



ANNUAL REPORT

2016-17



31st

**Dr. GC Negi College of Veterinary and
Animal Sciences**

**CSK Himachal Pradesh Agricultural University
Palampur-176062 H.P**

Contacts: Ph. 01894-230327

Fax: 01894-2330327

email: dcovas@hillagric.ac.in

31st Annual Report

2016-17



Dr. GC Negi College of Veterinary and Animal Sciences
CSK Himachal Pradesh Agricultural University
Palampur 176062 HP

Contents

ITEM	Page
Foreword	3
Overview	4
Departments	
Department of Veterinary Anatomy	9
Department of Animal Genetics & Breeding	13
Department of Veterinary & Animal Husbandry Extension Education	20
Department of Animal Nutrition	24
Department of Fisheries	31
Department of Veterinary Gynaecology & Obstetrics	33
Department of Livestock Production Management	41
Department of Livestock Products Technology	44
Department of Instructional Livestock Farm Complex	46
Department of Veterinary Medicine	50
Department of Veterinary Microbiology	58
Department of Veterinary Parasitology	67
Department of Veterinary Pathology	69
Department of Veterinary Pharmacology & Toxicology	79
Department of Veterinary Physiology & Biochemistry	81
Department of Veterinary Public Health & Epidemiology	87
Department of Veterinary Surgery & Radiology	93
Department of Teaching Veterinary Clinical Complex	105
College Activities in Print and Electronic Media	110
Photo Gallery	113

Annual Report

Dr. GC Negi College of Veterinary and Animal Sciences

FOREWORD

I am extremely delighted to present the 31st annual report of the college. This report presents glimpses of the important activities and achievements by the faculty, staff and students of the college during the year 2016-17. During this time, the college continued with its endeavour to provide quality professional education, pursue need-based research and undertake farmer cum livestock owner centric extension and outreach activities. To accomplish its mandate of teaching through Veterinary Council of India (VCI), the college has adopted Minimum Standards of Veterinary Education (MSVE) guidelines-2016 with immediate effect.



The College has extremely well directed research programmes including many externally funded research projects by various agencies. This has helped to carve a niche in the overall development of livestock economy of Himachal Pradesh by addressing the animal health and management related issues, besides contributing in providing the trained technical manpower who can look after the livestock wealth of the state. Technical support services in the form of clinical camps in remote, far flung tribal areas as well as rural areas of the state were organized. These camps provided relief to livestock owners against various livestock diseases at their doorsteps as well as provided feed back to the college scientists to reorient their research programs. Livestock keepers were also apprised of latest developments in the fields of veterinary science and animal husbandry. The college clinic and its ambulatory services provided health coverage to the animals of the state by serving as a referral center for the entire state through its modern diagnostic and treatment facilities. The college is helping livestock owners and field veterinarians of Himachal Pradesh and other states of India by providing molecular diagnostics and disease investigation services for prevention and control of many infectious diseases.

The students of the college excelled in academics, sports and extracurricular activities at the university and inter varsity level competitions. Students also bagged scholarships and fellowships at national level examinations for postgraduate studies. The faculty members of the college brought laurels by bagging many national and international awards and fellowships in their fields of expertise and have also attended various international and national scientific meetings, seminars and conferences. Scientists of the college continued serving on the technical and editorial boards of various peer reviewed journals of national repute.

At this point of time, I along with the faculty, staff and students of this college extend our heartfelt gratitude to Professor Dr. A.K. Sarial, Honourable Vice-Chancellor of the University for his steady and vital direction and support for the college. I sincerely express my deep sense of gratitude to all the statutory officers of the CSK HPKV Palampur, HP Government, Indian Council of Agricultural Research and Govt. of India for funding and implementation of different research and extension activities in college.

I would like to thank and appreciate the efforts of editorial team comprising Dr. Rajesh Chahota, Dr. Pardeep Sharma and Dr. Ajayta Rialch for their meticulous efforts in bringing out this report. I am sure this document will be an important source of information for academicians, researchers, extension personnel and policy makers engaged in livestock sector of the state.

Dean
(Mandeep Sharma)

Annual Report

DR. GC NEGI COLLEGE OF VETERINARY AND ANIMAL SCIENCES

OVERVIEW

The college works with the mandates of teaching, research and extension. These broad objectives focus on animal health, production, livestock products technology and animal welfare. The multispecialty veterinary hospital, animal disease investigation unit and animal farms are the vital windows of the college. There are many merits of this college like tough competition based admission to B.V. Sc. & A.H. programme, uniform curriculum for UG veterinary education introduced by VCI, eminent faculties with a greater sense of commitment, need-based research programme and transfer of proven technologies and consultancy to the field. For academics, we have implemented the revised minimum standards of veterinary education-2016.

The first batch in the College was admitted in July 1986 and to begin with; this College was started with six composite departments. But at present, as per the recommendations of VCI, this College has now 17 departments plus a department of fisheries.

Further, this College also offers Post-graduate Programme leading to M.V.Sc. in 12 disciplines and Ph. D. degree in 7 disciplines. So far, 740 students have received B.V.Sc. and A.H. degree and 55 are graduating this year. All formerly passed out graduates are serving in different parts of Himachal Pradesh, Central Institutions, RVC, BSF, SSB, Veterinary Immunologicals, Wildlife health programmes, Medical and Paramedical Institutions, Pharmaceuticals, livestock feed plants besides establishing their own clinics and other different positions in Pvt. Sector. Many are pursuing their post-graduation. The students of this institution have excelled in National Competitions for the award of Junior Research Fellowships and brought immense pleasure and laurels to *alma mater*. The well-skilled graduates of this College have performed exceptionally well overseas, too.

The modified course curriculum as per VCI comprises of 177 credit hours spread over the period of 4½ years in both theory and practicals followed by a compulsory internship for six/12 months. The 10% of the meritorious students in each class are awarded with College merit scholarship worth Rs. 600/-each per month. However, during Internship, each student receives a stipend worth Rs. 4500/-per month. Multimedia-based teaching facility has been provided at the college level in Lecture Theatres. The web-based teaching is also in practice to enable the students to be in touch with educational information at par with global needs.

The department of TVCC of the college is a referral hospital of the state for the treatment of ailing animals and an important service point of the institution for the livestock owners and companion animal enthusiasts. It is also a platform for imparting practical knowledge for U.G. and P.G. students in the fields of Medicine, Surgery, Gynaecology, Epidemiology, Pathology, Microbiology, Parasitology and Clinical Biochemistry. This unit in 2016-2017 has shown a significant increase in the services provided to the farmers of the state compared to previous years. During the year, a total of 6839 cases in small and large animals were treated and including 162 referred cases. Additional 66 cases were treated as an emergency during off-hours. 1646 clinical samples were also tested for diagnosis of various ailments in the clinic through the attached clinical laboratory. The clinic also coordinated for organizing clinical camps in various parts of the state as well as attending animal disease outbreaks. The experts from Clinical and Para-clinical departments supported the clinic to attend clinical camps in different parts of the state. 636 animals were attended with various afflictions in 26 camps,

organized in different parts of state including tribal areas. On the spot treatment was given to large number of animals and surgery was also performed in few cases. Emergency services are provided in the clinic round the clock including Sunday and other holidays. Consultancy services on personal visit or on telephone were provided to 1256 farmers from far-flung areas like health and production related problems of their livestock & pets. Similarly, many animal disease outbreaks were attended and on the spot treatment and consultancy was provided.

Department of Veterinary Microbiology processed 124 Human and 425 Animal samples microbiologically, attended 6 disease outbreaks, deposited 28 unique pathogens to NCVTCC. The department of Veterinary Public Health & Epidemiology processed 210 including of 29 ready to eat food samples, 101 water samples and 80 poultry meat samples for bacteriological / microbial contamination. Department of Veterinary Pathology investigated total 2807 necropsies including 46 cattle, 1 buffalo, 16 sheep and goats, 5 dogs, 5 rabbits, 3 fish, 2729 poultry and 2 wild animals. A total of 07 autopsy, 16 biopsies and 57 clinical samples received in the department were subjected to histopathological/cytological investigations during the current year. The Department of Veterinary Physiology and Biochemistry processed 215 samples of blood, milk and feed for analyzing various biochemical and mineral parameters. The Department of Veterinary Medicine attended 4 disease outbreaks.

Research Funding/ milestone achieved by different departments

The department of Animal breeding and genetics has two externally funded projects viz. AICRP on Poultry Breeding and AICRP on Goat improvement (Gaddi Field unit) with budget provisions of Rs 65.00 lakhs and Rs 20.00 lakhs respectively for FY 2016-17. The Department of Veterinary Gynaecology and Obstetrics is having 3 research projects worth 85.5 lakh rupees. The main emphasis of research has been to study the reproductive problems of cows and buffaloes reared by farmers of Himachal and abandoned cows. Department of Veterinary Pathology is having 2 externally funded projects namely All India Network Program on Neonatal Mortality in farm animals (AINP-NM-Cattle) and Outreach Program on Ethno Veterinary Medicine amounting 128.6 lakhs. Department of Veterinary Surgery & Radiology is having 02 externally funded projects amounting 55.5 lakhs. And Department of Veterinary Microbiology is running 05 externally funded projects amounting few crores. Department of Medicine worked on Clinical Drug trial project entitled "Efficacy of Veterinary homeopathic formulations in livestock diseases and Production" from SBL Pvt. Ltd, New Delhi.

A project for the diagnosis of subclinical mastitis was implemented in 2016 with a total outlay of Rs.10.00 lakhs funded by Department of Environment, Science & Technology, Government of HP in the Department of Veterinary Physiology and Biochemistry,

The dedicated faculty members of the College have brought several national and international research projects to the College that are being operated successfully. The funding agencies are Govt. of Himachal Pradesh, Govt. of India, ICAR, Department of Science and Technology, Department of Biotechnology, RKVY etc. These projects have been helpful in building infrastructure to conduct effective teaching and research both at undergraduate and postgraduate levels.

Extension activities and trainings imparted

Total 28977 chicks of different stocks were supplied to 541 farmers to establish poultry units in different districts of state by department of Animal Genetics and Breeding. In 2016-17, scientists from department of Veterinary Gynaecology and Obstetrics have organized 56 infertility treatment camps under RKVY project in all parts of Himachal Pradesh, including 12 camps in tribal areas of different districts. More than 1500 cows, buffaloes and yaks and their crosses have been examined

and treated in these camps. Department of Livestock Production Management Under AICRP on Goat Improvement monitors 1123 goats including 723 breedable does belonging to four different migratory routes and after final selection, a total of 30 bucks were distributed to 30 different farmers. A farmer Shri Karam Chand of Village Bringti Deol, Bharmaur, Chamba, associated with the project was awarded prestigious national level Breed Savior Award by DDG ICAR, at NBAGR, Karnal on May 22, 2017. The unit was graded as Excellent on the basis of overall performance for third year in a row. Department of Veterinary Medicine organized special clinical camps on “Enzootic Bovine Haematuria” in 4 villages of Sainj Valley of Distt. Kullu and 7 villages of Janjehli Valley of Distt. Mandi where a total of 53 cases suffering from EBH were treated.

Important Infrastructural milestones

Department of Veterinary Surgery and Radiology established laser surgery unit in the department and Department of Veterinary Microbiology is readying new Animal Disease Investigation and Research block with state-of-the-art facilities.

Self-sustainability and fund generation

- A sum of Rs. 13,36,351.00 was generated in Poultry revolving fund scheme by sale of various poultry products (Eggs, chicks, poultry meat, manure etc.) during this period against an expenditure of Rs. 566541.25 by department of Animal Genetics and Breeding. Egg production at Poultry Farm increased by 27.5% to 211310 eggs (165783 eggs during 2015-16).
- Department of Animal Nutrition generated 2.6 crore rupees under revolving fund scheme by manufacturing and provided compound feed and feed additives including UMMB, Area specific mineral mixture, lab animal feed, poultry feed to different governmental departments and NGO.
- Total milk production and other farm products from Instructional Livestock Farm Complex generated Rs. 71,17,815 income during 2016-17.

Students' Activities:

a) Academic Activities:

Students of the college once again excelled at the National level by securing top positions in the ICAR JRF 2017 organized by ASRB, New Delhi. These students are likely to pursue their PG program in different disciplines in different prestigious institutions across the country including IVRI, NDRI. It is notable to mention here that the students qualifying ICAR-JRF holder receive Rs12000/- per month during the studies.

List of Toppers in final year for the session 2016-17

S. No.	Name of the Student	Classes
1	Pallavi Chauhan	B.V. Sc. & A.H. 5 th year
2	Rahul Kumar	-do-
3	Sakshi Chauhan	-do-

Following Students of 28th Batch of B.V.Sc. & AH Programme qualify the JRF-2017-18

S. No.	Name of student	Subjects
1.	Dr Abhinav Rana	Veterinary Science
2.	Dr. Akshay Kumar	Veterinary Science
3.	Dr. Renu Chauhan	Veterinary Science
4.	Dr Abhishek Bahrdwaj	Veterinary Science (Placement)
5.	Dr. Aditya Sharma	Veterinary Science (Placement)
6.	Dr. Akshita Chadha	Animal Sciences (Placement)
7.	Dr Abhishek Sharma	Animal Sciences (Placement)

b) Sports and extracurricular achievement

- Three students of our college participated in the North Zone Inter-University Badminton Championship held at MDU, Rohtak from 17 to 23 October, 2016.
- Two students (girls) participated in the North zone Inter-University Basketball Tournament held at Deen Bandhu Chotoo Ram University of Science and Technology, Moorthal, Sonapat from 2 to 6 November, 2016.
- Two students (boys) participated in the Inter-University Football tournament held at Deshbhagat Univeristy, Mandi, Govindgarh, Punjab from 17 to 23 January, 2017.
- Three students participated in the Interuniversity Volley Ball Tournament held at Kurukshetra University from 20 to 24 January, 2017. The students reached to the Semi-Final Stage of the tournament.
- Two students participated in the Interuniversity Basketball Tournament held at Punjabi University, Patiala from 27 to 31 January, 2017.
- One student participated in the Weightlifting Tournament, Punjab University, from 07 to 09 February, 2017.

c) NSS activities in the year 2016-2017

A total number of 85 students get enrolled for NSS in the year 2016-2017. Students actively participated in: Campaign for Vittiya Saksharta Abhiyan, Local vendors around college were encouraged to use digital transactions. Maintaining the campus polythene free and very keenly pursue the Swach Bharat Abhiyan. Participated in awareness campaign about ill effect of fireworks, gender discrimination, and sexual harassment, Observation of Matribhasha Diwas, Rashtriya Ekta Diwas, International Day of Non-violence etc.

Other major professional activities of the college

- Department of Veterinary Surgery and Radiology conducted 3-day International Workshop on Canine and Feline Cardiology from 17-19th February 2017 attended by 50 Veterinarians from different states of India in collaboration with Veterinary Orthopedic Foundation. The department also organized Continuing Education Workshop on Veterinary Emergency and Critical Care on 27th March 2017
- Department of Animal Genetics and Breeding organized Annual Review Meeting, 2017 of AICRP on Poultry Breeding and Poultry Seed Projects on 24th -25th May 2017.
- Department of Animal Nutrition organized 3rd Biennial Conference of Indian Academy of Veterinary Nutrition and Animal Welfare on 4-5 Nov.2015.

- The Department of Veterinary Physiology and Biochemistry organized a 4-day certificate course programme on Veterinary Emergency Response Unit with the support of National Disaster Management Authority, India and World Animal Protection Society from 19.9.16 to 22.9.16.
- Total of 2009 farmers and 157 field officers of Agriculture and Animal Husbandry departments from nook and corners of the state visited the Instructional Livestock Farm for getting necessary orientation and exposure to modern practices of animal health care and scientific management.

Honors and Awards bagged by the faculty

- Dr Rajesh Chahota received Raman Fellowship 2016 award from University Grant Commission (UGC) for one-year post-doctoral research in Oregon State University, USA.
- Dr. Mandeep Sharma was elected as a member of governing council of National Academy of Veterinary Sciences, India for three years. He was also nominated as the member of JNU court for three years.
- Dr. Subhash Verma was selected as an Associate Editor of Veterinary Infectious Diseases, Switzerland and Himachal Journal of Agricultural Research.
- Dr. Adarsh Kumar got Best Paper award in Equine Surgery Session and SK Sharma, Adarsh Kumar, Amit Kumar and Arvind Sharma got Appreciation Award for second best research paper in Anaesthesia Session at 40th Annual Congress of Indian Society for Veterinary Surgery held at TANUVAS, Chennai, Tamil Nadu w.e.f. December, 02-04, 2016.
- Dr. Daisy Wadhwa, Shivani Katoch, Vinod Sharma and VK Sharma got Best presentation award at 3rd Biennial Conference of Indian Academy of Veterinary Nutrition and Animal Welfare, held at CSKHKV, Palampur, w.e.f. 4-5 Nov, 2015.
- Dr. Devesh Thakur received Budding Extensionist Award at 2nd National Conference of Society of Veterinary and Animal Husbandry Extension Education held at Jammu.

Faculty Visited Abroad

- Drs. Rajesh Chahota, Aneesh Thakur and Sidharth Dev Thakur are pursuing their Post-Doctoral research abroad in the USA, Denmark and Canada, respectively.
- Dr. Pankaj Sood received International Travel Grant from DST, New Delhi, to attend an International Conference by American Dairy Association at Pittsburgh, in USA from 25 to 28 June, 2017. He also visited some eminent labs on Theriogenology, at Pennsylvania, USA.
- Dr. Pardeep Sharma joined back in the department after completing PhD from Australia.

This vibrant College has completed 31 flourishing years of its existence. All the faculty members, non-teaching staff and students are working hard for the enhancement of livestock production and effective animal health cover in the state. The entire community deserves my whole-hearted compliments for their support in shaping this College. AVMC is specialized referral facility of the state and all the departments in one or the other way are imparting continuing veterinary education to state veterinarians working in the animal husbandry department.

DEPARTMENT OF VETERINARY ANATOMY

1. INTRODUCTION

The Department of Veterinary Anatomy was amongst the first six departments that were originally set up to start the Veterinary College in July, 1986 and the Post Graduate Programme was started in 1992-93. In addition to the teaching mandate, the department worked on the Gross Anatomy, Histology, Histochemistry of the female genital system, male genital system and respiratory system of Gaddi sheep and goat. Seasonal changes during different phases of estrus cycle and senility have also been worked out. The Hypothalamo-hypophysio-Gonadal axis of these two animals has also been studied in detail. Recently department has worked



Foetus of Gaddi goat showing immature lungs

extensively on the developmental anatomy of the liver, lungs and testis of the Gaddi Sheep and Goat. Department is also imparting the training/Practical exposure to Head constables of SSB and VERU (Veterinary Emergency Response Unit) trainers.

a) Undergraduates Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
1st Semester				
1.	VAN	Veterinary Anatomy	4+3	Dr. V. Pathak Dr. R. Rajput
2.	VAN-211	Veterinary Histology & Embryology	2+2	Dr. R. Rajput Dr. V. Pathak
2nd Semester				
1.	VAN	Veterinary Anatomy	4+3	Dr. V. Pathak Dr. R. Rajput
2.	VAN-121	Veterinary Gross Anatomy-II (Myology, Neurology, Angiology & Aesthesiology)	2+2	Dr. V. Pathak Dr. R. Rajput
3.	VAN-221	Veterinary Splanchnology & Applied Anatomy	1+1	Dr. V. Pathak Dr. R. Rajput

b) Postgraduate Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
M.V. Sc. Courses (1st Semester)				
1.	VAN-604	Gross Anatomical Technique	0+2	Dr. V. Pathak Dr. R. Rajput
2.	VAN-605	Theory and Practical of Histology and Histochemical techniques	1+2	Dr. V. Pathak Dr. R. Rajput
3.	VAN-606	General Histology and Ultrastructures	3+1	Dr. V. Pathak Dr. R. Rajput
4.	VAN-691	Master Seminar	1+0	Dr. R. Rajput

M.V. Sc. Courses (2nd Semester)				
1.	VAN-602	Comparative Splanchnology	2+2	Dr. V. Pathak Dr. R. Rajput
2.	VAN-604	Gross Anatomical Techniques	0+2	Dr. V. Pathak Dr. R. Rajput
3.	VAN-608	Developmental Anatomy	3+1	Dr. V. Pathak Dr. R. Rajput
4.	VAN-699	Master Research	1+0	Dr. R. Rajput

c) Numbers of students graduated

Degree	During last academic year	Accumulated total
M.V. Sc.	1	1

d) National and International Level Competition: UG/MSc/PhD

Competition	No. of students qualified	No. of students appeared	% age of qualified	Distinguished rank, if any
SRF	1	1	100	--

e) Student got job/placements in India or abroad

Department	Name of the Student with Admission No.	Name of Advisor	Nature of Job/Designation	Organization
Veterinary Anatomy	Parul Shukla, V-2012-40-001	Dr. Rajesh Rajput	Assistant Professor	CSK HPKV, Palampur
Veterinary Anatomy	Rheeqa Rizvi V-2012-40-002	Dr. Rajesh Rajput	Veterinary Assistant Surgeon	Sheep Husbandry J & K Government

3. RESEARCH**a. Postgraduate Research****i) Ongoing Masters Programme:**

S. No.	Name of the student	Admission No.	MAJOR ADVISOR	TITLE OF RESEARCH PROBLEM
1.	Aishwarya Baltoo	V-2016-30-011	Dr. Rajesh Rajput	Anatomical studies on the extrapulmonary respiratory system of Gaddi goat.
2.	Sakshi Vij	V-2016-30-012	Dr. Virender Pathak	Anatomical studies on the lungs of Gaddi goat.

ii) Ongoing Doctoral Programme: NIL**iii) Postgraduate Research Salient Achievements**

S. No.	Title of Research problem	Salient Research Achievements
1.	Anatomical studies on the extrapulmonary respiratory system of Gaddi Goat.	Research in progress
2.	Anatomical studies on the lungs of Gaddi goat.	Research in progress

b. Scientific Publications and Presentations**Publications**

1. R. Andleeb, Rajput Rajesh, K. Massarat, M. A. Baba, F.A. Dar and J. Masood. 2016. Histomorphological Study of the Small Intestine in Gaddi Goat. *Indian Journal of Veterinary Anatomy* 28(2): 10-13. NAAS:(I083) **4.19**
2. Razvi R, Rajput Rajesh and Mir AH. 2016. Comparative ultrastructural studies on pre and post-natal liver of Gaddi sheep. *Journal of Cell and Tissue Research*. 16(3) 5775-5780.2016 (J110) NAAS **4.38**
3. Razvi R, Rajput Rajesh and Mir AH. 2016. Histological, histochemical and micrometric studies on the embryonic gall bladder of Gaddi sheep in different prenatal age groups. *Journal of Cell and Tissue Research*. 16(3) 5780-5786. (J110) NAAS **4.38**.

