
- Two teachers were awarded ICAR sponsored Best Teacher award for the year 2012 in senior and junior categories.

OTHER HIGHLIGHTS AND ACTIVITIES :

- University celebrated Ambedkar Jayanti, World Veterinary Day, Independence Day, Gandhi Jayanti, Pt. Deendayal Upadhyaya Jayanti, University Foundation Week and the Republic Day with great zeal and fervor.
- University successfully conducted Pre-Veterinary Test 2012 for admission to B.V.Sc. & A.H. course and the Post Graduate Entrance Test 2012 for admission to various Post Graduate programmes in the University.

कार्यकारी सारांश

उ.प्र. सरकार द्वारा 25 अक्टूबर 2001 को उ.प्र. शासन के अधिनियम क्रमांक 27/2001 के अंतगर्त उ.प्र. पंडित दीन दयाल उपाध्याय पशु चिकित्सा विज्ञान विश्वविद्यालय एवं गौ अनुसंधान संस्थान, मथुरा की स्थापना की गयी जिसका मुख्य उद्देश्य पशुधन उत्पादन व उनकी उत्पादकता को बढ़ाकर एकीकृत शिक्षण, शोध व प्रसार कार्यक्रमों के सुनियोजित प्रयोग द्वारा पशु स्वास्थ्य में इजाफा करना था और इसी लक्ष्य को मूर्तरूप देखने हेतु पशु चिकित्सा एवं पशु विज्ञान महाविद्यालय को इस विश्वविद्यालय के मुख्य संघटक का स्थान दिया गया । विश्वविद्यालय के पास एक कृषि विज्ञान केन्द्र के साथ-साथ 782.34 एकड़ भूमि मुख्य परिसर में तथा 1400 एकड़ भूमि मुख्य परिसर से 20 किमी. दूर स्थित माधुरीकुण्ड प्रक्षेत्र पर उपलब्ध है। वर्तमान में विश्वविद्यालय के अंतर्गत दो संकाय कार्यरत हैं । प्रथम, पशु चिकित्सा एवं पशु स्वास्थ्य महाविद्यालय एवं द्वितीय, जैव प्रौद्योगिकी महाविद्यालय । विश्वविद्यालय के अधिनियम के तहत् तीन अन्य परिकल्पित घटक महाविद्यालय - मत्स्य विज्ञान महाविद्यालय, पशुधन उत्पाद प्रौद्योगिकी महाविद्यालय तथा पशु उद्योग एवं व्यवसाय प्रबंधन महाविद्यालय के निकट भविष्य में शीघ्र ही कार्यरत् हो जाने की आशा है ।

वर्तमान में प्रस्तुत सूचना की अवधि (2012-2013) में शैक्षणिक परिषद् की छह बैठकें आयोजित की गयी ।

शिक्षण कार्य :

- दीनदयाल उपाध्याय वेटेरिनरी विश्वविद्यालय में अभी दो महाविद्यालय कार्यरत हैं, वे हैं - 1. पशु चिकित्सा विज्ञान एवं पशुपालन महाविद्यालय एवं 2. जैव प्रौद्योगिकी महाविद्यालय । तीन और महाविद्यालय निकट भविष्य में ही जो शुरू होने वाले हैं, वे हैं - 1. पशुधन उत्पादन तकनीकी महाविद्यालय, 2. मत्स्य विज्ञान महाविद्यालय तथा 3. पशु उद्योग एवं व्यापार प्रबन्धन महाविद्यालय ।
- वर्ष 2012-13 के दौरान पशु चिकित्सा विज्ञान एवं पशुपालन महाविद्यालय में क्रमश: 67, 23 और 13 विद्यार्थी बी0 वी0 एससी0 एण्ड ए0 एच0, एम0 वी0 एससी0, एवं पीएच0 डी0 में प्रविष्ट हुए जबकि 56 विद्यार्थियों ने स्नातक एवं 22 विद्यार्थियों ने स्नातकोत्तर परीक्षा उर्त्तीण की ।
- जैव प्रौद्योगिकी महाविद्यालय में 3 विद्यार्थियों ने एम0 एससी0 में प्रवेश लिया एवं 7 ने अपनी परीक्षा उर्त्तीण की ।
- वैटेरिनरी फार्मासिस्टों एवं पशुधन प्रसार अधिकारी के डिप्लोमा कोर्स को वर्ष 2013-14 से शुरू करने की अनुशंखा की गई है ।
- टीचिंग वेटेरिनरी क्लीनिकल कॉम्पलेक्स में बड़े एवं छोटे जानवरों के आपरेशन हेतु अत्याधुनिक उपकरण उपलब्ध हैं । सतीक्षण निदान संपादनहेतु श्रेष्ठ उपकरण, संज्ञाहरण एवं शल्य क्रिया हेतु एवं अन्त: प्रशिक्षु छात्रों के लिए कम्प्यूटर युक्त शिक्षणशाला, अन्त: रोगी परिचर्या हेतु सघन चिकित्सा उपचार शाला - सभी बड़े और छोटे जानवरों के लिए टी0 वी0 सी0 सी0 के अन्त:रोगी विभाग में उपलब्ध हैं ।
- वर्ष 2012-13 के दौरान 8574 रोगी पशुओं का उपचार किया गया । 1610 नमूनों का परीक्षण करने के उपरान्त उपचार सुझाव दिये गये । इन सेवाओं से टी0 वी0 सी0 सी0 को कुल 4 लाख 23 हजार 6 सौ 25 रूपये की राजस्व प्राप्ति हुई ।
- मथुरा शहर और आसपास के गाँवों और जिलों में रोस्टर के आधार पर चिकित्सा शिविर और चल पशु चिकित्सालय विस्तार सेवा प्रदान किया गया । इसमें कुल 1273 मादा पशु रोगियों, 2455 अन्य रोगी पशुओं एवं 156 शल्य चिकित्सा संबंधी रोगों का सफलतापूर्वक उपचार किया गया।
- स्नातक एवं स्नातकोत्तर छात्रों द्वारा संचालित एवं सुयोग्य शिक्षकों द्वारा परिवर्धित 24 घण्टे चलने वाले आकस्मिक चिकित्सा सेवा के दौरान इस वर्ष कुल 1362 रोगी पशुओं का सफल उपचार किया गया ।
- इस वर्ष विश्व पशु चिकित्सा दिवस के दिन 101 पशुओं का टीकाकरण एवं अन्य रोगों का इलाज किया गया ।
- प्रायोगिक प्रशिक्षण योजना के दौरान पशु चारा उत्पादन, यूरिया, मिनरल, मोलैशेज, ब्रिक्स बनाने, ब्रायलर उप्तादन, दूध व माँस उत्पादन एवं डेयरी प्रबन्धन का विद्यार्थियों को व्यवहारिक ज्ञान दिया गया ।
- इस वर्ष 7 जनवरी 2013 से अण्डे से चूजे निकालने का कार्य शुरु किया गया । इसमें 80 प्रतिशत अण्डे से चूजे प्राप्त किये गये । अन्त: प्रशिक्षु छात्रों को मुर्गी पालन एवं प्रबंधन व अण्डे सेचन संबंधित विषयों का व्यवहारिक एवं सम्यक ज्ञान प्रदान किया गया ।
- वर्ष 2012-13 के दौरान 5497.50 लीटर दूध से पनीर, खोआ, आइसक्रीम, लस्सी एवं क्रीम जैसे दूध से परिवर्धित वस्तुओं का उत्पादन हुआ । सामिष परिवर्धित वस्तुओं जैसे कि मीट नगेट, पेटीज, ब्लाक्स आदि भी बनाये गये । इन उत्पादों के विपणन से 32363 रू0 का शुद्ध मुनाफा इस वित्तीय वर्ष के अंत तक प्राप्त हुआ ।
- इस वर्ष 56 विद्यार्थियों ने सघन अन्त: पशु चिकित्सक प्रशिक्षण योजना के दौरान इस विश्वविद्यालय के शल्य चिकित्सा विभाग, औषध विज्ञान विभाग, मादा पशुरोग विज्ञान विभाग, एल0 पी0 एम0, एल0 पी0 टी0 व कुक्कुट फार्म और वीर्य संसाधन प्रयोगशालाओं में व लखनऊ के बी0 पी0 सेक्शन, कानपुर के प्राणि विज्ञान प्रक्षेत्र, नेशनल एनिमल वेलफेयर इन्सटीट्यूट फरीदाबाद, सी0 आई0 आर0 जी0 मखदूम, उ0 प्र0 आर0 वी0 सी0 स्कवाड्रन एन0 सी0 सी0 मथुरा का सहयोग रहा ।

- इस वर्ष 34 विद्यार्थियों ने आई0 सी0 ए0 आर0 की जे0 आर0 एफ0 प्रतियोगी परीक्षा में सफलता हासिल की । इसमें से 9 ने पशु चिकित्सा विज्ञान की और 25 ने पशु पालन विज्ञान के विभिन्न विभागों में प्रवीण शिक्षा हेतु आवेदन किया ।
- इस वर्ष वि0 वि0 की पुस्तकालय में 364 नई पुस्तकें प्राप्त की गईं । इसके अलावा विद्यार्थियों को 'ऑन लाइन' सर्विस भी विभिन्न जर्नलों के अवलोकन हेतु सेरा द्वारा प्रदान किया गया ।
- ए0 के0 एम0 यू0 ने इस वि0 वि0 की वेबसाइट (www.upvetuniv.edu.in) बना रखी है और यह ही विद्यार्थियों, शिक्षकों और अन्य कर्मचारियों को विभिन्न विभागों में इण्टरनेट सेवा प्रदान करते हैं । यह इन्टरनेट सेवा वि0 वि0 के सभी विभागों को व छात्रावासों को (लड़के/लड़कियों) उपलब्ध हैं ।
- बी0 वी0 एस0 सी0 के विद्यार्थियों के लाभार्थ अंग्रेजी भाषा बोलने की शिक्षा भी दी गई ।
- वि0 वि0 प्रांगण में कैम्पस साक्षात्कार प्रक्रिया द्वारा फोनिक्स व लैण्डमार्क समूह द्वारा 18 और 4 विद्यार्थियों का चयन किया गया ।
- आई0 सी0 ए0 आर0 एवं सी0 एस0 आई0 आर0 की जूनियर फैलोशिप में चयन हेतु कोचिंग क्लास भी चलाई गयीं ।

अनुसंधान :

- पशु चिकित्सा विज्ञान एवं पशुपालन महाविद्यालय में अभी 9 वाह्य एजेन्सियों द्वारा वित्तीय सहायता प्राप्त योजनाएँ चल रही हैं ।
- 7 योजनाएँ वि0 वि0 द्वारा भी अनुमोदित हैं ।
- विभिन्न विभागों में चलने वाले अनुसंधान कार्यों पर आधारित विषयों पर 20 एम0 वी0 एससी0 एवं 7 एम0 एससी0 (बायोटेक) शोधग्रंथ पूरे किये ।

प्रसार :

- आल इण्डिया रेडियो प्रसारण के द्वारा 'फोन इन' प्रोग्राम से पशुपालकों को लाभान्वित किया गया । इसके अलावा 4 बुकलेट, 37 फोल्डर और 35 लीफलेट भी किसानों और पशुपालकों की भलाई के लिए पशु स्वास्थ्य एवं उन्नत पशुपालन के अमूल्य सुझावों और निर्देशों सहित प्रसार निदेशालय द्वारा छपवाये और बंटवाये गये ।
- पशु चिकित्सा एवं पशुपालन प्रसार विभाग ने 10 ट्रेनिंग योजनाओं/प्रदर्शनों के द्वारा 201 किसानों और पशुपालकों को लाभान्वित किया ।
- कृषि विज्ञान केन्द्र ने 195 परिसर पर और 201 परिसर से बाहर प्रशिक्षण आयोजित किये, जिनमें क्रमशः 3278 और 7103 लोगों ने भाग लिया । अग्रिम पंक्ति प्रदर्शन द्वारा तेलहन, अनाज, सब्जी और चारा उत्पादों पर भी चर्चा और सुझाव दिये गये । जिससे 326 किसानों को लाभ मिला ।
- गत 26/10/12 को आयोजित कृषि मेला एवं पशु प्रदर्शनी में मथुरा और आसपास के जिलों से आये 1000 से अधिक किसानों ने भागीदारी ली और उससे लाभ उठाया ।
- ग्रामीण जनता की भलाई के लिए इलेक्ट्रोनिक मीडिया (रेडियो/फोन से बातचीत/टीवी प्रोग्राम) का भी ज्ञान विज्ञान प्रसारण हेतु पूर्ण उपयोग किया गया ।
- मथुरा एवं आसपास के जिलों के ग्रामीण अंचल में रहने वालों की भलाई के लिए 21 एनिमल वेलफेयर कैंप, उपचार कैंप और गोष्ठियाँ आयोजित की गईं ।
- क्लीनिकल कैंपों से एकत्रित किये गये 1188 जैविक नमूनों की जाँच एवं परख में 384 नमूनों को विभिन्न रोगों से ग्रसित पाया गया ।

खेल, सह पाठ्यक्रम एवं अतिरिक्त पाठ्यक्रम क्रियाएं :

- आल इण्डिया एजूकेशनल टूर के दौरान बी0 वी0 एससी0 के 9वें सेमेस्टर के छात्रों ने कलकत्ता, हैदराबाद, बैंगलूरू, मुम्बई और अन्य पशु चिकित्सा महाविद्यालयों का भ्रमण किया ।
- 8वें सेमेस्टर के बी0 वी0 एससी0 के छात्रों ने उत्तर भारत के शैक्षिक टूर के दौरान एन0 डी0 आर0 आई0 व एन0 बी0 जी0 ए0 आर0 करनाल, सी0 आई0 आर0 वी0, एन0 आर0 सी0 ई0 तथा वेटेरिनरी कालेज हिसार, वेटेरिनरी कालेज पालमपुर, लुधियाना एवं अमृतसर का भ्रमण किया।
- 5 व 6 मार्च 2013 को वार्षिक खेल प्रतियोगिता आयोजित हुई जिसमें 41 खेलों का समावेश किया गया ।

- वार्षिक सांस्कृतिक कार्यक्रम 'झंकार' का आयोजन 21 अक्टूबर 2012 को हुआ । इससे पूर्व साहित्यिक गतिविधियाँ (क्विज, वाद विवाद, निबंध लेखन और तत्कालिक भाषण प्रतियोगिता) ललित कला विधि (रंगोली व पेटिंग) और अन्य सांस्कृतिक कार्यक्रमों का आयोजन हुआ ।
- श्री रामकुमार , एन0 सी0 सी0 कैडेट ने 1 उ0 प्र0 आर0 एण्ड वी0 स्क्वाड्रन का प्रतिनिधित्व करते हुए 12 दिसंबर 2012 से 31 जनवरी 2013 तक भारतीय गणतंत्र दिवस पर आयोजित परेड, नई दिल्ली में भाग लिया । 24 छात्रों ने आर्मी अटैचमेन्ट कैंप आर0 वी0 सी0 सेन्टर एवं कालेज मेरठ में भाग लिया । 36 कैडेट्स ने सी0 ए0 टी0 सी0 - 34 में मथुरा वेटेरिनरी कालेज में भाग लिया । 30 कैडेटों ने 'बी' सर्टिफिकेट और 17 ने 'सी' सर्टिफिकेट की परीक्षा उर्त्तीण की।
- विद्यार्थियों ने जी0 बी0 पंत यूनिवर्सिटी, पंतनगर में अखिल भारतीय वेटेरिनरी कालेज कंपटीशन में भाग लेते हुए प्रोफेशनल क्विज कंपटीशन में तीसरा स्थान प्राप्त किया ।
- 25 विद्यार्थियों के दल ने अखिल भारतीय युवा मेला - एन0 डी0 आर0 आई0 करनाल के 'रेवरी-2013' कार्यक्रम में भाग लिया । इन्होंने निबन्ध लेखन, कोलाज बनाने और मूक-प्रर्दशन में प्रथम स्थान प्राप्त किया । वाद विवाद, स्किट, दोगाना, निबन्ध लेखन, अंताक्षरी, कविता पाठ, समूह गान, तत्कालिक भाषण व पोत मंग में द्वितीय स्थान प्राप्त किया । समग्र हिन्दी वक्ता का सर्वश्रेष्ठ पुरूस्कार भी इन्हें ही मिला ।
- वर्ष 2012 के 5वीं आल इण्डिया जाइडस ड्राइंग एवं पेटिंग कंपटीशन - 2012 का 2000 रू0, 1500 रू0 एवं 1000 रू0 का नकद पुरूस्कार एवं प्रशस्ति पत्र भी इन्होनें हासिल किया ।

विश्वविद्यालय फार्म प्रक्षेत्र :

- माधुरी कुण्ड फार्म ने 6638.79 क्विंटल सरसों, गेंहूँ, जौ, तारामेरा, जई और बरसीम उगा कर 1.12 करोड़ रू0 अर्जित किया ।
- आई0 एल0 एफ0 सी0 के फार्म पर 15364.60 क्विंटल हरा चारा और 418.65 क्विंटल सूखा चारा पैदा हुआ ।
- आई0 एल0 एफ0 सी0 के पशुधन फार्म पर 169751 लीटर दूध का उत्पादन हुआ, जिससे 43.86 लाख रू0 का वित्त प्राप्त हुआ ।
- वेटेरिनरी कालेज के चारागाह खण्ड से ज्वार, तिल और जौ उगा कर 7,53,641 रू0 की आमदनी हुई ।
- कुक्कुट फार्म पर 45 छात्रों को 24 व 21 के समूह में फार्म प्रबंधन (चारा दाना पानी देना) सिखाते हुए 500 ब्रायलर तैयार करके 19801 रू0 का मुनाफा कमाया गया । इसके अलावा 4580 ब्रायलर चूजों को प्रयोगिक प्रशिक्षण के दौरान 8 साइकिलों में पाला गया और इससे 47529 रू0 का वित्त अर्जित किया गया । इस विभाग को मुर्गी एवं अण्डे की बिक्री से 54,357 रू0 का शुद्ध मुनाफा हुआ ।
- मतस्य बीज उत्पादन इकाई जो कि आर0 के0 वी0 वाई0 परियोजना ने स्थापित किया है, ने 7,31,279 मतस्य बीजों को किसानों को नगण्य भाव पर बेचा । मतस्य बीज के इस प्रकार की बिक्री से 76,785 रू0 के वित्त का सृजन हुआ ।

मानव संसाधन विकास :

- फुट एण्ड माउथ के ए0 आई0 सी0 आर0 पी0 एवं फुट एण्ड माउथ डिजीज के रोकथाम की परियोजना की 23वीं वार्षिक समीक्षा हेतु आई 0 सी0 ए0 आर0 के प्रख्यात वैज्ञानिकों एवं विशेषज्ञों, राज्य के कृषि विश्वविद्यालयों एवं विभिन्न राज्यों के पशु पालन विभाग के अधिकारियों का सम्मेलन 14-15 सितम्बर 2012 को आयोजित किया गया । प्रो0 के0 एम0 एल0 पाठक, डी0 डी0 जी0 (एनिमल साइंस) आई 0 सी0 ए0 आर0, श्री जी0 एस0 पाती, सचिव प0 पा0 विभाग - भारत सरकार एवं डा0 ए0 एस0 नंदा, आयुक्त (प0 पा0) भारत सरकार तथा अन्य गणमान्य अधिकारियों ने भारत में होने वाली फुट एण्ड माउथ डिजीज की स्थिति का पूरा जायजा लिया और इसके निदान, उपचार एवं रोकथाम पर विचार विमर्श किया । इन्होंने फुट एण्ड माउथ के रोकथाम की परियोजनाओं की भी विवेचना की
- नेशनल एकेडेमी आफ वेटेरिनरी साइंस की 11वीं दीक्षान्त समारोह एवं 'नये डब्लू0 टी0 ओ0 के कानूनों के परिदृश्यों में राष्ट्रीय खाद्य एवं पोषण सुरक्षा के लिए पशुधन नीति निर्धारण' विषय पर एक राष्ट्रीय सेमिनार 2-3 नवम्बर 2012 को दुवासु मथुरा में आयोजित किया गया । इसके 6 तकनीकी सत्रों में 17 आमंत्रित शोध पत्र प्रतिष्ठित वैज्ञानिकों द्वारा प्रस्तुत किये गये ।
- इण्डियन वेटेरिनरी सर्जरी सोसायटी के उ0 प्र0 चैप्टर का एक दिवसीय सम्मेलन 29 दिसम्बर 2012 को हुआ । इसमें किसानों के जीविका सुरक्षा हेतु उत्तम पशुपालन व्यवसाय के लिए संस्थानों और देश प्रदेश के पशु चिकित्सकों में उचित तालमेल व्यवस्था पर जोर दिया गया ।
- विश्वविद्यालय में 21 जनवरी 2013 को सेरा का एक दिवसीय कार्यशाला एवं सह प्रशिक्षण कार्यक्रम आयोजित हुआ । इसमें सेरा के डा0 ए0 के0 मिश्रा ने सेरा का आन लाइन प्रदर्शन किया । इस कार्यशाला में 102 लोगों ने भाग लिया, जिसमें दुवासु के छात्र एवं शिक्षक तथा सी0 आई0 आर0 जी0 के वैज्ञानिक सम्मिलित हैं ।

- 2012–13 के दौरान 57 संकाय सदस्यों ने अपनी व्यावसायिक गुणवत्ता में वृद्धि हेतु विभिन्न प्रशिक्षण/कार्यशालाओं में भाग लिया ।
- 45 संकाय सदस्यों ने विभिन्न संस्थानों में आयोजित सम्मेलनों/संगोष्ठियों/सेमिनारों में भाग लेकर अपने शोध पत्र प्रस्तुत किये ।

वित्त एवं बजट :

- वि0 वि0 को राज्य सरकार से 1990.90 लाख रू0 प्लान व 6955.00 लाख रू0 नान प्लान बजट के लिए प्राप्त हुआ ।
- राज्य सरकार ने एल0 पी0 टी0 कालेज, फिशरीज कालेज एवं कुलपति आवास के निर्माण हेतु 328.00 लाख रू0 प्रदान किया ।
- राज्य सरकार ने बिजली, सड़क, पाइप लाइन व पानी के टैंक के निर्माण एवं मकानों की मरम्मत हेतु 123.815 लाख रू0 की स्वीकृति प्रदान की।
- आई0 सी0 ए0 आर0 नई दिल्ली ने 400.00 लाख रू0 की वित्तीय सहायता शिक्षा के सुदृढ़ीकरण एवं विकास हेतु प्रदान किया ।
- वि0 वि0 को आई0 सी0 ए0 आर0 से 174.00 लाख रूपये इसके भवनों के नवीकरण, रख रखाव और उन्नयन हेतु प्राप्त हुए हैं ।

परिवर्धित संसाधन :

- आई0 सी0 ए0 आर0 के अनुदान से दूध प्रसंस्करण संयंत्र, नवीन कन्या छात्रावास, स्क्वैश कोर्ट, प्रयोगिक पशु गृह, हैचरी और 2 व्याख्यान एवं परीक्षा कक्ष तैयार कराके उनका उद्घाटन करवाया गया । एनाटामी ब्लाक, बीज प्रसंस्करण संयंत्र एवं बीज गोदाम का नवीनीकरण भी इसी अनुदान से संभव हुआ ।
- आर0 के0 वी0 वाई0 परियोजना में मतस्य बीज उत्पादन इकाई एवं पशु ज्ञान चौपाल बनवाये और उद्घाटित करके पशु पालकों और किसानों की सेवा में समर्पित करते हुए वि0 वि0 संसाधन में परिवर्धन किया गया ।

पुरूस्कार एवं सम्मान :

- दो वैज्ञानिकों को उनकी वैज्ञानिक सोसाइटी द्वारा यंग साइंटिस्ट अवार्ड दिया गया ।
- चार वैज्ञानिकों को उत्तम शोध पत्र पढ़ने का पुरूस्कार उनकी सोसाइटी द्वारा दिया गया ।
- एक वैज्ञानिक को इम्सा कान्फ्रेन्स हैदराबाद में इसके कार्यकारी सदस्य के रूप में मनोनीत किया गया ।
- दो शिक्षकों को आई0 सी0 ए0 आर0 की तरफ से 2012 की सीनियर व जूनियर कैटेगिरी का 'सर्वोत्तम शिक्षक' पुरूस्कार दिया गया ।

अन्य झलकियाँ एवं कार्य कलाप :

- वि0 वि0 में अम्बेडकर जयंती, विश्व पशु चिकित्सा दिवस, स्वाधीनता दिवस, गाँधी जयन्ती, पं0 दीन दयाल उपाध्याय जयन्ती, वि0 वि0 स्थापना सप्ताह, गणतंत्र दिवस आदि बड़े ही गौरवपूर्ण एवं शालीनता से मनाये गये, जिसमें सभी ने बढ़-चढ़ कर अपनी खुशी जाहिर की ।
- वि0 वि0 ने 2012 की प्री वेटेरिनरी टेस्ट बी0 वी0 एससी0 में प्रवेश हेतु और पी0 जी0 एन्ट्रेन्स टेस्ट 2012 में वि0 वि0 के पी0 जी0 कक्षाओं में प्रवेश हेतु सफलता पूर्वक संपादन किया ।

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 motivate them to adopt animal husbandry, poultry, fishery and related vocations as an engine of economic growth and social empowerment ;
- Social empowerment of women to become "knowledgeable stake holders" and giving them economic identity;
- Interface Industry and stakeholders in the newer perspectives of open global market;
- Ensure enhanced production from rural and urban livestock through effective disease surveillance and diagnosis, health care and vaccination programme; and
- 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, Teaching 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.

I. INTRODUCTION

Govt. of U.P. established U.P. Pandit Deen Dayal Upadhyaya Pashu-Chikitsa Vigyan Vishwavidyalaya 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 & AH, Mathura as its main constituent with all its moveable and immovable assets including all buildings of Veterinary College, residential complex, hostels, Dairy Farm, Poultry 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, University offices were initially located in Administrative block of Veterinary College, however, after inauguration of Administrative Block of University by His Excellency Shri T.V. Rajeshwar, Hon'ble Chancellor and Governor of U.P. on February 24, 2009, all central offices of University were shifted to new building. New campus with newly constructed houses has been occupied by the employees and teachers. The newly constructed College of Biotechnology building was inaugurated by Sh. John George, Advisor, DBT, Ministry of Science and Technology, Government of India in the august presence of Prof. M.L. Madan, the Hon'ble Vice Chancellor, Dr. Lal Krishna, ADG (Animal Health) ICAR, New Delhi and other officers of the University on September 25, 2009.