4. EXTENSION**Conferences/workshops/seminars/symposia**

S. No.	Date	Title	Name of Participants	Nature of participation
1.	17-19 th Feb 2017	International conference on canine and feline cardiology. Organised by Veterinary Orthopedic Foundation in association with Dept. of Veterinary Surgery and Radiology, DGCN, CSK HPKV, Palampur.	Virender Pathak	Participant

5. EXTRA CURRICULUM DUTY: NCC/NSS/HOSTEL WARDEN/SPORTS ETC.

Name of teacher	Nature of duty	Period	Distinguished achievement, if any
Dr. Virender Pathak	NSS	Sep 2015 till date	Digital India campaign in the nearby villages.

ANNEXURES

Faculty position

S. No.	Name	Designation
1.	Dr. Rajesh Rajput	Professor & Head
2.	Dr. Virender Pathak	Assistant Professor
3.	Dr. Parul Shukla	Assistant Professor
4.	Dr. Divya Gupta	Assistant Professor

Staff position

S. No.	Name	Designation
1.	Sh. Om Parkash	Junior Assistant
2.	Sh. Om Parkash	Laboratory Assistant
3.	Sh. Amar Singh	Macerator-cum-Dissection Hall attendant
4.	Sh. Jindo Ram	Peon
5.	Sh. Rajinder Kumar	Animal attendant cum sweeper

Budget

S. No.	Scheme	Salaries	TA	Contingency	TOTAL
1.	SCP.002-38	3089282	Nil	Nil	3089282
2.	SPS.001-38	Nil	Nil	10000	10000

DEPARTMENT OF ANIMAL GENETICS & BREEDING

1. INTRODUCTION

The Department of Animal Genetics and Breeding (earlier known as Department of Animal Breeding and Genetics including Biostatistics and Department of Animal Genetics and Breeding from Jan, 2011) came in to existence as an independent department on July 1, 1991 with the division of then Department of Animal Production which was created in 1986 along with the establishment of College of Veterinary and Animal Sciences. Till then, the activities concerning Animal Breeding and Genetics especially teaching, research on genetic improvement of livestock resources and extension were being carried on under Department of Animal Production, COVAS from 1986 and under Department of Animal Sciences, COA from 1975.



Release of location specific poultry variety: HIMSAMRIDHI

Since inception, the Department is actively engaged in Animal Genetics and Breeding and Ph. D in Animal Breeding since 1981. Till date, the department has produced 26 M.Sc./M.V.Sc. students in Animal Breeding and Animal Genetics and Breeding teaching, research and extension education in specialization of Animal Genetics and Breeding. Apart from undergraduate teaching, the department has postgraduate programmes leading to M.Sc./M.V.Sc. degrees in and 4 Ph.D. in Animal Breeding. Currently, 1 student is pursuing Ph.D. degree in the department.

The department is actively involved in need-based research in priority areas for genetic improvement of the existing livestock resources among cattle, sheep, goat, horses, rabbit and poultry in the state and to formulate appropriate breeding strategies for their genetic improvement. The major research achievements have been Genetic evaluation of exotic and crossbred germplasm of different domesticated livestock species (dairy cattle, sheep, Angora rabbit, broiler rabbits, poultry etc.), Comparative performance evaluation of crossbred/graded cows under field conditions, Field based genetic improvement programmes using farmer's flocks in sheep and goats, Morphological, genetic, behavioral and physiological studies on Red Jungle Fowls and undertake their captive breeding and dissemination of production technologies in commercial species like Rabbits, Poultry etc. recently department is in the process of developing rural poultry strain suitable to local agro-climatic/hill farming system. During recent years, the research had focused on characterization and conservation of unique but dwindling animal genetic resources of the state including hill cattle, Gaddi sheep and goats, Rampur-bushair sheep, Chegu goats, Spiti horses, native fowls and Red Jungle fowls and undertaking *In-situ* and *ex-situ* breed conservation programmes for threatened/endangered breeds like Chegu pashmina goats, Spiti/Chamurthi horses.

Till date, the department has successfully completed 11 externally-funded projects sponsored by different funding agencies, with total financial outlay of Rs.189.16 lakhs. Presently, two ICAR funded AICRP's on Poultry Breeding (Rural Poultry unit) and Goat Improvement (Gaddi Field Unit), are operational in the department with the total outlay of Rs. 516.27 lakhs during XII 5-year plan. The budget provisions for FY 2016-17 were Rs. 65.00 lakhs and Rs. 21.59 lakhs, respectively.

2. TEACHING

a) Undergraduates Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
1st Semester				
1.	AGB-211	Livestock and poultry breeding	2+1	Dr. Y.P. Thakur Dr. V. Sankhyan
2.		Entrepreneurial training in broiler production	NC	Dr. Y.P. Thakur
2nd Semester				
1.		Entrepreneurial training in broiler production	NC	Dr. Y.P. Thakur

b) Postgraduate Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
M.V. Sc. Courses (1st Semester)				
1.	AGB-604	Selection Methods and Breeding Systems	3+1	Dr. Y.P. Thakur Dr. V. Sankhyan
M.V. Sc. Courses (2nd Semester)				
1.	AGB 607	Cattle and Buffalo Breeding	2+1	Dr. Y.P. Thakur Dr. V. Sankhyan

c) Numbers of students graduated

Degree	During last academic year	Accumulated total
M.V. Sc.	Nil	26
Ph.D.	Nil	4

d) Student got job/placement in India or abroad

Department	Name of the Student with Admission No.	Name of Advisor	Nature of Job/Designation	Organization
AGB	Dr. Krishanender Dinesh V-2007-30-02	Dr. Y. P. Thakur	Assistant Professor	CSKHPKV Palampur
AGB	Dr. Shalini Thakur V2013-30-002	Dr. Y. P. Thakur	Veterinary Officer	Deptt. of Animal Husbandry, HP

3. RESEARCH

a. Postgraduate Research

i) Ongoing Masters Programme: NIL

ii) Ongoing Doctoral Programme:

S. No.	Name of the student	Admission No.	MAJOR ADVISOR	TITLE OF RESEARCH PROBLEM
1.	Varun Sankhyan	V-2014-40-001	Dr. Y. P. Thakur	Molecular genetic studies of some genes associated with fecundity, growth and disease resistance in native sheep and goat breeds of Himachal Pradesh

b. Research Projects in Progress

S. No.	Title of Project	PI	Funding Agency	Budget provisions for 2016-17	Year of start	Duration
1.	AICRP on Poultry Breeding (Rural poultry Unit)	Dr. Y. P. Thakur	ICAR	65.00 Lakhs	2009	Extended further beyond 2017 (XII th Plan)
2.	AICRP on Goat Improvement (Gaddi Field Unit)	Dr. P. K. Dogra	ICAR	21.59 Lakhs	2010	Extended further beyond 2017 (XII th Plan)

c. Summary of research finding during the year**i. AICRP on Poultry Breeding Rural Poultry Unit, Palampur**

- Location specific poultry variety named “Himsamridhi” was developed by Palampur centre of AICRP on Poultry Breeding and released on 24th May 2017.
- 31784 chicks of different variety/stocks (22373 Himsamridhi; 5767 Native X Native; 2519 DR X Native; 189 DR X DR, 517 DR X (DRXN) and 419 NXRIR parent stock from fertile eggs were hatched.
- 28977 chicks were supplied to 541 farmers including 201 TSP units (10370 chicks) in tribal areas to establish poultry units during 2016-17. Dahlem Red, Native (G₄ & G₅) parents and Himsamridhi/DND stock were evaluated for various growth and production traits.
- The egg production at Poultry Farm increased by 27.5% to 211310 eggs in 2016-17(165783 eggs during 2015-16). Out of this, 69415 eggs were used for hatching.
- Annual review meeting of AICRP on Poultry Breeding (Rural Poultry Unit) and Poultry Seed Projects was organized on 24th -25th May 2017. A total of 32 scientists including ADG (Animal Production/ Breeding), Director ICAR-Directorate of Poultry Research, Hyderabad and Director ICAR-NBAGR, Karnal had participated in this meet.

ii. AICRP on Goat Improvement, Gaddi Field Unit

Migratory goat flock of 4 registered farmers were adopted for scientific interventions. A total of 592 young kids were added in their selected flocks by birth, 122 animals of different age groups died, and 441 animals were sold by the owners. Significant increase in birth weight (3.03 kg to 3.05 kg) decrease in overall mortality (7.49 % to 7.11%), increase in overall population growth (107.59 to 109.45 %) and incidence of twin birth (20.25 to 21.56 %) was observed in adopted flocks. 47 selected male kids (4-5-month age) were reared up to sexual maturity and 30 of them distributed to 30 different goat farmers for genetic improvement of their goat. 40 male kids purchased for further distribution to farmer as breeding input. All selected animals were provided health coverage under migratory conditions like vaccination against PPR (1500

doses), deworming against endo-parasites (1450 animals), faecal samples analysis, and periodic health checkups.

d. Scientific Publications and Presentations

i) Publications

1. Sankhyan, V., Dogra, P.K and Thakur Y.P. (2016). Attributes of migratory goat and sheep farming and impact of some improved management strategies en-route migration in adopted flocks of Western-Himalayan region of India. *Indian Journal of Animal Sciences*. 86(9):1079-84. NAAS: **6.17**
2. Sankhyan, V and Thakur, Y.P. (2016). Comparative Performance of Vanaraja and Indigenous Chicken under intensive system in sub temperate climatic condition of north western Himalayan state of Himachal Pradesh. *International Journal of Science, Environment and Technology*, 5(2):449-453. NAAS: **3.18**

ii). Presentations:

1. Rakesh Thakur, Varun Sankhyan and P K Dogra (2016). Capacity building -an effective tool for augmenting poultry production: A case study of District Hamirpur, Himachal Pradesh. In proceedings of XXV World Poultry Congress, Sept-5-9, 2016 page 650. (Abstract S16-0001)

e. Technologies or patent Developed /Registered/Research infrastructure developed

S. No	Technology/infr astructure	Significance	Scientist(s) involved
1.	Location specific poultry variety: Himsamridhi	Dual purpose location specific poultry variety, comprehensively evaluated, well adapted to local agro climatic condition and is readily accepted by farmers as stock of choice for backyard poultry farming in rural areas. There is increasing demand for the developed stock as intra departmental linkages including NGO's had been devolved over the years	Dr. Y.P. Thakur Dr. V. Sankhyan

4. EXTENSION

a. Extension Publication

1. Brochure of location specific poultry variety, Himsamridhi.

b. Radio talk/ TV Telecast

1. Radio Telecast recording on sheep and goat farming in HP at AIR, Dharamshala on 15/05/2017.
2. A Radio talk by Dr. Y. P. Thakur on "Rozgar Ka Upukat Sadhan: Murgji Palan" was broadcast in Kissanvani Programme of AIR, Dharmshala at on 13.12.2016.
3. Live broadcast of Phone-in programme by Dr. Y. P. Thakur under Kissanvani Programme of AIR, Dharamshala station on the topic "Dairy ke liye pashoan ka chunav" broadcast at 6.30-7.00 PM on 26.06.2017.

c. Clinical camps/trainings/extension camps/animal health camps

S.No.	Particulars	Number	Participant		Remarks
			Male	Female	
1.	Training conducted				
2.	Farmers training (i) On -campus (ii) Off-campus	2 2		65	
3.	Training to Extension Officials				
4.	Campus organized				
5.	Farmers attended	70			
6.	Field Days				
7.	OFTs	1			
8.	Bulletins, pamphlets developed	1			

5. PARTICIPATION IN WORKSHOP/CONFERENCES, TRAININGS ETC.**Conferences/workshops/seminars/symposia:**

S. No.	Date	Title	Name of Participants	Nature of participation
1.	21 -22 nd June 2017	Agricultural Research and Technical Terminology at CSKHPKV, Palampur	Dr. Varun Sankhyan	Participant
2.	24 th -25 th May 2017	Annual Review Meet of All India Coordinated Research Project on Poultry and Poultry Seed Project at CSKHPKV, Palampur	Dr. Y. P. Thakur, Dr. Varun Sankhyan	Participant

6.WORKSHOP/SEMINAR/TRAININGS ETC. ORGANIZED

Annual Review Meet of All India Coordinated Research Project on Poultry and Poultry Seed Project on 24th -25th May 2017

7. INCOME GENERATED BY COMMERCIAL UNITS AND SERVICE WINDOWS

S. No.	Name of product/service	Person(s) associated	Income generated annually (Rs)
1.	Low input technology chicks, eggs and chicken	Dr. Y. P. Thakur Dr. Varun Sankhyan	13,36,351.00

8. MISCELLANEOUS**a. Visit of Dignitaries:**

- Deputy Director General (Animal Science)- ICAR, New Delhi
- Additional Director General (Animal Production and Breeding), ICAR, New Delhi,
- Director ICAR- Directorate on Poultry Research, Hyderabad
- Director ICAR-NBAGR, Karnal visited AICRP on Poultry Breeding, Rural unit Palampur during ARM held at Palampur on 24th -25th May 2017.

- b.** Besides, teaching, research and extension education activities, the department has developed and is also maintaining the following facilities:

- i) **Computer Laboratory:** The department is maintaining a computer lab, with enough terminals for practical teaching and training of undergraduate students in course of statistics and computer application.
- ii) **Poultry hatchery and breeding infrastructure:** The poultry hatchery established under AICRP on poultry breeding for developing promising poultry stocks suitable for rural backyard poultry using indigenous poultry germplasm is fully operational, producing day old chicks for supply to the farmers.
- iii) **Conservation and captive breeding of Red Jungle fowls:** The captive breeding facility established under the ICAR –cess fund project (since terminated) is being maintained within its resources to continue conservation breeding of Red Jungle Fowls.
- iv) **Molecular Genetics Laboratory:** This advanced laboratory developed under RKVY is being used for PG research in fields of Cytogenetics and Molecular Genetics.
- v) **Teaching Poultry unit:** To meet the instructional requirements of undergraduate students, department is maintaining poultry unit under poultry revolving fund. Besides, the entrepreneurship development programme in Layer and broiler production for undergraduate students is being conducted at poultry farm.

ANNEXURES

Faculty position

S. No.	Name	Designation
1.	Dr. Y. P. Thakur	Professor
2.	Dr. Varun Sankhyan	Asstt. Professor
3.	Dr. Rajesh Sharma	Asstt. Professor, Joined on 1/05/2017
4.	Dr. Krishanender Dinesh	Asstt. Professor, Joined on 1/05/2017

Staff position

S. No.	Name	Designation	Remarks
1.	Sh. Vijay Kumar	Clerk	
2.	Sh. Baljit Singh	Lab. Asstt.	
3.	Sh. Harbans Lal	Peon	
4.	Sh. Om Prakash	Cattle Attendant	
5.	Sh. Roshan Lal	Beldar	
6.	Sh. Pyara Ram	Beldar	
7.	Smt. Pushpa Devi	Sweeper	

Budget

S. No.	Scheme	Salaries	TA	Contingency	TOTAL
1.	Teaching facilities in department of AG & Breed. (SCP-001-43)	14,35,395			14,35,395
2.	Est. of Poultry Res. Lab. (SCP-002-43)	30,65,859			30,65,859
3.	Facilities for Res. On Angora rabbits. (SCP-003-43)	10,91,832			10,91,832
4.	Strengthening of teaching departments in COVAS. (SCP-011-43)	5,85,067			5,85,067
Externally Funded Scheme (In lakhs)					
5.	AICRP on Poultry Breeding (Rural Poultry Unit); ICAR-045-73	25,00,000	1,00,000	39,00,000	65,00,000
6.	AICRP on Goat Improvement; ICAR-046-43	--	1,00,000	20,59,000	21,59,000

DEPARTMENT OF VETERINARY & ANIMAL HUSBANDRY EXTENSION EDUCATION

1. INTRODUCTION

The department of Veterinary and Animal Husbandry Extension Education came into existence in the year 1999 to meet the Minimum Standards of Veterinary Education as per the Veterinary Council of India (VCI) Act, 1984. The Department aims to educate the veterinary graduates in the application of the basic concepts of development education, entrepreneurship development as well as that of behavioral sciences for the transfer/dissemination of available technology. The department has worked for farmer-centric research and extension activities through ICAR, World Bank, DST and State Government funded projects in recent years. The department established a well-equipped audio-visual lab with information Kiosks and multimedia training material in the form of Animal Health Information system in English and Hindi. Educational material such as documentaries, three-dimensional teaching models on major aspects of dairy farming (clean milk production, calf management, feeding and breeding of animals, animal health care), goat farming, sheep farming, poultry farming for information sharing have also been prepared. These are extremely useful for students, farmers, veterinarians, Para-veterinarians, extension officials and first line extension workers etc.



Students outreach programme in progress

2. TEACHING

a) Undergraduates Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
1st Semester				
1.	VAE-311	Principle and Techniques of Veterinary & Animal Husbandry Extension.		Dr. A. Sharma, Dr. S. Katoch (Deptt. of Animal Nutrition, COVAS) Dr. V. Sharma (Deptt. of Animal Nutrition, COVAS)
2.	VAE-511	Livestock Entrepreneurship		Dr. A. Sharma, Dr. R. Thakur (Live Stock Farm) Deptt. of Agriculture Economics & Extension, COA
2nd Semester				
1.	VAE-321	Livestock Economics, Marketing and Business Management.		Dr. R. Thakur (Live Stock Farm) Deptt. of Agriculture Economics & Extension, COA
2.	VAE-421	Veterinarian in Society (Non-Credit)		Dr A. Sharma

3. RESEARCH

a. Establishment of research collaboration with national and international institutes

S. No.	Name of collaborating institute and country	Nature of collaborations	Collaborating person(s) at both institutes
1	National Innovation Foundation, India & State Department of Animal Husbandry, H.P.	<p>Collaboration in Extension and Research Activities</p> <p>1. One-day workshop titled 'Network meeting for Scouting, Documentation and On farm experimentation for Indigenous Knowledge/Innovation for participants from Dept. of Veterinary & Animal Husbandry.</p> <p>2. Outreach and On farm Experimentation of suitable technologies across various regions of the state (H.P.)</p>	<p>Dr. D. Thakur (DGCN COVAS)</p> <p>Dr. R. Kumar (Senior Innovation Officer, NIF-India)</p>

b. Scientific Publications and Presentations

i) Publications

1. Thakur Devesh and Chander Mahesh (2017) Some empirical evidences on use of social media in livestock advisory services: The case of WhatsApp *Indian Journal of Animal Science*, August. (NAAS: **6.17**)
2. Thakur Devesh et al (2017) A scale to measure attitude of farmers towards social media use in agriculture extension, *Indian Research Journal of Extension Education* 17(3):10-15. (NAAS: **4.81**)
3. Thakur Devesh and Chander Mahesh (2016) Sharing Livestock information through WhatsApp among livestock owners: An appraisal, *Ruminant Science*, 5(2):267-270(NAAS: **5.00**)
4. Thakur Devesh, Chander Mahesh (2017) Utilization of WhatsApp for sharing livestock related information: An Experimental Study. *The Indian Journal of Veterinary Science & Biotechnology* Volume 13(1) (NAAS: **4.47**)
5. Thakur Devesh, Chander Mahesh and Sushil Sinha (2017) WhatsApp for farmers: Enhancing the scope and coverage of traditional agricultural extension, *International Journal of Science, Environment and Technology*, 6(4):2190-2201(NAAS: **3.96**)
6. Thakur Devesh et al. (2016) Benefit to end users: appraisal of extending technology at farm fields from regions of Himachal Pradesh, India, *Journal of Experimental Biology and Agricultural Sciences* (NAAS Rating: **5.02**)
7. Ravikumar RK, Thakur Devesh, Choudhary H, Kumar V, Kinhekar AS, Garg T, Ponnusamy K, Bhojne GR, Shetty VM, Kumar V (2017) Social engineering of societal knowledge in livestock science: Can we be more empathetic? *Veterinary World*, 10(1): 86-91. (NAAS: **5.8**)
8. Ravikumar RK, Kumar V, Khuman LY, Kinhekar AS, Thakur Devesh, Kumar V (2016). Integrating indigenous knowledge research system (IKRS) and/with livestock health intervention program to complement natural resource conservation. *Advances in Animal and Veterinary Sciences*. 4(1s): 32-42. (NAAS: **4.0**)
9. Amit Kumar Singh, M.P. Sagar and Thakur Devesh (2017) Adoption of scientific broiler farming practices among contract and non-contract broiler farmers in eastern plain zone of Uttar Pradesh *International Journal of Science, Environment and Technology*, Vol. 6, No 1, 721-728. (NAAS: **3.96**)

10. Sushil Kumar Sinha, Mahesh Chander, Braj Mohan, Rekha Yadav and Thakur Devesh (2016) constraints perceived in accessing and utilization of information on improved goat farming: a gender perspective study. *Ruminant Science*, Vol 5(2):267-270. (NAAS: 5.00)

ii). Presentations

Dr. Devesh Thakur delivered oral presentation Understanding Social Media Behavior of Livestock Owners: An Experimental Study in Himachal Pradesh at Second National Conference of Society of Veterinary and AH Extension Education held at SKUAST Jammu.

4. EXTENSION

a. Extension Publication

- i. Devesh Thakur and Mahesh Chnader (2017) “Kisanon ke liye Social Media ka Upyog” M. A. C. Krishi Jagran, August 2017
- ii. Mahesh Chander and Devesh Thakur (2017) Using Social Media for Farmers: A SWOT Analysis, Indian Farmers Digest, GBPUAT, Pantnagar, March, 2017.

5. PARTICIPATION IN WORKSHOP/CONFERENCES, TRAININGS ETC.

a) Conferences/workshops/seminars/symposia:

S. No.	Date	Title	Name of Participants	Nature of participation
1.	April 9-12	Second National Conference of Society of Veterinary and AH Extension Education held at SKUAST Jammu.	Dr. Devesh Thakur	Poster Presentation

6. WORKSHOP/SEMINAR/TRAININGS ETC. ORGANIZED

- i. Organized a Network Meeting in collaboration with National Innovation Foundation-India on scouting, documentation and On Farm Experimentation to the veterinary pharmacists of the H.P. State animal husbandry department on September, 22,2017.