Government permitted the University to start College of Biotechnology under self-finance scheme. Accordingly, the 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 have also been 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 University due to financial constraints and non-sanctioning of any teaching or other positions by the Govt.

University Administrative Block

II. 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. Various bodies and authorities of the University exercise their powers at various levels to coordinate and regulate administration, education, research and extension activities.

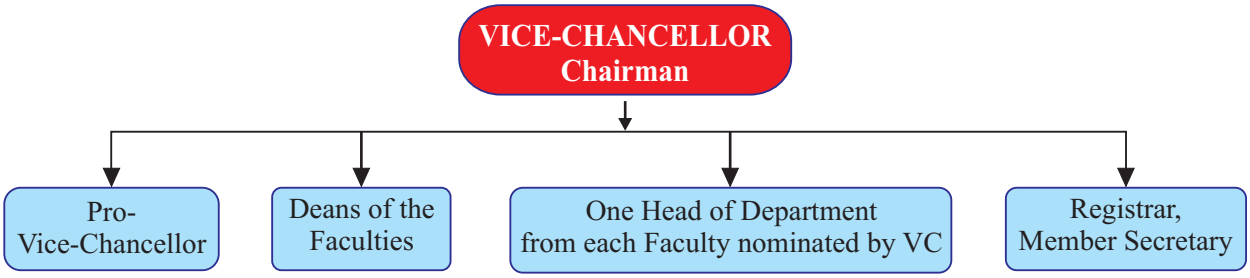
A. AUTHORITIES OF THE UNIVERSITY :

1. Executive Council

Executive Council (EC) of the University is the main executive body empowered to monitor, supervise and control the University affairs. 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..

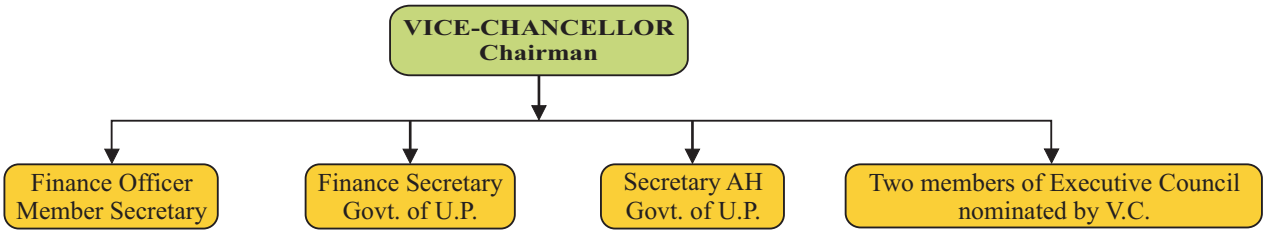
2. Academic Council

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 :



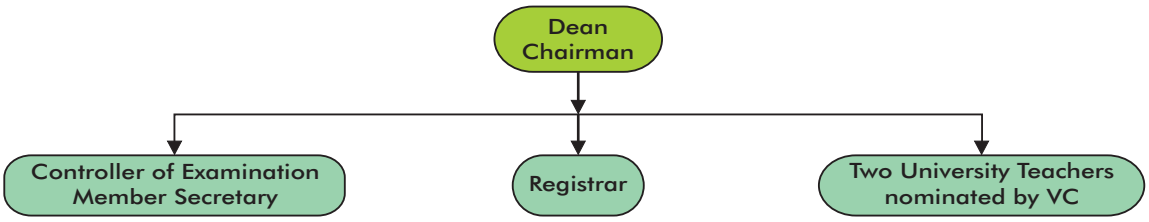
3. Finance Committee

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 :

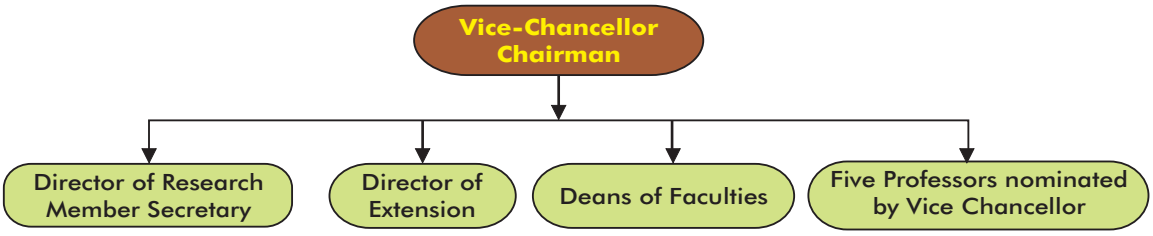


5. Board of Faculty

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.

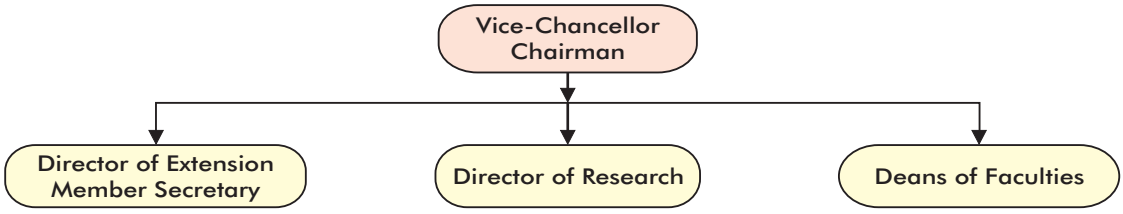
6. Research Advisory Committee

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 :



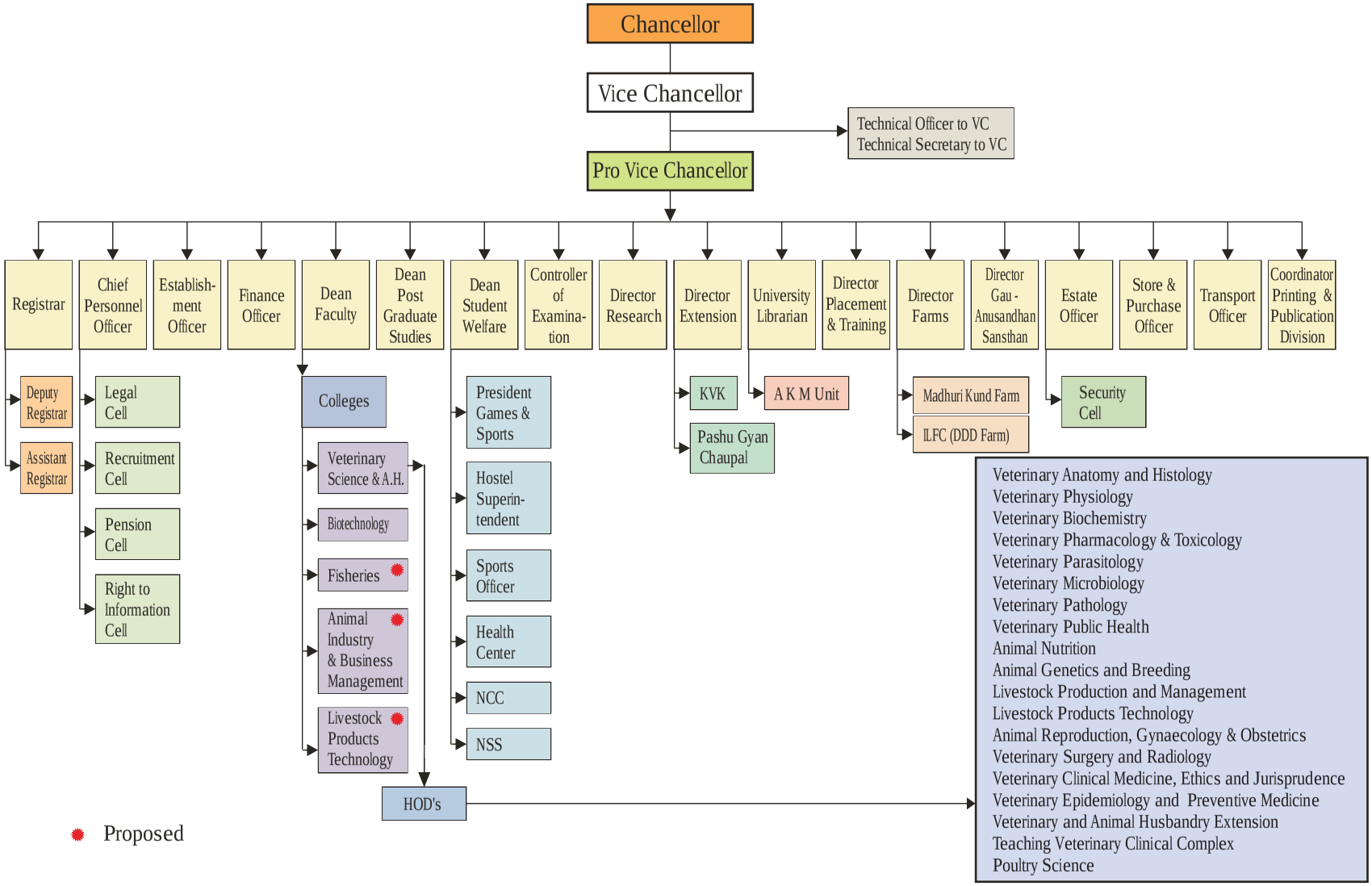
7. Extension Advisory Committee

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 FROM APRIL 2012 TO MARCH 2013

S.No.	Authority	Meeting No.	Date	Venue
1.	Academic Council	38	02-07-2012	DUVASU-Mathura
2.	Academic Council	39	16-08-2012	-----do-----
3.	Academic Council	40	21-09-2012	-----do-----
4.	Academic Council	41	30-09-2012	-----do-----
5.	Academic Council	42	07-01-2013	-----do-----
6.	Academic Council	43	24-01-2013 30-01-2013	-----do-----

C. OFFICERS OF THE UNIVERSITY (2012-2013)

S.No.	Designation/ Position	Name of Officers	Date	
			From	To
1.	Chancellor	His Excellency Shri. B.L. Joshi, Governor of Uttar Pradesh		
2.	Vice Chancellor	Dr. A.P. Singh	Feb 08, 2010	Feb 07, 2013
		Dr. Rajesh Nigam (officiating)	Feb 08, 2013	Feb 19, 2013
		Dr. A.C. Varshney	Feb 20, 2013	Continuing
3.	Registrar	Dr. Bharat Singh (Officiating)	July 01, 2011	Continuing
4.	Finance Officer	Ms. Laxmi Mishra	Dec 20, 2011	July 09, 2012
		Shri A.C. Singh	July 10, 2012	Continuing
5.	Controller of Examination	Dr. Atul Saxsena (Officiating)	Mar. 21, 2012	Aug 28,2012
		Dr. Daya Shankar (Officiating)	Aug 29, 2012	Continuing
6.	Dean, College of Veterinary Science and Animal Husbandry	Dr. Satish K. Garg	June 30, 2009	Continuing
7.	Dean, College of Biotechnology	Dr. Kranti Dev (Officiating)	January 2011	Feb. 4, 2013
		Dr. Rajesh Nigam (Officiating)	Feb 5, 2013	Continuing
8.	Dean Post Graduate Studies	Dr. A.K. Srivastva (Officiating)	Dec 01, 2009	Jan 14, 2013
		Dr. P.K. Shukla (Officiating)	Jan 15, 2013	Continuing
9.	Dean Student Welfare	Dr. M.M. Farooqui (Officiating)	Dec 01, 2005	Nov 19, 2012
	I/C Student Welfare	Dr. A.K. Madan (Officiating)	Nov 20, 2012	Continuing
10.	Director of Research	Dr. Atul Saxsena (Officiating)	Nov 24, 2009	Continuing
11.	Director of Extension	Dr. Sarvjeet Yadav (Officiating)	Nov 24, 2009	Continuing
12.	University Librarian	Dr. Basanti Bist (Officiating)	Sept 23,2011	Aug 28,2012
		Dr. Ajay Prakash(Officiating)	Aug 29,2012	Continuing

III. TEACHING

Presently following two colleges in the university are running the teaching programmes:

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

Following three other colleges are going to start in near future.

1. College of Fisheries
2. College of Animal Industry and Business Management
3. College of Livestock Products Technology

In addition to the above, one more Veterinary College has been sanctioned by Government of Uttar Pradesh which will be started in eastern part of the state to cater to the requirements and aspirations of desirous candidates to seek admission in Veterinary Colleges.

COLLEGE OF VETERINARY SCIENCE & ANIMAL HUSBANDRY

College of Veterinary Science & Animal Husb andry was established in Uttar Pradesh in 1947 with the mandate to generate trained manpower for catering to the requirements of society in terms of qualified veterinarians. College carries out teaching, research and extension education programmes pertaining to livestock health and production. With the passage of time, the college attained newer heights and became one of the premier Veterinary Colleges of India and ultimately resulting in establishment of Veterinary University in 2001. The College of Vete rinary Science & Animal Husbandry is running three academic programmes:

1. Bachelor of Veterinary Science and Animal Hu sbandry (B.V. Sc. & A.H.) (as per Veterinary Council of India regulation)
2. Masters of Veterinary Science (M.V.Sc)
3. Doctor of Philosophy (Ph. D)

Presently, college has good faculty strength and all the faculty members are well qualified. Besides contributing in teaching, research and extension programmes of the College, they are also shouldering the responsibility of managing the university affairs and activities and also running College of Biotechnology. In addition, very shortly Two Y ears Diploma Courses for Veterinary Pharmacists and Livestock Extension Officers are also going to start from the academic session 2013-14 under RKVY funded project to meet the growing demand of trained Veterinary Pharmacists and well trained competent persons to educate the common man, farmers and villagers about the animal health, production and to strengthen the Veterinary services in the state.

Admissions and turn out of students during 2012 13

Degree Programme	Intake Capacity	Students Admitted			Student Turn Out		
		Male	Female	Total	Male	Female	Total
B.V. Sc. & A.H.	78	58	09	67	49	07	56
M.V.Sc.	43	19	04	23	19	03	22
Ph.D	14	11	02	13	-----	-----	----

COLLEGE OF BIOTECHNOLOGY

College of Biotechnology was started in 2010-11 to impart postgraduate degree in biotechnology so as to generate human resource to undertake research.

The college has a very large and beautiful building with spacious laboratories and classrooms. Laboratories have been equipped with modern equipments and instruments. To ensure quality of teaching and research, beside core faculty from College of Veterinary Science, the University has signed MOU with Central Institute for Research on Goat, (CIRG) Makhdoom, National Dairy Research Institute (NDRI), Karnal and Indian Veterinary Research Institute (IVRI), Izatnagar to facilitate seamless knowledge sharing.

Admissions and turn out of students during 2012 13

Degree Programme	Capacity	Students Admitted			Student Turn Out		
		Male	Female	Total	Male	Female	Total
M.Sc. Biotechnology	25	1	2	3	1	6	7

ACTIVITIES OF COLLEGE OF VETERINARY SCIENCE & ANIMAL HUSBANDRY

Clinical Services

Teaching Veterinary Clinical Complex (TVCC): The TVCC, the erstwhile Kothari Veterinary Hospital, is a multi-specialty veterinary clinic and equipped with modern facilities. It is a place where hands-on training for disease diagnosis and treatment is imparted to students. It also provides quality clinical services to farmers and animal owners.

The TVCC has well equipped operation theaters for small and large animals, radiology unit having 100 mA mobile X-ray machine, 500 mA fixed X-ray machine, CR System - Digital Radiography, Portable Ultrasound, Inhalation anaesthesia machine, Oxygen concentrator, 9" C-arm Image Intensifier, Operating microscope, Multiparameter Patient Monitor, Endoscopy Unit, Flame Photometer, Semi-auto analyzer, Dry slide Auto-analyzer, Spectrophotometer, Urine analyzer, Blood Auto Analyzer, Computer assisted teaching room etc. During the year under report, an operation theatre for small animals has been renovated in addition to the creation of facilities for small Animal Dentistry Unit.

Diagnostic Laboratory: The disease diagnostic laboratory in clinical complex has all facilities for hematological examination, urine analysis, fecal examination, skin scrapping analysis, etc. Samples requiring microbiological, toxicological and histopathological examinations are being sent to concerned departments. Students are trained to examine various samples under the guidance of faculty members. During 2012-13, 1610 samples were processed by diagnostic laboratory to supplement diagnosis and treatment of diseases.

Ambulatory Service: Students were also trained to use their clinical knowledge under field conditions and to extend clinical facilities to society. Ambulatory clinical service is a routine feature on roster basis to different villages. Large number of gynecological cases like pregnancy diagnosis, anestrous, repeat breeding, have been handled by students under supervision of faculty members. During the year, 1273 gynecological cases, 2455 cases of medicine and 156 surgical cases were treated in various clinical camps.

For efficient service and transportation of sick animals to TVCC, university is having an animal ambulance fitted with hydraulic lift platform. In TVCC, ample opportunities are provided to students for hands on training on clinical cases. During year 2012-13, a total of 8574 cases were treated in clinics, and the revenue was generated Rs 423635.00**.** Besides these, emergency clinical services were also provided round the clock by undergraduate and postgraduate students under direct supervision of teachers from clinical departments including those on on-call duty during late night hours. During this year, 1362 emergency cases were treated. Indoor facility for small and large animals and intensive care unit are other two important facilities for serious patients in TVCC. TVCC also actively participated in celebration of World Veterinary Day, wherein, 101 animals were vaccinated and treated against various diseases.

Experiential Learning Programmes

Training on Feed Production and Processing

An experiential learning project funded by ICAR was initiated in 2011-2012. Feed manufacturing unit and UMMB machine are functioning satisfactorily. Under this project, students were given hands-on training on preparation of feed, urea molasses mineral block etc. for livestock. The purpose of this training is to provide knowledge to students about nutritional requirements of different animals and to provide complete feed to animals during different seasons of year. After establishment of this unit university has prepared quintals of animal feed during the year 2012-13 and an entrepreneurial skill has been developed in students.

Entrepreneurship Training on Broilers for Students

During the period, under ICAR's poultry production "Experiential Learning Project", hands-on training was imparted to undergraduate students on different aspects of poultry production. As a part of their course curriculum, students were divided in groups of 4-5 students and they were trained to handle

all the daily activities related to broiler rearing. The performance of the students could be gauged by the profit generated which was divided between the students as below:

No. of Students	Class	Period	No. of Birds	Net profit (in Rs.)
24	2nd year	05.04.2013 to 09.05.2013	500	5938/-
21	3rd year	20.01.2013 to 18.02.2013	500	13,863/-

The students of internship programme were also trained on various farm activities pertaining to feeding, watering and management of poultry and hatchery operations.

Milk and Meat Processing Unit

Under experiential learning programme, under-graduate students and post graduate students were given practical training on running of milk processing plant. A revolving fund scheme is also being run on 'Milk and Meat Processing" in which various value added milk and meat products like paneer, khoa, flavoured milk, lassi, chicken patties, chicken nuggets, meat loaf, etc were prepared and made available to students and employees of the University. Under this scheme, 5497.50 L milk was processed into value added products and 657.916 Kg Paneer, 178.650 Kg Khoa, 11.25 L Ice-cream, 14 L Lassi and 1.6 Kg Cream was prepared. In meat section, 30.465 Kg value added products like meat nuggets, patties and blocks were processed. A net profit of Rs. 32363.00 was recorded during the year.

Entrepreneurship Training on Dairy Farm Management

Under ICAR funded "Experiential learning programme on dairy farm management undergraduate students are being trained on modern dairy farming practices including clean milk production and routine farm operations, detection of heat, artificial insemination and record keeping etc. Dairy farm is well equipped with all modern facilities like milking machine, reaper, mist cooling system, milk distribution van, hydraulic trolleys and weighing scales.

Internship Training

After completion of $4^{1}/_{2}$ years of studies, students of B.V.Sc. & A.H. underwent six months (180 days) compulsory rotational internship training. During the session 2012-2013, internship started on 08.01.2013. 56 students were divided into10 groups for "on-campus" training. At the University, they were attached with departments of surgery, medicine, gynaecology, L.P.M, L.P.T, Poultry Farm and Semen laboratory. In these sections, exhaustive training was given to students on different aspects of livestock production, health and management of various species of animals including poultry. Besides these, training was also provided on outstations namely Biological Products Section Lucknow, Zoological Park, Kanpur, National Institute of Animal Welfare Ballabhgarh, CIRG Makhdoom and 1 UP R&V Squadan. NCC, Mathura. University organized visits of different pharmaceutical companies and managers of banks for providing exposure to students in these sectors. They interacted with students and acquainted them with different job opportunities and their demand in the market. After completion of training, students were evaluated by a panel of six experts as per recommendations of VCI.

Educational Tours

Educational tours of students were sent to Northern and Southern part of India to enrich their academic and professional knowledge and skills by interacting with professionals of outside institutions.

Class	Duration	Tour leader	Institutes/University Visited
8th Semester	20th -28th, Feb. 2013	Dr. Soumen Chaudhary & Dr. Vikrant Sudan	NDRI and NBGAR Karnal, CIR on Buffalo and NRC on Equine, COVSc., Hisar, COVSc. Palampur, COVSc., Ludhiana & COVSc., Amritsar
9th Semester	15th Dec, 2012 – 04th Jan,2013	Dr. R.K. Yadav & Dr. Sanjay Kumar Bharti	COVSc Kolkata, Hyderabad, Bangalore, Mumbai, and Institute of Fisheries Sciences, Panji (Goa)

Academic Attainments of Students

During 2012-13 thirty four students qualified the ICAR-JRF examination-2012. Out of these 34 students, 25 students were offered JRF in Animal Science while 9 students were offered JRF in Veterinary Science. In addition to this, one student also qualified combined entrance of JNU Biotechnology.

Curricular Attainments of Students

National Cadet Corps

Students of B.V.Sc. & A.H. actively participated in various activities of NCC including equestrian training during 2012-13. NCC cadets participated in celebration of national festivals by piloting the Hon'ble Vice Chancellor on horseback. Cadets also attended various camps and appeared in examinations as a part of their NCC activities.

- 24 cadets attended Army attachment camp at RVC Center and College, Meerut w.e.f. Aug 27, 2012 to Sep 10, 2012.
- 36 students took part in CATC-34 held at Veterinary College Mathura from Sep 15, 2012 to Sep 24, 2012.
- Cadet Ram Kumar represented 1 UP R&V Sqn. on Republic day from Dec 12, 2012 to Jan 31, 2013.
- 32 cadets appeared in "B" certificate examination held on Feb 2 - 3, 2013.
- Abhineet Kumar and Mamta Mishra passed the exam with AYE grade. 22 cadets passed the exam ination in "BEE" grade. Rest of the 8 cadets passed exam in "CEE" grade.
- 29 cadets appeared in "C" certificate examination held on Feb 26-27, 2012. 17 cadets passed in "BEE" grade and 12 passed in "CEE" grade.

Annual Sports Meet 2013

Annual Sports Meet 2013 of the University was inaugurated by Chief Guest of the ceremony, Prof. A.C. Varshney, Hon'ble Vice Chancellor on 5th March, 2013. The meet was declared open by the Vice Chancellor after March past, salutation and oath administration. Dr. Daya Shankar, President Games and Sports, welcomed the Chief Guest, other guests, faculty, staff and students. A total of 41 sports events along with six literary and cultural events were organized in this series which lasted for almost two months preceding the annual sports meet. The remaining athletic events were completed on 5th and 6th March, 2013. Mr. Arjun Kumar of IVth year B.V.Sc. and A.H. student was adjudged as the best athlete in Male category while Ms. Deepanka of IVth Year was adjudged the best athlete in female category. Slow cycling, musical chair for ladies and "Tug of War" between faculty and students, horse show and tent paging were special attractions of the sports meet. The closing ceremony of the event was held on 6th March, 2013. Shri Sameer Verma, District Magistrate was the Chief Guest of the function and Prof. A. C. Varshney, Hon'ble Vice Chancellor presided on the occasion.

Extracurricular and Cultural Activities

Annual Cultural Programme "Jhankar" was organized on 25.10.2012 in which students participated in various cultural activities like solo dance, group dance, skit, solo song, group song etc with great zeal and zest. Mr. Abhishek Kr. Verma and Mi ss Mirnalini Saini were adjudged as the best male and female performers in Annual Cultural programme.

Literary events namely quiz, debate, essay, elocution and extempore competitions were also organized. Mr. Surendra Kr. Singh, final year student, was adjudged as the best speaker. In fine arts, rangoli, painting and collage making competitions were also organized. Mr. Anand Kushwaha and Mr. Anil stood 1st and 2nd respectively in rangoli competition.

All India Veterinary College Table Te nnis, Badminton and Quiz Competition

Sixteen students of College of Veterinary Sc ience & A.H. Mathura participated in this competition organized by G.B. Pant University of Agriculture & Technology, Pant Nagar, U.S (Uttrakhand) from 16th to 18th March, 2013 under the leadership of Dr. Madhu Tiwari and Dr. Sanjay Bharti. Our students made us proud by being third in the All India Veterinary Colleges Professional Quiz competition.

All India Youth Festival, NDRI- 'Reverie 2013'

Twenty five students of College of Veterinary Science & A.H. Mathura participated in this competition organized by NDRI, Karnal from 21st to 23rd March, 2013 under leadership of Dr. Jitender Kumar. Our students made us proud by winning three first prizes in essay writing, collage making and mime competition and nine second prizes in debate, skit, duet song, essay writing, antakshri, poem recitation, group song, extempore and shipwreck. Our student was also adjudged as the best overall speaker in Hindi.

5th All India Zydus Drawing and Painting Competition 2012

Three students namely Mr. Anand Kushwaha, Km. Vishakha and Km. Deepanka excelled in 5 th Zydus sponsored drawing and painting competition. They were awarded certificates of merit and cash prize of Rs. 2000/-, 1500/- and 1000/- respectively. Hon'ble Vice Chancellor DUVASU Mathura distributed the awards on 26th Jan 2013.