7. HONOURS AND AWARDS

- i. Dr. Devesh Thakur received “Budding Extensionsits Award” at Second National Conference of Society of Veterinary and AH Extension Education held at SKUAST Jammu

8. MISCELLANEOUS

a) Dr. Devesh Thakur Reviewed following Research Papers

Name of the Journal	Number of Papers Reviewed
1. Asian Journal of Agricultural Extension, Economics & Sociology, India	3
2. Agricultural Rural Development, India	7
3. International Journal of Livestock Research	7

b) Visit of following dignitaries was conducted in the Museum cum Audio-Visual Hall of COVAS:

Name of the Dignitary	Date of Visit
1. Dr Gurudev Khush, University of California Davis, CA, USA	28.3.17
2. Dr Abhijeet Nandi, Faculty, West Bengal University of Fisheries and Animal Sciences, West Bengal	6.5.17
3. Dr Shakti Kant, Faculty, Guru Angad Dev Veterinary and Animal Science University, Ludhiana	23.5.17
4. Dr Pankaj Kumar, Faculty, Bihar Veterinary College, Patna	23.5.17
5. Dr Shayama K.P. Faculty, COVAS, SDAU, SK Nagar, Gujarat	20.7.17
6. Mr Arvind Mehta Additional Chief Secretary	27.7.17
7. Dr Anmol and Dr Ravikumar, National Innovation Foundation-India.	22.9.17

c) Success stories

Research on social media work done by department was published independently by Bangalore based magazine as web story and web video as

a) <https://factordaily.com/whatsapp-vidarbha-himachal-pradesh-farmers-helpline/>

b) <https://www.youtube.com/watch?v=bwBDXd5V03A>

d) Academic Blog:

Devesh Thakur (2016) An Expert-backed WhatsApp group that works for Farmers, Guest Blog, Global forum on Agricultural Research, FAO, Rome, September, 2016

ANNEXURES

Faculty position

S. No.	Name	Designation
1.	Dr Alok Sharma	Professor and Head
2.	Dr Devesh Thakur	Assistant Professor
3.	Dr Manoj Sharma	Assistant Professor

Staff position

S. No.	Name	Designation
1.	Sh Naresh Kumar	Lab Technician
2.	Sh Hari Singh	Beldar

Budget: Nil

DEPARTMENT OF ANIMAL NUTRITION

1. INTRODUCTION

The Department of Animal Nutrition was established with the primary aim to undertake teaching, research and extension activities since 29.6.1991, as a consequence of trifurcation of the erstwhile Department of Animal Production. To impart teaching at undergraduate and postgraduate level by offering core courses to B.V.Sc. & A.H./M.V.Sc. and PhD programme was the main mandate. Till date, the department has produced 44 M.V.Sc. and 16 PhD students. At present, 3 M.V.Sc. and one PhD student is doing research work for completion of their degrees. The department has two research projects under RKVY of the total budget outlay of Rs. 109 lakhs. The department has completed 16 research projects on various aspects of livestock feeding. A revolving fund scheme was started with seed money of Rs. 25000 in 1993-94, under which feed and feed supplements are being formulated, prepared and sold to various stakeholders.

2. TEACHING

a) Undergraduates Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
1st Semester				
1.	LPM	Livestock production and management	3+1	Dr. D. Rani, Dr. P. K. Dogra, Dr. G. D. Sharma, Dr. P. Dhar, Dr. A. Sharma, Dr. A. Katoch, Dr. V. Sharma
2.	VAE 311	Principles & techniques in veterinary & AH extension	1+1	Dr. S. Katoch, Dr. V. Sharma, Dr. A. K. Sharma
3.	ANN 211	Applied nutrition II (Non-ruminants)		Dr. S. Katoch, Dr. D. Rani
4.	VMD 512	Wildlife management		Dr. A. Sharma, Dr. S. Katoch, Dr. A. Singla
5.	LPM 361	Livestock production management		Dr. S. Katoch, Dr. V. Sharma
2nd Semester				
1.	LPM	Livestock production and management	3+1	Dr. D. Rani, Dr. P. K. Dogra, Dr. G. D. Sharma, Dr. P. Dhar, Dr. A. Sharma, Dr. A. Katoch, Dr. V. Sharma
2.	VMD-513	Pet Animal breeding management, nutrition and health care		Dr. D. Rani
3.	----	Tracking programme on clinical interventional nutrition		Dr. V. K. Sharma

b) Postgraduate Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
M.V. Sc. Courses (1st Semester)				
1.	ANN 604	Feed conservation, storage and quality control		Dr. V. K. Sharma, Dr. S. Katoch, Dr. V. Sharma
2.	ANN-604	Feed conservation, storage and quality control		Dr. V. K. Sharma

3.	ANN-605	Ruminant nutrition		Dr. V. K. Sharma
4.	ANN-601	Animal nutrition energy and protein		Dr. D. Rani
5.	ANN-691	Masters seminar		Dr. V. K. Sharma, Dr. D. Rani, Dr S. Katoch
6.	ANN-699	Masters research		Dr. V. K. Sharma, Dr. D. Rani, Dr S. Katoch
M.V. Sc. Courses (2nd Semester)				
1.	ANN-605	Ruminant nutrition		Dr. D. Rani
2.	ANN-602	Animal nutrition: Mineral, vitamin and feed additives		Dr. D. Rani
3.	ANN 606	Non-ruminant nutrition		Dr. S. Katoch Dr. V. Sharma
4.	ANN 609	Non-conventional feed stuff and toxic constituents of feeds and fodder		Dr. S. Katoch
5.	ANN-691	Masters seminar		Dr. V.K. Sharma Dr. D. Rani Dr. S. Katoch
6.	ANN-699	M.V.Sc. Research		Dr. V.K. Sharma
Ph. D. Courses (1st Semester)				
1.	ANN 702	Modern concepts of feeding monogastric animals		Dr. S. Katoch Dr. V.K. Sharma
2.	ANN 709	New feed resources and toxicants in animal feeding		Dr. S. Katoch
3.	ANN 793	Special problem in PhD		Dr. D. Rani Dr. S. Katoch
4.	ANN 707	Clinical Nutrition		Dr. D. Rani
5.	ANN-701	Modern concepts of feeding ruminants and forage utilization		Dr. V.K. Sharma Dr. D. Rani
Ph. D. Courses (2nd Semester)				
1.	ANN-708	Nutrient and drug interaction		Dr S. Katoch
2.	ANN 792	Doctoral seminar II		Dr. D. Rani
3.	ANN-799	Doctoral research		Dr. V.K. Sharma

c) Numbers of students graduated

Degree	During last academic year	Accumulated total
M.V.Sc.	4	
Ph.D.	--	

d) National and International Level Competition: UG/MSc/PhD

Competition	No. of students qualified	No. of students appeared	% age of qualified	Distinguished rank, if any
ASRB	2	2	100%	NDRI-Karnal

e) Student got admission in National and International institutes

Name of the student with admission No.	Name of Advisor	Institute of Admission	Programme of Study
Dr. Shambhvi	Dr. Shivani Katoch	NDRI-Karnal	Ph. D in Animal Nutrition
Dr. Prince Chauhan	Dr. Daisy	NDRI-Karnal	Ph. D in Animal Nutrition

f) Student got job/placement in India or abroad

Name of the Student with Admission No.	Name of Advisor	Nature of Job/Designation	Organization
Dr. Shilpa Thakur	Dr. V. K. Sharma	Research officer	ILRI Dehradun

3. RESEARCH

a. Postgraduate Research

i) Ongoing Masters Programme:

S. No.	Name of the student	Admission No.	MAJOR ADVISOR	TITLE OF RESEARCH PROBLEM
1.	Prince Chauhan	V 2016-30-001	Dr. Daisy Rani	Formulation, preparation and Nutritional evaluation of dog biscuits.
2.	Shahid Nazir	V 2016-30-002	Dr. Daisy Rani	Development of feeding technology of apple pomace in calves.
3.	Shambhavi	V 2016-30-003	Dr. Shivani Katoch	Azolla (<i>Azolla pinnata</i>) feeding in combination with direct fed microbials for rearing of broiler birds.
4.	Shilpa Thakur	V 2016-30-004	Dr. V. K. Sharma	

ii) Ongoing Doctoral Programme:

S. No.	Name of the student	Admission No.	MAJOR ADVISOR	TITLE OF RESEARCH PROBLEM
1.	Dr. Divya Rana	V2016-40-001	Dr. Daisy Rani	Studies on use of Some Phyto-genic Materials as Cattle Feed Preservatives

iii) Postgraduate Research Salient Achievements

S. No.	Title of Research problem	Salient Research Achievements
1.	Effect of feeding ripened tea fruits (<i>Camella sinensis</i>) on the growth of poultry broilers.	Dried whole ripened tea seed is not efficient in broiler production, but it can be safely administered as unconventional feed stuff in broiler diet up to 3 per cent level under draught and scarcity of feed stuff & up to 6 per cent for better organoleptic and biochemical parameters for designer meat production.

2.	Formulation, preparation and Nutritional evaluation of dog biscuits.	A new formula of dog biscuits was developed under which the biscuits should be baked at 300 ^o F for 35 minutes in pre-heated oven. The new variety of biscuits had more fibre, NFE and minerals compared to the old formula. The new varieties of biscuits were the most preferred and palatable to dogs. However, the biscuits of new variety were 13.77 per cent more costly compared to the old one.
3.	Development of feeding technology of apple pomace in calves.	Ensiling AP with WS in the ratio of 85:15 was the best method to preserve and feed AP to cow calves. Feeding ensiled mixture of AP+WS, in the ratio of 85:15 reduced the expenditure incurred on feeding to gain one kg body weight, by 25.22 percent than feeding ensiled AP mixed with fresh WS. Feeding ensiled AP+ fresh WS in the ratio of 85:15 resulted in moderate growth in calves.
4.	Azolla (<i>Azolla pinnata</i>) feeding in combination with direct fed microbials for rearing of broiler birds.	Supplementation of dried <i>Azolla</i> with probiotics led to significantly ($P<0.05$) lower pH, higher gizzard weight, total breast muscle yield and pectoralis minor muscle yield. Its use exhibited numerically higher carcass weight, dressed weight, dressing percentage, giblet weight (liver, heart and gizzard), wing weight and skin weight.

b. Research Projects in Progress

S. No.	Title of Project	PI	Funding Agency	Budget	Year of start	Duration
1.	Studies on the use of apple pomace as livestock ingredient	Dr. Daisy Rani	GOI-RKVY	20.1 LAKH	2016	One year
2.	Pilot study on factors affecting milk quality parameters lowering economic returns in dairy cows and its remedial measures	Dr Shivani Katoch	GOI-RKVY	89.94 LAKH	2016	One year
3.	Sub project of the project entitled, establishment of model pasture for rearing of sheep and goat at Killar (Chamba)	Dr. V.K. Sharma	GOI-ICAR	14.00 lakh	2016	One year

c. Summary of research finding during the year:

Effect of whole ripened tea fruits as feed additives for improving growth performance, nutrient utilization and economy in broilers chicken was studied. It was found that tea fruit is not efficient in improving the cost of production in broilers. Thus, it can be concluded that dried whole ripened tea seed is not efficient in broiler production, but it can be safely administered as unconventional feed stuff in broiler diet up to 3 per cent level under draught and scarcity of feed stuff & up to 6 per cent for better organo-leptic and biochemical parameters for designer meat production

A new formula of dog biscuits was developed under which the biscuits should be baked at 300^oF for 35 minutes in pre-heated oven. The new variety of biscuits had more fibre, NFE and minerals compared to the old formula. The new varieties of biscuits were the most preferred and palatable to dogs. However, the biscuits of new variety were 13.77 percent more-costly compared to the old one.

Ensiling AP with WS in the ratio of 85:15 was the best method to preserve and feed AP to cow calves. Feeding ensiled mixture of AP+WS, in the ratio of 85:15 reduced the expenditure incurred on feeding

to gain one kg body weight, by 25.22 percent than feeding ensiled AP mixed with fresh WS. Feeding ensiled AP+ fresh WS in the ratio of 85:15 resulted in moderate growth in calves.

The study was conducted to evaluate feeding of dried Azolla (*Azolla piñata*) alone and in combination with direct fed microbial (Probiotic) in commercial broiler poultry birds under complete randomized design. Supplementation of dried Azolla with probiotics led to significantly ($P < 0.05$) lower pH, higher gizzard weight, total breast muscle yield and pectoralis minor muscle yield. Its use exhibited numerically higher carcass weight, dressed weight, dressing percentage, giblet weight (liver, heart and gizzard), wing weight and skin weight.

d. Establishment of research collaboration with national and international institutes

S. No.	Name of collaborating institute and country	Nature of collaborations	Collaborating person(s) at both institutes
1.	IVRI, Regional research station, Palampur	Use of research facilities of each other.	Dr. V. K. Sharma, Dr. D. Rani, Dr. S. Katoch, Dr. R. Bhar

e. Scientific Publications and Presentations

i) Publications

1. Katoch, S., Thakur, S., & Rajput, R. (2017). Effect of Probiotic Supplementation in broiler birds offered feed formulated with lower protein densities. *International Journal of Livestock Research*, 7(2). doi:10.5455/ijlr.20170205013927. (NAAS Rating: 5.36).
2. Divya Rana, Shivani Katoch, B G Mane, Daisy Rani & Varun Sankhyan. (2017) Biological evaluation of Azolla in ration of commercial broiler chicken broiler. *Journal of Animal Research: v.7 n.3*, p. 1-6. June 2017. (NAAS Rating: 5.26).
3. Shivani Katoch, Divya Rana, Swati Chandel, Varun Sankhyan, Daisy Rani and V. K. Sharma. 2016. Evaluation of dried azolla in poultry broiler birds. Accepted for publication in April-2017, *Indian Journal of Poultry Sciences*. (07 January, 2017 Article MSID No.- 05-2017).
4. D. Wadhwa, V.K. Sharma, Arun Sharma, Vinod Sharma and S. Katoch. 2017. Production of heart-healthy eggs through dietary manipulations of hens. Accepted for publication in *Himachal Journal of Agricultural Research*. IN PRESS.
5. M. Kumar, A. Kanan, R. Bhar, A. Gulati, A. Gaurav and V.K. Sharma (2017). Nutrient intake, digestibility and performance of Gaddi kids supplemented with tea seed or tea seed saponins. *Asian-Australian J. Anim. Science*, 30 (4):486-494. (International Journal)

ii). Presentations: Nil

iii). Manuals, Books, Booklets and Bulletin:

1. Editorship of book titled 'Livestock production cum health and crop mixed farming for nutritional security' 2016. New India Publishing agency, New Delhi, 110034. Total pages 258.
2. Editorship of book titled, 'Seabuckthorn (*Hippophae L.*) A multipurpose wonder plant. Vol. V: Cultivation, Health protection and environmental conservation technologies. 2017 Daya Publishing House, Delhi-110035. Total pages 389.

f. Technologies or patent Developed /Registered/Research infrastructure developed

Infrastructure	Significance	Scientist(s) involved
Bomb calorimeter	Used for energy estimation	---
Tray drier	Drying of various types of feed items	---
Vacuum oven	Do	---
Horizontal mixer	Mixing of feed ingredients and mineral mixture	---
Fermentation jars	For laboratory ensiling studies	---

UMB Machine	Uromol preparation	---
Atomic absorption spectrophotometer	Used for mineral analysis of various samples up ppb level	---
Microwave digestion system	Quick digestion of samples for mineral estimation	---
Automatic Blood analyzer	Analysis of blood samples	---

4. EXTENSION

a. Extension Publication

Gopashuon ke khurak me khanijo tatha urea ke istemal sambandhit kuchh mahatavpuran prashno ke uttar. Submitted for publication in Parbatya Khetibari. July-Dec. 2016, pp 34-36.

b. Radio talk/ TV Telecast: Nil

c. Clinical camps/trainings/extension camps/animal health camps

S. No.	Particulars	Number	Participant		Remarks
			Male	Female	
1.	Training conducted				
2.	Farmers training (iii) On -campus	30	20	2	AT COVAS Palampur
3.	ii) off campus-Training to Extension Officials	75	125	4	At Veterinary Hospital- Jogindernagar Rewalsar, Sarkaghat, Kotli Nurpur, Jwali, Fatehpur, Kotla, Mohtli, Indora
	ii) off campus-	50	0	2	At KVK Sundernagar
4	Trainings to extension officials/ Forest officials	40	10	1	Wildlife Nature Park- Gopalpur
5.	Others, if any	Lecture delivered to the farmers of district Bilaspur on, 'Principles of animal nutrition and economic feeding of dairy animals for higher profitability, on 2.5 and 16.5.17.			

5. PARTICIPATION IN WORKSHOP/ CONFERENCES, TRAININGS ETC.:

a) Trainings:

S. No.	Date	Title	Name of Participants
1.	21-22.6.17.	2 days seminar on, Technical Vocabulary on Agriculture Science, by Govt of India, Commission for scientific and technical terminology, Ministry of Human Resource Development, held at CSKHPKV, Palampur.	Dr. V.K. Sharma, Dr. D. Rani, Dr. S. Katoch and Dr. V. Sharma

b) Conferences/workshops/seminars/symposia:

S. No.	Date	Title	Name of Participants	Nature of participation
1.	29-30 May, 2017	Application of Radioisotopes and Radiation Technology in Food, Agriculture, Environment, Healthcare and Industry	Dr. Shivani Katoch	Attended

6. WORKSHOP/SEMINAR/TRAININGS ETC. ORGANIZED:

Two days seminar on, Technical Vocabulary on Agriculture Science, by Govt of India, Commission for scientific and technical terminology, Ministry of Human Resource Development, held at CSKHPKV, Palampur, on 21-22.6.17.

7. HONOURS AND AWARDS:

Dr. V. K. Sharma received Rashtriya Gaurav Award from India International Friendship Society, 2016.

8. EXTRA CURRICULUM DUTY: NCC/NSS/HOSTEL WARDEN/SPORTS ETC.

Name of teacher	Nature of duty	Period	Distinguished achievement, if any
Dr. Daisy Rani	Wardenship of girls' hostel (total residents: 135)	Full year	--
Dr. Daisy Rani	Designated student counselor	Full year	--
Dr. Shivani Katoch	Web Manager	Full year	--
Dr. Shivani Katoch	Student Councilor and placement	Full year	--

9. MISCELLANEOUS

Statement of production and sale of feeds and feed supplements under revolving fund scheme w.e.f. 1.7.16 to 30.6.17

S. No.	Item	Opening balance	Production	Sale	Value (Rs.)	Balance	Value (Rs.)
1	Cattle feed (kg)	700	518203	509434.5	11402870	9468.5	189770
2	Poultry feed (kg)	--	419569	414339	12117480	5230	157040
3	Urea molasses brick 2.5 kg (Nos.)	--	3779	3127	218890	252	17640
4	Urea molasses brick 1.5 kg (Nos.)	--	4300	4300	215000	---	--
5	Urea molasses brick 1.7 kg (Nos.)	--	910	910	50050	---	--
6	Mineral mixture (kg)	322	27905	27182	1849482	1045	69870

DEPARTMENT OF FISHERIES

1. INTRODUCTION

The cold-water fisheries sector has a great potential in generating rural income and food security for the economically underprivileged residing in uplinks. The cold water includes immense fishery resources and a great reservoir of biodiversity that can be tapped for food security and to enhance the economic states of rural people. It is in this perspective that the department of fisheries has endeavoured to undertake need based research to develop location specific poly-culture fish models. The department has three mandates, i.e. research teaching and extension. There by conducting the need based research on different aspects of aquaculture pertaining to location-specific problems confronting in the hill states. Beside research, the department is actively engaged in teaching and extension of fisheries by disseminating the evolved fish farming technology to the farmer's level in the state.

2. TEACHING

a) Undergraduates Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
1st Semester				
1.	AMT-233	Fisheries	0+1	Dr. R. D. Patil
2nd Semester				
1.	VPP-322	Aquatic animal Diseases Health Care and Management	1+1	

4. EXTENSION

a. Extension Publication

- New pamphlet was developed for distribution to the farmers in Hindi on "Pahadi khsetron me machali palan ki takniki".

5. PARTICIPATION IN WORKSHOP/ CONFERENCES, TRAININGS ETC.

Conferences/workshops/seminars/symposia:

S. No.	Date	Title	Name of Participants	Nature of participation
1.	29-30 May 2017	GCNEP Awareness Program on Application of Radioisotopes and Radiation Technology in Food, Agriculture, Environment, Healthcare and Industry	Dr. Madhu Sharma	Participant
2.	21-22 June 2017	Technical Vocabulary on Agriculture Science	Dr. Madhu Sharma	Participant

6. INCOME GENERATED BY COMMERCIAL UNITS AND SERVICE WINDOWS

S. No.	Name of product/service	Person(s) associated	Income generated annually (Rs)
1.	Fish	All staff	62,330/-
2.	Fingerlings	All staff	78,488.25/-
3.	Golden fish and Hybrid fish	All staff	6050/-
4.	Books		100/-

ANNEXURES

Faculty position

Dept. & S. No.	Name	Designation
1.	Dr. Subhash Verma	Prof. and Head
2.	Dr. Madhu Sharma	Assistant Prof.

Staff position

Dept. & S. No.	Name	Designation
1.	Sh. Karam Chand	Jr. Assistant
2.	Sh. Ajmer Singh	Junior Technician
3.	Sh. Mulkh Raj	Belder
4.	Sh. Iswar Dass	Belder
5.	Sh. Angat Singh	Beldar
6.	Sh. Mohinder Singh	Beldar
7.	Sh. Sanjay Jeet Singh	Beldar

Budget

S. No.	Scheme	Salaries	TA	Contingency	TOTAL
1.	CDA-013-46				75,000/-
2.	CDA-08-46				25,000/-
3.	CDA-05-46				10,000/-
4.	CDA-03-46				55,000/-
5.	CDA-06-46				25,000/-
6.	CDA-07-46				12,000/-
7.	CDA-02-46				28,000/-

DEPARTMENT OF VETERINARY GYNAECOLOGY & OBSTETRICS

1. INTRODUCTION

The Department of Veterinary Gynaecology & Obstetrics came in to existence at the establishment of college and established as an independent department (Veterinary Gynaecology & Obstetrics) in July 1991. Following adoption of Veterinary Council of India Regulations, the department is now known as Department of Veterinary Gynaecology & Obstetrics. This department has been involved in teaching the undergraduate as well as postgraduate students (M.V.Sc. and Ph. D), research and extension activities. Being a clinical department, this department provides clinical facilities to the farmers of Himachal Pradesh. The main thrust areas of the department include Female Infertility, Andrology, Obstetrics and Reproductive Biotechnology.