Fresher's Day

Second year B.V.Sc & A.H. students (batch 2011-12) organized Fresher's day to formally welcome first year students of 2012-13 batch on 24th Aug., 2012. Prof. A. P. Singh, Hon'ble Vice-Chancellor was the chief guest of function. First year students presented several cultural events with full enthusiasm. Mr. Amit and Ms. Anurathi of 1 st year were adjudged as Mr. Fresher and Miss Fresher, respectively. Prof. A.P. Singh, Hon'ble Vice-Chan cellor blessed and honoured Mr. and Ms. fresher by presenting mementos. Speaking on the occasion Hon'ble Vice-Chancellor advised students to work hard and should understand their responsibility of being admitted to Ve terinary fraternity. Prof. (Dr.) Satish Kumar Garg, Dean CoVSc and AH, Mathura presided over the function.

Other Academic Services/Facilities

Library Services

Library of the university is constructed in 18x25 square meter area. It is housed in double storey building, divided into 8 sections *viz*; acquisition section, circulation section, stock section, reference section, study section, journal section, technical section and news paper section. 125 students can be accommodated comfortably at a time in library in various sections *i.e.* in examination preparation

room (22 students), study section (35 students), journal section (43 students) and thesis section (25 students). Library facility is open for students and faculty members on all working days from 10.00 A.M. to 5 P.M. During 2012-13, 364 books were purchased. Presently the total number of books in libraray is 31052. Out of which 30796 books are of academic purpose and 256 books are of general purpose. Library provides online journal facility (www.CeRA.JCCC.in) in which more than 8000 journals are subscribed. Besides these, CD-ROM, online database and Xerox facility is also available in library for visitors and readers. Four Hindi and four English news papers are daily delivered in library to update the day to day information of students, faculty and staff. In addition to this, monthly and fortnightly employment news papers are also available in library.

Agricultural Knowledge Management Unit (AKMU)

During 2012-13, AKMU has been shifted to the newly renovated hall, where 30 computer systems along with internet connectivity have been provided for the use of students. Internet connectivity has been extended to the department of LPT, LPM and poultry science located at ILF Complex of University. With the efforts of AKMU, during 2012-13 all the departments have been well ensured connected by internet. This facility has also been extended to boys' hostel *viz*; Nehru hostel, Shastri hostel and New P.G. Hostel as well as to girls' hostels (Kasturba and New girls' hostel). The website of the university (www.upvetuniv.edu.in) is also being maintained by AKMU. In addition, all troubles related with hardware and software in different departments, hostels and sections of the university were taken care of by AKMU.

Directorate of Counseling, Training and Placements

During the period 2012-2013, directorate organized campus interviews at DUVASU, Mathura. The following companies had conducted the interviews:

S.No.	Name of Company	No. of students appeared	No. of students selected	Date of interview
1.	Phoenix group	30	18	May 04, 2012
2.	Landmark group	21	04	May 24, 2012

Directorate also arranged English speaking classes for 1st year B.V. Sc. & A.H. students and course of English was introduced compulsory course in an effort to improve English of students particularly of those who belong to rural areas and came from villages. For this, during 2012-13 Rtd. Professor Z. Hassan, English, K.R. Degree College was engaged. Directorate also arranged regular coaching classes for ICAR-JR Fellowship examination in Veterinary and Animal Sciences group from January 2013 to March 2013. Result of the ICAR- JRF examinations is a testimony to the efforts of cell.

IV. RESEARCH

ONGOING EXTRAMURAL FUNDED PROJECTS

S.No.	Name of Project	Name of P.I and Co-P.I.	Funding Agency	Total Budged (Lacs)
1.	Toxicodynamic studies on impact of environmental pollutants on bovine reproduction with particular reference to regulatory pathways	PI- Dr. Satish K. Garg	ICAR, New Delhi	467.00
2.	Pharmacological studies and development of polyherbal formulation for reproductive disorders in animals	PI- Dr. Satish K. Garg	ICAR, New Delhi	80.00
3.	Conservation and genetic improvement of Muzaffarnagari sheep for multiplication of superior germplasm	PI- Dr. Deepak Sharma	Government of India, New Delhi	79.66
4.	Outreach Programme on Zoonotic Diseases- Verocytotoxic E. Coli	PI- Dr. Basanti Bist	ICAR, New Delhi	13.55
5.	AICRP for Epidemiological studies on foot and mouth disease	PI- Dr. Rashmi Singh Co PI- Dr. Ajay Pratap Singh	ICAR, New Delhi	5.60
6.	Clinical trial to study the safety and immunogenicity of *Brucella abortus* strain - 19 reduced dose vaccines in cattle.	PI- Dr. Amit Kumar	IIL, Hyderabad.	3.00
7.	A prospective multi-centric, randomized, open label study to evaluate immunogenicity and safety of canine parvovirus nasal vaccine in pups.	PI- Dr. Amit Kumar	IIL, Hyderabad.	2.50
8.	Collection and testing of diarrheic faecal samples of cattle and buffalo calves for the presence of rotavirus from organized dairy units in Mathura and surrounding areas	PI- Dr. Rashmi Singh	Pfizer Pharmaceuticals India-Private Limited, India.	1.00
9.	Comparative efficacy of supplementation of liver tonics on the performance of commercial layers	PI- Dr. P. K. Shukla Co PI - Dr. Amitav Bhattacharyya	Ayurvet Ltd., Baddi	0.39

Project – 1: Toxicodynamic studies on impact of environmental pollutants on bovine reproduction with particular reference to regulatory pathways

Blood samples from cattle and buffaloes having the history of reproductive disorders were collected from different villages around Mathura (Salempur, Jachonda, Bandi, Nagla Teja) and also from the clinical cases from TVCC of University. Blood lead levels were found to be 0.085 ± 0.005 ppm in cattle (n=17) and 0.109 ± 0.023 ppm in buffaloes (n=49). Based on observed lead levels in cows and buffaloes, further experiments were conducted to elucidate effect of lead on uterine spontaneity and its possible mechanism(s) along with studies on calcium regulatory cascade pathways involved in uterine contractility in buffaloes. The experiments were conducted in both buffaloes and rat uteri. Lower concentration of lead (1nM) significantly ($P<0.05$) reduced efficacy of $CaCl_2$ while higher dose (1 µM) did not produce any effect on efficacy on buffalo myometrium. Blockade of voltage dependent calcium channels (VDCC) reduced excitatory effect of lead on myometrium. Lead also produced inhibitory effect on KCl-induced contractile effect on myometrium. Lead also modulated *beta* adrenoceptor mediated relaxant effect on rat myometrium.

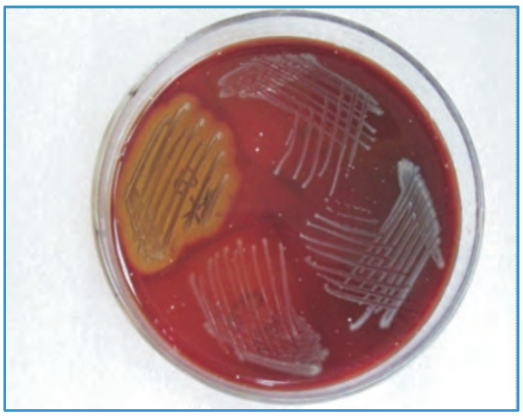
Project – 2: Pharmacological studies and development of polyherbal formulation for reproductive disorders in animals

Eleven different plant extracts and their combinations were used for HPLC analysis to study their phytochemical constituents and chemical compatibility or incompatability on their mixing. Interestingly, when combinations of certain plant extracts were subjected to HPLC analysis, there was change in R_T value as well as broadening of peak area, which is suggestive of the presence of similar chemical constituents in plants. To assess the antibacterial activity of plant extracts, milk samples from clinical mastitis cases were collected. Biochemical studies and colony characteristics were suggestive of presence of *Staphylococcus muscae* and *Klebsiella* sp. Extract coded as D7D and D23D were found to be more effective against these two clinical isolates. Three different drug delivery systems viz. silver nano-solutions (10% v/v), herbal ointment (5% herbal extracts and 95% base) and topical herbal gel (2%, pH 6.8-7) were evaluated to identify better delivery system for these plant extracts. 2% topical gel was found to be most effective *in vitro* studies against certified bacterial and clinical isolates. Provisional patent No. 2539/DEL/2012 on "Novel Herbal Oxytocic Formulaion" was filed and detailed research work is in progress.

Project – 3: Conservation and genetic improvement of Muzaffarnagari sheep for multiplication of superior germplasm

The project for two years duration was approved and financial budget of 79.66 lacs was released on August 8, 2012 by Government of India. The budget of 40 lacs was received by the university through U.P. State Government in current financial year. Presently, a sheep shed is under construction at D.D.D. Farm, DUVASU, Mathura and in the meantime, the procured elite 30 females and 10 males of Muzaffarnagari breed of sheep are being maintained at Physiology shed. Selective breeding among the animals is being undertaken on regular basis for multiplication of germplasm of threatened breed. A State Level Seminar including Poster Presentation Competition is going to be conducted from Oct. 9-10, 2013 under the mandate of this project for field Veterinary Officers of Uttar Pradesh for the purpose of awareness about conservation of threatened indigenous breeds of small ruminants.

Project – 4: Outreach Programme on Zoonotic Diseases-Verocytotoxic E. Coli



Total samples collected under the project were 2763 during 2012-13. Out of these, *E. coli* was isolated in 1753 (63.44%) samples. The VTEC was confirmed by PCR, in 56 out of 543 (10.31%) samples, of these Stx2 gene were present in 52 isolates and Stx1 in only 4 *E. coli* isolates. 150 *E. coli* samples from meat & meat products, 60 of faeces and 37 of milk & milk products were screened for VTEC by vero cell line assay. 15, 26 & 13 were found positive for VTEC, respectively. Drug sensitivity was performed on VTEC isolates. Gentamicin (79.59%) was found highly sensitive drug while Ampicillin (55.10%) was found highly resistant. Percent positivity of VTEC was highest in milk & milk products by Cell lines i.e. 13 out of 37 (35.13%). Out of 40 samples of human urine, with 8 *E. coli*, none was found to be positive for VTEC. Hand swab (Dairy Man), 50 samples were processed for VTEC, 10 were found positive for *E. coli* but VTEC was not found in any. 30 samples of manure from villages & dairy farms were procured and processed for VTEC. 10 were found positive for *E. coli*, but no VTEC could be recovered. Of 15 samples of soil near animals yards 12 E. coli but no VTEC was present. Thus the detection of Verocytotoxic *E. coli* strains of healthy cattle and diarrhoeic calves indicate that these animals are reservoir of VTEC and may act as a source of infection of these pathoge nic strains. VTEC strains were also detected from raw milk indicating that raw milk get contaminated from faeces of reservoir cattle or diarrhoeic calves .VTEC strains were also reported from milk products indicating that either milk was not properly heat treated or contaminated during processing or recontamination after processing. The presence of VTEC in bore well water indicates the seepage of fecal material in ground water and in river it indicates pouring of untreated water of sewers directly in rivers. Constant monitoring and surveillance programme are very essential to keep record of the prevalence from time to time and hygienic measures should be applied to reduce the chance of infection. Absence of VTEC in human urine samples indicate that humans are not having risk of Hemolytic uremic syndrome, absence of VTEC in hand swabs also indicate that persons having knowledge of good personnel hygiene. Manure and soil near animal yards were also found free from VTEC means VTEC do not survive in manure and soils after exposure to environment.

Project – 5: AICRP for Epidemiological studies on foot and mouth disease

A total of 7 specimens (vesicular tongue epithelium) were collected from clinically affected cattle and buffaloes from 4 outbreaks recorded at the Centre. One specimen was typed as virus type "O" and other as virus type "A" at PDFMD, Mukteswar by Sandwich ELISA. Others remained untypable. All the outbreaks were recorded during April month.

Under AICRP, a total of 191 villag es/farms/gaushalas were visited by the project officials in 14 districts of Uttar Pradesh for FMD surveillance work. A total of 911 samples random samples were tested for antibody titer against all three serotypes while 668 random sera samples were tested for presence of antibody against non structural protein NSP-3AB3 using DIVA ELISA test. Overall 45.5 % animals were found positive for DIVA ELISA. The overall percenta ge of protective animals having antibody titre > 1.8 was 23.49 %, 10.21 % and 13.83 % against type "O", "A" and "Asia-1", respectively.

Under FMD-CP, a total of 8781 Serum samples of pre and post vaccinations were tested by LPB ELISA till March 2013. A total of 2849 sera samples comprising of 643 Pre vaccination and 2206 samples of post vaccination of the 11th phase were tested. The overall percentage of protective animals during 11th phase of pre vaccination was 7.93%, 11.50 % and 61.43% against FMDV type 'O', 'A' and

'Asia-1', respectively. Similarly, the percentage of protective animals after vaccination was found to be 21.44 %, 13.82% and 51.58% in comparison to pre vaccination. A total of 3400 sera samples comprising of 1779 Pre vaccination and 1621 samples of post vaccination of the 12th phase were tested. The overall percentage of protective animals was 10.34% %, 14.17% 23.83%. and 16.66 %, 32.33% and 47.69 % for pre and post vaccination, respectively against FMDV type 'O', 'A' and 'Asia-1'. A total of 2532 pre vaccination sera samples of the 13th phase were tested. The overall percentage of protective animals during 13th phase of pre vaccination was 22.31 %, 12.32 % and 24.41% against FMDV type 'O', 'A' and 'Asia-1', respectively.

Project – 6: Clinical trial to study the safety and immunogenicity of *Brucella abortus* strain - 19 reduced dose vaccines in cattle

The present study was planned to have safety and immunogenicity of Brucella Strain -19 reduced dose vaccine in non pregnant heifers of indigenous cattle (*Bos indicus*) and to compare it with standard dose vaccine as Brucella strain-19 vaccination has adverse effects in adult cattle with the production of persisting antibody response that create hindrance in ELISA was applied to assess the level of antibodies (humoral immune response) and release of gamma interferon (cell mediated immune response) post vaccination. The study revealed that both standard and reduced dose vaccine were safe in the non pregnant cattle heifers in age group of 4 months to 30 months of age. The humoral and CMI response of both the vaccines were comparable to each other. The reduced dose induced antibody showed the pattern of vanishing prior to standard dose and it probably will lead to lesser hindrance in detection of antibodies due to infection.

Project - 7: A prospective multi-centric, randomized, open label study to evaluate immunogenicity and safety of canine parvovirus nasal vaccine in pups

Weaning puppies are vaccinated with a modified live virus low passage high titer *vaccine* at 6 weeks of age, then every 3 to 4 weeks up to 15 or 16 weeks of age. Intranasal route was used for the administration of vaccine in study group at the age of 30-45 days to protect early stage mortality and exposure. Efficacy of the Canine Nasal Parvovirus Vaccine was assessed by Haemagglutination Inhibition (HI) and Serum Neutralization Tests. Initially vaccinated pups showed good immune response to the early vaccination with canine nasal parvo vaccine without any adverse reaction. Vaccination lead to early protective titer that continued till the routine vaccination was conducted with MegaVacc-6 Vaccine.

Project - 8: Collection and testing of diarrheic faecal samples of cattle and buffalo calves for the presence of rotavirus from organized dairy units in Mathura and surrounding areas

One hundred faecal samples were collected from diarrhoeic bovine calves from organized dairy farms in and around Mathura region. For detection of 11 segmented dsRNA of rotavirus, extracted RNA was subjected to RNA-PAGE and bands were visualized by silver staining of gel. Detection of rotavirus by antigenic ELISA Kit was also performed for bovine group A rotavirus antigen. Out of 100 samples screened by PAGE, twelve samples were positive for Group A rotavirus. Showing 11 segments of RNA genome of virus in pattern of 4:2:3:2 characteristic for Group A rotavirus. Based on migration of segment 10 and 11, all positive samples were characterized as long electropherotypes. None of isolates showed short electropherotype. Differences in migration pattern of class I segments was observed. In type 1 pattern all the four segments (1, 2, 3 and 4) migrated separately. In type 2 pattern segment, 2 and 3 co-migrated. In all the samples class III segments (7, 8 and 9) moved as a single segment. One sample

showed presence of an additional band between gene segment 5 and 6. Multiple bands were present in two samples indicating co-infection with more than one rotavirus. All PAGE positive samples were detected positive by ELISA indicating that both tests are equally sensitive.

Project – 9: Comparative efficacy of supplementation of liver tonics on the performance of commercial layers

A study was conducted on 63 fifty three week old CARI PRIYA layers, distributed into three experimental groups having three replicates of seven birds each. Birds of control group were fed a basal diet (18% CP & 2600 K cal/kg ME) while other two group birds were fed a basal diet supplemented with liver tonic, Superliv liquid (Ayurvet Limited product) in drinking water @ 10ml/100birds/day and a basal diet supplemented with a poly herbal liver tonic, AV/SSL/12 (Ayurvet Limited prod uct) in drinking water @ 20ml/100birds/day from 53 to 72 weeks of age. Superliv liquid and AV/SSL /12 fed group had better hen house egg production (%) compared to control group at various weeks of age. FCR per dozen eggs and FCR per kg eggs was significantly better ($P<0.05$) in the liver tonic fed groups compared to the control group at various weeks of age. However, AV/SSL/12 fed group had comparatively better FCR than the Superliv liquid group. There were no significant different between treatment groups on serum alkaline phosphatase, SGOT and SGPT at 62 weeks and 72 weeks of age during experiment. Shell thickness of eggs of Superliv liquid fed group was significantly better ($P<0.001$) compared to other two groups at 62 weeks of age. Further, the albumen indices of both liver tonic fed groups were significantly better ($P<0.05$) compared to control group at 72 weeks of age. Liver tonics may have a positive effect on egg production and egg quality parameters during late stage of production in layers. Further, there was no adverse effect of feeding liver tonics on blood biochemical parameters.

UNIVERSITY FUNDED PROJECTS

S.No.	Name of Project	Name of P.I and Co-P.I.	Total Budget
1.	Evaluation of different varieties of high quality protein maize fodders for their composition and production performance in lactating cows	PI- Dr. Vinod Co PI- Dr. Debasish Roy Co PI- Dr. Muneendra Kumar	0.5 lac
2.	Assessment of macro and micro mineral profile in blood, feeds and fodders of farm animals.	PI- Dr. Vinod Co PI- Dr. Debasish Roy Co PI- Dr. Muneendra Kumar Co PI- Dr. Brijesh Kumar Yadav	1.14 lac
3.	Establishment of Azolla Demonstration Unit at DUVASU, Mathura & Effect of Azolla supplementation on the performance of growing cattle	PI- Dr. Debasish Roy Co PI- Dr. Muneendra Kumar Co PI- Dr. Yajuvendra Singh	1.26 lac
4.	Effect of newer mode of nutrient supplementation on growth and nutrient utilization in growing cattle	P.I. Dr. Vinod Co P.I. Dr. Debasish Roy Co P.I. Dr. Muneendra Kumar	4.36 lac
5.	Screening of superficial wound and skin infections in animals for bacterial and mycotic pathogens and their drug sensitivity pattern against commonly used antimicrobial agents	PI- Dr. Ruchi Tiwari Co PI- Dr. Amit Kumar Co PI- Dr. Shankar Singh Co PI- Dr. N. K. Gangwar	1.0 lac
6.	Studies on Campylobacter infection in dogs of Mathura, Uttar Pradesh	PI- Dr. Amit Kr. Verma Co PI- Dr. Amit Kumar Co PI- Dr. Shanker Kr. Singh	1.0 lac
7.	Effect of mist cooling and bathing/wallowing during summer stress in lactating cattle vis-à-vis buffalo	PI - Dr. Brijesh Yadav Co-PI - Dr. Yajuvendra Singh Co-PI - Dr. Rajneesh Sirohi Co-PI - Dr. Vijay Pandey Co-PI - Dr. Vinod Kumar	0.75 lac

Project 1: Evaluation of different varieties of high quality protein maize fodders for their composition and production performance in lactating cows

The project was undertaken with some input from CYMMIT. Under this project, four normal maize varieties (HTHM 5101, DHM 117, HM 5 and Saktiman) and three high quality protein maize varieties (HQPM-5, HQPM-7, Vivek QPM-9) were evaluated for nutritive value and feeding effect on

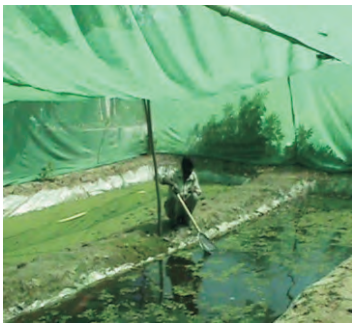
milk yield and its composition on 32 Sahiwal cows in pre and post stage in a 45 days trial. Results revealed that HQPM-5 and HQPM-7 varieties of quality protein maize fodders were best in terms of milk yield, higher milk fat content and production efficiency. However, under traditional Indian system of feeding lactating animals especially on 30 % concentrate and 70 % roughage, normal varieties of maize HTHM 5101, DHM 117 and HM-5 were good substitute as green fodder. Maize cobs may be harvested for providing quality protein and energy rich grains for consumption of humans and monogastric animals and remaining whole plant may be used as fodder even in post cob stage.

Project 2: Assessment of macro and micro mineral profile in blood, feeds and fodders of farm animals

Under this project, mineral status of different feed stuffs, animals and strategic mineral mixture supplementation on nutrient utilization, growth performance and blood biochemical's in heifers was estimated. Commonly available feeds and fodders used for feeding of animals were assessed for mineral content. Dry roughage like wheat straw was found to be deficient in Ca (3.33%), P (52.00%), Cu (54.75%) and Zn (60%) than the critical levels. However, green fodder like maize and sorghum were deficient in Na and Mn. Percent deficiency of Na in maize and sorghum were 16.67 and 73.33% respectively. Level of Mn deficiency in maize and sorghum were 42.83 and 73.83%, respectively. Leguminous green like berseem was found to be deficient in Na and deficiency level was 84.67% than the critical level. Regarding cereal grain (barley, oat and wheat grain), these were deficient in Ca, Na, Mn and Cu and levels of deficiency ranged between 67.33 to 84.00%, 46.67 to 83.33%, 3.25 to 20.00 and 7.50 to 11.25%, respectively. In present findings, cattle and buffalo of different stage of maturity and stage of production were assessed for their mineral status and plasma levels of different minerals were above the recommended critical level except Cu. In animal trial, eighteen heifers were randomly blocked into three (G1, G2 and G3) groups having six animals in each on body weight basis and fed for 60 days. The requirements of experimental animals were met by feeding concentrate mixture, green fodder, wheat straw (NRC, 2001). Experimental heifers either received a basal diet devoid of supplemental mineral mixture (G1) or supplemented with type 1 (G2) and type 2 (G3) mineral mixture. Effect of feeding type 1 and type 2 mineral mixtures on nutrient intake was recorded daily. However effect on body weight change and blood biochemical was recorded at 0, 15, 30, 45 and 60 days of mineral mixture supplementation. Supplementation of type 1 and type 2 mineral mixtures did not have any effect ($P>0.05$) on dry matter intake (DMI) and body weight change. In present findings supplementation of type 1 and type 2 mineral mixtures had significant effect ($p<0.05$) on Ca and Na absorption (gram/day). However, supplementation of mineral mixture did not affect intake, absorption and faecal excretion of P and Mn. Feeding of type 1 and type 2 mineral mixtures in heifer had significant effect ($P<0.05$) on intake, absorption and out go of Cu and Zn among three respective groups. Plasma Ca, Cu, Zn, Fe and Mn level was significantly affected ($P>0.05$) by supplementation of mineral mixture and plasma level was found higher in group G2 and G3. Conversely, plasma levels of Na and P were not affected by feeding type 1 and type 2 mineral mixtures. In the present findings, supplementation of strategic area specific mineral mixture did not have any effect on liver function, immunity and antioxidant status of heifers fed on type 1 and type 2 mineral mixtures. In conclusion, feed stuffs and animal's blood were deficient in vital minerals and supplementation of type 1 and type 2 mineral mixtures in heifers helped to improve their plasma mineral status without altering nutrient utilization, growth performance and blood biochemical.

Project 3: Establishment of Azolla Demonstration Unit at DUVASU, Mathura & Effect of Azolla supplementation on the performance of growing cattle

Project was taken up for establishing an Azolla production cum demonstration unit of DUVASU, Mathura and observing the effect of supplementing Azolla on growth performance and nutrient utilization of growing Hariana heifers. The project was initiated in August, 2012. Azolla culture was


brought from College of Fishery Sciences, GADVASU, Ludhiana. An area of 20 × 15 m^2 was selected between ILFC office and Pashu Gyan Chaupal and cleaned properly for establishing the unit. The animal trial on supplementing total 12 Hariana heifers of similar age group was taken and divided randomly into 2 groups according to body weight. Group I was treated as control. Group II was taken as treatment groups. The animals of control group were fed with Jowar fodder, wheat straw and concentrate mixture according to their requirement. Concentrate mixture was partially replaced by Azolla in Group II. The total trial period included a period of digestion trial for 6 days. Azolla to growing Hariana heifers proved beneficial in terms of feed conversion ratio (FCR), body condition score (BCS) and to some extent body weight gain. Azolla protein was found more digestible than feed protein as CP digestibility was higher in supplemented group.