Infertility clinical camp in remote village of the state

2. TEACHING

a) Undergraduates Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
1st Semester				
1.	VGO-411	Veterinary Gynaecology	2+1	Drs. A. Sharma/ M.M. Singh & P. Kumar
2.	VCP-411	Vety. Clinical Practice	0+5	Drs. P. Kumar and A. Sharma
3.	VGO-511	Veterinary Andrology and Reproductive Techniques	1+1	Drs. P. Kumar/ A. Sharma & M.M. Singh
4.	VCP-511	Veterinary Clinical Practice	0+5	Drs. P. Kumar /A. Sharma
2nd Semester				
1.	VGO-421	Veterinary Obstetrics	1+1	Drs. M.M. Singh, P. Kumar & A. Sharma
2.	VCP-421	Veterinary Clinical Practice	0+5	Dr. A. Sharma/Dr. P. Kumar
3.	VPB-321	Animal Biotechnology	2+1	Dr. A. Sharma/Dr. P. Kumar
4.	Tracking Programme	Cryobiology of Gametes	2+0	Dr. P. Kumar/ Dr. A. Sharma

b) Postgraduate Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
M.V. Sc. Courses (1st Semester)				
1.	VOG-601	General Gynaecology	3+1	Dr. A. Sharma Dr. M.M. Singh
2.	VOG-602	Female Infertility	3+1	Dr. M.M. Singh Dr. A. Sharma

Annual Report 2016-17

3.	VOG-605	Semen Preservation and Artificial Insemination	2+1	Dr. M.M. Singh Dr. A. Sharma
4.	VOG-607	Clinical Practice-I	0+3	Dr. A. Sharma Dr. M.M. Singh
5.	VOG-691	Master's Seminar	1+0	Dr. A. Sharma
6.	VOG-699	Master's Research	20NC	Dr. M.M. Singh
M.V. Sc. Courses (2nd Semester)				
1.	VOG-603	Veterinary Obstetrics	2+2	Dr. P. Kumar & Dr. M.M. Singh
2.	VOG-606	Reproductive Biotechnology	2+1	Dr. A. Sharma & Dr. M.M. Singh
3.	VOG-608	Clinical Practice-II	0+3	Dr. P. Kumar
4.	VOG-691	Master's Seminar	1+0	Dr. A. Sharma
5.	VOG-699	Master's Research	-	Dr. M.M. Singh
Ph. D. Courses (1st Semester)				
1.	VOG-701	Advances In Gynaecology	2+1	Dr. M.M. Singh
2.	VOG-705	Advances In Semen Preservation	1+1	Dr. M.M. Singh
3.	VOG-707	Clinical Practice-I	0+3	Dr. M.M. Singh
4.	VOG-791	Doctoral Seminar-I	1+0	Dr. M.M. Singh
Ph. D. Courses (2nd Semester)				
1.	VOG-799	Doctoral Research	18NC	Dr. M.M. Singh & Dr. P. Sood

c) Numbers of students graduated

Degree	During last academic year	Accumulated total
M.V. Sc.	3	3
Ph.D.	-	-

d) National and International Level Competition: UG/MSc/PhD

Competition	No. of students qualified	No. of students appeared	% age of qualified	Distinguished rank, if any
ICAR-JRF				
SRF				
NET	1	2	51.78	

e) Student got job/placement in India or abroad

Department	Name of the Student with Admission No.	Name of Advisor	Nature of Job/Designation	Organization
Veterinary Gynaecology & Obstetrics	Dr. Ajit Bangthai	Dr. Madhumeet Singh	Veterinary Officer	State Animal Husbandry Department
	Dr. Indu Bala	Dr. Madhumeet Singh	Veterinary Officer	State Animal Husbandry Department

3. RESEARCH

a. Postgraduate Research

i) Ongoing Masters Programme:

S. No.	Name of the student	Admission No.	MAJOR ADVISOR	TITLE OF RESEARCH PROBLEM
1.	Dr. Amit Kashyap	V-2016-30-006	Dr. Madhumeet Singh	Evaluation of some controlled breeding protocols for the management of repeat breeding in cows suffering from functional infertility.
2.	Dr. Pinki Saini	V-2016-30-009	Dr. Madhumeet Singh	Prevalence of fungi in uterine Infection in bovines of Himachal Pradesh-diagnosis and therapeutic management
3.	Dr. Anupama Thakur	V-2016-30-008	Dr. Madhumeet Singh	Induction of parturition in dairy animals-a comparative study of various treatments protocols.
4.	Dr. Aaquib Mazid Jan	V-2016-30-005	Dr. Madhumeet Singh	Estrus induction and fertility response of some protocols for management of anestrus in dairy cows in Himachal Pradesh.
5.	Dr. Shriya Gupta	V-2016-30-010	Dr. Madhumeet Singh	Assessment of certain functional and biochemical attributes of fresh diluted and post thaw semen of bulls with varying freezability.
6.	Dr. Anchal Sharma	V-2016-30-004	Dr. Madhumeet Singh	Cattle abortions in Himachal Pradesh-diagnosis and preventive options.

ii) Ongoing Doctoral Programme:

S. No.	Name of the student	Admission No.	MAJOR ADVISOR	TITLE OF RESEARCH PROBLEM
1.	Dr. Pravesh Kumar	V-2015-40-001	Dr. Madhumeet Singh	Infertility in bovines of Himachal Pradesh-Prevalence, efficacy of some recent diagnostic procedures and therapeutic approach.
2.	Dr. Amit Sharma	V-2014-40-002	Dr. Pankaj Sood	Investigation of follicular dynamics and semen cryopreservation in goats.

iii) Postgraduate Research Salient Achievements

S. No.	Title of Research problem	Salient Research Achievements
1.	Efficacy of some programmed breeding protocols on fertility following timed AI in dairy cows in Himachal Pradesh Dr. Kapse Supriya Shivaji	Ovsynch protocol improved conception in cows when the protocol was initiated on day 6 of estrous cycle. The highest conception rate was recorded in the cows synchronized with Ovsynch protocol (47.91%) followed by Doublesynch (41.66%), Heatsynch (36.17%) and control (37.14%) groups. Blood was collected from 66 cows of different treatments and control groups for the analysis of plasma P4, T3, T4, TSH using Radioimmunoassay procedure. Four blood samples each were collected on days 0, 7, 8/9 (day 8 in Heatsynch only and day 9 in Ovsynch and Doublesynch only) and 10. There was no difference in hormonal concentrations between different protocols. Transrectal ultrasonographic examination of the

		ovaries was done in the cows to study the follicular dynamics and to establish a relationship between the follicle size and pregnancy status. There was a significant relation between follicular size at AI and pregnancy rate in cows.
2.	Uterine infections of puerperal transition phase in cattle of Himachal Pradesh- diagnosis and therapeutic management Dr. Aksay Sharma	To study the uterine infections of puerperal transition phase in cattle of Himachal Pradesh, 35 post-partum cows were divided into two main groups viz. normal (eotocia) and abnormal calving (dystocia) and various parameters and therapeutic options were studied. <i>E. coli</i> and <i>B. cereus</i> were predominant bacteria isolated from uterine discharge after parturition. The study revealed the efficacy of antibiotic (day 1 to 5 postpartum) and PGF ₂ α (on day 8 postpartum) administration against uterine infections. Fluoroquinolone group antibiotics were found most sensitive against bacteria isolated. Percentage of poly morpho nuclear cells on Day 43 postpartum was less than 10 per cent (an indicative of sub-clinical endometritis) in the uterine discharge of cows in all the treatment groups, with the least percentage when PG administered on day 8. There was no significant difference in pattern of reduction in size of gravid and non-gravid uterine horns (transverse diameter) and endometrial thickness recorded ultrasonographically following different treatments. Time taken to complete uterine involution, based on attaining equal sizes of previously gravid and non-gravid horns, was the fastest when PG was injected on day 8. Resumption of certain ovarian activities e.g. presence of first post-partum follicle (>10 mm) and first post-partum CL was significantly better (P<0.05) following treatment with PG on day 8 in comparison to other treatment or control groups. Duration of manifestation of first behavioral estrus and calving to conception interval were also the shortest following treatment with PG on day 8 in subsequent pregnancy.
3.	Subclinical endometritis in bovines of Himachal Pradesh-diagnosis and therapeutic options Dr. Neelam	While studying the incidence, diagnosis and therapeutic options of Subclinical endometritis (SCE) in bovines of Himachal Pradesh, it was concluded that depending on results of different diagnostic tests the prevalence of SCE varied from 40.0 to 55.0 per cent in cows and 35.0 per cent in buffaloes. The different bacteria isolated from uterine discharge samples were <i>E. coli</i> , <i>Streptococcus</i> species, <i>Staphylococcus</i> species, <i>Micrococcus</i> species, <i>Pseudomonas</i> species, <i>Bacillus</i> species and <i>Salmonella</i> species. Maximum isolates were of <i>E. coli</i> , <i>Bacillus</i> species and <i>Staphylococcus</i> species. Among 15 antimicrobial drugs used for culture sensitivity test, bacteria isolated were found most sensitive to fluoroquinolone antibiotics. Cows with SCE had a relative low pregnancy rate as compared to cows without SCE. Also among treated animals the conception rate after treatment was 45 per cent. Ultrasonography didn't give any conclusive diagnosis. Uterine cytology followed by Whiteside test was comparatively accurate methods as compared to bacteriological testing. This study showed that endometrial cytology could be used in cows safely and effectively for the diagnosis of SCE.
4.	Clinical endometritis and its therapeutic management in bovines of Himachal Pradesh	The overall incidence of clinical endometritis presented in clinical camps in different parts of Himachal Pradesh was 30.01 and 12.67 per cent in cattle and buffaloes, respectively. Out of total 334 uterine discharge samples

	Dr. Indu Bala	collected from cows, 280 (83.83%) showed growth and 54 (16.16%) were bereft of bacteria. <i>E. coli</i> , <i>Staphylococci</i> spp. and <i>Bacillus</i> spp. were the most predominant bacteria in the cervico-vaginal discharge of endometritic cows and buffaloes. The bacteria isolated from cervico-vaginal discharge of endometritic cows and buffaloes were found most sensitive to antibiotics of Fluoroquinolone group. Ultrasonography was not conclusive in the diagnosis of endometritis. Combination of intra-muscular antibiotics of Fluoroquinolone group (Ciprofloxacin or Enrofloxacin) and intra-uterine infusions (Cephapirin or Lugol's Iodine) were highly effective in treating the affected cows. Treatment following culture and sensitivity test was an effective option in non-responding cows.
--	---------------	--

b. Research Projects in Progress

Sr. No.	Title of the Project	PI	Funding source	Budget (Lakhs)	Year of Start	duration
1	Fund for Improvement of S&T (FIST) Infrastructure in Higher Educational Institutions.	Dr. Madhumeet Singh	DST	30.00	2012	5 years
2	Management of bovine infertility through improved scientific interventions	Component 1: Prevalent practices versus scientific management and therapeutics of bovine dystocia in Himachal Pradesh Dr. Madhumeet Singh	RKVY	18.00	September 2014.	Upto 30 Dec. 2016
		Component 2: Investigation of various etiologies responsible for infertility and their treatment in bovines in Himachal Pradesh Dr. Pravesh Kumar/Dr. Madhumeet Singh	RKVY	22.00	September 2014	Upto 30 Dec. 2016
3	Managing infertility in dairy animals of Himachal Pradesh	Component 1: Investigation and management of repeat breeding in bovines of Himachal Pradesh with special reference to clinical and sub-clinical uterine infections and functional causes Dr. Madhumeet Singh	RKVY	34.00	October 2016 onwards	Upto 30 Dec. 2017
		Component 2: Diagnosis and treatment of infertility in livestock through clinical camps in different parts of Himachal Pradesh Dr. Madhumeet Singh	RKVY	21.00	October 2016 onwards	Upto 30 Dec. 2017

c. Scientific Publications and Presentations**i) Publications**

1.	Jaswal, R. S., Tarun Thakur, Madhumeet Singh and Ghuman, S. P. S. (2016). Impact of Buserelin acetate administration at estrus or during luteal phase on plasma progesterone in dairy cattle reared under temperate climate. <i>Indian Journal of Animal Reproduction</i> 37: 35-36.	3.43
2.	Mridu Sharma, Madhumeet Singh, Amit Sharma and Pravesh Kumar (2016). Correlation between semen evaluation parameters and fertility of frozen-thawed semen of Jersey x local hill Cattle crossbred bulls. <i>Indian Journal of Animal Reproduction</i> 37: 52-54.	3.43
3.	Dhaka, Y., Singh, M. and Sharma, D. K. (2017). Comparison of initial parameters and functional attributes at different stages of processing in freezable and nonfreezable semen ejaculates of Murrah buffalo bulls. <i>Indian Journal of Animal Reproduction</i> 38: 26-30.	3.43
4.	Kapse, S., Singh, M., Sharma, A. and Kumar, P. (2017). Dominant follicle diameter at insemination is related to positive pregnancy outcome in dairy cattle. <i>Indian Journal of Animal Reproduction</i> 38: 56-57.	3.43
5.	Akshay Sharma, Madhumeet Singh, Amit Sharma and Pravesh Kumar (2017). Postpartum Uterine Infections in Cows: Diagnosis and Treatment - An Overview. <i>Indian Journal of Veterinary Sciences and Biotechnology</i> 12(4): 38-44.	4.47
6.	Akshay Sharma, Pravesh Kumar, Amit Sharma, Madhumeet Singh and Neelam Bhardwaj (2017). Dystocia due to Schistosomus reflexus in a Jersey Crossbred Cow. <i>Indian Journal of Veterinary Sciences and Biotechnology</i> 12(4): 91-92.	4.47
7.	Singh, M., Sharma, A., Sharma, A. and Kumar, P. (2017). Repeat breeding and its treatment in dairy cattle of Himachal Pradesh (India) - a review. <i>Indian Journal of Animal Reproduction</i> 38(2): 1-5.	3.43
8.	Sofi K. A. and Singh M.M. (2017). Comparison between rectal palpation and trans-rectal ultrasonography for diagnosis of genitalia in cows. <i>SKUAST Journal of Research</i> 19(2): 258-260	3.81
9.	Amit Sharma, Akshay Sharma, Neelam, Madhumeet Singh and Pravesh Kumar (2017) Dystocia in zebu cattle due to Perosomus elumbis – a case report. <i>Exploratory animal and medical research</i> 7(1): 104-105.	4.27
10	Sofi, K. A., Singh, M., Kumar, P. and Sharma, A. (2018). Laparoscopic chromopertubation for the evaluation of tubal patency in dairy cattle. <i>Indian Journal of Animal Reproduction</i> 39(1): 15-19.	3.43
11	Sharma, A., Singh, M., Sharma, A. and Kumar, P. (2018). Prostaglandin F ₂ α administration on day 8 postpartum leads to early resumption of ovarian cyclic activity in dairy cattle. <i>Indian Journal of Animal Reproduction</i> 39(1): 38-40.	3.43

ii). Presentations

Sofi, K.A. and Singh, M.M. (2017). Diagnostic potential of ultrasonography and laparoscopy in comparison to rectal palpation for evaluation of genitalia in cows. Proc. National Symposium on “Livestock Resources management under changing climate Scenario” and 24th Annual convention of Indian Society of Animal Production and Management, Srinagar, May 17-19, 2017 pp 97

iii). Manuals, Books, Booklets and Bulletin

Pamphlets: “पशु पालकों के लिए गौ पशु प्रजनन सम्बन्धी जानकारी”.

4. EXTENSION

a. Extension Publication

1. प्रवेश कुमार, मधुमीत सिंह एवं अमित शर्मा.2016.प्रसव के बाद गर्भाशय का निकलना : पर्वतीयखेतीबाड़ी .कारणवप्राथमिकचिकित्सा 36(1-2): 14-15.
2. अमित शर्मा, मधुमीत सिंह एवं प्रवेश कुमार 2016. पशुओं का गर्मी में न आना – कारण व निदान पर्वतीयखेतीबाड़ी 36(1-2): 16-17.

b. Clinical camps/trainings/extension camps/animal health camps

S. No.	Particulars	Number	Participant		Remarks
			Male	Female	
1.	Training conducted				
2.	Farmers training (iv) On -campus (v) Off-campus				
3.	Training to Extension Officials				
4.	Camps organized	56	Around 1500 animal treated		Infertility treatment Clinical camps in different parts of Himachal Pradesh
5.	Farmers attended				
6.	Field Days	1	400		Rice day at Malan
		1	400		Wheat day at Malan
7.	OFTs				
8.	Bulletins, pamphlets developed	1 pamphlet			पशु पालकों के लिए गौ पशुप्रजनन सम्बन्धी जानकारी
9.	Animals disease outbreaks				
10.	Others, if any				

5. EXTRA CURRICULUM DUTY: NCC/NSS/HOSTEL WARDEN/SPORTS ETC.

Name of teacher	Nature of duty	Period	Distinguished achievement, if any
Dr. Amit Sharma	Hostel Warden	2016 -till date	

6. MISCELLANEOUS

Visit of dignitary	
Honorable Chancellor of the university Acharya Dev Rat Visited the department	
Professional task assigned	
Task	Faculty involved
<ul style="list-style-type: none"> • Member, Project formulation and Screening committee (PFSC) at Directorate of Research level. • Member, Intellectual Property Rights (IPRs) committee of University. • Member Editorial Board “Parvatiya Khetibari” • Member Management committee for establishment of “Model Rehabilitation & Improvement Centre for Cattle”. 	Dr. Madhumeet Singh
<ul style="list-style-type: none"> • Member of team of examiners conducting pharmacist exam at Kotla barog, Distt. Sirmour 	Dr. Pravesh Kumar

ANNEXURES

Faculty position

S. No.	Name	Designation
1.	Dr. Madhumeet Singh	Prof. & Head
2.	Dr. Pravesh Kumar	Asstt. Professor
3.	Dr. Amit Sharma	Asstt. Professor

Staff position

S. No.	Name	Designation
1.	Sh. Devi Lal	Sr. Technical Assistant-II
2.	Sh. Kamal Jeet	Clerk
3.	Sh. Sansar Chand	Peon
4.	Sh. Raman Sood	Lab Attendant

Budget: NIL

DEPARTMENT OF LIVESTOCK PRODUCTION MANAGEMENT

1. INTRODUCTION:

The Department of Livestock Production Management is one of the key departments of College of Veterinary and Animal Sciences responsible for fulfilling teaching, research and extension mandates of the college. Besides, the department is also taking care of UG teaching in College of Agriculture and College of Home Science. Initially, the department was clubbed with the department of Animal Production and later on with the joining of faculty members during 1998, it started functioning as an independent department as per V.C.I. norms. Presently the department is manned by three faculty members and one field staff only.



Handling of angora rabbit at Angora rabbit breeding farm, Kandwadi

2. TEACHING

a) Undergraduates Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
Annual				
1.	LPM	Livestock Production Management	4+2	Drs. P.K. Dogra, D. Wadhwa, V. Sharma, G.D. Sharma, Naveen, P. Dhar, Varun, Ajay and Ankur
1st Semester				
2.	LPM-211	Avian Production and Management	1+1	Drs. P. Dhar and B.G. Mane.
3.	Study Circle	Production system	NC	Dr. P.K. Dogra
4.	AMT-232	Poultry (COHS)	0+1	Dr. P. Dhar
5.	AMT-233	Fisheries (COHS)	0+1	Dr. R.D. Patil
2nd Semester				
6.	LPM-221	Commercial Poultry Production & Hatchery Management	1+1	Drs. V. Sankhyan & P. Dhar
7.	LPM-222	Livestock Production and Management –III (Regional Interest)	1+1	Drs. R.D. Patil & V.K. Sharma
8.	AMT-121	Dairy and Animal Science (COHS)	1+1	Drs. S. Khurana & P. Dhar
9.	LPM-361	Livestock Production and Management (COA)	2+1	Drs. S. Katoch & V. Sharma
10.	Study Circle	Production System	NC	Dr. P.K. Dogra

3. RESEARCH**a. Research Projects in Progress**

S. No.	Title of Project	PI	Funding Agency	Budget	Year of start	Duration
1.	AICRP on goat improvement (Gaddi Field Unit)	Dr. P. K. Dogra as PI	AICRP (ICAR)	21.59 lakh.	2009	Continuous
2.	Propagation of AI in goats of Himachal Pradesh.	Dr. P. K. Dogra as Co-PI	Min. of Agri. GOI	72.98 lakh.	2013	Three years
3.	Studies on the use of Apple Pomace as livestock feed ingredient.	Dr. P.K Dogra as Co-PI	RKVY, HP Gov.	25.5 lakh	2015	Three years

b. Summary of research finding during the year**AICRP on Goat Improvement (Gaddi field unit)**

During the period under report, four field units comprising of 1123 goats including 723 breedable does belonging to four different migratory routes were monitored. All the animals were identified by ear tagging. A total of 529 young kids were added in selected flocks by way of birth, 122 animals of different age groups died, and 441 animals pertaining to different age groups were sold by the owners. After final selection, a total of 30 bucks were finally distributed to 30 different farmers as a breeding input. The overall population growth was observed to be 109.45. The overall mortality incidence was found to be 7.11%. The incidence of twin birth recorded was 21.56%, abortion rate 10.06 and kidding percent 67.35.

4. EXTENSION**a. Radio talk/ TV Telecast**

Dr. P.K. Dogra delivered a radio talk on "Rojgaar hetu dairy paalan", under "Kisan Vani programme", broadcasted from All India Radio, Dharamsala on 06.02.2017 at 6.30 PM.

b. Clinical camps/trainings/extension camps/animal health camps:

S. No.	Particulars	Number	Participant	Remarks
1.	Others, if any: Extension lectures in Training programme of DEE	6		
2.	Attended phone calls of Kisan call center	175		

5. PARTICIPATION IN WORKSHOP/CONFERENCES, TRAININGS ETC.**a) Trainings:**

S. No.	Date	Title	Name of Participants
1.	May 29-30, 2017	Two days GCNEP Awareness Programme organized by BARC at DEE, CSKHPKV, Palampur.	Dr Anjali Kumari (Asstt. Prof.)
2.	June 7-27, 2017	21 days summer school on "Livestock welfare under changing climate scenario for improved productivity" held at IVRI Izatnagar, Bareilly.	Dr. Narender Kumar (Asstt. Prof.)

b) Conferences/workshops/seminars/symposia:

S. No.	Date	Title	Name of Participants	Nature of participation
1.	June 12-13, 2017	Annual Review meet of AICRP on Goat Improvement held at Leh.	Dr. P.K. Dogra (Prof. & Head)	As PI
2.	June 21-22, 2017	Two days Seminar on 'Agricultural Research and Technical Terminology in Hindi'. Organized jointly by IGFRI Reg. Station, Palampur, Commission for Scientific and Technical Terminology Ministry of HRD New Delhi and COVAS, Palampur.	Dr. P.K. Dogra (Prof. & Head) Dr Anjali Kumari (Asstt. Prof.)	Participation

6. MISCELLANEOUS:

1. Dr. P. K. Dogra also held additional charge of Head Instructional Livestock Farm Complex along with DDO powers.
2. Gaddi goat farmer Mr. Karam Chand of tribal Bringti Deol village, associated with the ongoing AICRP on Goat breeding, was conferred the prestigious national level 'Breed Saviour Award' held at NBAGR Karnal on May 22nd 2017.
3. Dr P. K. Dogra completed six external paper setting assignments and seven M.V Sc./ Ph. D. thesis evaluation and conduct of viva voce examinations in different universities.

ANNEXURES**Faculty position**

S. No.	Name	Designation
1.	Dr. P. K. Dogra	Professor & Head
2.	Dr. (Mrs.) Saroj Bala	Asstt. Professor (Upto 30.09.2016)
3.	Dr. Anjali Kumari	Asstt. Professor
4.	Dr. Narender Kumar	Asstt. Professor

Staff position

S. No.	Name	Designation
1.	Shri Rameshwar Lal Saini w.e.f. 22.05.2004	(Syce cum rider)

DEPARTMENT OF LIVESTOCK PRODUCTS TECHNOLOGY

1. INTRODUCTION

Department is involved in teaching and research on products development technology of livestock origin.