Project 4: Effect of newer mode of nutrient supplementation on growth and nutrient utilization in growing cattle

Under this project formaldehyde treated mustard cake and supplemental bypass amino acid (lysine, methionine) on growth performance of heifers was conducted for about 7 month (4+3 month). Parameters on growth performance, digestibility, blood profile, mineral balance and purine derivative were performed. Eighteen growing Hariana heifers were randomly distributed into three groups i.e C, T1 and T2 on body weight basis. Chemical compositions of all the dietary components were found to be in normal range. Animals in T1 and T2 group were supplemented with 1 g RPM, 5 g RPL and 2 g RPM, 10 g RPL along with basal diet. The average body weights (kg) and metabolic body weight (kg $W^{0.75}$) of heifers were not significantly different ($P>0.05$) within groups at all fortnights. Animals of T1 and T2 groups showed significant increase in fortnightly body weight gain and ADG in 4^{th} and 5^{th} fortnight, respectively as compared to control. Though DMI (Kg) did not differ significantly within groups, DMI% decreased ($P<0.05$) significantly in both the treatment groups at 1^{st}, 4^{th}, 5^{th} and 6^{th} fortnight. FCR was found lower ($P<0.05$) for T1 group as compared to control at 3^{rd} and 4^{th} fortnights whereas, both T1 and T2 groups were lower ($P<0.05$) in FCR in comparison to control at 5^{th} fortnight. Body condition score (BCS) of animals were found similar in all the groups throughout the experimental period. The overall average BCS ranged from 2.17 to 3.80. The total protein ranged from 7.22 to 7.78 (g/dl) in control, 6.59 to 7.68 (g/dl) in T1 and 6.31 to 7.10 (g/dl) in T2 group, respectively. The plasma albumin concentration of experimental animals varied from 3.42 to 3.43 (g/dl) in control, 3.06 to 3.46 (g/dl) in T1 and 3.10 to 3.39 (g/dl) in T2 groups. Initially Immunoglobulin concentration was found to be 29.60, 29.60 and 29.58 mg/dl in control, T1 and T2 groups, respectively. Final values at the end of third month of the trial were 29.67, 29.69 and 29.72 mg/dl respectively. Though, AST activity of T2 (78.03 IU/l) was significantly higher ($P<0.05$) than control (61.12 IU/l) at the end of second month of trial, ALT and AST activities were statistically similar. Though BUN concentration of treatment groups was lower than control group during whole trial period but the difference was not statistically significant. Average plasma creatinine concentration varied from 0.80 to 1.47 mg/dl in control, 0.38 to 0.75 mg/dl in T1 and 0.41 to 0.57 mg/dl in T2 groups, respectively. At the end of trial, the creatinine concentration was found lower ($P<0.05$) in

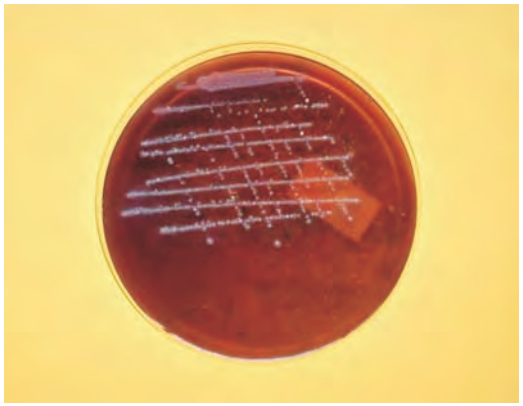
both treatment groups as compared to control groups. Digestibility coefficients of all the nutrients i.e DM, OM, CP, EE, CF, NFE, NDF and ADF were found si milar in treatment and control groups. Though digestibility coefficient of CP were higher in both the treatment groups than control, the difference was not statistically significant. Similarly digestible nutrient intake was also found similar in control and treatment group. In conclusion, supplementing basal diet with rumen protected lysine and methionine was found beneficial in terms of weight gain and feed efficiency without affecting protein metabolism, liver function and nutrient digestibility.

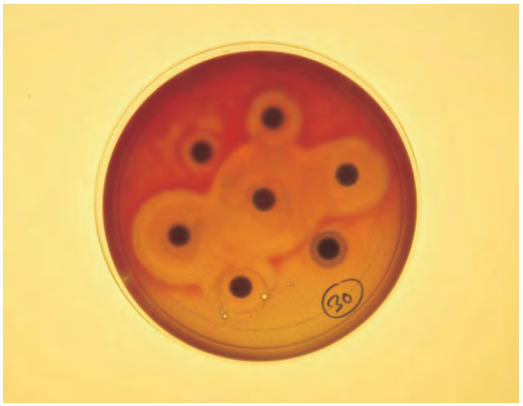
Project 5: Screening of superficial wound and skin infections in animals for bacterial and mycotic pathogens and their drug sensitivity pattern against commonly used antimicrobial agents

A total of 130 samples from cattle, buffalo, goats, camel, horses, dogs, monkey from Mathura and nearby surrounding areas were collected, processed and interpreted for bacterial and mycotic etiology. Fungal agents (Dermatophytes, Candida, Aspergilus, Histoplasma spp and opportunistic fungi) were involved in 30% cases of skin infections. Antibacterial resistant strains of *Staphylococcus aureus*, multi-drug resistant strains of *Pseudomonas aeruginosa*, *E. coli*, *Klebsiella pneumoniae* were also observed. Neither bacteria nor fungi were recorded as a route cause in cases of abnormal skin growth. Bacterial agents were involved as secondary agents. The study is helpful in prescribing sensitive drugs without lapse of time in treatment against bacterial and fungal infections. Microbiological and histo-pathological investigations suggested that bacterial or mycotic agents were not the root cause of abnormal skin growth and unknown chronic irritant or chemical carcinogens would have been involved. Study reflects emergence of multi-drug resistant strains of bacteria more in urban areas as compared to rural areas, hence medication should be given after proper antimicrobial sensitivity testing. Fungal agents are actively involved in skin affections, therefore proper focus should be made on the diagnosis of all infectious agent involved.

Project 6: Studies on Campylobacter infection in dogs of Mathura, Uttar Pradesh

Campylobacteriosis is a major cause of gastroenteritis in humans and some studies have suggested that dog ownership is a risk factor for the condition. Keeping these in mind the present cross–sectional study was planned to determine the prevalence, risk indicators and antibiogram for *Campylobacter* spp. infecting dogs attending veterinary practices in TVCC, DUVASU, Mathura. A total of 330 faecal samples were collected from dogs with and without clinical signs of gastroenteritis and isolation of bacteria was attempted in all the samples. Based on isolation, cultural and biochemical characterization of bacteria, the prevalence of *Campylobacter spp.* was 34.24%. Younger dogs (less than 1 year of age) were more likely to carry *Campylobacter spp.* High prevalence of *Campylobacter spp.* supports the hypothesis that dogs, particularly younger animals, may be an important source of Campylobacter infection for humans. Breed-wise prevalence showed that non-descript dogs (45.97%) were more likely to carry Campylobacter infections. Dogs showing clinical signs of gastroenteritis were showing higher prevalence (47.21%) in comparison to that of animals without gastro-intestinal disorders (15.04%). To get the status of Campylobacter infection in children, 38 faecal samples were collected. The prevalence of *Campylobacter* infection in children was 21.05%. The susceptibility of all the 113 Campylobacter isolates from dogs and 8 from human was assessed against nineteen commonly used antimicrobials in routine human and veterinary practices by standard procedure of disk diffusion method. Out of 113 Campylobacter isolates of canine origin, two isolates were resistant to all the nineteen antibiotics used in the study, while all the isolates were resistant to Streptomycin, Ampicillin, Amoxycillin, Aztreonam, Lincomycin, Tetracyclin, Oxytetracyclin and Penicillin. A high rate of resistance was observed to Cefotaxim (97.35%), Peefloxacin (91.15%), Chloramphenicol (90.27%), Ofloxacin (84.07%), Ciprofloxacin (83.18%), Cefaclor (80.53%), Nitrofurazone (76.11%), Norfloxacin





(74.33%), Gentamicin (42.48%), Amikacin (40.71%), and Enrofloxacin (36.28%). However, all the Campylobacter isolates of human origin were resistant to at least eleven of the antibiotics tested. Our results indicate Enrofloxacin, Amikacin and Gentamicin as drugs suitable for the treatment of canine campylobacteriosis. This also opens up therapeutic possibilities for these drugs in human medicine.

Project 7: Effect of mist cooling and bathing/wallowing during summer stress in lactating cattle vis-à-vis buffalo

The present study was intended to investigate the effectiveness of two cooling systems i.e. sprinkling and wallowing on production and physio-biochemical parameters in lactating cattle vis-à-vis buffalo during conditions of severe hot ambient temperatures. The experiment was carried out in the months of May- July, 2013, when Temperature Humidi ty Index (THI) in Mathura (semi-arid region) was very high. The experimental animals were divided in control and two treatment group containing six animals each. The animals of the control group were not given any cooling whereas T_1 and T_2 treatment group were given cooling by bathing/wallowing and misting respectively. The recording of meteorological variables, physiological parameters and milk yield of the animals, and collection of blood was done fortnightly. The serum was harvested from blood and was stored for further bio-chemical analysis and hormone assay, and whole blood was utilized for hematology. The data regarding meteorological variables, milk production, hematology, biochemical analysis and hormone assay have been compiled and statistical analysis is yet to be done.

Veterinary Science and Animal Husbandry

S.No.	Title of the Thesis	Name of the student	Name of the Guide	Subject
1.	Manipulation of dietary cation-anion difference to reduce nutrient deficiency in peri-parturient cows	Dr. Bokan Abhay Mohanrao	Dr. Vinod Kumar	Animal Nutrition
2.	Effect of strategic mineral mixture supplementation on nutrient utilization and blood mineral profile of heifers	Dr. Vivek Prasad Gupta	Dr. Vinod Kumar	Animal Nutrition
3.	Effect of chicken meat on quality characteristics and storage stability of noodles prepared from different flours	Dr. Akhilesh Kr. Verma	Dr. Vikas Pathak	Livestock Products Technology
4.	Studies on development on quality characteristics of self stable chicken sticks	Dr. Gaurav Kumar	Dr. Vikas Pathak	Livestock Products Technology
5.	Technology development and quality assessment of chicken meat biscuits	Dr. Raj Kumar Jaiswal	Dr. Vikas Pathak	Livestock Products Technology
6.	Gross, histological and histochemical studies on the pelvic urethra and accessory sex glands of prenatal Goat (*Capra hircus*)	Dr. Abhinov Verma	Dr. Archana Pathak	Veterinary Anatomy
7.	SDS-PAGE analysis of seminal plasma proteins of Bhadawari buffalo and their association with oxidative status and seminal characteristics in different seasons	Dr. Lokesh Sharma	Dr. Vijay Pandey	Veterinary Biochemistry
8.	Studies on molecular characterization of Methicillin Resistant *Staphylococcus aureus* (MRSA) in bovine mastitis	Dr. Kiran Kutar	Dr. Amit Kumar Verma	Veterinary Epidemiology
9.	Studies on semen characters of Bhadawari Bulls and its freezability under semi-arid conditions	Dr. Alok Kumar Shahrawat	Dr. Atul Saxena	Veterinary Gynaecology and Obstetrics
10.	Studies on certain seminal attributes and effect of dilutors on cryopreservation of Hariana bull semen	Dr. Ashok Kumar Singh	Dr. Atul Saxena	Veterinary Gynaecology and Obstetrics
11.	Studies on semen quality, freezability and fertility performance of Murrah bulls	Dr. Devender Kumar Singh	Dr. Vijay Singh	Veterinary Gynaecology and Obstetrics
12.	Studies on anthelmintic activity of *Chenopodium album* and *Annona squamosa* against gastrointestinal nematodes in goat	Dr. Arti Sachan	Dr. Daya Shanker	Veterinary Parasitology
13.	Cypermethrin induced toxicity in broilers and its amelioration with vitamin E	Dr. Dharmendra Singh	Dr. A. K. Srivastava	Veterinary Pathology

14	Reparative potential of ascorbic acid against lead and cypermethrin induced oxidative damage and alterations in drug metabolizing enzymes	Dr. Ajay Kumar	Dr. Anu Rahal	Veterinary Pharmacology & Toxicology
15	Modulatory effect of ascorbic acid against arsenic and chlorpyrifos-induced oxidative stress and alterations in drug metabolizing enzymes	Dr. Dinesh S. Rajpoot	Dr. Atul Prakash	Veterinary Pharmacology & Toxicology
16	Studies on mechanistic pathway(s) of certain uterotonics in buffalo myometrium with particular reference to calcium signaling cascade	Dr. Abhishek Sharma	Dr. Satish K. Garg	Veterinary Pharmacology & Toxicology
17	Prevalence of VTEC in fecal samples of diarrhoeic calves, healthy cows and water from certain areas of Agra and Mathura districts	Dr. Suman	Dr B. Bist	Veterinary Public Health
18	Evaluation of bacterial quality & isolation of *Escherichia coli* (O157:H7) from different meat samples procured from retail meat shops & local slaughter houses of Agra Region	Dr. Veerendra K. Singh	Dr. Udit Jain	Veterinary Public Health
19	B-Mode Ultrasonography of Teat in Dry and Lactating Buffaloes (*Bubalus bubalis*)	Dr. Pramod Singh	Dr.Sanjay Purohit	Veterinary Surgery and Radiology
20	Radiographic morphometric studies of distal bones and joints of fore and hind limbs of buffaloes	Dr. Sudhanshu Bansal	Dr. Vivek Malik	Veterinary Surgery and Radiology

Biotechnology

S.No.	Thesis title	Name of Student	Name of Guide
21	Phylogenetic studies of canine parvovirus in dogs using VP1/VP2 gene	Deepti Singh	Dr. Amit Kumar Verma
22	The study of POU1F1(Pit1) gene polymorphism in Barbari goat	Shweta Sharma	Dr. Madhu Tiwari
23	Studies on polymorphism of major fecundity Booroola gene (*FecB*) in the Indian prolific Barbari Goat	Harsh Kumar	Dr. Deepak Sharma
24	Comparative profiling of seminal plasma and sperm membrane proteins in cattle and buffalo	Shilpi Dixit	Dr. Vijay Pandey
25	A comparative study on parthenogenesis activation and embryo production from in vitro matured caprine oocytes	Juhi Pathak	Dr. S.D. Kharche CIRG Makhdoom
26	Differential expression of TLR3 and TLR4 in caprine Brucellosis	Pallavi Chaturvedi	Dr. V.K. Gupta CIRG Makhdoom
27	Characterization of MC1R gene by PCR-RPLP & HRM analysis	Swati Dubey	Dr. P.K. Rout CIRG Makhdoom

Research 1: Manipulation of dietary cation-anion difference to reduce nutrient deficiency in peri-parturient cows

The advanced pregnant animal's diets can be manipulated simply by adding relatively more anions or cations which affect blood buffering capacity and acidity. In the present study, twelve Hariana cows in advanced pregnancy were divided into 3 groups i.e. G1, G2 and G3 (n=4). Experimental animals received diets containing +11, +21 and +31 mEq per 100 g DM DCAD. Requirement of the animals were fulfilled by feeding basal ration containing concentrate mixture, maize fodder and wheat straw with supplementation of 83, 50, and 109g/d mineral mixture per cow in G1, G2 and G3, respectively. All experimental animals were maintained from -30 days pre-partum to +7days postpartum experimental period. Daily feed intake and fortnightly body weights were not significantly different ($P>0.05$) in three groups. Feeding of +11 mEq/100 g of DM DCAD diets improved blood calcium levels in periparturient cows in their last month of pregnancy without affecting dry matter intake and balance of other minerals. Feeding of +21 mEq/100 g of DM DCAD diets provide sufficient buffer and mineral balance in pregnant animals and improved milk yield post calving. Feeding of diet higher than +31 mEq/100 g of DM DCAD raised blood pH more than 7.3 and resulted in metabolic alkalosis. Feeding of manipulated DCAD did not adversely affect the reproductive health of cows in all the three respective groups. It can be concluded that feeding of +11 mEq/100 g of DM DCAD diet during advanced pregnancy maintained blood Ca homeostasis from bone, however, feeding of +21 mEq/100 g of DM DCAD diet can provide normal mineral balance and improve milk production in periparturient cows.

Research 2: Effect of strategic mineral mixture supplementation on nutrient utilization and blood mineral profile of heifers

The present study was to access the mineral status of different feed stuffs, animals and strategic mineral mixture supplementation on nutrient utilization, growth performance and blood biochemical analytes in heifers. Commonly available feeds and fodders used for feeding of animals were assessed for mineral content. Dry roughage like wheat straw was found deficient in Ca (3.33%), P (52.00%), Cu (54.75%) and Zn (60%) than critical level. However, green fodder like maize and sorghum is deficient in Na and Mn. Percent deficiency of Na in maize and sorghum was 16.67 and 73.33% respectively. Level of Mn deficiency in maize and sorghum were 42.83 and 73.83%, respectively. Leguminous green like berseem was found to be deficient in Na and deficiency level was 84.67% than critical level. Regarding cereal grain (barley, oat and wheat grain) were deficient in Ca, Na, Mn and Cu and level of deficiency were ranges between 67.33 to 84.00%, 46.67 to 83.33%, 3.25 to 20.00 and 7.50 to 11.25%, respectively. In present findings, cattle and buffalo of different stage of maturity and stage of production were assessed for their mineral status and plasma levels of different minerals were above the recommended critical level except Cu. In animal trail, eighteen heifers were randomly blocked into three (G1, G2 and G3) groups having six animals in each on body weight basis and fed for 60 days. The requirements of experimental animals were met by feeding concentrate mixture, green fodder, wheat straw (NRC, 2001). Experimental heifers either received a basal diet devoid of supplemental mineral mixture (G1) or supplemented with type 1 (G2) and type 2 (G3) mineral mixture. Effect of feeding type 1 and type 2 mineral mixtures on nutrient intake was recorded daily. However effect on body weight change and blood biochemical was recorded at 0, 15, 30, 45 and 60 days of mineral mixture supplementation. Supplementation of type 1 and type 2 mineral mixtures did not have any effect ($P>0.05$) on dry matter intake (DMI) and body weight change. In present findings supplementation of type 1 and type 2 mineral mixtures have significant effect ($p<0.05$) on Ca and Na absorption (gram/day). However, supplementation of mineral mixture did not affect intake, absorption and faecal excretion of P and Mn. Feeding of type 1 and type 2 mineral mixtures in heifer have significant effect ($P<0.05$) on intake, absorption and out go of Cu and Zn among three respective groups. Plasma Ca, Cu, Zn, Fe and Mn level was significantly affected ($P>0.05$) by

supplementation of mineral mixture and plasma level was found higher in group G2 and G3. Conversely, plasma level of Na and P was not affected by feeding type 1 and type 2 mineral mixtures. In present findings, supplementation of strategic area specific mineral mixture did not have any effect on liver function, immunity and antioxidant status of heifers fed on type 1 and type 2 mineral mixtures. In conclusion, feed stuffs and animal's blood were deficient in vital minerals and supplementation of type 1 and type 2 mineral mixtures in heifers help to improve their plasma mineral status without altering nutrient utilization, growth performance and blood biochemical.

Research 3: Effect of chicken meat on quality characteristics and storage stability of noodles prepared from different flours

Snacks like noodles are fast foods relished by all segments of society due to variety, convenience and capability to satisfy the short term hunger. Consumption of snacks is increasing day by day due to rapid urbanisation, increase in per capita income and socio-economical changes and finally the changing life styles of people. The snack food market is one of the largest markets in the world but most of the snacks available in the market are cereal-based and lack essential nutrients. So various cereal flours were replaced with different levels of minced chicken meat to enhance the nutritional value for the assessment of suitability and compatibility of chicken meat noodles.

Emulsions prepared from various flours replaced with different meat levels were subjected to measure pH and emulsion stability. The results obtained revealed decreased pH as well as emulsion stability with increase in meat level in the formulations. This might be due to acidic nature and lower binding ability of meat. Physico-chemical analysis of fresh chicken meat and control noodles revealed increasing trend of moisture in all the products while, ash, protein, fat, water absorption index, water solubility index increased in whole wheat flour, rice flour and refined wheat flour based chicken meat noodles and decreased in soyabean chicken meat noodles with increase in the level of meat. However, other parameters such as crude fibres and cooking loss showed overall decrease in the values with increase in meat levels whereas, volume and weight increase parameters decreased on increase of meat levels in all of the products except soyabean flour based noodles. The selected products i.e. P1, P2, P3 and P4 were stored for 30 days at 30±2 ^{0}C under aerobic packaging and subjected for quality analysis on 0, 10, 20 and 30th day of storage. The data obtained for storage study revealed increasing trend in water activity, moisture, free fatty acid, TBA, water absorption index, crispiness, TPC and yeast and mould whereas decreasing pattern in values of protein, crude fibre, fat, ash, water solubility index, hardness, work of shear and all sensory attributes over the storage period of 30 days . All the sensory attributes and some physico-chemical parameters decreased non significantly ($P>0.05$) and were very well within the acceptable limits. TPC and yeast and mould counts increased in all the groups throughout the storage period but with-in the safe limit. Overall sensory parameters revealed the maximum scores for P2 (refined wheat flour based chicken meat noodles containing 40% minced chicken meat) followed by P3>P4>P1. The production cost of this product was also under the medium range (Rs 38.72 per 80 gm chicken meat noodles including cost of 8 gm of taste maker) as compared to other selected chicken meat noodles i.e. P1, P3 and P4 (43.52, 50.72 and 34.72 per 80 g chicken meat noodles including cost of 8g of taste maker for P1, P3 and P4 respectively.

Research 4: Studies on development on quality characteristics of self stable chicken sticks

Chicken meat sticks prepared in three different flours (gram flour, rice flour and refined wheat flour) were taken separately in four different batches i.e. G1, G2, G3 and G4; R1, R2, R3 and R4; and W1, W2, W3 and W4 respectively replaced with different levels of minced chicken meat (0, 50, 60 and 70%) for each flour. Freshly prepared sticks were subjected to physico-chemical, sensory and proximate analysis for final selection of meat level in each flour. Values for pH of emulsion and sticks were highly

significantly (P<0.01) decreased with increase level of minced chicken meat in all three flours in linear way while emulsion stability of dough showed an increasing trend in gram flour based meat sticks and decreasing trend in rice flour and refined wheat flour based meat sticks in highly significant (P<0.01) manner with increased level of meat incorporation. A highly significant decrease (P<0.01) was noticed in cooking yield for all the treatments with increase in minced chicken meat due to higher moisture content in meat (70-75%) as compared to the flours used in study. Moisture and ash was significantly (P<0.01) higher in all treatments replaced with increased levels of minced chicken meat in chicken meat sticks as compared to control of respective flour. Protein and fat decreased very significantly (P<0.01) in gram flour based chicken sticks with increase in chicken meat level but increased very significantly (P<0.0) in meat sticks prepared by replacement of rice and refined wheat flour with different levels of chicken meat. The overall mean scores of sensory parameters like appearance and color, texture, flavor, mouth coating, meat flavor intensity and overall acceptability were observed highest in G4, R3 and W4 for gram flour, rice flour and refined wheat flour based chicken meat sticks among all treatments from each flour. Saltiness had no significant (P>0.05) difference between treatments for any flour. Meat sticks prepared with different flours, G4 containing 70%, R3 containing 60% and W4 with 70% of minced chicken meat replaced with gram flour, rice flour and refined wheat flour respectively, were finally selected to study quality characteristics of shelf stable chicken sticks on 0, 10, 20 and 30th day of storage.

TBA, FFA and water activity decreased very significantly (P<0.01) with advancement of storage period and was highest in G4. Moisture, protein, fat and ash contents were highest in G4. Moisture increased very significantly (P<0.01) in all treatments throughout the storage period. The values of hardness and work were observed highest in R3>W4>G4 but crispiness values for G4>R3>W4. There was no significant (P>0.05) difference in mean TPC, yeast and mould count in between treatments on 0, 10, 20 and 30th day during storage of chicken sticks. *Staphylococus*, Coliforms and *Salmonella* were not detected during whole storage period in any treatments due to high processing temperature and hygienic handling and packaging of product. The scores for all sensory parameters including overall acceptability were highest in G4 and decreased significantly (P<0.05) in all treatments except saltiness.

Research 5: Technology development and quality assessment of chicken meat biscuits

Keeping in view the demand of biscuits and intervention of nutrition in them, present investigation was carried out to study the technology development and quality assessment of chicken meat biscuits by replacement of refined wheat flour with different levels (0%, 40%, 50% and 60%) of chicken meat powder prepared by mincing and dehydration of chicken meat which were abbreviated as A, B, C and D respectively. Various physico-chemical properties, proximate estimation, microbiology, texture analysis and sensory evaluation were carried out on 0, 10th, 20th and 30th days of storage at ambient temperature in aerobic and vacuum packaging, where as emulsion stability of raw dough and cooking yield of freshly prepared chicken biscuits were evaluated on 0 day only.

Significant difference (P<0.05) was found for emulsion stability of dough between treatments, but no significant difference was found between A, B and C. Cooking yield decreased significantly(P<0.05) with increase in meat incorporation and found to be highest in A, followed by B>C>D. A linear decrease was found significantly (P<0.05) in pH with replacement of refined wheat flour with increasing level of chicken meat powder, due to acidic nature of meat in both packaging conditions. TBA and FFA values for chicken meat bi scuits were found to be significantly (P<0.05) increased with increased level of meat incorporation due to higher fat in meat as compared to refined wheat flour. Fat, moisture and ash content increased significantly (P<0.05), but protein content increased highly significantly (P<0.01) with increase in chicken meat powder level. Work of shearing and shear force values decreased in linear way A>B>C>D due to higher moisture level in meat powder as compared to refined wheat flour. No significant (P>0.05) difference was observed in between the treatments for

TPC and yeast and mould count in all four days of storage but increased high significantly (P<0.01) in aerobic and significantly (P<0.05) in vacuum packaging over storage period. The vacuum packaged chicken meat biscuits showed almost negligible microorganism growth due to absence of air. The total absence of *Staphylococus, Coliform* count and *Salmonella* count was reported during whole storage period in both packaging conditions. The color and appearance and texture scores decreased with increase in meat powder incorporation, but all the variants were well accepted by all sensory panelists. Meat flavor, meat flavor intensity, mouth coating and salting scores increased with increased chicken meat powder level. The semi trained sensory panelists accepted all the formulation of meat biscuits, but the highest overall acceptability scores were awarded to C among all the treatments. On the basis of result obtained, chicken meat biscuits containing 50% of chicken meat powder (C) can be selected as the best treatment in both packaging conditions.