2. TEACHING**a) Undergraduates Courses:**

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
1st Semester				
1.	LPT-311	Milk and Milk Products Technology		Dr. B.G. Mane, Dr. Sanjay Kumar and Dr. Dinesh Krofa
2.	LPT-312	Abattoir Practices and Animal By-products Technology		Dr. Sanjay Kumar, Dr. Dinesh Krofa and Dr. B.G. Mane
2nd Semester				
1.	LPT-321	Meat Science		Dr. Dinesh Krofa, Dr. Sanjay Kumar and Dr. B.G. Mane

3. RESEARCH**a. Scientific Publications and Presentations****i). Manuals, Books, Booklets and Bulletin**

1. Practical Manual on Meat and Poultry Products

4. EXTENSION**a. Extension Publication**

1. Doodh Prasakaran: Khushali Ka Ek Naya Vikalp, Giriraj 18th Oct., 2017

5. PARTICIPATION IN WORKSHOP/ CONFERENCES, TRAININGS ETC.**Conferences/workshops/seminars/symposia**

S. No.	Date	Title	Name of Participants	Nature of participation
1.	March 09-10, 2017	National Seminar on "Improvement of Small Ruminant Production System for Livelihood Security". Organised by Indian Society for Sheep and Goat Production and Utilization, Avikanagar (Rajasthan) in collaboration with ICAR-CSWRI Avikanagar and ICAR-CIRG Makdoom (U.P.)	Dr. Dinesh Krofa	Poster Presentation
2.	April 10-12, 2017	National Conference on "Technological Intervention for Sustainable Livestock Production" organised by Society for Veterinary & Animal Husbandry Extension at Sher-e-Kashmir University of Agricultural Sciences & Technology of Jammu	Dr. Dinesh Krofa	Poster Presentation

6. HONOURS AND AWARDS

- Best Poster Award (First Prize) at National Seminar on “Improvement of Small Ruminant Production System for Livelihood Security”. Organised by Indian Society for Sheep and Goat Production and Utilization, Avikanagar (Rajasthan) in collaboration with ICAR-CSWRI Avikanagar and ICAR-CIRG Makdoom (U.P.) from March 09-10, 2017.
- Best Poster Award (First Prize) at National Conference on “Technological Intervention for Sustainable Livestock Production” organised by Society for Veterinary & Animal Husbandry Extension at Sher-e-Kashmir University of Agricultural Sciences & Technology of Jammu from April 10-12, 2017.

ANNEXURES**Faculty position**

S. No.	Name	Designation
1.	Dr. Dinesh Krofa	Assistant Professor
2.	Dr. B. G. Mane	Assistant Professor
3.	Dr. Sanjay Kumar	Assistant Professor

Staff position

S. No.	Name	Designation
1.	Sh. Shanti Swroop Sharma	Lab Technician
2.	Sh. Santosh Kumar	Peon
3.		

DEPARTMENT OF INSTRUCTIONAL LIVESTOCK FARM COMPLEX

1. INTRODUCTION

The present department of Instructional Livestock Farm Complex came into existence on 16th May, 2013 vide office order no. QSD.1-24/2011-CSKHPKV (GA)Vol. IV/30209-322 dated May 16, 2013, with the merger of teaching and non-teaching staff and infrastructure of existing Livestock Farm. Going back to the history of the farm, it was established in March, 1975 as a component of “Indo-New Zealand Livestock Improvement Project (INLIP)” by importing a nucleus Jersey herd of 64 pregnant heifers, 111 weaned calves and 5 proven bulls from New Zealand. The primary aim of this project was to bring revolutionary improvement in the livestock wealth of Himachal Pradesh by resorting to crossbreeding with Jersey, a highly suitable exotic dairy cattle breed for hilly regions. After completion of the above-said project in 1981-82, the activities further continued as “Intensive Livestock Improvement Project (ILIP)” funded through state plan/non-plan schemes initially under the then Department of Animal Production, Directorate of Research and then under the College of Veterinary & Animal Sciences. The Livestock Farm



Preparation of fields for folder cultivation in farm

became an independent unit in 1997, with the bifurcation of the Department of Animal Breeding and Genetics. It was administratively attached with the Department of Livestock Production & Management, COVAS, HPKV, Palampur from 2005 to 2010. Since, 2010 to May, 2013, the Livestock Farm functioned as a totally independent administrative unit till creation of full-fledged Department of Instructional Livestock Farm Complex. This department is the only livestock teaching unit of the university which provides research support in terms of research materials, experimental animals and others facilities to different departments of the university and particularly to the College of Veterinary & Animal Sciences.

OBJECTIVES

1. To maintain instructional and demonstration units of cattle, sheep, goat, equine and other livestock species to meet the teaching, research and extension education requirements of COVAS and other constituent colleges of the university.
2. To render support in terms of research materials, experimental animals and others facilities to different departments of the university and in particular to the College of Veterinary & Animal Sciences for UG and PG programmes.

2. TEACHING**Undergraduates Courses:**

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
1st Semester				
1.	LFP-211	Livestock farm practices	0+1	Dr. P.K. Dogra and Dr. R.K. Thakur
2.	VAE - 511	Livestock Entrepreneurship	1+0	Dr. R.K. Thakur and Dr. A. Sharma
2nd Semester				
3.	LFP-221	Livestock farm practices	0+1	Dr. P.K. Dogra and Dr. R.K. Thakur
4.	Internship	Compulsory Internship Programme (7 batches, each of 14 days duration)	Six months	Drs. P.K. Dogra and P.K. Sharma
5.	VAE-321	Livestock Economics, Marketing and business management	2+1	Dr. R.K. Thakur

3. RESEARCH**a. Postgraduate Research****i) Ongoing Masters Programme:**

S. No.	Name of the student	Admission No.	MAJOR ADVISOR	TITLE OF RESEARCH PROBLEM
1.	Ms. Aditi Walia	(A-2014-30-006)	Dr. Rajesh Kumar Thakur	Impact of stray and wild animals menace on farm economy in Kangra district of Himachal Pradesh.
2.	Ms. Oshin	(A-2016-30-032)	Dr. Rajesh Kumar Thakur	Economical analysis of vegetable farming in Kangra district of H.P.
3.	Mr. Pavittar Singh	(A-2016-30-033)	Dr. Rajesh Kumar Thakur	Economical analysis of vegetable production in Hamirpur district of H.P.

b. Research Projects in Progress

S. No.	Title of Project	PI	Funding Agency	Budget	Year of start	Duration
1.	Impact Analysis of Integrated Watershed Project in Swan Catchment, in Una district of HP	Dr. RK Thakur as Co-PI	Swan River Project	4.89	2013	Completed
2.	Vulnerability Assessment of Agriculture-Horticulture Sector in Kullu district of HP	Dr. RK Thakur as Co-PI	SDC	12.13	2013	Completed
3.	AICRP on soybean	Dr. GD Sharma as Co-PI	ICAR	25.00	2012	3 years (Associated as volunteer centre)

4. EXTENSION**a. Radio talk/ TV Telecast**

S. N.	Name of Scientist /Officer	TV/ Radio talks
1	Dr. G.D.Sharma	1

b. Clinical camps/trainings/extension camps/animal health camps

S. No.	Particulars	Number	Participant		Remarks
			Male	Female	
1.	Training conducted				
2.	Extension lectures in Trg prog. of DEE Farmer's visits to dairy farm	41 83	1122	730	Jointly by Drs. P K Dogra, GD Sharma, Rajesh Thakur and Parveen Sharma

5. PARTICIPATION IN WORKSHOP/ CONFERENCES, TRAININGS ETC.**a) Trainings:**

S. No.	Date	Title	Name of Participants
1.	May 29-30, 2017	Two days GCNEP Awareness Programme organized by BARC at DEE, CSKHPKV, Palampur.	Dr. Madhu Suman (Asstt. Prof.)

b) Conferences/workshops/seminars/symposia:

S. No.	Date	Title	Name of Participants	Nature of participation
1.	24.09.2016	Attended and participated in Agricultural Officers' workshop on Rabi crops held at CSKHPKV, Palampur	Dr. G. D. Sharma and Dr. Rajesh Kumar Thakur	Participation
2.	12.06.2017.	Participated in Agricultural Officers' workshop on <i>kharif</i> crops on 12.06.2017.	Dr. G. D. Sharma and Dr. Rajesh Kumar Thakur	Participation
3.	June 21-22, 2017	Two days Seminar on 'Agricultural Research and Technical Terminology in Hindi'. Organized jointly by IGFR Reg. Station, Palampur, Commission for Scientific and Technical terminology Ministry of HRD New Delhi and COVAS, Palampur.	Dr. Madhu Suman and Dr. Nishant Verma	Participation

6. INCOME GENERATED BY COMMERCIAL UNITS AND SERVICE WINDOWS

S. No.	Name of product/service	Person(s) associated	Income generated annually (Rs)
1.	Sale of milk, paneer, cream, FYM and other misc. items under revolving fund scheme	All faculty of ILFC	71,17,851
Total Rupees			71,17,851

ANNEXURES

Faculty position

S. No.	Name	Designation
1.	Dr. P.K. Dogra	Professor and Head, DDO.
2.	Dr. G.D. Sharma	Principal Agronomist (Upto 05.04.2017)
3.	Dr. Rajesh K. Thakur	Principal Economist
4.	Dr. Nishant Verma	Assistant Professor (Animal Breeding) w.e.f.21.04.2017
5.	Dr. Madhu Suman	Assistant Professor (Animal Nutrition) w.e.f.20.04.2017
6.	Dr. Ankaj Thakur	Assistant Professor (LPM) w.e.f.20.04.2017

Staff position

S. No.	Name	Designation
A.	Ministerial Staff:	
	Smt. Renu Kumari	Superintendent
	Sh. Raja Ram	Jr. Asstt.
B.	Technical and Field Staff:	
	Dr. Parveen K. Sharma	Veterinary Officer
	Sh. Kashmir Singh	Tech. Asstt. G-II
	Sh. Ramesh Kumar	Vety. Supervisor
	Sh. Anil Kumar	Vety. Pharmacist
	Sh. Raj Kumar	Vety. Pharmacist
	Sh. Mohinder Singh	Field Asstt.
	Sh. Onkar Chand	Lab. Attendant
C.	Drivers:	
	Sh. Sukh Dev	Road Roller Driver
	Sh. Piar Chand	Driver
D.	Cattle Attendants & Beldars:	
	Cattle Attendants	5 Nos.
	a. Beldars	16 Nos.
	b. Chowkidars	2 Nos.
	c. Beldars & Cattle Attendants	25 Nos. (All Transferred to H.P. Govt. on secondment basis)
	Syce cum Rider	1 Nos.

Budget

S. No.	Scheme	Salaries	TA	Contingency	TOTAL
1.	SCP-005-45	-	-	-	-
2.	RF-066-45				
3.	CDA-003-45 CDA-005-45 CDA-006-45				
4.	SFS				

DEPARTMENT OF VETERINARY MEDICINE

1. INTRODUCTION

Department of Veterinary Medicine is one of the six major departments since the establishment of the college in July, 1986. Presently, the department is engaged in teaching, research and extension of Clinical as well as Preventive Medicine besides providing diagnostic and clinical services at TVCC of the College. Department is also involved in providing quality services to the department of animal husbandry as and when required by attending outbreaks throughout the state, disseminating technical knowledge through seminar etc. Services are also extended to the unique stakeholders like wildlife establishments and farmers of high altitude areas of the state. Besides this department also provide services to police and paramilitary forces for treatment of their animals and training of personnel.



Cattle suffering from Enzootic Bovine Haematuria, voiding blood in Urine

2. TEACHING

a) Undergraduates Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
1st Semester				
1.	VMD-411	Vet. Clinical Medicine - I (General & Systemic)	2+1	Dr. D. Raj, Dr. A. Katoch
2.	VMD-412	Vet. Preventive Medicine-I (Bact., Fungal and Rickettsial Diseases)	2+0	Dr. A. Katoch, Dr. R.K. Mandial
3.	VMD-511	Animal Welfare, Ethics & Jurisprudence	2+0	Dr. R.K. Mandial, Dr. D. Raj
4.	VMD-512	Zoo/Wild Animal Breeding, Management, Nutrition and Healthcare	1+1	Dr. A. Katoch
5.	VMD-513	Pet Animal Breeding, Management, Nutrition and Healthcare	1+1	Dr. A. Katoch
6.	VCP-411	Veterinary Clinical Practice	0+5	Dr. A. Katoch, Dr. R.K. Mandial, Dr. D. Raj
7.	VCP-511	Veterinary Clinical Practice	0+5	Dr. A. Katoch, Dr. R.K. Mandial, Dr. D. Raj
8.	NCC	National Cadet Corps for UG students of CSKHPKV	0+2 (N.C)	Dr. A. Sharma
2nd Semester				
1.	VMD-421	Vet. Clinical Medicine -II (Metabolic & Deficiency Dis.)	2+0	Dr. A. Sharma, Dr. D. Raj

2.	VMD-422	Vet. Preventive Medicine - II (Viral & Parasitic Dis.)	2+0	Dr. A. Katoch, Dr. A. Sharma
3.	VCP-421	Veterinary Clinical Practice	0+5	Dr. A. Sharma, Dr. A. Katoch, Dr. D. Raj
4.	VPP-322	Aquatic Animal Diseases, Healthcare and Management	1+1	Dr. A. Sharma
5.	LPM	Livestock Production Management	4+2	Dr. A. Sharma, Dr. A. Katoch
6.	NCC	National Cadet Corps for UG students of CSKHPKV	0+2 (N.C)	Dr. A. Sharma
7.	---	Department is also involved in providing training under compulsory internship program.		All teachers of Department.

Besides above courses, following study circle and tracking programs are also taught by faculty of this department:

Study Circle:

1. Law and Veterinary Science Study Circle. Dr. R.K. Mandial
2. Law and Veterinary Science Study Circle. Dr. Ajay Katoch

Tracking Programmes: Cr. Hrs.: 2

1. Feline Medicine Dr. Ajay Katoch
2. Dermatology / Integument Science Dr. R.K. Mandial
3. Alternate Veterinary Medicine Dr. Des Raj
4. Small Animal Critical Care Dr. Des Raj
5. Non-Mammalian Medicine Dr. Ajay Katoch
6. Sports Animal Medicine Dr. Ankur Sharma
7. Sheep & Goat Medicine Dr. Ankur Sharma
8. Zoo and Wild Animal Management Dr. Ajay Katoch

b) Postgraduate Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
M.V. Sc. Courses (1st Semester)				
1.	VCM-604	Canine and Feline Clinical Medicine	2+0	Dr. R.K. Mandial and Dr. D. Raj
2.	VCM-609	Production Diseases	2+0	Dr. D. Raj and Dr. R.K. Mandial
3.	VCM-614	Clinical Practice-I	0+3	Dr. A. Katoch and Dr. D. Raj
4.	VCM-691	Master's Seminar	1+0	Dr. R.K. Mandial
M.V. Sc. Courses (2nd Semester)				
1.	VCM-614	Clinical Practice-I	0+3	Dr. A. Katoch, Dr. A. Sharma, Dr. D. Raj
2.	VCM-615	Clinical Practice-II	0+3	Dr. A. Katoch, Dr. A. Sharma, Dr. D. Raj
3.	VCM-691	Master's Seminar	1+0	Dr. Des Raj
Ph. D. Courses (1st Semester)				
1.	NIL	NIL	NIL	NIL
Ph. D. Courses (2nd Semester)				
1.	NIL	NIL	NIL	NIL

c) Numbers of students graduated:

Degree	During last academic year	Accumulated total
M.V. Sc.	4	4
Ph.D.	NIL	NIL

d) Student got job/placement in India or abroad

Department	Name of the Student with Admission No.	Name of Advisor	Nature of Job/Designation	Organization
Veterinary Medicine	Dr. Ashmita Anand V-2015-30-010	Dr Des Raj Wadhwa	Veterinary Officer	Department of Animal Husbandry, Govt. of H.P.
Veterinary Medicine	Dr. Deepa Garpha V-2015-30-011	Dr Des Raj Wadhwa	Veterinary Officer	Department of Animal Husbandry, Govt. of H.P.

3. RESEARCH**a. Postgraduate Research****i) Ongoing Masters Programme:**

S. No.	Name of the student	Admission No.	MAJOR ADVISOR	TITLE OF RESEARCH PROBLEM
1.	Ashmita Anand	V-2015-30-010	Dr. Des Raj	Clinico-therapeutic studies on canine seizure.
2.	Deepa Garpha	V-2015-30-011	Dr. Des Raj	Epidemiological and clinico-therapeutic studies on enzootic bovine hematuria.
3.	Monika Sharma	V-2015-30-012	Dr. Des Raj	Clinico-therapeutic studies on canine distemper.
4.	Tahir Sultan Bhat	V-2015-30-013	Dr. Des Raj	Investigations on bovine cutaneous papillomatosis.

ii) Ongoing Doctoral Programme:

S. No	Name of the student	Admission No.	MAJOR ADVISOR	TITLE OF RESEARCH PROBLEM
1.	Ajay Katoch	V-2014-40-004	Dr. Des Raj	Diagnosis and therapeutic management of renal failure in dogs
2.	Ankur Sharma	V-2015-40-003	Dr. Des Raj	Diagnostic and clinico-therapeutic studies on hepatic disorders in animals.

iii) Postgraduate Research Salient Achievements

S. No.	Title of Research problem	Salient Research Achievements
1.	Clinico-therapeutic studies on canine seizure	-The study was conducted on 40 dogs with the history of seizures. -Out of 40 cases, 62.5% were of idiopathic seizure, 25% were of structural (Canine Distemper) and 12.5% were of reactive seizure. -Combined therapy comprising Potassium bromide and Levetiracetam along with supportive therapy was found most efficacious.

2.	Epidemiological and clinico-therapeutic studies on Enzootic Bovine Hematuria	<p>-The present investigation was conducted on 59 cattle presented with history of hematuria at clinical camps held at Sainj valley of district Kullu, Barot and Janjheli valley of district Mandi.</p> <p>-Haematological examination revealed significantly low haemoglobin, packed cell volume and total erythrocyte count.</p> <p>-BPV-2 DNA was detected from 19 out of 45 blood samples of EBH affected cattle.</p> <p>-Ultrasonography proved to be a useful tool for evaluation of vesicular diverticular neoplasm and is a very sensitive indicator for detecting space occupying lesions at a very early stage.</p>
3.	Clinico-therapeutic studies on canine distemper	<p>-The study was conducted on 80 dogs presented with the history of ocular or nasal discharge, respiratory distress, digestive disturbances, cutaneous lesions and nervous symptoms.</p> <p>-The overall incidence of canine distemper was 2.34 per cent in the cases presented to College Veterinary Clinics.</p> <p>-Most of the cases were presented in nervous form alone and in rest of the cases, combination of nervous form along with respiratory, digestive, cutaneous or ocular form in various combinations were presented.</p> <p>-Main histopathological findings were interstitial pneumonia, demyelinating changes in the brain besides swollen astrocytes with mild to moderate lymphocytic infiltration and hyperkeratosis of the foot pad.</p> <p>-The recovery rate was only 16.67 per cent.</p>
4.	Investigations on Bovine Cutaneous Papillomatosis	<p>-The disease was more prevalent in the age group of 1 to 3 years while Crossbred cattle were mostly affected particularly Jersey cross cattle.</p> <p>-Teats were affected in maximum cases.</p> <p>-Histopathologically, the wart tissues were classified as Papilloma and Fibropapilloma.</p> <p>-Autogenous wart vaccination was effective in 75 per cent cases followed by Combined use of Anthiomaline, Autohaemotherapy and Levamisole (72.22%).</p>

b. Research Projects in Progress

S. No.	Title of Project	PI	Funding Agency	Budget	Year of start	Duration
1.	Efficacy of Veterinary homoeopathic formulations in livestock diseases and production	Dr. Ajay Katoch	SBL Pvt. Ltd. Delhi	2.07 lakhs	2016	9 months July 2016- March 2017

c. Summary of research finding during the year

SBL project salient findings

- 1) Liquid Mastogen: Clinical trials were conducted on a total of 24 animals suffering from mastitis. Liq. Mastogen proved to be efficacious in treatment of mastitis where the complete recovery rate was 25% and partial improvement was observed in 45.9% cases.
- 2) Liquid Milkagain: Trial was conducted on a total of 20 cows. A total of increase of 500 ml–1 litre per day improvement was noticed in all the cows suffering from hypogalaktia on 15th day. After one month, an increase of 1- 2.5 litres per day increase in milk yield was observed. Out of 20 cows, 7 cows showed an increase of 2-2.5 litres per day milk yield whereas in others an increase of 1-2 litres was observed. No side effect was observed. The feeding of Liq. Milkagain also resulted in increase in blood levels of Calcium, Magnesium, Phosphorus.

- 3) Liquid Pashmina: Trial was conducted on a total of 20 cows. A total of increase of 1-1.5 litre per day milk yield was noticed in all the cows suffering from hypogalactia on the 15th day. After one month, an increase of 2- 3 litres per day milk yield was observed. The feeding of Liq. Pashumin improved the general body texture and improvement in skin and hair coat lustre was observed in all the animals. No side effect was observed. The feeding of Liq. Pashumin also resulted in the increase in blood levels of Calcium, Magnesium, Phosphorus and Iron.

d. Scientific Publications and Presentations

i) Publications

- Sharma, Pardeep & others (2017). Correlating bacterial shedding with fecal corticosterone levels and serological responses from layer hens experimentally infected with *Salmonella* Typhimurium. *Veterinary Research*, 48:5, 1-11 (IF 3.0).
- Sharma, Pardeep & others (2016). "Serological responses to *Salmonella* Typhimurium infection in laying hens" paper published in the compendium of joint conference which was organized by *The Australian and New Zealand Society of Animal Production* w.e.f. July 4-7, 2016, Adelaide, Australia.

ii). Presentations

Dr. Pardeep Sharma presented a research paper at Animal Production-2016 joint conference which was organized by *The Australian and New Zealand Society of Animal Production* w.e.f. July 4 -7, 2016, Adelaide, Australia.

4. EXTENSION

a. Radio talk/TV Telecast

1. Dr. Ajay Katoch recorded a programme as an expert at AIR Dharamshala on the topic "Clinical signs and prevention of FMD in cattle" on June 09, 2017.

b. Trainings Imparted

1. Dr. Ankur Sharma delivered two lectures as a resource person to Sashastra Seema Bal thirty trainees on "Routes of drug administration" and "Basics of making disease diagnosis" in the promotional course of constables (vet.) on 19-07-2016.
2. Dr. Ajay Katoch delivered a lecture on "Disaster assessment and operation planning" to the final year B.V.Sc. & AH fifty-five students during the Block Certificate Course on Animal Management during Disasters held at DGCN COVAS w.e.f. Sept, 19-22, 2016.
3. Dr. Ankur Sharma delivered a lecture as a resource person to final year B.V.Sc. & AH fifty-five students on "wildlife emergency rescue" under VERU certificate course on "Veterinary emergency response operations" at COVAS on 22-09-2016.
4. Dr. Ajay Katoch delivered an extension lecture on "Dairy farm management including control of ecto-endoparasites and infectious diseases" to twenty farmers at DEE, CSKHPKV Palampur w.e.f. Feb, 23-28, 2017.
5. Dr. Ajay Katoch delivered an extension lecture on "Commonly occurring diseases of dairy animals and their control measures" to twenty farmers of district Una, at DEE, CSKHPKV Palampur w.e.f. May, 01-04, 2017.
6. Dr. Ankur Sharma delivered an extension lecture on "Important parasitic diseases of dairy animals and their control measures" to twenty farmers of district Una, sponsored by department of animal husbandry on 03-05-2017.
7. Dr. Ajay Katoch delivered an extension lecture on "Commonly occurring diseases of dairy animals and their control measures" to twenty farmers of district Bilaspur, at DEE, CSKHPKV Palampur w.e.f. May, 15-18, 2017.

8. Dr Ankur Sharma delivered an extension lecture on “Important parasitic diseases of dairy animals and their control measures” to twenty farmers of district Bilaspur, sponsored by department of animal husbandry on 16-05-2017.
9. Dr Ankur Sharma delivered an expert lecture on “Pashu chikitsak varg evam vanya praani jagat” at a seminar “Krishi Vigyan ki Takniki Shabdaavali” organized by Commission for scientific and technical terminology, Govt. of India, to the participating delegates including Veterinary Officers and Scientists on 22-06-2017.

c. Outbreaks attended / Special Camps etc.

1. Dr Ankur Sharma attended and treated a disease outbreak of Dermatocycosis among cows at ILFC of COVAS on 03-01-2017.
2. Dr Ankur Sharma has attended specialized clinical camps on Enzootic Bovine Haematuria at remote villages of Dehuri, Manham, Dhaogi and Shangar of Sainj area of Distt. Kullu on 14-15 March, 2017.
3. Dr Ankur Sharma has attended specialized clinical camps on Enzootic Bovine Haematuria at remote villages of Lambathach, Chapad, Haleen, Deemkataru, Gulakhi, Kanda area of Janjehli valley of Distt. Mandi on 19-20 May, 2017.

- d. Clinical Cases attended/clinical camps:** A total of 3840 cases were treated by the department during the year out of the total 7204 cases presented to the college clinics and is the largest share among all the clinical departments. A total of 23 clinical camps were attended by the faculty members in which 248 cases were treated.

5. WORKSHOP/SEMINAR/TRAININGS ETC. ATTENDED

S. No	Date	Title	Name of Participants	Nature of participation
1.	July 4-7, 2016	Participated in Animal Production conference organized by Australian & New Zealand Society of Animal Production, Adelaide, Australia.	Dr Pardeep Sharma	Participant
2.	November, 03, 2016	Participated in Industry Day organized by South Australian World's Poultry Science Association, Adelaide.	Dr Pardeep Sharma	Participant
3.	November 11-13, 2016	Participated in three days Continuing education programme on Companion animal practice held at Chandigarh.	Dr Ajay Katoch	Participant
4.	February 17-19, 2017	Three days “International Conference on Canine and Feline cardiology” at DGCN- COVAS Palampur.	Dr Ajay Katoch Dr Ankur Sharma	Participant
5.	March, 16, 2017	Workshop on “Intellectual Property Rights: Issues and Challenges”	Dr Ankur Sharma	Participant
6.	March 27, 2017	Participated in One day Continuing education workshop on Veterinary Emergency and critical care organized at DGCN COVAS, Palampur.	Dr Ajay Katoch Dr Ankur Sharma	Participant
7.	June 21-22, 2017	Two days' workshop on “Agricultural research and technical terminology at DGCN COVAS Palampur (H.P)	Dr Ankur Sharma Dr Ajay Katoch Dr Pardeep Sharma	Resource Person Participant Participant

6. HONOURS AND AWARDS

- Dr Pardeep Sharma was awarded with the Southern Australian Sheep Advisory Group award for participation in Animal Production conference of Australian & New Zealand Society
- Dr Pardeep Sharma was awarded with the International Post-Graduate Research Scholarship to pursue Doctorate of Philosophy (PhD) from The University of Adelaide, Australia.

7. FACULTY VISITS ABROAD

Dr. Pardeep Sharma has visited The University of Adelaide, Australia for pursuing Doctorate of Philosophy.

8. EXTRA CURRICULUM DUTY: NCC/NSS/HOSTEL WARDEN/SPORTS ETC.

Name of teacher	Nature of duty	Period	Distinguished achievement, if any
Dr. Ankur Sharma	University NCC officer	Since, Dec., 2016	For the first time in the history of CSKHPKV SW cadets (Girl Cadets) were trained and their contingent participated in University level Republic Day Parade on 26-1-17. 14 out of 16 (appeared) SD Cadets got succeeded and received "C" certificate.

9. MISCELLANEOUS

Dr Des Raj acted as a:

1. Member, Board of studies, COVAS.
2. Member, Editorial Board, Journal of Animal Research.
3. Member of Editorial Board of Himachal Journal of Agricultural Research.
4. Member, State level Purchase Committee (SLPC) for finalizing rate contract of Medicine to Department of Animal Husbandry, H.P.
5. Chairman, Inspection committee of Para Vety. council for inspection of Veterinary Pharmacist training institute, Abhilashi University which was held on Oct. 20, 2016.
6. Chairman, Inspection committee of Para Vety. council for inspection of Veterinary Pharmacist training institute under Dhanwantri Himalayan Education Society, Rait Dist. Kangra on Oct. 21, 2016, Nov 16, 2016 and Jan 16, 2017.
7. Member, Para Veterinary Council, Himachal Pradesh.
8. Member of screening and selection committee for Appointment of Asstt. Scientist/Asstt. Professor.
9. Member of committee constituted for making recommendations for grant of accreditation to Vety. Pharmacist Training Institute, Kotla Barog by CSK HPKV Palampur.
10. Nominated member of the committee for editing Annual report of the university.

Dr Ajay Katoch continued as a member Editorial Board, Indian Journal of Veterinary Medicine.

Dr Ankur Sharma is working as University NCC Officer. He also acted as a co-coordinator / Liaison officer for conducting the SSB-constables (Vet.) promotional training course (25 weeks duration) for the part conducted in COVAS that ended on 10-10-2016 (30 trainees). Dr Ankur also acted as a member of an expert committee to evaluate and further treat the ailing precious breeding bull no. HF-10 of sperm station Palampur on 06-09-2016. He has also treated a sick bull of sperm station on 20-01-2017 and visited sperm station Palampur on the request of the Asstt. Director to advice on the treatment of a bull HF-7 as an emergency case on 17-2-2017.

Dr Des Raj Wadhwa, Dr Ajay Katoch and Dr Ankur Sharma have acted as center supervisors for conduct of Entrance examination for admission to B.V. Sc & A.H. Programme.

ANNEXURES

Faculty position

S. No.	Name	Designation
1	Dr. Des Raj Wadhwa	Professor & Head
2	Dr. R.K. Mandial* 31.01.2017	Professor
3	Dr. Ankur Sharma	Assistant Professor
4	Dr. Ajay Katoch	Assistant Professor
5	Dr. Pardeep Sharma joined on 31.08.2017	Assistant Professor

Staff position

S. No.	Name	Designation
1.	Sh. G.R. Sharma up to 29.06.2017	Supdt. -II
2.	Sh. Moti Ram joined on 26.07.2017	Jr. Assistant
3.	Sh. Anil K. Dixit joined on 06.04.2017	Technical Assistant -I
4.	Sh. Sant Kumar	Jr. Technician
5.	Sh. Subhash Chand	Peon
6.	Sh. Balak Ram	Beldar
7.	Sh. Prakash Chand* 31.03.2017	Beldar

Budget

S. No.	Scheme	Salaries	TA	Contingency	TOTAL
1.	SCP-001-42	3,50,655	---	---	3,50,655
2.	SCP-002-42	70,94,477	---	---	70,94,477
3.	SFS-001-42	---	---	10,000	10,000
4.	CDA-003-42	---	---	40,000	40,000
5.	CDA-005-42	---	---	10,000	10,000
6.	CDA-006-42	---	---	27,000	27,000
7.	CDA-007-42	---	---	17,000	17,000
8.	CDA-008-42	---	---	30,000	30,000
9.	CDA-0013-42	---	---	75,000	75,000

DEPARTMENT OF VETERINARY MICROBIOLOGY

1. INTRODUCTION

The department of Veterinary Microbiology was one of the six composite departments that were initially established to start the Veterinary College in July 1986. The department had four major disciplines at that time i.e. Vety. Microbiology & Immunology, Vety. Pathology, Vety. Parasitology and Vety. Epidemiology and Public Health. Later on, following four independent departments were created w.e.f. 1.7.1991.

Veterinary Microbiology & Immunology
Veterinary Public Health & Epidemiology
Veterinary Pathology
Veterinary Parasitology

Since 1992, this department attained the status of a post-graduate department to the M.V.Sc. level and from 2005 to the Ph.D. level. The main objectives of the department are to impart training to undergraduate (B.V.Sc. & A.H.) as well as

postgraduate students in the field of Veterinary Microbiology that comprises general and systematic studies of microbes, their immunological and biotechnological studies, experimental animal studies and prevention and control of infectious agents. The department has established bacteriological, mycological, virological and biotechnological laboratories with the installation of state-of-the-art equipments for undergraduate and postgraduate teaching as well as research. Whereas, UG teaching is carried out strictly as per VCI curriculum, PG teaching and research is planned according to the priority research areas of the State. Till this year, 39 M.V.Sc. and 3 PhD students have completed their degrees in Veterinary Microbiology and at present 7 MVSc students are pursuing the programme.

The disease investigation laboratory of the department concentrates on animal disease outbreaks of various infectious diseases/ conditions in field. We establish the etiology of the disease, perform CST against infectious agents and suggest the treatment, prevention and control measures to contain the disease(s). The department also provides consultancy services to the farmers of the State in terms of prevention and control of infectious disease(s) for economical dairy, poultry, fisheries and rabbitry.

In research, the department has completed many research projects from reputed agencies like USDA, DBT, DST, NATP, ICAR, NAIP and Dabur Ayurvet Pvt. Limited. The department has also carried out pioneer research work on *Pasteurella*, *Chlamydia* and Fish diseases. During the reporting period, 6 research projects were in progress in the department- 2 being funded by ICAR and 4 by State Government under RKVY and one permanent animal disease investigation scheme from the State Government is also running in the department. The annual report of any department is an indication of the activities of that. The 30th annual report of the department is being presented with the happiness that the department has been steady to attain a fair and pleasing growth during the period under report inspite of few limitations.



***Leptospira illini* isolated from urinary tract infection of a dog**

2. TEACHING**a) Undergraduates Courses:**

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
1st Semester				
1.	VMC-211	General Veterinary Microbiology	1+1	Dr. P. Dhar & Dr. M. Sharma
2.	VMC-311	Systematic Veterinary Bacteriology & Mycology	2+1	Dr. S. Verma, Dr. P. Dhar. Dr. K.B. Nagal & Dr. M. Sharma
3.		Diagnostic Study circle (for 2 nd year)	Non-Credit	Drs. R.K. Asrani & M. Sharma
4.	-	Tracking Programme on Fish Disease (for 3 rd year)	2+0	Dr. P. Dhar & Dr. S. Verma
2nd Semester				
1.	VMC-221	Veterinary Immunology & Serology	1+1	Dr. S. Verma, Dr. P. Dhar & Dr. M. Sharma
2.	VMC-321	Systematic Veterinary Virology	2+1	Dr. P. Dhar, & Dr. K.B. Nagal
3.	VMC-421	Veterinary Clinical Biochemistry and Lab. Diagnosis –II	0+1	Dr. K.B. Nagal
4.	-	Compulsory Internship Programme	-	Dr. S. Verma & Dr. M. Sharma
5.		Diagnostic Study Circle(for 2 nd year)	Non-Credit	Drs. R.K. Asrani & M. Sharma
6.	-	Tracking Programme on Fish disease (for 3 rd year)	2+0	Dr. P. Dhar & Dr. S. Verma

b) Postgraduate Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
M.V. Sc. Courses (1st Semester)				
1.	VMC-601	Bacteriology -I	3+1	Drs. K.B. Nagal, M. Sharma & S. Verma
2.	VMC-603	Veterinary Mycology	1+1	Drs. S. Verma & M. Sharma
3.	VMC-604	General Virology	2+1	Drs. P. Dhar & K.B. Nagal
4.	VMC-606	Principles of Immunology	2+1	Drs. S. Verma & M. Sharma
5.	VMC-691	Master's Seminar	1+0	Dr. M. Sharma
6.	VMC-699	Master's Research	20	Drs. S. Verma & P. Dhar
M.V. Sc. Courses (2nd Semester)				
1.	VMC-602	Bacteriology -II	3+1	Drs. K.B. Nagal, M. Sharma & S. Verma
2.	VMC-605	Systematic Animal Virology	3+1	Drs. P. Dhar , K.B. Nagal & M. Sharma
3.	VMC-609	Techniques in Microbiology& Immunology	0+3	Drs. S. Verma & M. Sharma
4.	VMC-607	Vaccinology	2+0	Dr. S. Verma
5.	VMC-608	Diagnosis of Infectious Disease	1+2	Dr. K.B. Nagal & S. Verma
6.	VMC-603	Veterinary Mycology	1+1	Drs. M. Sharma & P. Dhar
7.	VMC-691	Master's Research	20	Drs. P. Dhar & S. Verma
Ph. D. Courses (1st Semester)				
1.	VMC-701	Advances in Bacteriology	2+1	Drs. M. Sharma & S. Verma
2.	VMC-702	Advances in Mycology	2+1	Drs. S. Verma & M. Sharma

3.	VMC-706	Advances in Virology	2+1	Drs. P. Dhar & M. Sharma
4.	VMC-711	Molecular Immunology	2+1	Drs. S. Verma & M. Sharma
Ph. D. Courses (2nd Semester)				
1.	VMC-702	Advances in Mycology	2+1	Drs. M. Sharma and P. Dhar
2.	VMC-703	Bacterial Genetics	2+1	Drs. M. Sharma & S. Verma
3.	VMC-704	Microbial Toxins	2+1	Drs. P. Dhar, M. Sharma & K.B. Nagal
4.	VMC-711	Molecular Immunology	2+1	Drs. S. Verma & M. Sharma
5.	VMC-792	Doctoral Seminar II	1+0	Dr. M. Sharma

c) Numbers of students graduated (Please give data about foreign nationals in footnotes):

Degree	During last academic year	Accumulated total
M.V. Sc.	2	39
Ph.D.	0	3

d) National and International Level Competition: UG/MSc/PhD

Competition	No. of students qualified	No. of students appeared	% age of qualified	Distinguished rank, if any
ICAR-JRF	1	1	100	-

e) Student got job/placement in India or abroad

Department	Name of the Student with Admission No.	Name of Advisor	Nature of Job/Designation	Organization
1.	Nirdeshika Chaudhary (V-2015-30-014)	Dr. Prasenjit Dhar	Veterinary Officer	State Animal Husbandry Department

3. RESEARCH

a. Postgraduate Research

i) Ongoing Masters Programme:

S. No.	Name of the student	Admission No.	MAJOR ADVISOR	TITLE OF RESEARCH PROBLEM
1	Pratiksha Srivastva	V-2015-30-015	Dr. Subhash Verma	Evaluation of a candidate GNP-AprV2 footrot nanovaccine in mice
2	Nirdeshika Chaudhary	V-2015-30-014	Dr. Prasenjit Dhar	Studies on common bacterial infections of animals with emphasis on leptospirosis in Himachal Pradesh
3	Kritika Dhial	V-2016-30-013	Dr. Mandeep Sharma	Selection and evaluation of phage display peptides against <i>Pasteurella multocida</i>
4	Sanjeev Kumar	V-2016-30-014	Dr. Subhash Verma	Molecular and immunological evaluation of blood malignancies with particular emphasis on lymphoma

ii) Ongoing Doctoral Programme: Nil

iii) Postgraduate Research Salient Achievements

S. No.	Title of Research problem	Salient Research Achievements
1.	Evaluation of a candidate GNP- AprV2 footrot nanovaccine in mice	i) Footrot AprV2 gold nanovaccine induced better immune responses in comparison to MPLA adjuvanted AprV2 when measured at 45 and 60 days post booster vaccination. ii) Gold nanoparticles immunopotentiated the effect of recombinant AprV2 vaccine, thus reinforcing their use in effective vaccine development.
2	Studies on common bacterial infections of animals with emphasis on leptospirosis in Himachal Pradesh	i) <i>Leptospira</i> isolated for the first time in culture in Himachal Pradesh. ii) Sequencing of <i>Leptospira</i> species revealed it to be <i>Leptospira illini</i> .

b. Research Projects in Progress

S. No.	Title of Project	PI	Funding Agency	Budget	Year of start	Duration
1.	“Establishment of Veterinary Type Cultures Centre (VTCC) Cooperating Centre”	Dr. Mandeep Sharma	ICAR	49.00 lakhs	2010-11	
2.	“ Impact of Climate Change on emergence of Vector Borne Infectious Diseases and their affects on Livestock production systems in Mid Hills of Western Himalyan Region”	Dr. Rajesh Chahota	ICAR	50.00 lakhs	2016	3 year
3.	“Development of a Live Attenuated Vaccine against Hemorrhagic Septicemia “	Dr. Subhash Verma	DBT	31.21 lakhs	2016	3 year
4.	“ Biotechnology & Biomolecular approaches to tackle Enzootic Bovine Haematuria”	Dr. Subhash Verma	DEST	10.00 lakhs	2016	2 year
5.	“Development of phage cocktail for treatment of bovine mastitis:	Dr. Subhash Verma	RKVY	19.50 lakhs	2016	2 year
6.	“Strengthening of animal Disease Research Laboratory - III	Dr. Mandeep Sharma	RKVY	64.00 lakhs	2016	1 year

c. Summary of research finding during the year

Project: Whole Genome Sequence of Capripox viruses: Whole Genome sequencing (WGS) of two native sheep pox virus and goat pox virus strains was completed

Project: Biotechnological and Biomolecular approaches to tackle Enzootic bovine hematuria.

- 67 blood samples and 22 urine samples were collected from three districts i.e. Kangra, Mandi and Kullu of Himachal Pradesh for the detection of bovine papillomavirus.
- Characterization of bovine papillomavirus associated with uroepithelio-tumors.
- Determination of blood profile for selected animals to assess their immune status.
- Collection and identification of fern samples.

Project: Preparation of phage cocktail for the treatment of bovine mastitis

- Isolation of Phages from sewage against *Staphylococcus* sp. and *E. coli* of Mastitis.
- Isolation of Phages from Milk against *Staphylococcus* sp. and *E. coli* of Mastitis.
- Titration to estimate the efficacy of isolated Phages.

Project: Impact of climate change on emergence of vector born infectious disease and their affects on livestock production system in mid hill of western Himalayan region

- 167 samples (Blood and ticks) were collected from livestock owners and veterinary clinics of eight districts of Himachal Pradesh (Kangra, Mandi, Shimla, Solan, Hamirpur, Kullu, Chamba and Kinnaur).
- A total of 65 blood samples were analysed through PCR for *Anaplasma*, *Babesia* and *Theileria*. Out of which 5 samples were positive for *Anaplasma* (7.6 %), 14 for *Babesia* (21.5 %) and 7 for *Theileria* (10.7 %).

Project: Establishment of Veterinary Type Cultures Centre (VTCC):

The Department of Veterinary Microbiology deposited 28 unique and fully characterized bacterial isolates to NCVTC centre during the period April 2016 - March 2017. Some of the unique isolates submitted were

- *Corynebacterium kutscheri*, *Streptococcus iniae*, *Streptococcus pluranimalium*, *Streptococcus hyovaginalis*, *Aeromonas trota*, *Vibrio cholerae* and *Pseudomonas putida*. These isolates were recovered from different clinical samples of bovine, canine and fish.
- 11 isolates among these 28 clinical isolates have already been accessioned and assigned as unique accession number by the NCVTC centre.

d. Establishment of research collaboration with national and international institutes

S. No.	Name of collaborating institute and country	Nature of collaborations	Collaborating person(s) at both institutes
1.	Rajiv Gandhi Govt. Post Graduate Ayurvedic College Paprola, Kangra	Collaborative Research on finding Scientific basis of antimicrobial Ayurvedic formulations	Dr. Rajesh Chahota and Dr. Satish Kumar
2.	GADVASU, Ludhiana	Studies on Vector Borne Diseases	Dr. Rajesh Chahota and Dr. Nirbhay Singh
3.	IIT, Mandi	Nano vaccine development	Dr. Subhash Verma & Dr. C. Nandi

e. Scientific Publications and Presentations**i) Publications**

1. Rajesh Chahota, Hirohito Ogawa, Kenji Ohiya, Tsuyoshi Yamaguchi, Karin D. E. Everett, Hideto Fukushi (2017) Involvement of multiple *Chlamydia suis* genotypes in porcine conjunctivitis. *Transboundary and Emerging Diseases* DOI:10.1111/tbed.12645. **(8.71)**
2. Brijesh Bhardwaj, Rajesh Chahota, Shilpi Gupta, Priyanka Malik and Mandeep Sharma (2017). Identification of chlamydial strains causing abortions and pneumonia in sheep and goat flocks during trans Himalayan seasonal migration in northern region of India. *Veterinarski Arhiv* 87 (2), 157-170. **(6.56)**
3. Priyanka Malik, Rajesh Chahota, Brijesh Bhardwaj, Shilpi Gupta, Vikram Patial, and Mandeep Sharma (2017) Isolation and Identification of Microorganisms from the Upper Respiratory Tract of Equines in Himachal Pradesh. *Journal of Animal Research* 7(1):1-4. **(5.68)**
4. Priyanka, Rajesh Chahota, Brijesh Bhardwaj, Shilpi Gupta and Mandeep Sharma (2016) A study on the prevalence of *Mycoplasma* spp. in the upper respiratory tract of healthy and diseased equines in Himachal Pradesh. *Indian Vet. J.*, 93 (07): 31-33. **(4.42)**
5. Aasim Habib Wani, Mandeep Sharma, Richa Salwan, Geetanjali Singh, Rajesh Chahota, Subhash Verma (2016) Cloning, Expression, and Functional Characterization of Serine Protease Aprv2 from Virulent Isolate *Dichelobacter nodosus* of Indian Origin *Appl Biochem Biotechnol* 180(3): 576-587.
6. Verma S, Salwan R, Katoch S, Verma L, Chahota R, Dhar P, Sharma M (2016) The relationship between capsular type and OmpA of *Pasteurella multocida* is associated with the outcome of disease. *Microb Pathog.*101:68-75. (NAAS **7.89**)
7. Amitoz Kour, Subhash Verma, S Gurdeep Singh, Shailja Katoch, Mandeep Sharma and Geetanjali Singh (2016) Characterization and Different Antigenic Preparations of *P. multocida* Along with their Quantitative and Qualitative Analysis *Journal of Animal Research* 6(4): 733-741 (NAAS **5.68**)
8. Assessment of common methods for diagnosis of bovine subclinical mastitis “by Geetanjali Singh, Bishrutee Bhardwaj, Subhash Verma in Himachal journal of Agriculture Research 2017 (NAAS rating 4)

ii). Presentations

Rajesh Chahota, Emaan M. Khan and Daniel D. Rockey. Anti chlamydial activity of five flavonols, using *Chlamydia abortus* as a model system. Presentation in the 8th Biennial Chlamydia Basic Research Society (CBRS) meeting held at Charlotte, North Carolina, USA from 07.4.2017 to 10.4.2017.