Research 6: Gross, histological and histochemical studies on the pelvic urethra and accessory sex glands of prenatal Goat (*Capra hircus*)

Gross, histological and histochemical studies were conducted on the pelvic urethra and accessory sex glands in prenatal goats, divided into five group viz; Group I (0-30 days), Group II (31-60 days), Group III (61-90 days), Group IV (91-120 days) and Group V (121-150 days) of gestation- with 6 animals in each group. At 28 days of gestation within the cluster of mesenchymal cells, a cleft was formed, which forms the future urogenital sinus. Grossly, the pelvic urethra was formed as tube like structure at 49 days of gestation. At 55 days of gestation, the primordia of vesicular and bulbourethral glands appeared in the cranial and caudal part of pelvic urethra, respectively. The primordia of prostate gland also appeared at 55 days of gestation in the wall of developing urethra. Biometrical parameters of pelvic urethra increased with increase in age and weight of foetus throughout the gestation period. Various layers of pelvic urethra were formed distinctly at 57 days of gestation. The lumen of urethra was lined by 4-5 layers of polyhedral shape cells at 59 days of gestation. At 71 days of gestation, it was lined by transitional epithelium.

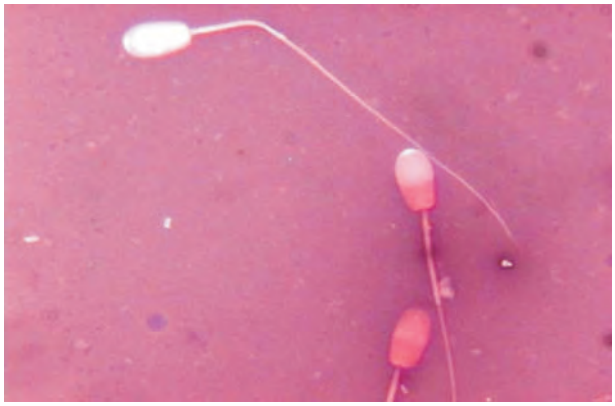
The primordia of vesicular glands appeared as lateral outpocketing of mesonephric duct at 55 days of gestation. The duct formation started with the aggregation of large mesenchymal cells at 59 days of gestation. At 70 days of gestation, the luminated ducts were also present with solid ducts. These were lined by simple to stratified squamous epithelium in group III, but in group IV these were lined by 2-3 layers of cuboidal epithelium. Folding of mucosa was seen in later part of the last trimester of gestation. In group V, the ducts were lined by stratified cuboidal to columnar epithelium

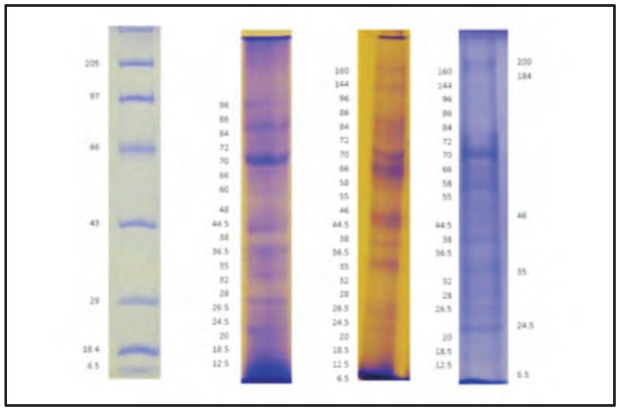
. At 55 days of gestation, the primordia of future pars disseminata of the prostate gland was observed as cluster of cells within the wall of developing urethra. On 57 days of gestation, solid prostatic ducts were present in lamina propria submucosa of pelvic urethra. At 71 days of gestation, the luminization process was seen in some of the solid ducts. Prostatic ducts were confined to the dorsal aspect of pelvic urethra in its cranial part but as we move caudally they were present in the dorsolateral, lateral and ventral part of the same. The solid secretory end pieces were found at 93 days of gestation, at the terminal part of the duct, concentrated at the periphery of lamina propria submucosa.

The primordia of bulbourethral gland was seen as compact mass consisted of polyhedral cells, at 55 days of gestation. One compact mass was consisted of central lumen surrounded by 2-3 layers of concentrically arranged mesenchymal cells. The other compact mass was solid consisted of cluster of polyhedral cells. The duct formation started at 57 days of gestation. At 59 days of gestation, luminated as well as nonluminated ducts were present. These were lined by stratified cuboidal to columnar epithelium in group III. But in group V, they were lined by simple to stratified cuboidal epithelium. The solid secretory end pieces (mucous and serous) were recorded at 140 days of gestation.

Research 7: SDS-PAGE analysis of seminal plasma proteins of Bhadawari buffalo and their association with oxidative status and seminal characteristics in different seasons

Present study was designed to investigate the influence of season on semen characteristics, oxidative status and protein composition of seminal plasma of Bhadawari buffalo bulls. Six sexually mature Bhadawari buffalo bulls having age of 2-4 years were used as semen donor. The study was divided into three season viz. July to September, December to February and April to June (S3). Six ejaculates from each bull were collected in each season in morning hours using artificial vagina. Immediately after collection, semen was brought to laboratory and divided into two parts. Semen characteristics (volume of each ejaculate, sperm concentration, mass motility, progressive motility, live-dead percentage, HOST percentage, and percent acrosomal integrity) were determined in neat semen. Simultaneously, another part of neat semen was centrifuged for harvesting the seminal plasma. Influence of season on oxidative status was measured by estimating the level of MDA, catalase and SOD activity in seminal plasma. The results of study showed significant effect of season on ejaculate volume, sperm concentration, progressive motility, HOST per-cent and acrosomal integrity. The highest ejaculate volume, sperm concentration, live-dead percentage and HOST% were observed in summer season where as highest progressive motility, and percent AI were observed in rainy season. Significant seasonal effect was observed on the level of total protein and SOD activity in seminal plasma of buffalo bulls. The peak values of these biochemical attributes were observed in summer season as compared to other season of the year. SDS-PAGE analysis of seminal plasma proteins revealed 20 protein bands in rainy season, 23 bands in winter season and 25 bands in summer season. Out of these bands 18 protein bands were observed common in semen samples of all three seasons. Protein bands of 46, 55, 58, 144 and 160 ---were found in seminal plasma of rainy and summer season but not observed in winter season. Likewise protein bands of 48 and 60 kDa were observed only in winter season whereas 184 and 200 kDa were reported in semen samples of summer season only. The protein fractions (protein %) of common protein bands observed in three seasons revealed significant effect of season on protein bands of 24.5, 66, 70, 72, 84 and 86 kDa protein bands. Sperm concentrations showed correlation with 70, 72and 86 kDa proteins, progressive motility showed correlation with 24.5, 70, 72, 84 and 86 kDa proteins, AI showed correlation with 18.5, 20, 24.5, 44.5, 70, 72 and 84 kDa proteins. The total protein of seminal plasma showed correlation with 66 kDa proteins, LPO values exhibited correlation with 70, 72and 86 kDa proteins, Catalase activity of seminal plasma revealed correlation with 70 kDa and 86 kDa proteins, and SOD activity showed correlation with 24.5, 70 and 72 kDa proteins. It can be concluded from this study that season significantly influences the semen quality by affecting the semen characteristics, oxidative status and differential expression of seminal plasma proteins of Bhadawari buffalo bull semen.





Research 8: Studies on molecular characterization of Methicillin Resistant *Staphylococcus aureus* (MRSA) in bovine mastitis

In the study, total 125 milk samples, collected from the clinical and sub clinical cases of mastitis from cows (109) and buffaloes (16) in and around the Mathura city, were processed for isolation of methicillin resistant *Staphylococcus aureus.* Overall incidence of *S. aureus* in clinical as well as sub-clinical mastitis was found 41.60% (52/125). Incidence of clinical mastitis was 56.00% (42/75) and sub clinical mastitis was 20.00%. Results also revealed that incidence of *Staphylococcus aureus* in clinical as well as sub-clinical mastitis were higher in cattle (43.11%) in comparison to buffaloes (31.25%). All the 52 isolates of *S. aureus* produced black colonies on the potassium tellurite agar and 39 (75.00%) isolates showed fermentation on mannitol salt agar where as 13 (25.00%) isolates were mannitol non-fermentatative *S. aureus*. All the 52 *S. aureus* isolates were tested for coagulase activity by using rabbit plasma. Of these, 30 (57.69%) were found positive for coagulase production whereas 22 (42.30%) were negative for coagulase production. Majority of *S. aureus* isolates exhibited α-haemolysin 33 (63.46%) which is most potent membrane damaging toxin of *S. aureus,* whereas 8 (15.38%) isolates showed β haemolysin and 11 (21.15%) isolates were non-haemolytic on 5% SBA. Out of the 52 isolates of *S. aureus,* 22 (42.30%) isolates were found to be positive for lipase production and 32 (61.79%) were negative for lipase activity. 3 (6.97%) were found positive for TDNAase production. Among 52 *S. aureus* isolates, 43 (82.69%) *Staphylococcus aureus* produced slime, while 9 (17.30%) isolates were negative for slime production on CRA media. Antibiotic sensitivity patterns of 52 *Staphylococcus aureus* isolates revealed that resistant to antibiotics were cotrimoxazole (63.46%), followed by streptomycin (57.69%), gentamycin (55.76%), cephalexine (42.30%), amoxicillin (38.46%) and erythromycin (36.53%). Molecular characterization of the isolates by PCR assay was applied for species specific detection of methicillin resistant *S. aureus* as well as detection of virulence associated genes. Template DNA obtained by boiling method yielded good results in PCR. This technique proved to be very simple and rapid for template DNA preparation. PCR amplification of *Staphylococcus aureus* specific part of gene encoding the MecA of S. *aureus* isolates yielded an amplification product of 310bp for all the isolates especially for *S. aureus* species.

Research 9: Studies on semen characters of Bhadawari Bulls and its freezability under semi-arid conditions

This experiment was designed to compare GEYT extender with GEYC extender for cryopreservation of Bhadawari bull's semen. For this purpose, ejaculates were collected from four Bhadawari bulls using artificial vagina at biweekly interval. Semen ejaculates were diluted (80 x 10^6 motile spermatozoa/ml) in GEYT and GEYC extender. Diluted semen was filled in straws, equilibrated for 5 hrs at 4°C, kept in biological freezer for 7.25 minutes and then stored in the liquid nitrogen. Thawing was performed after 24 hrs. of storage at 37°C for 45 sec. Progressive motility , live spermatozoa, abnormal spermatozoa, plasma membrane integrity and acrosomal integrity were assessed at different stages (half dilution of semen, full dilution of semen, end of equilibration and post -thawing). Amongst the two extenders used, GEYT was found to be better than GEYC as it preserves the maximum seminal attributes. To further evaluate the breeding performance of bulls, In-Vitro fertility test (IVF) was conducted by co-incubating fresh semen with zona free oocytes of golden hamster (Zona Free Hamster Ova Penetration Test). The penetration rate and penetration index were in the range of 62.83 to 96.67 per cent and 3.10 to 5.69. This test further verified the fertilizing ability and quality of individual bull semen.

Research 10: Studies on certain seminal attributes and effect of dilutors on cryopreservation of Hariana bull semen

This experiment was designed to compare GEYT extender with GEYC extender for cryopreservation of Hariana bull semen. For this, ejaculates were collected from four Hariana bulls using artificial vagina at biweekly interval. Semen ejaculates were diluted (80×10^6 motile spermatozoa / ml.) in GEYT and GEYC extender. Diluted semen was filled in straws, equilibrated for 5 hrs. at 5^0C. kept in biological freezer for 7.25 minutes and then stored in liquid nitrogen. Thawing was performed after 24 hrs. of storage, at 37^0C for 45 seconds. Progressive motility, live spermatozoa, abnormal spermatozoa, plasma membrane integrity and acrosomal integrity were accessed at different stages of cryopreservation (start of equilibration, end of equilibration and post-thawing). Amongst the two extenders used, GEYT was found to be better than GEYC extender as it preserved maximum seminal attributes considers for the study To further evaluate the breeding performance of bulls In-vitro fertility test (IVF) was conducted by co-incubating fresh semen with zona free hamster ova penetration test. The penetration rate and penetration index were in the range of 48.41 to 78.34 per cent and 0.94 to 2.13. Also fertility trial done by performing AI with frozen thawed semen straws. The conception rate ranged from 70.83 to 100 per cent with a service per conception in the range of 1.5to 2.82.

Research 11: Studies on semen quality, freezability and fertility performance of Murrah bulls

This experiment was designed to compare GEYT extender with GEYC extender for cryopreservation of Murrah bull semen. Ejaculates were collected from three Murrah bulls using artificial vagina at biweekly interval. Semen ejaculates were diluted (80X106 motile spermatozoa/ml) in GEYT and GEYC extenders. Diluted semen was filled in straws, equilibrated for 5 hours at 40 ^{0} C, freezing was carried out in biological freezer for 7.25 minutes and then stored in liquid nitrogen. Thawing was performed after 24 hours of storage at 37 ^{0} C for 45 seconds. Progressive motility, live spermatozoa, abnormal spermatozoa, plasma membrane integrity and acrosomal integrity was assessed at different stages (half dilution of semen, full dilution of semen, end of equilibration and post -thawing). Amongst the two extenders used, GEYT and GEYC, there was no significant difference. To further evaluate the breeding performance of bulls, in-vitro fertility test (IVF) was conducted by co-incubating fresh semen with zona free oocytes of golden hamster (Zona free hamster ova penetration test). The penetration rate and penetration index were in the range of 90.62 to 100.00 percent and 1.40 to 5.24. Conception rate was in range of 46.66 to 66.66. These tests further verify the fertilizing ability and quality of individual bull.

Research 12: Studies on anthelmintic activity of *Chenopodium album* and *Annona squamosa* against gastrointestinal nematodes in goat

The *in vitro* anthelmintic activity of methanol, ethyl acetate and chloroform extracts of *Annona squamosa* seeds and *Chenopodium album* whole plant against the GI nematodes in goats were evaluated via egg hatch test (EHT) and larval development test (LDT). Distilled water and albendazole were respectively used as negative and positive controls. Percentage efficacy and ED_{50} value were evaluated by log probit analysis using SAS 9.2.

Methanol, ethyl acetate and chloroform extracts of *A. squamosa* at 25 mg/ml and above concentration had 100% egg hatch inhibition. The ED_{50} values for methanol, ethyl acetate and chloroform extracts of *A. squamosa* were calculated 1.52, 2.48 and 3.02mg/ml. The ethyl acetate extract of *C. album* was found highly effective as inhibited 100% egg hatching at 25 mg/ml and above concentration. In methanol and chloroform extract of *C. album* at 100 mg/ml concentration 100% egg hatch inhibition was recorded. The ED_{50} values for ethyl acetate, methanol and chloroform extracts of *C. album* calculated for ovicidal activity and were found 2.73, 3.86 and 4.41mg/ml respectively.

In LDT, dose dependent larval development inhibition was reported. The methanolic extract of *A. squamosa* showed 100% larval development inhibition at 25 mg/ml and above concentration. Ethyl acetate extract was secondly effective showing 100% efficacy against larval development at 50 mg/ml concentration. The minimum larvicidal effect found in chloroform extract at 50 mg/ml concentration was 96.4%. The ED_{50} values for methanol, ethyl acetate and chloroform extracts of *A. squamosa* were calculated 3, 3.17 and 3.39 mg/ml respectively. Results revealed ethyl acetate extract of *C. album* was most effective against larval development showing 100% larval development inhibition at 25, 50 and 100 mg/ml concentration. Methanol extract at 100 mg/ml concentration exhibited 98.2% and chloroform extract at 100 and 50 mg/ml concentration showed 100% larval development inhibition. The calculated ED_{50} values for ethyl acetate, methanol and chloroform extracts of *C. album* for larval development inhibition were 2.99, 3.87and 4.71mg/ml respectively.

Research 13: Cypermethrin induced toxicity in broilers and its amelioration with vitamin E

A total of forty five chicks were randomly divided into three equal groups. The cypermethrin was given @ 800 mg/kg body weight in birds of group-II and group-III and vitamin E @ 150 mg/kg body weight in the birds of group III daily by oral route for 30 days. The birds of the group-I were kept as control. At the intervals of 10, 20 and 30 days post feeding various parameters of study were carried out.

Clinical signs of reduced appetite, ruffled feathers, hyperexcitability, dullness and depression, gasping, open mouth breathing, nasal discharge, diarrhoea, skin irritation and scratching, emaciation, pale comb, twitching of muscle, stiffness, difficult breathing, inability to stand were observed after 10 days post feeding in the toxicity group but of milder intensity in birds of group-III. Body weight gain of birds of group II and III revealed significant reduction from second week to end of experimentation. Weights of liver, lungs, spleen and bursa were found to be significantly lower in group-II. Hematological observations revealed significant decrease in the values of Hb, PCV, TEC and MCHC in group-II. The mean values of TLC revealed significant decrease at 10 and 30 days intervals with significant increase in heterophils and significant decrease in lymphocytes count in group-II.

Mean values of AST and ALT were significantly increased in toxicity groups as compared to control. The ALP revealed significant increase in birds of group-II on day 20 as compared to control. There was significant increase in the level of creatinine, urea, total protein and glucose level at different time intervals in group-II. The values of various biochemical attributes were less severe at different time intervals in birds of group-III. The mean values of SOD and GSH significantly decreased in toxicity groups and LPO and catalase significantly increased in group-II.

Pathomorphological studies of birds of group-II showed degenerative changes ranging from cellular swelling to vacuolization and focal areas of necrosis in hepatocytes along with congestion and lymphoid aggregation in portal areas in liver; presence of varaiable amount of light pink colour oedematous fluid in air vesicles and parabronchi and lymphoid aggregation around bronchi and sedimentation of erythrocytes in the portal vein in lungs; hypercellularity of glomeruli due to proliferation of endothelial cells, infiltration of mononuclear cells occupying most of the glomerular spaces, degenerative changes in the lining epithelium of renal tubules, infiltration of mononuclear cells particularly lymphocytes in peritubular spaces and extravasation of erythrocytes in the cortical areas in kidneys; subepicardial hemorrhages and degenerative changes in myofibres especially vacuolization with or without extravasation of erythrocytes and focal area of myocarditis characterized by degeneration and necrosis of myocardium with infiltration of polymorphonuclear cells and mononuclear cells in heart; degeneration and desquamation of epithelial lining of mucosa with focal area of necrosis forming ulcers in proventriculous, degeneration and desquamation of villous epithelium forming naked villi with necrosis in intestine; central chromatolysis in neurons and perineuronal edema, extravasation of erythrocytes and infiltration of glial cells, proliferation of ependymal cells and separation of molecular

and granular layer with depletion of purkinje cells in brain; mild depletion of lymphoid cell in malpighian corpuscles of spleen degeneration and necrosis of lymphoid follicle in bursa of Fabricius and in the caecal tonsils, hyperplasia of goblet cells were observed. Similar mild morbid lesions except pneumonia and myocarditis were also recorded in birds of group III administered vitamin E @ 150 mg/kg body weight orally as compared to the birds of group II.

Research 14: Reparative potential of ascorbic acid against lead and cypermethrin induced oxidative damage and alterations in drug metabolizing enzymes

Present study evaluated reparative the potential of ascorbic acid (100 ppm) in sub-acute toxicity of lead (Pb, 100 ppm) and/or cypermethrin (CPM, 50 ppm) in fifty four female Wistar rats (divided in to nine groups of six each) on the basis of physical and biochemical parameters. Both the toxicants failed to produce any clinically apparent toxicity. Physical attributes i.e. body weight and organ weight showed non significant alterations in Pb, CPM as well as Pb+CPM treatment group except for the early period of study. CPM hindered absorption of Pb as well as its accumulation in bone but did not alter the protection offered by ascorbic acid while Pb promoted absorption of CPM and also reduced the protection offered by ascorbic acid. With an exception to liver, no significant change in protein content of RBC, kidney, spleen with a change in exposure to metal and/or pesticide. The biochemical profile was differentially affected. Oxidative parameters revealed an antagonistic toxicodynamic profile of Pb and CPM. CYP-450, ANDM, APH and GST were found to play an important role in detoxification of heavy metals and pesticides. Co-exposure to Pb and CPM on xenobiotic metabolizing systems appeared to be almost parallel to those produced by the individual toxicants. Cytochrome b_5, UGT activity and microsomal protein content were unaffected by the treatment. Pb and CPM individually were found to produce marked histopathological alterations in vital organs as compared to Pb + CPM treatment in rats. Thus induction of phase I and phase II hepatic xenobiotic metabolizing enzymes and improved antioxidant status of erythrocytes, liver, kidney and spleen by ascorbic acid provides strong evidence for considering ascorbic acid as a promising tool for chemoprevention against heavy metal and/or pesticide toxicity in humans and animals as it is consumed on a regular basis globally. Further studies are required to unravel the molecular mechanism of toxicological implications of the metalloid-pesticide binary mixture toxicity on physical and biochemical parameters.

Research 15: Modulatory effect of ascorbic acid against arsenic and chlorpyrifos- induced oxidative stress and alterations in drug metabolizing enzymes

Present study evaluated the ameliorating effect of ascorbic acid (100 mg/kg body weight) in sub-acute toxicity of arsenic (40 ppm) and/or chlorpyrifos (5 mg/kg body weight) in fifty four male Wistar rats, divided in to nine groups of six each, consecutively for 28 days. Both the toxicants failed to produce any clinically apparent toxicity or mortality in rats. Physical attributes i.e. body wt showed non significant alterations on Arsenic, CPF as well as Arsenic + CPF treatment while organ wt showed significant alterations. Arsenic and CPF may be disturbing their own metabolism, absorption and/or excretion but did not alter the protection offered by ascorbic acid. LPO was the main parameter significantly affected by exposure in all the tissues as well as erythrocytes, except in spleen, which was not significantly affected. GSH, SOD, CAT, GST and GPx were significantly affected in all the tissues and erythrocytes with some exceptions. CAT was insignificantly affected by toxicants treatments in erythrocytes. SOD showed most marked changes in liver and spleen. Ascorbic acid exhibited considerable reparative or protective effect against arsenic, chlorpyrifos alone or in combination as revealed by significant restoration of the values of LPO, GSH, SOD, CAT, GST and GPx. Co-exposure to As and CPF on xenobiotic metabolizing systems appeared to be almost parallel to those produced by the individual toxicants. Arsenic, chlorpyrifos and their co-exposure caused significant variations in the levels of microsomal protein. The enzymatic

activities of cytochrome $P_{450,}$ cytochrome $B_{5,}$ APH, ANDM and UGT are significantly decreased. But GST activity remained unaffected, and CPF individually were found to produce marked histopathological alterations in vital organs as compared to Arsenic + CPF treatment in rats. Thus, induction of phase I and phase II hepatic xenobiotic metabolizing enzymes and improved antioxidant status of erythrocytes, liver, kidney, spleen and brain by ascorbic acid provides strong evidence for considering ascorbic acid as a promising tool for chemoprevention against heavy metal and/or pesticide toxicity in humans and animals as it is consumed on a regular basis globally. Further studies are required to unravel the molecular mechanissm of toxicological implications of the metalloid-pesticide binary mixture toxicity on physical and biochemical parameters.

Research 16: Studies on mechanistic pathway(s) of certain uterotonics in buffalo myometrium with particular reference to calcium signaling cascade

Present study was undertaken to unravel the underlying calcium signalling mechanisms responsible for spasmogens (histamine, $PGF_{2\alpha}$, oxytocin and 5-HT)-induced myometrial contractions in non-pregnant (diestrous) and different stages of pregnant buffaloes uteri collected from local slaughter house of Mathura. Isometric tension in myometrial strips was recorded under the resting tension of 2 ± 0.5 g following mounting the tissue in Ringers –locke solution. Following an equilibration period of about 2 hr, myometrial strips exhibited a consistent and rhythmic pattern of spontaneity irrespective of the stage of pregnancy, albeit, the nature of myogenic spontaneity varied between different stages of pregnancy which was characterized by an increase in spikes height and decrease in frequency as the pregnancy advanced.

Histamine was found to be most effective compared to $PGF_{2\alpha}$ and oxytocin in inducing myometrial contractions in nonpregnant (NP), early pregnant (EP) and mid pregnant (MP) uteri while oxytocin produced maximal relaxation in the late pregnant (LP) uteri. Nifedipine, a L-type voltage dependent Ca^{2+} channels blocker (VDCC), completely abolished the myogenic spontaneity of uteri from all stages of pregnancy suggesting its contribution in generating spontaneous rhythmic contractions. In the presence of nifedipine, the DRC of histamine and $PGF_{2\alpha}$ was shifted towards right with decrease in maximal efficacy in NP (3.42 ± 0.13 g vs 1.14 ± 0.11 g and 1.29 ± 0.07 g vs 0.85 ± 0.08 g, respectively), EP (2.01 ± 0.15 g vs 0.70 ± 0.08 g and 2.02 ± 0.13 g vs 1.76 ± 0.15 g, respectively) and MP (1.58 ± 0.06 g vs 1.33 ± 0.06 g and 0.53 ± 0.06 g vs 0.46 ± 0.07 g, respectively) uteri. With the exception in MP, VDCC blockade also inhibited oxytocin-induced contractions in NP (1.99 ± 0.16 g vs 1.18 ± 0.14 g) and EP (2.16 ± 0.18 g vs 2.07 ± 0.15 g) uteri. Nifedipine elicited biphasic effect (initial rightward shift followed by leftward shift) with increase in efficacy of oxytocin (0.95 ± 0.06 g vs 3.16 ± 0.73 g) in MP uteri. Inhibition of Ca^{2+} release from sarcoplasmic reticulum by ruthenium red (RuR) apparently but non-significantly inhibited the contractile effects of these spasmogens. Blockade of both VDCC-dependent Ca^{2+} entry and SR Ca^{2+} release either restored or augmented the contractile effects of these agonists. Therefore it may not be unreasonable to infer that following blockade of VDCC and Ca^{2+} release from SR, activation of some other alternative excitatory pathways may be involved in either restoring or augmenting the spasmogens-induced contractile effect on buffalo myometrium. Inhibition of PLC-PI signalling pathways by U-73122 significantly shifted the DRC towards right with decrease in efficacy (1.29 ± 0.07 g vs 0.63 ± 0.10 g) in non-pregnant uteri. Interestingly, all the agonists produced relaxant effects in the myometrial strips from late pregnant uteri. In contrast to the findings on NP, EP and MP uteri, following inhibition of both VDCC-dependent Ca^{2+} entry and SR Ca^{2+} release, the maximal contraction elicited by these agonists was observed to be far below than the average amplitude of spontaneous contraction. Based on findings of the present study it may be concluded that VDCC plays major role in myometrial contractility induced by histamine (NP, EP, MP), $PGF_{2\alpha}$ (NP, EP, MP) and oxytocin (NP, EP) whereas intracellular source of Ca^{2+} seems to be involved but not the major pathways in regulating myometrial spontaneity or contractile responses to the exogenously used spasmogens. PL-C

appears to play important role in $PGF_{2\alpha}$ –induced excitation in non-pregnant uteri. Down-regulation of the respective contractile receptors and up-regulation of inhibitory signalling pathways in mediating the relaxant effect of all these agonists in late stage of pregnancy needs further investigation.

Research 17: Prevalence of VTEC in fecal samples of diarrhoeic calves, healthy cows and water from certain areas of Agra and Mathura districts

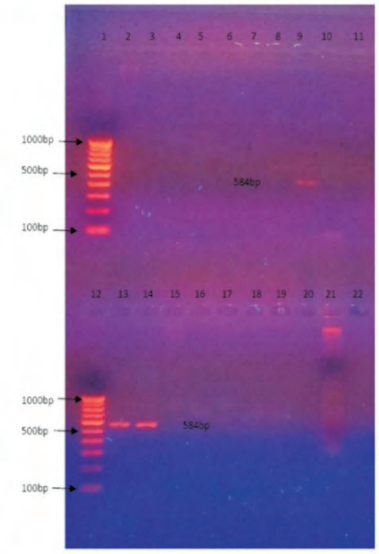
The objective of this study was to determine the prevalence of verotoxigenic *Escherichia coli* (VTEC) in faeces, water samples in certain areas of Agra and Mathura districts, to characterize them by molecular methods and to investigate haemolytic activity, congo red dye binding ability and multiple drug resistance. A total of 600 faecal samples comprising of 300 from diarrhoeic calves and 300 from healthy cows were collected and processed.

A total of 532 *E. coli* isolates were isolated, of which 250 *E. coli* isolates (from 286 samples) were processed for molecular characterization for stx1 and stx2 genes. The overall percent positivity of VTEC in faeces was 15.03% (43/286). A total of 150 water samples were collected and processed for molecular characterization for stx1 and stx2 genes. An overall prevalence of VTEC in different sources of water collected from Agra and Mathura districts was found to be 4.00% (6/150).

22 of 49 (44.89%) VTEC isolates were found positive for haemolysis when tested on sheep blood agar. Among the 49 VTEC isolates screened for congo red dye binding ability, 41 (83.67%) were found positive.

Further, the isolates were tested against for 6 antimicrobial agents. VTEC isolates exhibited highest sensitivity to gentamicin (79.59%) and resistance to ampicillin (55.10%).

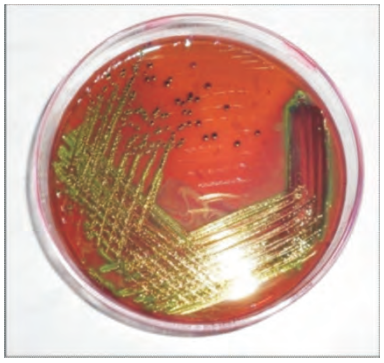
In conclusion, high VTEC prevalence detected in cattle evidences that bovine feces might play an important role as a contamination source in Agra and Mathura districts. Since VTEC was also detected from water, it indicates fecal contamination and thus can pose serious threat.



Agrose Gel showing PCR amplified product (584bp) for Stx2 gene in *E. coli* isolates from faeces of diarrhoeic calves and healthy cows

Research 18: Evaluation of bacterial quality & isolation of *Escherichia coli* (O157:H7) from different meat samples procured from retail meat shops & local slaughter houses of Agra Region

A total of 120 meat samples, 30 each from beef, chevon, pork and poultry were evaluated for bacterial load by standard plate count (SPC), coliform count (CC) & Staphylococcal count (SC) and 240 meat samples comprising 60 each of cara beef, chevon, pork and poultry were evaluated for presence of *Escherichia coli* (O157 H7). Mean values of SPC (log_{10}cfu/g) were found to be 7.03±0.07 for cara beef, 6.96±0.78 for chevon , 6.86±0.02 for pork and 6.75±0.04 for poultry meat.Mean values of coliform count (CC) (log_{10}cfu/g) were found to be 3.93±0.14 for chevon, 3.82±0.12 for poultry, 3.40±0.10 for pork and 3.04±0.08 for cara beef. Mean values of Staphylococcus count (SC) (log_{10}cfu/g) were found to be 3.90± 0.12 for cara beef, 3.84±0.12 for



***E.coli* Colonies with characteristics greenish metallic sheen on EMB agar.**

chevon, 3.35±0.10 for poultry and 2.81+_0.11 for pork. of 74 *Escherichia coli* (non O157:H7) isolates 18(30 %), 16(25 %), 15 (26.7 %) & 25(41.67 %) isolates were obtained from cara beef, chevon, pork and poultry meat respectively.Overall per-cent prevalence of *E. coli* (non O157:H7) in meat samples in different areas of Agra region was found to be 30.83 %. Isolation of *E. coli* from meat samples is associated with various diseases in man and animals which is of public health significance. The study revealed an urgent need to improve the hygienic condition at all levels of production and retailing of meat.

Research 19: B-Mode Ultrasonography of Teat in Dry and Lactating Buffaloes (*Bubalus bubalis*)

Aim of the present study was to determine the normal and abnormal ultrasonographic features of teat parameters in dry, lactating and pathogenic (teat affections) buffaloes. For this study 18 buffaloes (six dry and six lactating from dairy farm and six pathogenic from Kothari hospital) were selected. B-Mode ultrasonographic examination of teat by 8-MHz convex transducer was performed in all three groups. Ultrasonographic findings were described and teat canal length, teat end width, teat wall thickness and teat cistern width were measured.

The mean teat length was 7.358±0.523 cm and 7.491±0.289 cm, 6.683±0.711 cm and 7.775±0.808 cm, 7.091±1.055 cm and 7.8±1.043 cm in front and rear teats of dry, lactating and pathogenic groups of animals, respectively.Teat diameter was measured by using vernier calliper at 2.5 cm above the tip of the teat in all buffaloes. The mean teat diameter was 2.462±0.167 cm and 2.670±0.144 cm, 2.580±0.159 cm and 2.986±0.187 cm, 3.234±0.393 cm and 3.147±0.444 cm in front and rear teats of dry, lactating and pathogenic groups of animals, respectively. Teat end shape was round in majority of the animals.

Animals of group A and B were in 2nd to 4th lactation and there milk yield was 1043 to 2243 litres/lactation. However, no significance effect of the lactation and milk yield in teat canal length was observed during the experimental study.

For evaluation of internal parameter of teat, ultrasound scans were taken. The teats were scanned in B-mode using a portable ultrasonography machine. Teats were dipped into plastic cup filled with water at room temperature for better visualization of the teat structures. The probe was placed in the wall of the plastic cup using ultrasound gel and held lateral to the teat. The ultrasound images obtained were recorded. The proper images were chosen for measurements and subsequently certain teat parameters were measured.

Ultrasonography allows measurement of a wide range of teat tissue parameters, including canal length, teat end width, teat wall thickness and cistern diameter. The teat canal was used as the longitudinal scan axis. Teat canal length was measured in millimetres as the distance between the distal and proximal end. Teat canal was observed as a hyperechogenic line at the tip of the teat.

Teat canal length was measured 7.543±1.159 mm and 8.170±1.163 mm, 9.768±1.039 mm and 9.150±0.866 mm, 9.563±1.557 mm and 11.243±2.423 mm, in front and rear teats of dry, lactating and pathogenic buffaloes respectively.

Teat end width was measured in millimetres as a perpendicular to the axis of the teat canal at its proximal end. Teat end width was measured 16.450±0.938 mm and 17.900±1.021 mm, 18.608±0.801

mm and 19.841±0.666 mm, 21.525±3.437 mm and 21.750±1.944 mm in front and rear teats of dry, lactating and pathogenic buffaloes respectively.

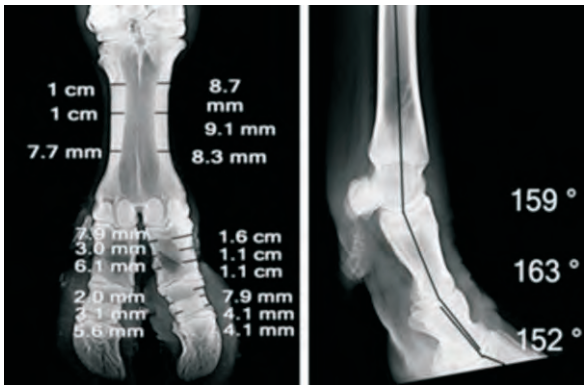
Teat wall thickness was measured in millimetres one cm above the proximal end of the teat canal. Teat wall thickness was 7.651±0.480 mm and 7.609±0.413 mm 9.064±0.540 mm and 8.954±0.510 mm, 9.906±1.3868 mm and 9.097±0.955 mm in front and rear teats of dry, lactating and pathogenic buffaloes respectively.

Teat cistern width was measured in millimetres one cm above the proximal end of the teat canal perpendicular to the axis of the teat canal. Teat cistern width was 6.530±0.975 mm and 7.619±0.893 mm, 6.750±0.495 mm and 6.630±0563 mm, 10.631±1.738 mm and 10.319±1.682 mm in front and rear teats of dry, lactating and pathogenic buffaloes respectively.

The B-Mode ultrasonography technique as described in this study seems to be reliable for determining the normal and abnormal anatomic features of the teat parameters in buffaloes.There are several reports of udder and teat obstruction and mastitis in buffaloes. Further investigations are necessary to evaluate ultrasonografic images as an additional diagnostic tool for abnormalities of the teat in buffaloes.

Research 20: Radiographic morphometric studies of distal bones and joints of fore and hind limbs of buffaloes

The present study was conducted on thirty clinical cases of buffaloes of different age groups which were presented at TVCC, DUVASU Mathura for diagnosis and treatment of minor problems for radiographic measurements of different distal bony and joint indices, divided into three groups depending on their age (emphasis was given to select animals of almost similar body weights and height in a particular group). Group A included animals of 1.5 to 3 years of age; Group B: 4 to 6 years and in group C animals of more than 6 years of age were selected. Then digital radiographs were taken of both fore and hind limbs in dorsopalmar/dorsoplantar views and in lateral view using 70 kVp and 30 mAs with FFD of 80 cm as radiographic factors. The studied parameters included bone length, bone diameter, joint space, joint angle and cortex to diameter ratio of metacarpal, metatarsal and phalanges and their joints.



Mean±SE values of length of metacarpal of animals of group A, group B and group C was recorded to be 19.36±0.06 cm, 19.90±0.20 cm and 20.50±0.16 cm, respectively and mean±SE values of metatarsal recorded was 22.21±0.17 cm, 22.77±0.15 cm and 24.25±0.10 cm, respectively. Mean±SE values of diameter of metacarpal and metatarsal of group A, B and C was recorded as 3.13±0.03 cm, 3.98±0.07 cm, 4.29±0.02 cm and 3.01±0.02 cm, 3.41±0.06 cm, 3.62±0.08 cm, respectively. The diameter of metacarpal bone was found to be more significant in comparison to diameter of metatarsal of buffaloes of all three age groups. The length of metacarpal, metatarsal, P1, P2, P3 of hind limbs were found to be higher than that of fore limbs in the animals of all three groups while diameters of metacarpal, metatarsal, P1, P2, P3 of fore limbs were found to be higher than that of hind limbs. Significant increase in the diameter of all the bones was noticed with advancing age with maximum diameter in group C followed by group B and A, respectively. However, C/D ratio were found to be maximum in the animals of group B, followed by that of group C and group A, respectively. There was

no significant difference in the values of metacarpo-phalangeal joint angle (JA1) and proximal inter-phalangeal joint angle (JA2) of the fore limbs in any of the group, whereas, it was noticed that the values of JA1 and JA2 of hind limb and distal inter-phalangeal joint angle (JA3) of fore limb in the animals of group A was significantly higher than that of other two groups with the minimum in the animals of group C. Metacarpo-phalangeal joint space (JS1) did not show any significant difference between the medial and lateral sides in fore limb in any of the groups. Whereas, JS1 of both medial and lateral sides in hind limb was wider in the animals of group A followed by group B and group C, respectively. In all three groups mean±SE values of proximal inter-phalangeal joint space (JS2) of both medial and lateral sides did not differ significantly in both fore limbs and hind limbs. In groups B and C, mean±SE values of distal inter-phalangeal joint space (JS3) of both medial and lateral sides were significantly higher in fore limb than that of hind limb. However, no significant difference was noticed when comparison was made between values of JS3 of both medial and lateral sides of fore limb and hind limb.

Research 21: Phylogenetic studies of canine parvovirus in dogs using VP1/VP2 gene

In this cross-sectional study, out of 100 faecal samples from dogs showing the clinical signs of gastroenteritis (vomition, diarrhoea, and dysentery), amplicons of 160bp could be isolated from 63 samples using CPV-2RT primers. Analysis of preval ence with respect to epidemiological factors viz., breed, sex, age, vaccination status and cohabitation with other dogs was determined and study revealed that breeds, age, vaccination status and co-habitation with other dogs seem to influence the distribution of canine parvovirus infection. It was the highest in Doberman (77.78%) and the lowest in Pomeranian (45.45%). Age wise prevalence of CPV were high in pups (0-<6 months age group) indicated higher susceptibility of pups to CPV. Prevalence of canine parvovirus infection was higher in unvaccinated dogs and dogs sharing their habitat with another dog. Sex had no significant influence on prevalence of canine parvovirus infection. After confirmation of CPV by primers pCPV-2RT, another PCR was carried out with all the 100 faecal samples were used to amplify VP1/VP2 structural gene of CPV genome. Out of 100 faecal samples, 63 were amplified by pCPV-2ab primer set, whereas 54 were positive against pCPV-2b primer set indicating higher prevalence of CPV-2b (54 samples positive) in comparison to CPV-2a (09 samples).

A total of eight isolates were sequenced by the private firm for phylogenetic analysis of these with the previous isolates, whose sequences were retrieved from the GenBank. In the Phylogenetic tree, all the field isolates isolated in the present study were grouped in one group along with isolated from China, Brazil, Bareilly, Kerala-2 and vaccine strain indicating the similarity among them. Though the isolates (Pondicherry 1 and 2; Kerala-1) could be distributed in another genetic group. The nucleotide (nt) divergence among the field isolates (Mathura 1-8) sequenced in this study and vaccine strains and other representative isolates (MEV-1, CPV-2a, CPV-2b Pondichery, CPV-2b China, CPV-2b Bareilly, CPV-2b Brazil, CPV-2b Iyrland, CPV-2b Pondichery-2, CPV- 2b Kerala) revealed that nucleotide divergence between Mathura isolates and CPV-2b Pondichery-2 isolates was higher (5.8%) compared to that of among recent field isolates (0.00%). To investigate the molecular basis for the observed genetic divergence in the recent isolates, the nucleotide sequence of VP1/VP2 gene was compared. Comparison of majority (consensus) sequences of recent field isolates and the vaccine strains in the VP1/VP2 region revealed common substitution in the recent field isolates in comparison to MEV. Continued epidemiological surveillance and sequence analysis will help in to uncover the presence of mutations and will provide insights into the prevalence of different antigenic variants of CPV.

Research 22: The study of POU1F1 (Pit1) gene polymorphism in Barbari goat

Goat industry is the important part of the socio-economy structure of our country. There are various recognized goat breeds in India of varying potential producing meat, milk and fiber. Among them Barbari breed are highly suited for rearing under restrained and stall feeding conditions by small land

holders. This essentiate the need to propagate this breed through marker assisted selection utilizing important candidate genes. POU1F1 gene is one of the gene that can be used as candidate gene for animal selection and breeding. As this gene encodes a pituitary specific transcription factor involved in development and regulating hormone expression in animals and moreover polymorphism of POU1F1 gene had been observed to be associated with important growth and production trait in various Chinese goats. With the objective, the present study was undertaken for studying polymorphism of POU1F1 gene and its genotypic and allelic frequency in 50 goats of Barbari breed.

Approximately, 5 ml of blood from representive goats were collected from jugular vein in 10 ml of vacuitainer tubes containing EDTA as anticoagulant. The genomic DNA was isolated from frozen as well as fresh blood samples by standard protocol of Sambrook et al. (1987). The purity was checked spectrophotometrically and the DNA samples ranging from 1.75-1.9 were included for the further study. PCR-RFLP/PstI assay was performed on isolated pure DNA samples by using the primer

'F':5'CCATCATCTCCCTTCTT 3'/ 'R':5'AATGTACAATGTGCCTTCGAG 3'

And thereafter, RE digestion was done by *Pst*I R.E. The 450bp PCR product of POU1F1 gene was observed by performing agarose gel electrophoresis. The results of P*st*I/PCR-RFLP assay revealed presence of only TT genotype with a genotype frequency of 1.The allelic frequency of T allele was found to be 1and that of C allele was zero. It can be concluded that PCR-RFLP technique can be readily utilized for initial screening of animal population for identification of monomorphic/polymorphic nature of the gene. Barbari goat population showed monomorphic pattern possessing all homozygous (TT) genotype. The gene frequency of wild type T allele was 1. 3'UTR region of POU1F1 in the Barbari goat breed was found to be a highly conserved region of T/C at 110 position of 3'UTR region.

Reproduction in all animals is necessary for continuation of generation and plays an important role in all economic yields in terms of milk and meat. If reproduction rate of animals is high, milk and meat yield will be higher in whole life span. The tendency of twining and triplicate is common in both sheep and goat. Several genes affecting ovulation rate in sheep have been discovered since the first major gene *FecB* (Fecundity Booroola) had been detected in 1980. Marker assisted selection using *FecB* mutation is being used to increase litter size in sheep having considerable economic value to mutton. However such study is not available in Barbari goat. Therefore the present study will be undertaken to study the polymorphism in major fecundity Booroola gene (*FecB*) in Barbari goat with objectives to identify *FecB* gene polymorphism in Barbari goat and to analyze the allelic frequencies of *FecB* gene in Barbari goat.

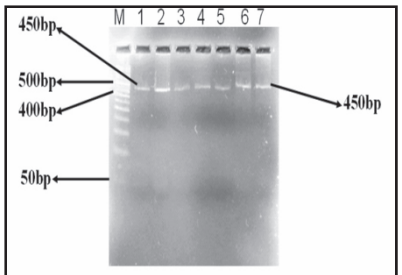


Fig.1. *Pst*I /PCR-RFLP assay of *POU1F1* gene revealed Monomorphic pattern (only TT genotype)

Lane M: Marker (50bp Ladder),

1: Undigested PCR product (450bp),

2,3, 4,5, 6 and 7: *Pst*I Digested product (450bp).

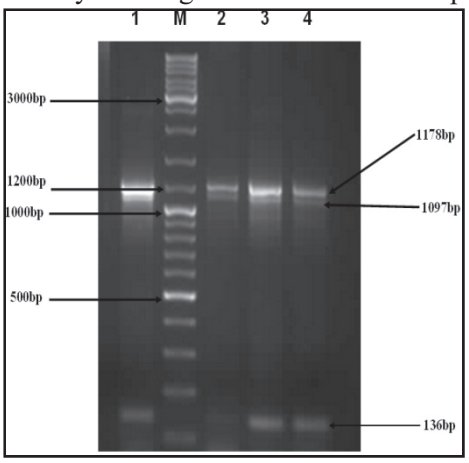
In the present study DNA was isolated from the blood of 53 Barbari goats and the amplified fragments sizes were consistent with the expected size as determined from their gene sequence information. T-ARMS-PCR revealed the presence of only mutant carrier (AG) genotype among the screened 53 Barbari goats. In heterozygous goat, all three different sized products, namely, 1178 bp (common outer), 1097 bp ('A' allele specific) and 136 bp ('G' allele specific) were amplified. Animals with wild type homozygous (AA) and mutant (GG) genotype could not be identified.

The genotypic and allelic frequencies at *FecB* locus in Barbari goat were calculated by standard procedure (Falconer and Mackay, 1996). The frequency of heterozygote genotype (mutant carrier) was 1.0 while there was absence of mutant genotype (GG) and wild genotype (AA) in studied population of Barbari goats. The frequency of A (wild) and G (mutant) alleles were 0.5. The conclusions were that Tetra- Primer amplification refractory mutation system- Polymerase chain reaction (T-ARMS- PCR)

method can be used to detect *FecB* mutation in Barbari goat breed of India. Barbari population showed monomorphic pattern possesses all heterozygote genotype. The allelic frequency of mutant (G) and Wild (A) type nucleotide were 0.5 for each allele. Introgression of the *FecB* allele from Barbari goat to non-prolific Indian goat breeds can improve fecundity in other goat breeds. This study showed that *FecB* mutant allele is present in Barbari goats, on other hand due to screening of small sample size there would be possibility that *FecB* mutant allele might be present in homozygous state in Indian Barbari goat breed.

Research 23: Studies on polymorphism of major fecundity Booroola gene (*FecB*) in the Indian prolific Barbari Goat

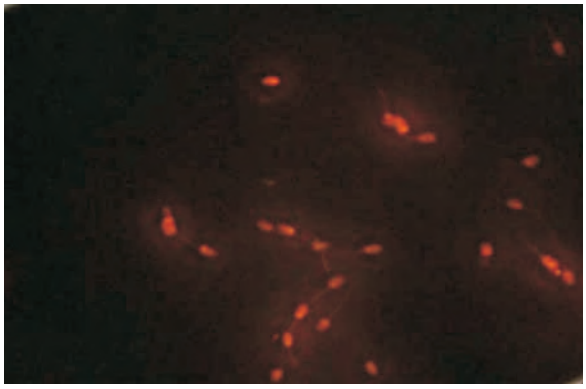
Goats contribute largely to the livelihoods of the livestock keeping house hold of low and medium input farmers. It is significant to improve the economic traits of goat such as reproductive trait. The tendency of twinning and triplets is inherited and similar in both sheep and goat. The presence of the *FecB* mutation and its association with prolificacy has been extensively investigated in different sheep breeds including Booroola Merino, Garole, Javanese, Small Tailed Han, Hu and Indian Bonpala sheep. Barbari goats are considered as highly prolific with more incidences of multiple births among the domestic ruminant species. The present study elucidated the *FecB* polymorphism and identifies the potential SNPs in this gene. DNA was isolated from blood samples of 53 Barbari goats. The purity of DNA was checked by gel electrophoresis. Amplification was carried out in Thermal cycler using tetra-primer amplification refractory mutation system PCR (T-ARMS-PCR). For T-ARMS-PCR based detection of point mutation of *FecB* loci of BMPR-1B gene known primer were used. T-ARMS-PCR revealed the presence of only mutant carrier (AG) genotype among the screened samples. The heterozygote goat, all three size products, namely 1178bp (common outer), 1097bp (A allele specific) and 136bp (G allele specific) were amplified. However, none of the goats were homozygous for mutant allele. Homozygous mutant goat, two amplicons corresponded to the size of 1178bp (common outer) and 136bp (G allele specific) could not be identified in all the screened samples.



Research 24: Comparative profiling of seminal plasma and sperm membrane proteins in cattle and buffalo

The aim of the present study was to elucidate the composition of seminal plasma and sperm membrane proteins as well as to study the effect of cryo-preservation of semen on apoptotic like changes in spermatozoa of Haryana cattle and Bhadawari buffalo bulls. Six each sexually mature Haryana cattle and Bhadawari buffalo bulls having age of 2-4 years were used as semen donor. Six ejaculates from each bull were collected in morning hours using artificial vagina. Volume of each ejaculate of semen was directly measured in milliliters (ml) and cconcentration of spermatozoa (10^6/ml) in the neat semen was determined by the haemocytometer method. Immediately after collection, semen samples were centrifuged at 5000 rpm for 10 minutes at 4^0C and the supernatant (seminal plasma) was separated. The sperm pallets were lysed by boiling with SDS-tris solution and centrifuged at 5000 rpm for 10 minutes for extraction of membrane proteins of spermatozoa. The proteins of seminal plasma as well as sperm membrane extract was estimated by Lowry method. SDS-PAGE was carried out in vertical slab gel electrophoresis system for protein profiling of both seminal plasma and sperm membrane extract of cattle and buffalo semen. The apoptotic index of sperms in neat and cryo-preserved semen were determined by staining the sperm pellet with Hochst stain and propidium iodide and degree of fluorescence is determined under fluorescent microscope.The mean ejaculate volume was estimated 4.03±0.22 ml in cattle and 2.95±0.18 ml in buffalo

bulls. The mean sperm concentration was observed to be 1736.94±60.46 $X10^6$/ml in cattle and 1678.05±86.68 $X10^6$/ml in buffalo bulls. The statistical analysis of the result did not show significant difference in ejaculate volume and sperm concentration in cattle and buffalo bull semen. The mean ± SE concentrations of seminal plasma protein were observed 7.86±0.34 mg/dl in cattle and 4.63±0.16 mg/dl in buffalo bull semen. The seminal plasma protein concentration showed a significant difference ($p<0.01$) in cattle and buffalo bull semen. The mean ± SE concentrations of sperm membrane extract protein were observed 2.81±0.25 mg/10^9 sperms in cattle and 4.42±0.63 mg/10^9 sperms in buffalo bull semen. The concentration of sperm membrane extract protein showed significant difference ($p<0.05$) in cattle and buffalo bull spermatozoa. Electrophoretograms obtained by polyacrylamide gel electrophoresis of seminal plasma proteins revealed 13 protein bands ranging from 6.5 kDa to 204 kDa while sperm membrane proteins revealed 17 protein bands ranging between 6.5 to 174 kDa in Haryana cattle semen. Seven protein bands of molecular weight 6.5, 8.5, 26.5, 43, 66, 70, and 84 kDa were observed common in seminal plasma and sperm membrane of cattle. The SDS-PAGE of buffalo sperm membrane proteins revealed 14 protein bands ranging from 16.0 kDa to 205 kDa and seminal plasma showed 24 protein bands ranging between molecular weight 6.0 to 200 kDa. Nine protein bands of molecular weight 20, 26.5, 36.5, 38, 44, 66, 70, 72 and 84 kDa were observed common in seminal plasma and sperm membrane of buffalo. In present study, the mean±SE apoptotic index of Haryana cattle and Bhadawri buffalo was observed 5.27±0.15 and 17.33±0.33 in neat semen and 10.83±0.22 and 25.00±0.21in post-thaw semen, respectively. Though no significant effect was observed in apoptotic index in neat semen of both the species however higher numbers of apoptotic sperms were observed in buffalo as compared to cattle bull semen. Significantly higher apoptotic index was observed in post thaw buffalo semen as compared to neat buffalo semen as well as cattle cryopreserved semen.