4. EXTENSION**a. Clinical cases (routine and referrals)/disease investigations/disease outbreaks investigated**

S. No.	Types of affection/disease/samples/condition								Important findings and remarks	
		Bovine	Canine	Feline	Ovine/caprine	Equines	Avian	Wild life/other		Human
	For cultural sensitivity & disease investigation	256	128	0	24	04	03	10 (fish)	124	549
	Total	256	128	0	24	04	03	10 (fish)	124	549

5. PARTICIPATION IN WORKSHOP/ CONFERENCES, TRAININGS ETC.**a) Trainings:**

S. No.	Date	Title	Name of Participants
1.	July 2016 to July 2017	Post-Doctoral Research under Raman Fellowship	Dr. Rajesh Chahota

b) Workshop/Conferences

S. No.	Date	Title	Name of Participants	Nature of participation
1.	07.4.2017 to 10.4.2017	8th Biennial Chlamydia Basic Research Society (CBRS) meeting held at Charlotte, North Carolina, USA	Dr. Rajesh Chahota	Presentation
2.	17 July 2017	Biotechnology Vision and Way forward: Workshop by DEST	Drs. Subhash Verma, Mandeep Sharma	Oral Presentation
3.	09.01.2017	Annual Review Meeting VTCC at NDRI-Karnal	Drs. Subhash Verma, Mandeep Sharma	Presentation
4.	19.07.2017	Meeting of SLSC at Shimla	Drs. Subhash Verma, Mandeep Sharma	Presentation
5.	26.08 2016	Annual Review Meeting of AINP on Haemorrhagic Septicaemia held at NASC, New Delhi	Dr. Subhash Verma	Presentation

6. WORKSHOP/SEMINAR/TRAININGS ETC. ORGANIZED

- Organized health day seminar by GE healthcare life sciences on 11/8/2016 in department.
- Dr. Subhash Verma as course co-coordinator in conducting 4-day certificate course programme on Veterinary Emergency Response Unit with the support of National Disaster Management Authority, India and World Animal Protection Society 35 participants

7. HONOURS AND AWARDS

- Raman Post-Doctoral Research Fellowship-2016” award to Dr Rajesh Chahota by the University Grants Commission (UGC), Ministry of Human Resource Development, Government of India for research in USA.
- Post-doctoral Fellowship for Dr Aneesh Thakur for post doctotal research in Denmark
- ISVIB Scientist award-2016 for Dr. Mandeep Sharma and Dr, Subhash Verma for publishing high impact research work
- Dr. Mandeep Sharma nominated as a member of University Court of Jawaharlal Nehru University, New Delhi for a period of three years w.e.f. 02.3.2016 for three years.
- Dr. Mandeep Sharma acting as member of Governing Council of National Academy of veterinary Sciences- NAVS-I for three Years.
- Dr. Mandeep Sharma acting as technical expert- committee of the state for periodic inspection for compliances of rules 2010 of ministry of DADF, Government of India.

8. FACULTY VISITS ABROAD

Dr. Rajesh Chahota visited to Department of Biomedical Sciences, College of Veterinary Medicine, Oregon State University, Corvallis, Oregon for one year under Raman Fellowship.

9. MISCELLANEOUS

1. Dr. Mandeep Sharma acting as member- Standing Academic Affairs Committee to improve the quality of academics and streamline the system, especially teaching and research of P.G. students.
2. Dr. Mandeep Sharma acting as nominee of the Committee for the purpose of control and supervision of experiments on animals (CPCSEA).
3. Reviewer Excellence Award as reviewer of Indian Journal of Animal research and Asian Journal of Dairy and Food research 2016 for Dr. Mandeep Sharma.
4. Dr. Mandeep Sharma delivered Expert lecture on “Antimicrobial resistance awareness” on World Veterinary Day on 29/4/2017.
5. Dr. Mandeep Sharma performed duty as external expert at BHU selection of Assistant Prof. on 23/3/2017.
6. Dr. Mandeep Sharma attend the GC meeting of NAVS at Delhi on 22/4/2017
7. Provided USIEF-Nehru fellowship selection assistance.
8. Dr. Mandeep Sharma attended Meeting/interaction with honourable member Niti Aayog at Shimla on 24/6/2017.
9. Dr. Mandeep Sharma acting as member of the Academic Council for two years.
10. Dr. Mandeep Sharma acting as member of Educational and Residential Instructions Advisory Committee.
11. Dr Subhash Verma acting as Reviewer, Microbial Pathogenesis and PLOS One.
12. Dr. Subhash Verma acting as Expert Evaluator: Prestige Program, France.
13. Shailja joined Teaching Associate Meerut Veterinary College and Pratiksha as Assistant Professor, Veterinary College Jaipur.
14. Appointed as Associate Editor of Journal of Veterinary Infectious Diseases Associate Editor of Himachal Journal of Agricultural Research.

ANNEXURES

Faculty position

S. No.	Name	Designation
1.	Dr. Mandeep Sharma	Professor & Head
2.	Dr. Rajesh Chahota	Professor
3.	Dr. Subhash Verma	Professor
4.	Dr. Prasenjit Dhar	Associate Professor
5.	Dr. Aneesh Thakur	Assistant Professor
6.	Dr. K. B. Nagal	Professor (Retd).

Staff position

S. No.	Name	Designation
1.	Ms. Rama Sankhyan	Sr. Asstt.
2.	Mr. Baldev Kumar	Jr. Tech.
3.	Mr. Shruti Prakash	Lab Helper

Budget

S. No.	Scheme	Salaries	TA	Contingency	TOTAL
1.	" All India net Work Programme on H.S."	-	0.20/-	11.50/-	11.70/-
2.	"Establishment of Veterinary Type cultures Centre (VTCC) cooperating centre	-	0.25/-	2.00/-	2.25/-
3.	CDA-003-40	-	-	0.40	0.40
4.	CDA-005-40	-	-	0.71	0.71
5.	CDA-006-40	-	-	0.35	0.35
6.	CDA-007-40	-	-	0.17	0.17
7.	CDA-008-40	-	-	0.25	0.25
8.	CDA-013-40	-	-	0.75	0.75
	Total				16.58

DEPARTMENT OF VETERINARY PARASITOLOGY

1. INTRODUCTION

The department of Veterinary Parasitology started functioning since the establishment of the college of Veterinary and Animal Sciences in July, 1986 within the then combined department of Microbiology, Pathology and Parasitology. The department of Veterinary Parasitology, as an independent department, came into existence in 1991. Postgraduate programme was introduced in the department in the year 1999. The main objective of the department is to impart teaching to undergraduate and post graduate students in the field of Veterinary Parasitology comprising the fields of Veterinary Helminthology, Veterinary Entomology & Acarology and Veterinary Protozoology. The research activities of the department have been mainly focused on the prevalence studies of the parasitic diseases of the animals in different agro -climatic zones of the state. Postgraduate research activities are designed as per the needs of the farmers of the state.

The department has developed various diagnostic facilities for parasitic diseases which help in providing routine diagnostic services to college clinics, university dairy farm, besides others. Disease investigation laboratory of the department renders emergency services in the field conditions during the disease outbreaks and provide its expertise in determining the etiology of parasitic diseases and suggest its control measures. Department is actively engaged in educating the livestock owners/ farmers of the state for prevention and control of parasitic diseases by way of delivering extension lectures in different training programmes and giving consultancy services during clinical camps, outbreaks, Kisan Melas etc.

2. TEACHING

a) Undergraduates Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
1st Semester				
1.	VPA-211	General Veterinary Parasitology and Helminthology	4(3+1)	Dr. R. K. Agnihotri Dr. S. Mittra
2nd Semester				
1.	VPA-221	Veterinary Entomology and Acarology	2(1+1)	Dr. R. K. Agnihotri
2.	VPA-222	Veterinary Protozoology	3(2+1)	Dr. R. K. Agnihotri

b) Student got job/placement in India or abroad

Department	Name of the Student with Admission No.	Name of Advisor	Nature of Job/Designation	Organization
Veterinary Parasitology	Aman Dev Moudgil (V-2009-30-22)	Dr. S. Mittra	Assistant Professor	CSK HPKV Palampur, India

3. RESEARCH: NIL

4. EXTENSION:**a. Clinical cases (routine and referrals)/disease investigations/disease outbreaks investigated**

S. No.	Types of affection/disease/samples/condition	Specie wise numbers							Important findings and remarks
		Bovine	Canine	Feline	Equine	Avian	Wild life	Human	
1	Faecal (45)	45	--	--	--	--	--	--	--
2	Blood (11)	6	5	--	--	--	--	--	--
	Total (56)	51	5	--	--	--	--	--	--

ANNEXURES**Faculty position**

S. No.	Name	Designation
1	Dr. R. K. Agnihotri	Professor
2	Dr. S. Mittra*	Professor
3	Dr. Devina Sharma (on study leave)	Assistant Professor
4	Dr. Aman D. Moudgil	Assistant Professor
5	Dr. Ajayta Rialch	Assistant Professor

Staff position

S. No.	Name	Designation
1	Harnam Chand	Lab Assistant

Budget: Nil

DEPARTMENT OF VETERINARY PATHOLOGY

1. INTRODUCTION

Veterinary Pathology came into being as independent Department, in July 1991, as one of the constituents of Dr. G. C. College of Veterinary and Animal Sciences. Prior to this, it was one of the components of the then Department of Veterinary Microbiology, Pathology and Parasitology established in July 1986 with the formation of the College of Veterinary and Animal Sciences, HPKV, Palampur. Pathology is one of the core disciplines in the Veterinary Medical Profession.

With the start of M. V. Sc. from the academic year 1996-97, it attained the status of Post Graduate Department. Besides undergraduate B. V. Sc. and A.H. courses, as per VCI regulation, department has been offering Post Graduate courses to M.V. Sc. and Ph. D. students. A significant time of the faculty and supporting staff is contributed towards Post-mortem and disease investigation services rendered by the Department in addition to the teaching, Research and Extension-cum-consultancy activities.

The Department is having an International Continuing Education Project in the form of INDEPENDENT STUDY CENTRE (ISC) of Charles Louis Davis DVM Foundation of USA since July 2006. The Foundation is a donative publicly supported charity of USA for the International Advancement of Education in Veterinary and Comparative Pathology. The foundation has designated Prof. Vipin K. Gupta as its Director/Principal Investigator of the Independent Study Centre and made him its Officer Representative in India. ISC have been stocked with 215 titles (DVD/CD) on pathology of diverse species of Animals for viewing by students and faculty besides authorized visitor.

2. TEACHING

a) Undergraduates Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
1st Semester				
1	VPP-211	General Veterinary Pathology	1+1	Dr. V.K. Gupta Dr. R.D. Patil
2	VPP-311	Special Veterinary Pathology-I	2+1	Dr. R.K. Asrani Dr. R.D. Patil Dr. V.K. Gupta
3	VMD-512	Zoo/Wild Animal Breeding, Management, Nutrition and Health care	1+1	Dr. V.K. Gupta
4	VMD-513	Pet Animal Breeding, Management, Nutrition and Health care	1+1	Dr. R.K. Asrani
5	VLD-411	Veterinary Clinical Biochemistry and Laboratory Diagnosis-I	0+1	Dr. R.D. Patil
6	AMT-233	Fisheries (COHS)	0+1	Dr. R.D. Patil
7	Study circle	Diagnostic Study Circle	0+1 (NC)	Dr. R.K. Asrani
8	Entrepreneurial Training	Fish Production	0+2 (NC)	Dr. R.D. Patil
9	NCC	NCC	0+2 (NC)	Dr. R.D. Patil
2nd Semester				
1	VPP-221	Systemic Veterinary Pathology	2+1	Dr. R. D. Patil, Dr R. K Asrani

				Dr. V. K. Gupta
2	VPP-321	Avian Pathology	1+1	Dr. R. K. Asrani and Dr V K. Gupta
3	VPP-322	Aquatic Animal Diseases, Health care and Management	1+1	Dr. R. D. Patil
4	VLD-421	Veterinary Clinical Biochemistry and Laboratory Diagnosis-II	0+1	Dr. R. K. Asrani
5	LPM-222	Livestock Production management-III (Regional Interest): Yak Production and Management	1+1	Dr. R. D. Patil
6	Study circle	Diagnostic Study Circle	0+1 (NC)	Dr. R. K. Asrani
7	Entrepreneurial Training	Fish Production	0+2 (NC)	Dr. R. D. Patil
8	NCC	NCC	0+2 (NC)	Dr. R. D. Patil

b) Postgraduate Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
M.V. Sc. Courses (1st Semester)				
1	VPP-601	General Pathology	2+1	Dr. V.K. Gupta, Dr R.K. Asrani
2	VPP-604	Clinical Pathology	1+2	Dr. R.D. Patil, Dr R.K. Asrani and Dr. V.K. Gupta
3	VPP-603	Animal Oncology	1+1	Dr. R.K. Asrani, Dr V.K. Gupta
4	VPP-605	Necropsy Procedures and Interpretations-I	0+1	Dr. V.K. Gupta, Dr R.D. Patil Dr. R.K. Asrani
5	VPP-608	Pathology of Infectious Diseases of Domestic Animals	2+1	Dr. R.K. Asrani Dr. R.D. Patil
6	VPP-699	Master's Research	1-18	Dr. V.K. Gupta, Dr. R.K. Asrani, Dr R.D. Patil
M.V. Sc. Courses (2nd Semester)				
1	VPP-602	Techniques in Pathology	1+1	Dr. R.D. Patil, Dr R.K. Asrani, Dr V.K. Gupta
2	VPP-607	Systemic Pathology	2+1	Dr. R.K. Asrani, Dr R.D. Patil
3	VPP-610	Avian Pathology	2+1	Dr. V.K. Gupta, Dr R.D. Patil
4.	VPP-612	Veterolegal Pathology	1+0	Dr. R.D. Patil
5.	VPP-691	Master's Seminar	1+0	Dr. V.K. Gupta
6.	VPP-699	Master's Research	1-18	Dr. V.K. Gupta, Dr R.K. Asrani, Dr. R.D. Patil

d) National and International Level Competition: UG/MSc/PhD

Competition	No. of students qualified	No. of students appeared	% age of qualified	Distinguished rank, if any
ICAR NET	3	5	60	

e) Student got admission in National and International institutes

Department	Name of the student with admission No.	Name of Advisor	Institute of Admission	Programme of study
Veterinary Pathology	Stephanie S Pardahn	Prof. V.K. Gupta	IVRI (National Institute)	PhD in Veterinary Pathology

f) Student got job/placement in India or abroad

Name of the Student with Admission No.	Name of Advisor	Nature of Job/Designation	Organization
Dr. Shalini Thakur (V-2014-30-05)	Dr. R.K. Asrani	Assistant Professor (Veterinary Pharmacist) Abhilashi University, Mandi	Private
Dr. Vishal Thakur (V-2014-30-07)	Dr. V. K. Gupta	Pathologist in Private Lab. at New Delhi	Private
Dr. Nitika Thakur (V-2014-30-04)	Dr. R.D. Patil	SRF in the Research Project at GADVASU, Ludhiana (Pb)	Private

3. RESEARCH

a. Postgraduate Research

i) Ongoing Masters Programme:

S. No.	Name of the student	Admission No.	MAJOR ADVISOR	TITLE OF RESEARCH PROBLEM
1.	Hemlata Gautam	V-15-30-016	Dr. R.K. Asrani	Studies on <i>In vivo</i> effect of plant based extract against experimental salmonellosis
2.	Shagun Mahajan	V-15-30-017	Dr. R. D. Patil	Pathological studies on commonly occurring diseases in bovine calves

ii) Postgraduate Research Salient Achievements

S. No.	Title of Research problem	Salient Research Achievements
1	Studies on the effect of <i>Cannabis sativa</i> against <i>Datura stramonium</i> -induced toxicity in rats (by Nitika Thakur)	The efficacy of <i>Cannabis sativa</i> root extract @ 400, 800 and 1200 mg/kg bw was studied against <i>Datura stramonium</i> -induced toxicity @ 2000 mg/kg bw in rats. The body weights, organ weights, haematology, serum biochemistry; and gross and histopathological examination revealed the effectiveness of <i>C. sativa</i> in alleviating the <i>D. stramonium</i> -induced toxicity in a dose-dependent manner.
2	Studies on the effects of plant based extract against <i>Escherichia coli</i> infection in broilers (by Shalini Thakur)	The effect of methanolic extract of <i>Artemisia nilagirica</i> @ 0.5, 1 and 2g were studied against <i>E. coli</i> infection in broiler chick. The various parameters such as growth, mortality, clinical signs, biochemical, pathological and ultrastructural changes in broiler chicks were revealed significant antimicrobial and hepatoprotective activity of <i>Artemisia nilagirica</i> in broiler birds during <i>E. coli</i> infection.

3	Pathology of respiratory diseases in bovine calves (by Stephanie Pradhan)	Pathological study on 40 dead calves revealed pneumonia in 31 (77.5%) cases and was considered an important contributor to death in 14 (35%) cases. Pneumoenteritis was observed in 17 (42.5%) calves. Out of 31 calves, 4 (12.9%) and 27 (87.1%) calves showed lesions suggestive of bronchopneumonia and interstitial pneumonia respectively. <i>E. coli</i> , <i>Streptococcus</i> spp, <i>Staphylococcus</i> spp or <i>Citrobacter</i> spp. was common isolates from both upper as well as lower respiratory tract. Ciprofloxacin was found to be the most sensitive antibiotic followed by Gentamicin and Amoxicillin/Sulbactam. The study revealed that pneumonia and pneumoenteritis are the common causes of calf mortality with its peak occurrence at six months of age.
4	Pathology of gastrointestinal affections in bovine calves (by Vishal Thakur)	Out of 40 dead calves received for necropsy, 23 calves showed mild to severe enteritis and two cases had concurrent parasitic infestation due to <i>Moniezia</i> spp. Out of 23 cases of enteritis, two (8.70%), 17 (73.91%) and four (17.39%) cases showed enteritis, pneumoenteritis and enteritis associated with other diseases, respectively. Analysis of faecal samples revealed that out of 80 isolates in clinical and necropsy cases, <i>E. coli</i> , <i>Citrobacter</i> and <i>Salmonella</i> present in 80%, 18.75% and 1.25% respectively. Isolation from 25 necropsy cases showed presence of <i>E. coli</i> . A total of 20 <i>E. coli</i> isolates from necropsy cases were confirmed and serotyped for 'O' antigen. In diarrhoeic calves, the prevalence of serotypes O89 and O120 were highest. A total of four serotype of O89 and three of O120 followed by two serotypes of O9 and one each serotype of O119, O63, O88, O15, O118, O49 and O35. Cloxacillin was found most resistant drug while amoxy-sulbactam, ciprofloxacin and gentamicin were most effective drugs against the <i>E. coli</i> isolates.

b. Research Projects in Progress

S. No.	Title of Project	PI	Funding Agency	Budget	Year of start	Duration
1	Livestock, Poultry, Fish & Wild Life Disease Investigation- A Departmental Project	Dr V K Gupta (HOD)	Deptt. funded	Nil	1991	Continuous
2	All India Network Program on Neonatal Mortality in farm animals (AINP-NM-Cattle)	Dr V K Gupta	ICAR-308-37	71.9 Lakhs	2013 (Implemented w.e.f. 25.2.2015)	Continuous
3	Outreach Program on Ethno Veterinary Medicine	Dr R K Asrani	ICAR-214-37	58.6 Lakhs	2012	Continuous

c. Summary of research finding during the year:

1. Livestock, Poultry, Fish and Wild Life Disease Investigation- A Departmental Project:

- **Necropsy Investigations:** During the year a total 2807 necropsies were investigated including 46 cattle, 1 buffalo, 16 sheep and goats, 5 dogs, 5 rabbits, 3 fish, 2729 poultry and 2 wild animals.

Some of the important disease conditions recorded in different species of animals are:

Cattle: Tuberculosis, Hydatidosis, Chronic fasciolosis and Pneumo-enteritis, Traumatic reticulo-pericarditis, Fibrino-purulent pneumonia, Interstitial pneumonia, Haemorrhagic enteritis, Necrotic naval infection, Acute/Chronic catarrhal enteritis, Milk granuloma etc.

Buffalo: Severe gastric impaction.

Sheep and Goats: Foot and Mouth disease, Haemonchosis, Parasitic typhlitis, Verminous pneumonia, Catarrhal enteritis, Tapeworm infection, Pneumo-enteritis, Obstructive asphyxia, Gastroenteritis, Fibrino-purulent bronchopneumonia, Hypoproteinemia etc.

Dog: Hepato-nephropathy, Canine Distemper etc.

Rabbit: Gastroenteritis, Nephritis, Intestinal coccidiosis, ovarian tumor etc.

Poultry: Infectious Bursal disease, Newcastle disease, Marek's disease, Ascariasis, Omphalitis, Necrotic enteritis, Egg peritonitis, Coligranuloma, Mycoplasmosis, Coccidiosis (Cecal and/or intestinal), Parasitic/haemorrhagic enteritis, Systemic Aspergillosis, Air-sacculitis, Salmonellosis, Lymphoid leucosis, Catarrhal enteritis, Colisepticemia, Nephropathy, Visceral gout, Ascites, Peritonitis, Liver rupture, *E. coli* Salpingitis, Necrotic typhlitis etc.

Wild animals: Gun-shot wounds in a sambhar and liver rupture, gastric impaction with round worm infection in a wild owl.

- **Biopsy, autopsy and clinico-pathological investigation:** besides attending to livestock disease out breaks, the clinico-pathological examination of autopsy, biopsy and clinical samples including blood, urine, and aspiration fluid were also investigated. A total of 07 autopsy, 16 biopsies and 57 clinical samples received in the department were subjected to histopathological/cytological investigations during the current year and the findings were conveyed to the quarter concerned.

2. All India Network Program on Neonatal Mortality in farm animals (AINP-NM-Cattle)

- Epidemiological information for the year 2016 gathered from two organized farms and 60 farmers from HP and Punjab which revealed diarrhoea as the main manifestation responsible for the mortality of bovine calves.
- Necropsy investigation of 32 bovine calves revealed *E. coli* and group-A *Rota virus*, mainly associated with neonatal mortality; *E coli* enteritis and pneumonia, besides histopathological observations of mononuclear pneumonitis and enteritis were observed in >one-month calves. Various pathotypes and serotypes of *E. coli* involved in mortality / morbidity were identified using *in-vitro* techniques.
- The investigation on samples drawn from live animals (259) including clinical cases (80) revealed involvement of *E coli* and Group-A *Rota virus* in cases of diarrhoea and *Streptococcus sp*, *Staphylococcus sp* in respiratory affections.
- The cases of mononuclear pneumonitis and enteritis revealed involvement of *Chlamydia* in 6 of the 8 suspected cases using nested PCR technique for partial amplification of *OmpA* gene.
- Antibiogram of samples drawn from clinical and necropsy cases revealed Oxytetracycline, Ofloxacin and Cloxacillin as the most resistant drug while Gentamicin and Ciprofloxacin as sensitive drugs.