Research 25: A comparative study on parthenogenesis activation and embryo production from in vitro matured caprine oocytes

In the present study the effect of different chemical activation protocols on cleavage rate of in-vitro matured goat oocytes and the development of parthenogenetic embryos produced from different chemical activation protocols were observed. 934 goat ovaries were collected in normal saline and were transported to laboratory within 4 hrs. 2094 good quality oocytes were collected by puncturing of follicles and were matured for 27hrs in maturation media (TCM-199). Matured oocytes were subjected to chemical activation treatment. Chemicals for oocytes activation comprised a) 7% ethanol for 5min+2.0mM 6-dimethyl amino purine (6-DMAP) for 4 hr, b) 7% ethanol for 5min+10µg/ml cycloheximide (CHX) for 4 hr, c) 7% ethanol for 5min+2.0mM DMAP+10µg/ml cycloheximide (CHX) for 4 hr in two different madia (KSOM and mCR2aa). To study embryo development, chemically activated oocytes were randomly divided and cultured in two different media viz. KSOM and mCR2aa media for upto 12 days. In this study maturation rate of 95.03% was observed. In KSOM, the cleavage rate of chemically activated in-vitro matured goat oocytes in Gr.1, Gr. 2, Gr. 3 and Gr. 4 were 0.00%, 42.83%, 58.62% and 74%, respectively. Whereas, in mCR2aa media, the cleavage rate of chemically activated in-vitro matured goat oocytes in Gr.1, Gr. 2, Gr. 3 and Gr. 4 were 0.00%, 54.42%, 44.55% and 51.69% respectively. Furthermore, when we observed embryo development following different activation treatments, the blastocyst production was only observed in mCR2aa medium.

Research 26: Differential expression of TLR3 and TLR4 in caprine Brucellosis

Brucella melitensis causes chronic infections in goats that can result in abortion, still-births which leads to infertility. Initial host defense to bacterial infection is executed by innate immunity, and therefore the main goal of this study was to examine the contribution of Toll-like receptors (TLRs) during *Brucella melitensis* infection. Research into intracellular sensing of microbial products is an up and coming field in innate immunity. Toll-like receptors (TLRs) recognize *Brucella* spp. and bacterial components and initiate mononuclear phagocyte responses that influence both innate and adaptive immunity. Recent studies have revealed the intracellular signalling cascades involved in the TLR-initiated immune response to *Brucella* infection. TLR2, TLR4 and TLR9 have been implicated in host interactions with *Brucella*; however, TLR9 has the most prominent role. Further, the relationship between specific *Brucella* molecules and various signal transduction pathways needs to be better understood. In present study, the role of TLR3 and TLR4 was determined in *B.melitensis* infection in goats. The expression of TLR3 and TLR4 was analyzed on different tissues of goats viz; brain, spleen, liver and peripheral blood mononuclear cell. It was found that the different tissues expressed a high level of TLR4 while the expression of TLR3 was low on all the tissues used in the present study. It was concluded that the TLR4 expression is critical in *B.melitensis* infection in goats.

Research 27: Characterization of MC1R gene by PCR-RPLP & HRM analysis

MC1R (Melanocortin 1 receptor) gene is a highly polymorphic and responsible for coat color, fibre quality and wool quality. MC1R also regulates melanogenesis (skin pigmentation), which protect the body from harmful effect of UV radiation and thermal stress. Melanocortin also regulates several physiological functions such as inflammation, adrenal steroidogenesis, energy homeostasis, feeding behavior and exocrine function and red hair color. As there is no information available on the polymorphic pattern of MC1R gene in Indian goats, therefore the present study was undertaken to characterize MC1R gene in Barbari and Jamunapari goat breeds. The polymorphic pattern of the MC1R gene was analyzed by PCR-RFLP and HRM analysis. The genomic DNA was extracted from 30 blood samples of each Barbari and Jamunapari goats. The quality of DNA was checked biophotometrically and by agarose gel electrophoresis respectively. The amplified PCR product was 592bp (E6-E7) and the restriction analysis was carried out by the *MspI,* at 37 ̊C. PCR-RFLP pattern showed same genotype (345 +247 bp) in all the analyzed samples indicating the presence of only homozygous dominant allele E^D in both the breed. The HRM analysis was carried out in the E5-E6 region and showed two different genotype in all the analyzed samples indicating the presence of heterozygous SNP. HRM analysis showed two different genotypes in both breeds in the analyzed samples.

V. EXTENSION

To disperse the knowledge from laboratory to the farmers and public at large, Directorate of Extension, Department of Veterinary and Animal Hu sbandry Extension and Krishi Vigayn Kendra work together. They organize training programmes, give demonstration to the farmers on various aspects of animal health and production and also arrange various clinical camps in which experts from departments of medicine, surgery and gynaecology are involved. Besides these, for proper disease diagnosis, the experts from paraclinical department are also involved in clinical camps.

DIRECTORATE OF EXTENSION

The Directorate of Extension Education, Veterina ry University was started in the year 2005 and looking after the overall Animal Husbandry and Veterinary Extension Activities of DUVASU. Directorate reached to farmers with goods and services at their door steps.

Livestock owner/farmers are directly benefited through Pashu Gyan Chaupal. Direct linkage with specialists via Phone-In Programme of All India Radio for animal husbandry practices was started. Literature related with animal husbandry practices to the animal owners/farmers in Hindi was distributed. For the benefit of farming community/animal owners, 4 booklets, 37 folders and 35 leaflets were published by Directorate of Extension.

DEPARTMENT OF VETERINARY AND ANIMAL HUSBANDRY EXTENSION

During 2012-13, Department of Veterinary and Animal Husbandry Extension regularly organized training and refresher programmes on new techniques of animal husbandry practices for the farmers and animal keepers. Following Training/Exposure visits were conducted by the department –

Date	Name of the Agency	No. of Farmer / Livestock owners participated
05.10.2012	Manav Kalyan Pratisthan, Fatehpur, UP	06
05.11.2012	Manendra Singh Verma, UP Ganna Kisan Prakshan Sansthan, Shahjahanpur, UP	32
17.12.2012	Jaideep Teotia, Centre for Agriculture & Rural Development, New Delhi	23
20.12.2012	CDTRI, PCDF, Agra	34
22.02.2013	UP Ganna Kisan Prakshan Sansthan, Varanasi, UP	28
27.02.2013	UP Ganna Kisan Prakshan Sansthan, Gorakhpur, UP	42
04.03.2013	Jan Kalyan Sansthan, Merrut, UP	
08.03.2013	Arun Kumar Giri, Agriclinic	16
12.03.2013	Brijesh Kumar Yadav, Manav Kalyan Pratisthan, Etawah, UP	10
15.03.2013	Dr. P. K. Kisanja, Veterinary Assistant Surgeon, Raigarh, Chattisgarh	10
	TOTAL	**201**

KRISHI VIGYAN KENDRA

During the year 2012-13, the KVK, Mathura has organized On campus and Off campus training programme for farmers and farm women. Off campus trainings were carried out in different selected villages of the district, whereas on-campus trainings were given at KVK centre. A brief of the courses/ trainings provided by the KVK is presented below:

Type of training	No. of Course	On Campus			No. of Course	Off Campus		
		M	F	T		M	F	T
Farm & Farm women	124	1779	397	2176	136	2406	498	2904
Rural Youth	29	323	104	427	12	144	34	178
Extension functionaries	22	581	-	581	21	435	70	505
Sponsored	10	257	85	342	21	2596	697	3293
Vocational	10	178	24	202	11	195	28	223
Total	**195**	**3118**	**610**	**3728**	**201**	**5776**	**1327**	**7103**

The vocational trainings were given to youth to generate skills to make them more self independent. Trainings were given on various crops and integrated farming, livestock production and health aspects. Youths were well appraised with new technologies in these training programmes.

Frontline Demonstrations on Oilseeds, Pulses, Cereals and Fodder

During the reporting period Frontline Demonstrations on Oilseeds, Pulses, Cereals and Fodder covering an area of 94.10 ha. with 289 farmers of the district at various locations were conducted to demonstrate the proven technology for productivity enhancement.

S.No.	Type of crop	No. of demonstration	Area (hac)
1.	Oil seed	101	40
	Til	025	08
	Mustard	076	32
2.	Cereals		
	Paddy	014	07
	Bajra	021	12
	Wheat	015	76
	Barley	010	05
3.	Fodder		
	Multicut jawar	067	67
	Barseem	025	25
	Oats	024	24

During the reporting period Frontline Demonstrations on Bhindi, Brinjal, Cabbage and cauliflower covering an area of 08.00 ha. With 27 farmers of the district at various location were conducted to demonstrate the proven technology for productivity enhancement of vegetable crops. During the reporting period Frontline Demonstration on Dhaincha covering an area of 4.0 ha. with 10 farmers of the district at various location were conducted to demonstrate the importance of green mannuring in productivity enhancement by testing the soil of farmer selected under demonstration.

Kisan Mela and Exhibition

On 26.10.12 a grand Krishi Mela Evam Pashupradarshni was organized in which more than 1000 farmers of different villages from all the blocks of Mathura participated. To give wider publicity the farmers of different villages were personally contacted and motivated to participate in this Mela. The Mela was inaugurated by the Chief Guest Hon'ble Vice Chancelor of DUVASU in the gracious presence of Dean, College of Veterinary Science, DUVASU, Ma thura. In Mela 33 stalls of Govt., Semi Govt., DUVASU, and Private Departments and of NGOs had displayed their activities. A Krishi evam Pashupalan Gosthi for farmers was also organized in which lecturers to promote fodder production in Zaid was also delivered. The magazine "Braj Main Krishi Evam Pashupalan", "Braj Main Phal Phool Evam Mashalon Ki Kheti" and "Braj Main Bhoome Evam Jal Saranchhan Tatha Unnati Krishi Takneekiyan" published by KVK was released by the chief guest for the farmers on this occasion.

Radio Talk

Talks and discussion on various need based topics were delivered for farmers from AlR, Mathura through recorded and live "Phone on-line programme" in which direct answers to the farmers queries are given. Many such programmes were broadcasting during the reporting period.

TV Programmes

Various programmes on Neo Channel and ETV has been telecasted on various need based topics like: Scientific management of paddy nursery, Termite control, Scientific cultivation of Cucumber and Okra, Scientific cultivation of Cotton, Scientific cultivation of maize, Soil testing campaign.

Voice Mail

Voice SMS's to more than 550 registred farmers are being sent through Agropedia at regular interval on various crops with regards to the important activities to be conducted by the famers.

Plantation of Grasses, Landscaping and Forestation

At the behest of Hon'ble Vice Chancellor, DUVASU, Mathura the Napier and Guinea grass was transplanted at Raj Bhawan on 07-08th August, 2012. The grasses are flourshing in a well manner and providing green fodder for the cattles domesticated at Raj Bhawan.

The KVK was involved in planting of new plants/samplings under a massive drive taken up for landscaping, forestation and development of orchard at various locations in the University for which plants from Lucknow and other nurseries were purchased. During the season 911 plants of various fruit and ornamental were planted.

Visit of Dignitaries and Farmers to KVK and University

DDG (Extension) Dr. K.D.Kokate and ZPD Dr. A.K.Singh visited KVK and its farm and lauded the efforts taken to improve the productivity.

More than 570 farmers from within state and out of states visited KVK under different exposure visits. They were given training on various topics and shown various facilities and scientific developments at KVK and DUVASU, Mathura.

PRODUCTIVITY OF KVK FARM

Crop/Variety	Production (Q)	Income (Rs)
Barley (K-508, NB-2)	632.40	7,19,934.00
Jawar (Desi Poorvi)	18 acre auctioned as green fodder and 2 acre transferred to ILFC for animals.	1,15,500.00
Bajra (Desi)	2-5 acre auctioned as green fodder	12,500.00
Til (T-78)	13 acre (9.33 Q) sold @ Rs. 8600/Q	80,281.00
Barley NB-2 (Seed Production)	Harvested-Yet to be weighed	-
Total	**-**	**9,28,215.00**

Animal Welfare and Health Camps

College of Veterinary Science has been regularly organizing animal welfare and health camps to render clinical services to farmers at their door steps. These camps were organized in various villages of Mathura and adjoining districts. In these camps, along with the teachers from clinical and paraclinical departments students also participated. They were given hands on training on various aspects of disease diagnosis and treatments. Lectures were also organized in these camps to give fair knowledge to the farmers about vaccination schedule, clean and hygienic milk production etc. During the period of report, following camps were organized which were regularly monitored by Hon'ble Vice Chancellor and Dean, College of Veterinary Science, Mathura.

Village	Date	Total	Cattle	Buffalo	S & G	Equine	Canine	Others	VOG	VCM	VSR
Manoharpur	16.06.12	141	18	107	14	0	2	0	51	84	6
Jawra	28.06.12	127	29	96	0	1	1	0	59	60	8
Fainchari	14.07.12	91	20	70	0	0	1	0	26	61	4
Bajna	01.09.12	468	7	103	255	0	3	100	429	29	10
Baati	15.09.12	213	33	53	125	1	0	1	24	183	6
Dharwar	22.09.12	210	21	104	79	0	0	6	68	136	6
Mukundpur	06.10.12	105	13	89	0	3	0	0	41	52	12
Raal	13.10.12	209	47	150	0	12	0	0	60	128	21
Parkhamgujar	30.11.12	131	21	74	36	0	0	0	25	99	7
Mithauli	17.11.12	250	26	72	150	1	1	0	56	190	4
Junsuti	08.12.12	528	60	206	262	0	0	0	87	419	22
Karabh	22.12.12	133	37	94	1	1	0	0	69	49	15
Bajhna	29.12.12	140	36	104	0	0	0	0	33	103	4
Bhooreka	12.01.13	336	50	126	151	1	8	0	65	267	4
Chheoli	19.01.13	143	14	104	23	0	1	1	60	80	3
Oal	02.02.13	421	13	67	339	1	0	1	39	378	4
Mahavan	14.02.13	37	18	18	0	0	1	0	9	25	3
Deevana Kalan	23.02.13	0	0	0	0	0	0	0	0	0	0
Raipura Jat	09.03.13	64	7	56	1	0	0	0	20	38	6
Jachaunda	23.03.13	66	10	54	0	0	2	0	19	39	8
Nagla Gyasi	16.03.13	71	0	65	6	0	0	0	33	35	3
	Total	3884	480	1812	1439	21	20	109	1273	2455	156

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To fulfill the objects of Pashu Gyan Chaupal for the diagnosis of various animal diseases had been done at door step of farmers/animal owners. About six thousand animals were treated through Pashu Gyan Chaupal under different Animal welfare camp by specialist Doctor/Scientist at the door step of farmers.

1188 biological samples collected from clinical camps were processed out of which 384 samples were positive for various diseases.

S. No.	Source	Total Sample Taken	Positive Samples
1.	Fecal (Parasitic Disease)	626	209
2.	Blood	180	13
3.	Water	105	7
4.	Fecal	163	111
5.	Milk	34	8
6.	Skin	80	36
	Total	**1188**	**384**

VI. UNIVERSITY FARMS

MADHURI KUND FARM

Madhuri Kund farms have about 1396 acres of land. Out of which 788.28 acres of land is under cultivation. During the year 2012-13 following crops were cultivated and produced at farm.

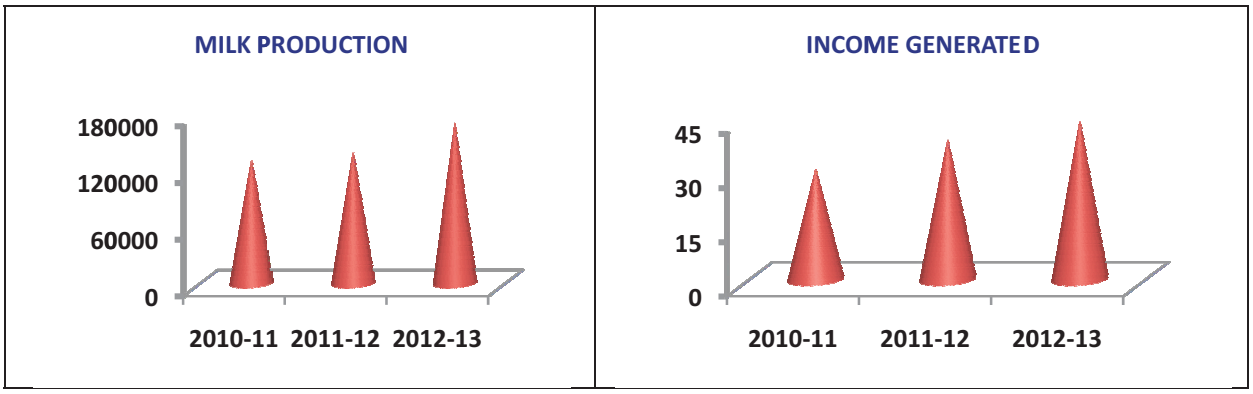
S. No.	Name of Crop	Production (quintals)
1.	Sarson	210.70
2.	Wheat	2582.46
3.	Jau	3500.00
4.	Tarameera	31.00
5.	Jae	283.68
6.	Barseem	30.95
	Total production	**6638.79**

The total production of 2012-13 was Rs. 6638.79 quintals. It was the second highest production in the last nine years. The income from these crops was 1.12 Crores. From this year, the farm has also started the certified fodder seed production. The farm is well equipped with all the modern facilities of farming and the continuous efforts are being made to increase Production at the farm.

INSTRUCTIONAL LIVE STOCK FARM COMPLEX (ILFC)

In dairy farm at ILFC, cattle (Hariana, Sahiwal, Cross breed) and Murrah Buffaloes are being reared. During 2012-13, total milk production at the dairy farm was 1, 69,751.00 liters.

	2010-11	2011-12	2012-13
Milk Production (L)	1,30,499	1,38,866	1,69,751.00
Income generated (Lacs)	30.50	38.66	43.86



Milk produced at the dairy farm is distributed to students, faculty and other staff members of DUVASU, Mathura. Milk is regularly processed by department of Livestock Products Technology for production of milk products like khoya, paneer, lassi, ice- cream etc. To maintain good herd and to enhance the milk production, 10 more Hariana cattles were purchased during the year. Solar lights, solar heaters were installed in ILFC to improve the efficiency of work / man power and biogas based generator to ensure uninterrupted power supply. Dairy farm animals are also used for teaching and research purposes on different aspects of animal health, production and reproduction.

To provide grains and green fodder to animals throughout the year, 110 acres of agricultural land of ILFC farm is used for production of grains and green fodders. During the year 2012-13, 15364.60 quintals of green fodder and 418.65 quintals of dry fodder were produced. Besides these, berseem seed (4.25 quintals), Jai (122.65 quintals) and Jau (467.67 quintals) were produced.

POULTRY FARM

For teaching and research purposes, Department of Poultry Science, College of Veterinary Science & A.H. is having its own poultry farm. Different species of poultry birds are being maintained in farm. During 2012-13, following species of poultry were raised:

S.No.	Species	Number
1.	White leg horn Layer birds	196
2.	Japanese quail	122
3.	Kadaknath	20
4.	Naked Neck	15
5.	Aseel Pela	43
6.	Guinea fowl	21
7.	Turkey	35
8.	Emu	4








Besides above, 2080 birds of different breeds like Punjab Brown, Chandigarh Black, PB layer, PB-1 broiler, Chabro, Red Cornish, Dehlam Red of poultry were also maintained on the farm.

Under entrepreneurial training, students were exposed to various farm activities like feeding, watering and management of birds. Entrepreneurial training on 500 broilers was undertaken by 24 students of B.V.Sc & A.H. 2 nd year divided into five groups from 5.4.2013 to 9.5.2013. The profit generated by the student was Rs 5938.00. Similar training was given to 21 students of B.V.Sc & A.H. 3 rd year from 20-1-13 to 18-2-13. The profit generated was Rs. 13,863.00.

During 2012-13 under revolving fund scheme, 4580 broiler chicks were reared in 8 cycles. Under experiential learning unit of poultry, total revenue generated was Rs 47,529/-.

S.No.	Product	Quantity	Number	Income (Rs)
1.	Eggs	661.25 Kg.	14030 eggs	44680.00
2.	Cockerels	40.70 Kg.	16 birds	2849.00
			Total Income	**47,529.00**

From the instructional flock, department sold its produce on first come first serve basis and during the year under report, generated a revenue of Rs 54,357.00.

S.No.	Product	Quantity	Number	Income
1.	Desi eggs	153.05 Kg.	3668 eggs	15305.00
2.	Guinea fowl eggs	29 Kg.	756 eggs	2900.00
3.	Japanese quails	25.5 Kg.	2313 eggs	1530.00
4.	Turkey eggs	10.5 Kg.	129 eggs	475.00
5.	Cockerels	155 Kg.	132 birds	13,590.00
6.	Chabro	97.74 Kg.	68 birds	7987.00
7.	Desi adult brids	-	23 birds	7215.00
8.	Desi chicks	-	12 birds	420.00
9.	Chabrochicks	-	305 birds	4575.00
			Total Income	**54,357.00**

The hatchery was inaugurated on 7.1.2013 by Prof. A. P. Singh, Honorable Vice Chancellor, DUVASU, Mathura. In the first hatch, the hatchab ility percentage was 84% while 82.6 percent in the second hatching.

PASTURE FARM

DUVASU has another agricultural land of 33 acres under pasture crop section. Following crops were cultivated during 2012-13:

S.No.	Season	Crop	Area (acres)	Production (Quintals)	Income (Rs)
1.	Zaid	Jowar	13	Auctioned	1,00,500.00
2.	Kharif	Til	20	30.70	2,62,955.00
3.	Rabi	Barley	33	Grain- 542.45 Straw- 267.75*	6,25,048.00
				Total	**9,88,503.00**

*Used in dairy farm for feeding of animals

FISH SEED PRODUCTION UNIT

The Fish Seed Production Unit of the University was established with the financial support of Rashtriya Krishi Vikas Yojna (RKVY). The project concluded in March, 2012, however, the unit by virtue of its mandate remained functional to cater the need of fish farmers of the Mathura and adjoining areas. In the year 2012-13, 7,31,279 (Seven lakhs thirty one thousand two hundred seventy nine) fish seed of different carp species was made available to fish farmers at nominal rates. A receipt of Rs. 76,785.00 (Rupees Seventy six thousand seven hundred eighty five) was generated from the sale of fish seed. The total expenditure on production unit including the contractual labour was Rs. 45,060.00 (Rupees Forty five thousand sixty). The unit not only spawned profit of Rs. 31,725.00 (Rupees Thirty one thousand seven hundred twenty five) but was able to provide quality fish seed to farmers from different areas. The unit in the coming year will try to increase the production to fulfill requirement of more and more farmers.

VII. HUMAN RESOURCE DEVELOPMENT

23RD FMD SCIENTISTS ANNUAL REVIEW MEET

Two days 23rd Annual Review meet of AICRP on FMD of ICAR and FMD control programme was organized at DUVASU, Mathura on September 14-15, 2012. Renowned scientists and experts from ICAR, State Agricultural Universities and State Animal Husbandry Departments gathered to discuss the present scenario of the disease, its status in India, diagnosis, treatment and prevention measures. The inauguration function was chaired by Prof. KML Pathak, DDG (Animal Science), ICAR. Shri G.C. Pati, Secretary (AHD), Government of India and Dr. A. S. Nanda, Animal Husbandry Commissioner, Government of India reviewed the progress of FMD control programme and gave suggestions for the success of programme in the afternoon session.

ANNUAL CONVOCATION OF NATIONAL ACADEMY OF VETERINARY SCIENCE AND NATIONAL SEMINAR

11th Annual convocation of National Academy of Veterinary Science (India) and National Seminar on "Livestock Policy for National Food and Nutritional Security in the Scenario of WTO Regulations" was organized at DUVASU, Mathura on November 2-3, 2012. The chief guest of the function was Dr. J.P. Kukreti from USA, a former faculty member of this University, who recently sattained the age of 100 years. Prof. A.P. Singh, Vice Chancellor, DUVASU, Mathura and the Chief Patron of conference, Dr. M.P. Yadav, President NAVS, Dr. Gaya Prasad, Secretary NAVS, Prof. Satish Kumar Garg, Organizing Secretary and the Dean College of Veterinary Science and Animal Husbandry, DUVASU-Mathura were the dignitaries on dias. The programme started with the lightening of the lamp and Saraswati Vandana. The president and Secretary of NAVS briefed about the objectives and achievements of NAVS. Dr. Gaya Prasad, Secretary NAVS, announced various awards of the academy which includes fellowships, membership and corporate membership. The key note address on "Significance of quality and safety of milk and milk products" was delivered by Prof. A.K. Srivastva, Director cum Vice Chancellor, NDRI Karnal. In two days seminar, six technical sessions were arranged in which 17 invited lectures were delivered by eminent Scientists from various fields of Veterinary and Animal Sciences. They shared their experiences and suggested new plans for betterment of Veterinary profession.

ANNUAL CONFERENCE OF UTTAR PRADESH CHAPTER OF ISVS

One day conference of UP Chapter of Indian Society of Veterinary Surgery (ISVS) was organized on 29th December, 2012. Dr. Harpal Singh, Former Dean, Veterinary College, Pantnagar was Chief Guest. Presidential Address was delivered by Prof. A.P. Singh, an Eminent Surgeon and Vice Chancellor of DUVASU, Mathura. He stressed on the linkage between institution and field veterinarians for betterment of livestock production and livelihood of farmers.

WORKSHOP CUM TRAINING ON CeRA (Consortium of Electronic Resources in Agriculture)

One day "Workshop-Cum-Training Programme" was organized at DUVASU, Mathura on Jan 21, 2013. The workshop was inaugurated by Hon'ble Vice Chancellor Prof. A.P. Singh. In his inaugural address he emphasized on the use of CeRA. He also informed that scientist can operate CeRA in their departments itself by using internet facility. Dr. A.K. Mishra, Co P.I. of CeRA gave online demonstration to use CeRA. He informed that with the help of CeRA, more than 4000 research journals in 146 universities have been subscribed for the benefit of scientists, researchers and students and DUVASU-Mathura is one among them. More than 100 teachers, students and scientists from DUVASU, Mathura and CIRG, Farah participated in this workshop.

PARTICIPATION OF FACULTY MEMBERS IN TRAININGS/WORKSHOPS

S.No.	Name of Faculty Member	Title of Event and Place	Date
1.	Dr. S. K. Mishra	Annual Review Workshop of KVKs held at SVBP University of Agril. & Technology, Meerut	May 20-21, 2012
2.	Dr. B. Bist	Hands on training for transfer of soft ware for data analysis and interpretation of FMD immunoassays and m PCR technique.21-25 th August 2012.	Aug. 21-25, 2012
3.	Dr. S. K. Mishra	Mid Term Review Workshop of KVKs held at Pratapgarh.	Oct. 18-19, 2012
4.	Dr. Y. K. Sharma	National Workshop of KVKs held at PAU, Ludhiana (Punjab)	Nov. 20-22, 2012

5.	Dr. Vikrant Sudan	XVI Training Programme on "Biotechnological Applications in Veterinary Parasitology" at Centre of Advanced Faculty Training, KVAFSU, Hebbal, Banglore	Nov. 19- Dec. 09, 2012
6.	48 Faculty Members	One day Sensitization Workshop cum Training Programme for e Resources in Agriculture (CeRA) a sub project of NAIP, organized at CoVS&AH, DUVASU, Mathura	Jan. 21, 2013
7.	Dr. Sanjay Purohit	Current Practices and Protocols in Veterinary Emergency and Critical Care Medicine, Cardiology and Gastroenterology at Centre of Advanced Faculty Training in Veterinary Clinical Medicine, Ethics and Jurisprudence, Madras Veterinary College, Chennai.	Feb. 01-21, 2013
8.	Dr. Vikrant Sudan	Foresight and Future Pathways of Agricultural Research through Youth in India" at NASC Complex, DPS Marg, New Delhi	Mar. 01-02, 2013
9.	Dr. Rajesh Nigam	Agri Biotech Foundation- National Institute of Animal Biotechnology (NIAB), Hyderabad – Multi- stakeholders consultative workshop on "opportunities, challenges and strategies in Animal Biotechnology" in Karnal	Mar. 18-19, 2013
10.	Dr. Rajesh Nigam	School of Animal Biotechnology GADVASU, Ludhiana	Mar. 20, 2013

PARTICIPATION IN NATIONAL CONFERENCES / SYMPOSIA / SEMINARS / BY FACULTY MEMBERS

S.No.	Name of Faculty Member	Title of Event	Date
1.	Dr. Ajay Prakash Dr. Prabhakar Kumar	Mid annual convention of IAVA and National Seminar National Symposium on innovative methods of teaching veterinary anatomy and wild life anatomy, College of Veterinary Science, Bengaluru	May 04, 2012
2.	Dr. Amitav Bhattacharyya	National Seminar on 'Novel Feed Additives: An integrated Approach to Farm Profitability' held at PSK District Centre, Delhi	Jun. 23, 2012
3.	Drs. Vikas Pathak, V.P.Singh, Meena Goswami, S.K.Bharti, Amitav Bhattacharyya, Vinod Kumar, Debashis Roy, Atul Saxena, Vijay Singh, Amit K. Jaiswal, N. Sachan, Amit Kumar Verma, Archana Pathak, Varsha Gupta ,Sri Prakash Singh, Rashmi Singh, Ajay Pratap Singh, Ruchi Tiwari, Deepak Sharma, Amit Kumar Verma	Annual Convocation of NAVS and National Seminar on "Livestock Policy for National Food and Nutritional Security in the Present Scenario of WTO Regulations held at DUVASU-Mathura.	Nov. 02-03, 2012

4.	Dr. Vijay Pandey	XXI Annual Conference and National Symposium on "Physiological research in changing environmental scenario for sustainable livestock and poultry production" held at Vanbandhu College of Veterinary Science & Animal Husbandry, Navsari Agricultural University, Navsari (Gujarat)	Nov. 06-08, 2012
5.	Dr. Satish K. Garg	12th Annual conference of ISVPT held at CVSc., Hebbal, Bangalore.	Nov. 12-14, 2012
6.	Dr. Vinod Kumar Dr. Debashis Roy	8th Biennial ANA conference held at RUVAS, Bikaner	Nov. 28-30, 2012
7.	Dr. Ajay Prakash Dr. MM Farooqui Dr. Prabhakar Kumar	XXVII Annual Convention of IAVA and National Symposium on "Advances in Applied Anatomy of Domestic and Wild Animals - an interdisciplinary approach for Animal Health and Wealth" at COVS, Thrissur, Kerala	Nov. 28 -30, 2012
8.	Dr. Satish K. Garg	XXXII Annual Conference of STOX, India and International Symposium on New Frontiers in Toxicology held at CSIR-Indian Institute of Toxicology Research, Lucknow	Dec. 05-07, 2012
9.	Dr. Amitav Bhattacharyya	XXIX Annual Conference of Indian Poultry Science Association and National Symposium (IPSACON 2012) on 'Commercial and rural poultry production: Novel concepts and strategies to meet growing demand and changing consumer needs'	Dec. 05-07, 2012
10.	Dr. Atul Saxena	International Conference on Creativity and Innovation at grassroots - ICCIG, IIM Ahmedabad	Dec. 07-08, 2012
11.	Dr. Muneendra Kumar Dr. Deepak Sharma Dr. S. P. Singh	ISSGPU and National Seminar and Annual Conference on "Future challenges and opportunities to improve health and production of small ruminants" at CIRG, Makhdoom, Farah, Mathura	Dec. 22-23, 2012
12.	Dr Sanjay K. Mishra	7th Convention of UP chapter of ISVS and Seminar on" Advances in Farm Animal Surgery applicable under field conditions"	Dec. 29, 2012
13.	Dr Udit Jain Dr N. Sachan	"Consortium on e-Resources in Agriculture (CeRA)", organized by ICAR & ARIS cell, at DUVASU,Mathura held on 21st Jan., 2013	Jan. 21, 2013
14.	Yajuvender Singh	National Seminar on "New paradigms in livestock production: from traditional to commercial farming and beyond" organized at NDRI Karnal	Jan. 28-30, 2013
15.	Dr. Madhu Tiwari	Xth National Symposium on "Integrated development of vast biodiversity of indigenous livestock for long term rural livelihood security" organized by GBPUA&T., Pantnagar and SOCDAB.	Feb. 07-08, 2013

16.	Dr. Vikas Pathak Dr. V.P.Singh Dr. Meena Goswami	5th Annual Conference and National Symposium of Indian Meat Science Association (IMSACON-V) on "Emerging technological changes to meet the demands of domestic and export meat sector held at Hyderabad, (A.P)	Feb. 07-09, 2013
17.	Dr. Deepak Sharma	National Seminar on "Technological and policy interventions for sustainable cattle breeding in India" at Project Directorate on Cattle, Meerut	Mar. 14, 2013

VIII. DIGNITARIES VISITED

(1) Dr. R. K. Mittal, Assistant Director General (E.Q.R.) Indian Council of Agricultural Research New Delhi India (07.04.2012)

(2) Dr. C. Dev Kumar, Assistant Director General (E.P.D.) Indian Council of Agricultural Research New Delhi India (04.08.2012)

(3) Prof. K.M.L. Pathak, DDG (Animal Science), Indian Council of Agricultural Research, New Delhi (14-15.09.2012)

(4) Shri G.C. Pati, Secretary (AHD), Government of India (14-15.09.2012)

(5) Dr. A. S. Nanda, Animal Husbandry Commissi oner, Government of India (14-15.09.2012)

(6) Dr.(Smt) B. Meena Kumari, DDG (Fisheries), Indian Council of Agricultural Research, New Delhi (13.10.2012)

(7) Dr. Amresh Kumar, Former Dean, College of Veterinary and Animal Sciences, GBPUAT, Pantnagar (31.10.2012)

(8) Dr. K.D. Kokate, DDG (Extension) Indian Council of Agricultural Research, New Delhi (30.11.2012)

(9) Dr. Arvind Kumar, DDG (Education) Indian Council of Agricultural Research, New Delhi (10.12.2012)

(10) Dr. D. Dev Swarup, Director Central Institute for Research on Goats, Makhdoom, Mathura (19.12.2012)

(11) Sh. Yogesh Kumar, Principal Secretary, Animal Husbandry, Govt. of India (11.03.2013)

(12) Dr. S.K. Bandopadhayaya, Member ASRB, Indian Council of Agricultural Research, New Delhi (18.01.2013)

IX. ESTATE ORGANIZATION

NEW INFRASTRUCTURE ADDED OR RENOVATED

During the year 2012-13, University received a grant of Rs. 1.74 crores from the ICAR for renovation, maintenance and up-gradation of university buildings. Further 3.28 crore was received from the State government for the construction work in Livestock Products Technology, Fisheries and Vice-Chancellor's residence etc. For electricity, roads, pipeline, overhead water tank and repairing of houses Rs. 123.815 lacs were sanctioned by ICAR, New Delhi. During 2012-13, most of the projects which were started in the year 2011-12 have been completed and dedicated in the service of students and staff.

Dr. R. K. Mittal, Assistant Director General (E.Q.R.) Indian Council of Agricultural Research New Delhi India visited the university on 07.04.2012 and inaugurated the renovated ILFC by the grant received from ICAR.

Under Experiential Learning Programme of ICAR, milk processing plant was installed and it was inaugurated by Dr. C. Dev Kumar, Assistant Director (E.P.D.), Indian Council of Agriculture Research New Delhi India on 04.08.2012. Milk products like Paneer, Khoya, Ghee, Ice-cream are being regularly prepared by students under supervision of teachers.

New Girls hostel was constructed with Rs. 100 lacs from ICAR, New Delhi. Hostel has 25 rooms, mess, warden room and a common room for girls. It was inaugurated by Dr. Arvind Kumar, DDG (Education) Indian Council of Agriculture Research, New Delhi on 18.08.2012 in the presence of Hon'ble Vice Chancellor, Officers, Teachers, Staff and Students of DUVASU, Mathura.

Under RKVY project, to meet the requirements of fish seeds to farmers of the state, Fish seed production unit was constructed and was dedicated to the service of mankind by Dr. (Smt) B. Meena Kumari, DDG (Fisheries), ICAR New Delhi on 13.10.2012 in the august presence of Hon'ble Vice Chancellor, Officers, Teachers and Students of the University.

To keep the students and faculty of DUVASU Math ura healthy, a Squash Court was constructed with the financial assistance of Rs. 22 lacs from ICAR, New Delhi. It was inaugurated by Prof. Dr. A.P. Singh Hon'ble Vice Chancellor of DUVASU Mathura, on 30.11.2012.

At Madhuri Kund farm, complete renovation of seed processing plant and seed godown was undertaken with the financial assistance from ICAR. It was dedicated in the service of mankind by the Hon'ble Vice chancellor Prof (Dr.) A.P. Singh on 08.12.2012.

Under NICHE Area of Excellence projects, Lab Animal House was constructed in the Department of Pharmacology, which was inaugurated by Dr. D. Dev Swarup, Director CIRG Makhdoom, Mathura on 19.12.2012 in the august presence of Hon'ble Vice chancellor Prof. (Dr.). A.P. Singh, Officers of University, Dean College of Veterinary Sc ience, and faculty of Veterinary College, staff and students.

Under RKVY project, Pashu Gyan Chaupal was constructed at ILFC farm. The building is being used for various training programmes organized by Directorate of Extension for farmers, villagers, animal keepers, field vets etc. The building was inaugurated by Dr. K.D. Kokate DDG (Extension) ICAR, New Delhi on 25.12.2012.

With the grant of Rs.26.79 lacs from ICAR under ELP, hatchery was constructed in Department of Poultry Science, DUVASU Mathura. The hatchery will be useful for the farmers of the state. It will provide eggs to farmer. It was inaugurated by Hon'ble Vice Chancellor Prof. (Dr.) A.P. Singh in the presence of Officers of the University, Dean COVSc & A.H. faculty, staff and students on 07.01.2013.

Two Examination Hall-cum-lecture theaters were constructed with the cost of Rs.90 lac with assistance from ICAR, New Delhi. The classrooms are well equipped with latest audio-visual aids. It was inaugurated by Dr. S.K. Bandopadhayaya, Member ASRB New Delhi in the august presence of Prof. A.P. Singh, Hon'ble Vice Chancellor, Officers of the University, Dean College of Veterinary Science, Faculty, Staff and Students. Educational Museum was constructed with the financial assistance of Rs 100 lac from

ICAR, New Delhi. It was inaugurated by Prof. (Dr.) A.P. Singh, Hon'ble Vice Chancellor in the august gathering of Deans, Directors, Faculty, Staff and Students of DUVASU, Mathura on 18.01.2013.

Among one of the oldest buildings of the College, Anatomy block has been renovated with Rs. 70 lac from ICAR, New Delhi. It was inaugurated by Hon'ble Vice Chancellor Prof. A.P. Singh in the august presence of Officers of the University, Deans, Directors, faculty, staff and students of DUVASU, Mathura on 06.02.2013.



WORK UNDER PROGRESS

(1) Renovation of Department of Poultry Science with an estimated cost of Rs. 26.79 lacs with the financial assistance from ICAR, New Delhi.
(2) Construction of Toxicology Lab under RKVY scheme with an estimated cost of Rs. 25.50 lacs.
(3) Extension of Department of Pharmacology under NICHE Area of Excellence with the financial assistance of Rs. 150 lacs from ICAR, New Delhi
(4) College of LPT, College of Fisheries, College of Animal Industry and Business Management and Vice Chancellor's Residence with financial assistance from Govt. of U.P.

X. OTHER HIGHLIGHTS & ACTIVITIES

AMBEDKAR JAYANTI

Ambedkar Jayanti was celebrated in the University on 14th April, 2012. Prof. A.P. Singh Vice Chancellor of the university along with other officers, teachers, employees and students offered floral tribute to Dr. Bhim Rao Ambedkar.

WORLD VETERINARY DAY

World Veterinary Day was celebrated on 28 th April 2012. It was started with the inauguration of vaccination camp in TVCC by Dr. Satish Kumar Garg, Dean College of Veterinary Science & Animal Husbandry in the gracious presence of Director Clinics and other faculty members and students. In the camp,77 dogs were vaccinated against rabies and 75 dogs were dewormed and several dogs were treated for other diseases. 27 cows and buffaloes were examined for pregnancy diagnosis and infertility

problems. Prof. Satish Kumar Garg, in his address motivated the students to take up new challenges in life and do the best for the profession.

PRE VETERINARY TEST 2012

Pre Veterinary Test (PVT-2012) was conducted by the University in two phases viz; preliminary examination and mains examination. The preliminary examination was conducted in five cities-Kanpur, Allahabad, Bareilly, Lucknow and Mathura on 20-05-2012 in which 2441 students appeared. Out of these, 266 students qualified for mains examination. The mains examination was held at Mathura in which 190 students appeared. Out of which, 177 students qualified the second phase examination. Finally, the students were admitted to B.V.Sc. & A.H. programme on the basis of merit in competitive examination under various categories.

ORIENTATION PROGRAMME

Two days orientation programme was organized on July 17 and 18, 2012 for newly admitted students of B.V.Sc. & A.H. Objective of programme was to introduce the students to Veterinary profession. At the onset, Dean College of Veterinary Science & A.H. welcomed the students. Hon' ble Vice-Chancellor Dr. A.P. Singh addressed the students. The students were acquainted with the history of Mathura and the history of Veterinary education in India. They were also familiarized with Veterinary Education system its course curriculum, scholarships and awards, hostel rules, role of NCC, and career opportunities etc in the form of lectures in two days. A visit to University DDD farm, Poultry farm, various departments of Veterinary College and University campus and Mathura city was also oraganised on second day of the orientation programme.

INDEPENDENCE DAY CELEBRATION

66th Independence Day was celebrated by DUVASU family on 15th August 2012 with great zeal and enthusiasm. Hon'ble Vice Chancellor, Prof. A.P. Singh hoisted the National Flag at University Administartive building. Floral tributes were paid to Father of Nation. Students and staff participated in patriotic songs recitation and speech competition. Saplings were also planted by the Honble Vice Chancellor and Officers of the University.

PANDIT DEEN DAYAL UPADHAYAYA JAYANTI

On 25th September 2012, Pandit Deen Dayal Upadhayaya Jayanti was celebrated by the Officers of University, teachers, staff and students by paying floral tributes to Pandit Deen Dayal Upadhayayaji. Honable Vice Chancellor, Prof. A.P. Singh addressed the gathering and highlighted the contributions and sacrifices of Panditji.

GANDHI JAYANTI

Gandhi Jayanti was celebrated on 2nd October 2012 in the University campus where floral tributes were paid to Father of Nation by Hon'ble Vice Chancellor and Officers of University. Students presented Patriotic Song, expressed their views on the birthday of Father of Nation. Prof. A.P. Singh addressed the gathering and emphasized to follow life style, sacrifices and principles of Mahatma Gandhi.

DUVASU FOUNDATION WEEK

In 2012, University foundation day was celebrated as University foundation week on the 11th Anniversary of DUVASU, Mathura. Series of lectures were delivered by renowned veterinarians, namely; Prof. A.K. Srivastva, Director-cum-Vice Chancellor NDRI Karnal and Dr. Gaya Prasad, Director IVRI. A horse show was organized on the campus where NCC cadets exhibited their skills in horse riding, tent pegging etc. A cultural Night "Jhankar" was organized in which students exhibited their talents in singing, dancing, skits and qawalli etc. A dog show was also arranged on Nov 8, 2012 in which Dogs of BSF squads exhibited their skills like jumping through the series of rings, detection of underground explosives, drugs and catching thief etc. Animal Health Camp was organized in which free vaccination programme was done along with the regular checkup of animals.

REPUBLIC DAY CELEBRATION

64th Republic Day celebration was celebrated on 26th January 2013 in the University ground. National Flag was hoisted by the Hon'ble Vice Chancellor Prof. A.P. Singh. Floral tributes were paid to father of Nation. A competition on patriotic songs and speeches were organized in which students and

staff has participated and expressed their views. Best worker award to the ministerial staff of the university was distributed by the Vice Chancellor for their outstanding and dedicated services.

ICAR SPONSORED BEST TEACHER AWARDS

Best teacher awards as per ICAR guideline were also awarded by the Hon'ble Vice Chancellor on 26th Jan, 2013 to the Best adjudged teachers based on three tier evaluation system. The recipients of the awards in the senior and junior category were Prof. Satish K. Garg, Dean College of Veterinary Science and Animal Husbandry and Dr. Amit Kumar, Asst. Professor Microbiology respectively.

XI. AWARDS & RECOGNITIONS

1. **Dr. Brijesh Yadav** conferred Young Scientist Award during XXI Annual SAPI Conference at Navsari, Gujarat. (Nov. 6-8, 2012).
2. **Dr. Satish K. Garg** received Best poster award in *12th Annual Conference of ISVPT held at Bengalore* for 'Studies on chromatographic finger print analysis and antibacterial activity of different fractions of *Nycanthus arbortristis* flowers' by Satish K. Garg, Prashant Yadav, Soumen Choudhury, R.K. Yadav, Atul Prakesh, Annayan Dey and S. Dey. (Nov. 12-14, 2012).
3. **Dr. Yajuvendra Singh**, Assistant Professor received Dr. NSR Shastri Young Scientist Award 2013 during National Seminar on New Paradigms : From traditional to commercial farming and beyond held at NDRI, Karnal (Jan. 28-30, 2013).
4. **Dr. Meena Goswami**, Assistant Professor was elected as Executive Committee Member in IMSA Conference held at Hyderabad (Feb. 7-9, 2013).
5. **Dr. Vijay Kumar** was honoured in National Seminar on "Technological and policy interventions for sustainable cattle breeding in India" for poster presentation organized at Project Directorate on cattle, Meerut. (Mar. 14, 2013)
6. **Dr. Muneendra Kumar** received Best Research Paper Presentation Award during National Symposium on Buffalo sustainable food security, organized by Indian Society for Buffalo Development and Assam Agricultural University, Khanapara Campus (Mar. 15-16, 2013)

XII. RESEARCH AND OTHER PUBLICATIONS

A. Paper Published in National and International Journals

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Kumar A., Verma A.K., Gangwar N. and Rahal A. (2012) . Isolation, characterization and antibiogram of Mycoplasma bovis in sheep pneumonia. Asian Journal of Animal and Veterinary Advances. **7**(2): 149-157.

Kumar S., Goel R., Sharma D. and Tiwari M. (2012). Relative breeding values of first part lactation milk yield of Sahiwal Cattle Indian Journal of Animal Production and Management. **28** (1-2):110-112.

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B. Abstracts : More than 60 abstracts were published in the compendiums of various conferences organized in different parts of India. The papers were presented by the faculty.

C. Manuals : To make the teaching and learning more effective, 17 practical manuals were prepared by the faculty of College of Veterinary Science & AH as well as College of Biotechnology as per their course curriculum.

Besides these publications, faculty has contributed Popular Articles, Lead Papers / Invited Papers, Book Chapters in various technical bulletins.

XIII. FINANCE AND BUDGET

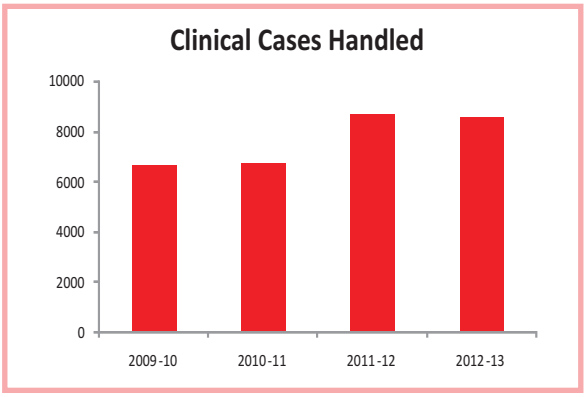
(Rupees in Lacs)

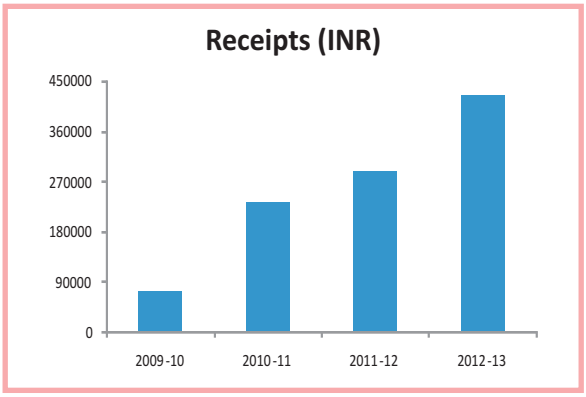
State Government			ICAR	RKVY	University Receipts
Plan	Non Plan	Total			
1990.90	6955.00	8945.90	400.00	--	206.96

XIV. RIGHT TO INFORMATION ACT

In compliance of the order of Govt. of UP and provision of RTI Act, 2005, PIO is working in the university. During the period, PIO office received 73 applications out of which 70 applications were cleared.

FEW INDICATORS OF UNIVERSITY ACHIEVEMENTS





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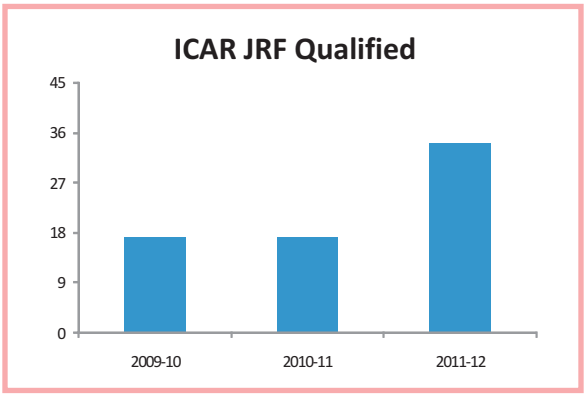

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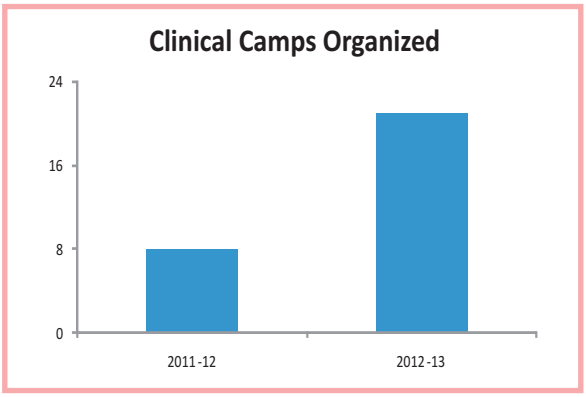

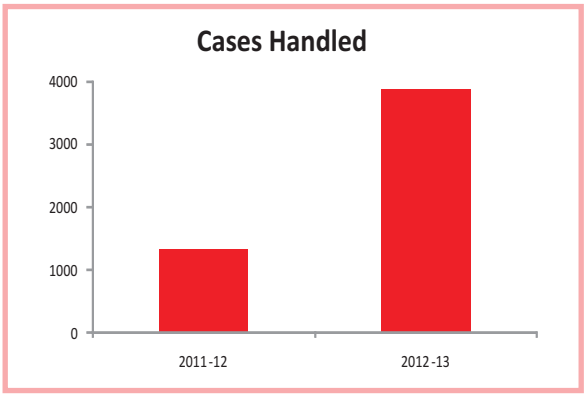

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