3. Outreach Program on Ethno-Veterinary Medicine

- Field surveys were conducted in different regions of Lahaul and Spiti district of Himachal Pradesh and information pertaining to ethnomedicinal plants was collected from local people and

traditional healers. Sixty-four plants were documented, and their specimens were submitted to CSIR, IHBT, Palampur for identification.

- 15 medicinal plants were screened for *in-vitro* antimicrobial activity against *Salmonella* Typhimurium. Extracts of the plant samples were prepared in hexane, chloroform, ethanol, methanol and water (concentration 100 mg/ml DMSO). The methanolic extract of *Saussurealappa* (Local name: Kuth) showed promising *in-vitro* antibacterial activity against *Salmonella* Typhimurium.
- Experimental *in-vivo* antimicrobial activity of methanolic extract of *Saussurealappa* in mice against *Salmonella* Typhimurium were studied. The results indicated its antimicrobial, hepatoprotective and immunomodulatory effect.

d. Establishment of research/Academic collaboration with national and international institutes

S. No.	Name of collaborating institute and country	Nature of collaborations	Collaborating person(s) at both institutes
1	CL Davis DVM Foundation USA	<p>'Independent Study Centre' (ISC) is stocked with 215 DVD/CD containing educational Material on diseases of diverse species of Animals world over, for viewing by students, faculty and authorized visitors.</p> <p>As Continuing Education Project-an Academic collaboration Since June 2006</p>	<p>Chairperson CL Davis DVM Foundation (Presently Bruce H Williams)</p> <p>Dr V K Gupta as Director/ PI in India</p>

e. Scientific Publications and Presentations (as per standard format)

Publications

- Thakur M, Maity M and Gupta VK (2016). Pathology of naturally occurring paratuberculosis in Gaddi goats of Himachal Pradesh. *Indian Journal of Veterinary Pathology*, 41(1):25-30. (NAAS:5.48)
- Sharma, S and Asrani RK (2016). Preliminary studies on comparative susceptibility of broiler chickens, Japanese quail, pigeons and ducklings to hydropericardium syndrome. *Veterinary Research International* 4:124-137. (NAAS: NA)
- Gautam H, Masand, A and Asrani RK (2017). Sebaceous Carcinoma in a dog. *Haryana Veterinarian* 56(1) 111-112. (NAAS: 5.1)

4. EXTENSION

a. Clinical camps/trainings/extension camps/animal health camps

S. No.	Particulars	Number	Participant		Remarks
			Male	Female	
1.	Training conducted/Resource person	1+1	29+20	-	<p>Dr. R D Patil provided training on "Haematological analysis in animals" to Constables of Sashastra Seema Bal (SSB), Palampur (HP) on 22/09/2016.</p> <p>Dr. R D Patil Resource person on 'Bio-security and safe disposal of carcass' and 'Post-mortem investigation' to Small Poultry farmer under Pradhan Manti Kaushal VikasYojna organized at KVK, Sundernagar, Distt. Mandi (HP) on 22/03/2017.</p>

d. Clinical cases (routine and referrals)/disease investigations/disease outbreaks investigated

S. No.	Types of affection /disease/ samples/ condition	Specie wise numbers							Human	Lab animals	Important findings and remarks
		Bovine + Buffalo	Canine	Feline	Equines	Avian	Small ruminants (Sheep, goat)	Wild life + Fish			
1.	Necropsy (2807)	46+1	5	-		2729	16	2+3		5	Listed below*
2.	Biopsies (16)	5	10		1						Neoplastic conditions including Sebaceous adenoma, Myxoma, CTVT etc.
3.	Clinical samples (57)	17	37			1	1		1		Various pathological conditions including non-inflammatory/neoplastic conditions and inflammatory conditions during hematological, urine analysis and cytological examinations
Total											

*Cattle: Tuberculosis, Hydatidosis, Chronic fasciolosis and Pneumo-enteritis, Traumatic reticulo-pericarditis, Fibrino-purulent pneumonia, Interstitial pneumonia, Haemorrhagic enteritis, Necrotic naval infection, Acute/Chronic catarrhal enteritis, Milk granuloma etc.

Buffalo: Severe gastric impaction.

Sheep and Goats: Foot and Mouth disease, Haemonchosis, Parasitic typhlitis, Verminous pneumonia, Catarrhal enteritis, Tapeworm infection, Pneumo-enteritis, Obstructive asphyxia, Gastroenteritis, Fibrino-purulent bronchopneumonia, Hypoproteinemia etc.

Dog: Hepato-nephropathy, Canine Distemper etc.

Rabbit: Gastroenteritis, Nephritis, Intestinal coccidiosis, ovarian tumor etc.

Poultry: Infectious Bursal disease, Newcastle disease, Marek's disease, Ascariasis, Omphalitis, Necrotic enteritis, Egg peritonitis, Coligranuloma, Mycoplasmosis, Coccidiosis (Cecal and/or intestinal), Parasitic/haemorrhagic enteritis, Systemic Aspergillosis, Air-sacculitis, Salmonellosis, Lymphoid leucosis, Catarrhal enteritis, Colisepticemia, Nephropathy, Visceral gout, Ascites, Peritonitis, Liver rupture, *E. coli* Salpingitis, Necrotic typhlitis etc.

Wild animals: Gun-shot wounds in a sambhar and liver rupture, gastric impaction with round worm infection in a wild owl.

5. PARTICIPATION IN WORKSHOP/ CONFERENCES, TRAININGS ETC.

a) Trainings:

S. No.	Date	Title	Name of Participants
1.	19-30 Dec 2016	Attended 12 days Training Program on "Management Development Program on Leadership Development (a pre-RMP Program)" conducted at ICAR-NARM, Hyderabad	Dr. V. K. Gupta

b) Conferences/workshops/seminars/symposia:

S. No	Date	Title	Name of Participants	Nature of participation
1.	16 March, 2017	One-day workshop on "Intellectual Property Rights: Issues and Challenges" jointly organized by IPR Cell, CSK HPKV, Palampur and HP Patent Information Centre, SCSTE, Shimla (HP) at DEE, CSK HPKV, Palampur.	Dr. R. D. Patil	Participant
2.	18 February, 2017	One-day Seminar on 'Sample collection for Histopathological/ Veterolegal cases and Epilepsy in Dogs' organized by Deputy Director, Animal Health at Hamirpur, Govt of HP.	Dr. V. K. Gupta	Special invited Speaker
3.	22-23 October, 2016	Attended '15 th Convocation and National Symposium of National Academy of Veterinary Sciences (NAVS) on, held at Khalsa College of Veterinary & Animal Sciences Amritsar (Pb.).	Dr. V. K. Gupta	Participant

4.	29-30 May, 2017	Attended two days seminar on 'Application of Radioisotopes & Radiation Technology in Food, Agriculture, Environment, Healthcare and Industry' organized by GCNEP Deptt of Atomic Energy Govt of India and CSK HPAU at Palampur	Dr. V. K. Gupta	Participant
----	-----------------	--	-----------------	-------------

6. WORKSHOP/SEMINAR/TRAININGS ETC. ORGANIZED

Trainings:

- Dr. R. D. Patil provided training on "Haematological analysis in animals" during the training programme to 29 Constables of Sashastra Seema Bal (SSB), Palampur (HP) on 22/09/2016.
- Dr. R. D. Patil was Resource person for training on 'Bio-security and safe disposal of carcass' and 'Post-mortem investigation' during the 200 hours training program on Small Poultry farmer under Pradhan Manti Kaushal Vikas Yojna organized at KVK, Sundernagar, Distt. Mandi (HP) on 22/03/2017.

7. HONOURS AND AWARDS

- Prof. V. K. Gupta is accessor of GLP in the capacity of Fellow Inspector, for National GLP Compliance Monitoring Authority, Govt of India.
- Prof. V. K. Gupta is Chairman- Examination Committee for conduct of Board Certification Examination of Indian College of Veterinary Pathologists (2015 & 16)
- Member advisory committee of the University Library
- Member of the 'Para-Veterinary Council' Himachal Pradesh

8. EXTRA CURRICULUM DUTY: NCC/NSS/HOSTEL WARDEN/SPORTS ETC.

Name of teacher	Nature of duty	Period	Distinguished achievement, if any
Dr. R.D. Patil	NCC care taker/Instructor	July 2016 to June 2017	-----

9. MISCELLANEOUS

1. Dr. V. K. Gupta attended 'Annual Review Meetings' of the ongoing Project on 'All India Network Program on Neonatal Mortality (AINP-NM)' at Delhi on 9.9.2016.
2. Dr. R. K. Asrani attended 'Annual Review Meeting' of the Ongoing Project 'Ethno-Veterinary Medicine (EVM)' at Kochi (Kerala) on 17.9.2017.
3. Dr. R. K. Asrani acted as Member of the Committee constituted by the Dean, COVAS, CSK HPKV, Palampur to examine the format of Diploma Certificate being issued to Veterinary Pharmacists.
4. Dr. R. K. Asrani acted as Member Committee notified by the Dean, COVAS to scrutinize the application format and affidavit language in respect of the Veterinary Pharmacists Training Course being run by the university for private affiliated institutes
5. Dr. R. K. Asrani supervised as Co-coordinator the conduct of Annual theory (1st year) and practical examinations (2nd year) of Veterinary Pharmacists at MLIS, Solan on 6th September 2016 to 9th September, 2016.
6. Dr. R. K. Asrani appointed as Superintendent to supervise the External Board Theory examinations of 5th professional BVSc and AH programme held from 14.12.2016 to 22.12.2016.

7. Dr. R. K. Asrani performed duties of Superintendent PG Examinations involving 15 theory examinations of different disciplines on 5.10.2017.
8. Dr. R. K. Asrani acted as Member nominated by Director Research, CSK HPKV, Palampur for the selection committee to conduct the interview for the fellowship of Senior Research Fellow on 17.11.2016.
9. Dr. R. D. Patil (Co-PI) visited to remote areas (Kukumseri, Tingret, Tindi, Dhars of Tindi-Hadsar, Tandi, Jaspa, Darcha, Kelong, Koksar etc.) of District Lahaul and Spiti during September 1-7, 2016 for survey work and collection of medicinal plants along with their therapeutic use by the local community/traditional healers. Along with the team went to top of hills and collected more than 85 plant samples and submitted them for further identification from CSIR-IHBT, Palampur.

ANNEXURES

Faculty position

S. No.	Name	Designation
1.	Dr. V K Gupta	Professor & Head
2.	Dr. R K Asrani	Professor
3.	Dr. R D Patil	Assistant Professor
4.	Dr. Rakesh Kumar	Assistant Professor (Contractual)

Staff position

S. No.	Name	Designation
1.	Mr. Madan Singh	Junior Assistant
2.	Mr. Arjun Singh	Sr. Technical Assistant (Grade-II)
3.	Mr. Pritam Chand	Beldar against PM Attendant
4.	Mr. Ram Dhan	Beldar against Peon

Budget

S. No.	Scheme	Salaries	TA	Contingency	TOTAL
	CDA-003-37	-	-	0.40	0.40
	CDA-005-37	--	-	0.10	0.10
	CDA-006-37	--	-	0.25	0.25
	CDA-007-37	--	-	0.17	0.17
	CDA-008-37	--	-	0.23	0.23
	CDA-013-37	--	-	0.75	0.75
	ICAR-308(V)-37	-	0.60	14.90	15.50
	ICAR-214(V)-37	-	0.37	2.48	2.85

DEPARTMENT OF VETERINARY PHARMACOLOGY & TOXICOLOGY

1. INTRODUCTION

The discipline of Veterinary Pharmacology & Toxicology came into existence as one of the constituents of the erstwhile Department of Physiology and Pharmacology at the time of the inception of the College in July, 1986. The discipline gained the status of an independent Department of Pharmacology & Toxicology w.e.f. July 1st, 1991 becoming one of the core subjects in the Veterinary profession. The Department attained the status of Postgraduate Department with the start of PG program leading to M.V.Sc. in Veterinary Pharmacology & Toxicology w.e.f. July 1996–97. Since then 29 students have passed out with M.V.Sc. degree.

2. TEACHING

a) Undergraduates Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
1st Semester				
1.	General and Systemic Veterinary Pharmacology	VPT-311	2+1	Dr. D. Sharma
2.	Veterinary Chemotherapy	VPT-411	2+0	Dr. D. Sharma
3.	Drug Designing	Tracking programme	2+0	Dr. D. Sharma
2nd Semester				
1.	Veterinary Neuropharmacology	VPT- 321	2+1	Dr. D. Sharma
2.	Veterinary Toxicology	VPT-421	2+0	Dr. D. Sharma
3.	Veterinary Clinical Biochemistry and Laboratory Diagnosis-II	VLD-421	0+1	Dr. D. Sharma

3. RESEARCH

a. Scientific Publications and Presentations

i) Publications

1. Sharma, Navjot, Varshneya, Chandresh, Sharma, D.K., Sharma, Navdeep, Chauhan, Shivani and Sharma, Rinku "Ameliorative effect of seabuckthorn (*Hippophae rhamnoides*) pulp extract against aflatoxin induced hepatotoxicity in poultry" *International Journal of Science, Environment and Technology*, Vol. 5, No 4, 2016, 1835-1841. **NAAS:3.98**
2. Amit Sharma, Varshneya C, Sharma D.K. "Pharmacokinetics of enrofloxacin following intravenous administration in calves." *IVJ*, 94(03), 2017, 36-37. **NAAS:4.42**
3. D.K Sharma "Review on traditional medicinal plant: *Trillium govianum*". *Journal of medicinal plant studies* 5(2), 2017, 120-122. **NAAS:3.53**

4. EXTENSION**a. Clinical cases (routine and referrals)/disease investigations/disease outbreaks investigated**

S. No.	Types of affection/disease/samples/condition	Specie wise numbers							Important findings and remarks
		Bovine	Canine	Feline	Equines	Avian	Wild life	Human	
1	Toxicological analysis	4 + 1 (ovine)	-		-	-	-	-	One sample detected positive for Nitrate toxicity.
	Total								

5. PARTICIPATION IN WORKSHOP/ CONFERENCES, TRAININGS ETC.**a) Conferences/workshops/seminars/symposia:**

S. No.	Date	Title	Name of Participants	Nature of participation
1.	21-22 June 2017	Participated in the seminar on "Agriculture research and technical terminology" organized by commission for scientific and technical terminology, MHRD, GOI at COVAS Palampur	Dr. Dinesh Sharma	
2.	29-30 May 2017	Participated in the seminar on "Application of radioisotopes and radiation technology in food environment, health care and industry" organized by Deptt. of crop improvement, COA at CSKHPKV Palampur	Dr. Dinesh Sharma	

ANNEXURES**Faculty position**

S. No.	Name	Designation
1	Dr. Dinesh Sharma	Assistant Professor
2	Dr. Pallavi Bhardwaj	Assistant Professor (on study leave)
3	Dr. Prashant. S. Daundkar	Assistant Professor

Staff position

S. No.	Name	Designation
1	Sh. Joginder Kumar	Junior Technician
2	Sh. Narotam Chand	Beldar

Budget

S. No.	Scheme	Salaries	TA	Contingency	TOTAL
1	CDA-003-53	-	-	56,000	56,000
2	CDA-005-53	-	-	10,000	10,000
3	CDA-006-53	-	-	27,000	27,000
4	CDA-007-53	-	-	17,000	17,000
5	CDA-008-53	-	-	25,000	25,000
6	CDA-013-53	-	-	65,000	65,000

DEPARTMENT OF VETERINARY PHYSIOLOGY & BIOCHEMISTRY

1. INTRODUCTION

The Department of Veterinary Physiology came into existence in 1986 as a constituent department of the college. The primary mandate of the department is to impart training to undergraduate and postgraduate students in the field of Veterinary Physiology & Biochemistry, besides research in frontier areas and extension education. Since 1992-1993 Master's programme is in operation in the department and Doctorate programme was also approved in the year 2010. In the year 2011, Department of Veterinary Biochemistry was merged with Veterinary Physiology and Department was renamed as Department of Veterinary Physiology & Biochemistry. During last 31 years, Department has carried out pioneering work in the field of migratory sheep husbandry, mineral physiology and hemato-biochemical studies and impact of climate on animal species of Himachal Pradesh. In the process, department completed two externally funded research projects, besides faculty participation in externally funded projects of other departments. At present, one research project "Capacity Building of paraprofessionals for effective disease diagnosis and augmenting diagnostic facilities" is in operation in the department.



VERU training to BVSc & AH graduates

Department has established a modern laboratory for analysis of macro and micro minerals, hematology and blood biochemicals. Department is carrying out extension activities not only during Kisan Mela but is also carrying out research trials at field level and is in regular touch with farmers of the state for suggesting various measures to augment production and reproduction of their livestock.

2. TEACHING

a) Undergraduates Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
1st Semester				
1.		Vety. Physiology	4+ 1	Dr. M.S. Verma, Dr. R. Kumar
2.	ORT-111	Orientation	1+0 (NC)	Dr. R. Kumar, Dr.V. Pathak
3.	VLD-411	Vety. Clinical biochemistry & Laboratory Diagnosis-I	0+1	Dr. G. Singh, Dr. R. D. Patil
4.	Study circle	Ecosystems and livestock	0+2 (NC)	Dr. R. Kumar
2nd Semester				
1.		Veterinary Physiology	4+ 1	Dr. M.S. Verma, Dr. R. Kumar
2.	VPB 221	Vety. Physiology	3+ 1	Dr. R. Kumar, Dr. M.S. Verma
3.	VPB-321	Animal Biotechnology	2+ 1	Dr. G. Singh, Dr. S. Verma Dr. P. Kumar
4.	Study circle	Ecosystems and livestock	0+2 (NC)	Dr. R. Kumar

b) Postgraduate Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
M.V. Sc. Courses (1st Semester)				
1.	VBC-607	Metabolism-II Nucleic Acids and Amino Acids	2+0	Dr. N. Kumar
2.	VBC-608	Metabolism-III Integration and Regulation	2+0	Dr. N. Kumar
3.	VBC-609	Central Dogma and Protein Function	2+0	Dr. G. Singh
4.	VPY-602	Cardiovascular & Respiratory Physiology	2+1	Dr. R. Kuma Dr. M.S. Verma
M.V. Sc. Courses (2nd Semester)				
1.	VPY-606	Physiology of Animal Reproduction	2+1	Dr. R. Kumar Dr. M.S. Verma
2.	VBC-601	Chemistry of Animal Cell	2+0	Dr. N. Kumar
3.	VBC-602	Techniques in Biochemistry	0+2	Dr. G. Singh
4.	VBC-603	Applications of genomics and proteomics in Molecular Biology	2+0	Dr. G. Singh
5.	VBC-606	Metabolism I: Carbohydrates & Lipids	2+0	Dr. N. Kumar
	VBC-691	Seminar	1+0	Dr. G. Singh

c) Numbers of students graduated (Please give data about foreign nationals in footnotes):

Degree	During last academic year	Accumulated total
M.V.Sc.	one	one
Ph.D.	Nil	Nil

d) National and International Level Competition: UG/MSc/PhD

Competition	No. of students qualified	No. of students appeared	% age of qualified	Distinguished rank, if any
ICAR NET	0	one	0	nil
CSIR NET	0	one	0	nil

e) Student got job/placement in India or abroad

Name of the Student with Admission No.	Name of Advisor	Nature of Job/Designation	Organization
Sumit Chandel V-2013-30-011	Dr. Geetanjali Singh	Veterinary officer	ATMA NGO Dharamshala
Shruti Sharma V-2013-30-010	Dr. Naresh Kumar	Veterinary pharmacist instructor	Pharmacist training institute, Solan

3. RESEARCH

a. Postgraduate Research

i) Ongoing Masters Programme:

S. No.	Name of the student	Admission No.	MAJOR ADVISOR	TITLE OF RESEARCH PROBLEM
1.	Samriti Saklani	V-2016-30-003	Dr. Geetanjali Singh	Comparative study of blood profiles of native chicken with Delham Red and their crosses.

ii) Postgraduate Research Salient Achievements

S. No.	Title of Research problem	Salient Research Achievements
1.	Effect of feeding fenugreek <i>Trigonella foenum greacum</i> and giloy (<i>Tinospora cordifolia</i>) on milk yield and biochemical composition of blood and milk in dairy cows	In an experiment on lactating Jersey crossbred cows in dairy farm, it was found that feeding giloy stem powder or fenugreek seed powder alone or in combination did not lead to any significant change in the milk yield. Milk composition parameters (fat, SNF, milk proteins and lactose) did not change to any significant extent after feeding of giloy or fenugreek alone or together in a combination in lactating Jersey crossbred cows. In the same experiment, giloy supplementation lead to significantly lower levels of blood glucose while fenugreek alone or in combination with giloy was found to be effective in lowering the total cholesterol and LDL levels in the blood of lactating dairy cows.

b. Research Projects in Progress

S. No.	Title of Project	PI	Funding Agency	Budget	Year of start	Duration
1.	Development and testing of a lateral flow assay kit for the diagnosis of subclinical mastitis	Dr. Geetanjali Singh	Department of Science Environment and technology, H.P	10 lakhs	2015	2 years

c. Summary of research finding during the year

A 20-amino acid long peptide (CREDSKADQAANEWGRSGKD) along with an N-terminal cysteine residue, was designed using various bioinformatic tools such as Antibody Epitope Prediction tool, Peptide Property Calculator, Antigen Profiler Peptide Tool, SWISS MODEL and PyMol programme for the preparation of lateral flow assay kit for the diagnosis of subclinical mastitis in bovines.

e. Scientific Publications and Presentations

i) Publications

1. Assessment of common methods for diagnosis of bovine subclinical mastitis “by Geetanjali Singh, Bishrutee Bhardwaj, Subhash Verma in *Himachal journal of Agriculture Research* 2017 NAAS rating 4
2. Savita Devi, Naveen Kumar, Rishika Vij, Rajeev Kapila, Suman Kapila. Buffalo casein derived peptide can alleviate H₂O₂ induced cellular damage and necrosis in fibroblast cells *Experimental*

- and Toxicologic Pathology. 5-MAY-2017. DOI: 10.1016/j.etp.2017.04.009. IF:2.13, (**NAAS rating :8.13**)
3. Somal, A., Bhat, I.A., Singh, A.P., Panda, B.S., Desingu, P.A., Pandey, S., Bharti, M.K., Pal, A., Saikumar, G., Chandra, V. and Sharma, G.T., 2017. Cover Image, Volume 232, Number 8, August 2017. *Journal of Cellular Physiology*, 232(8). NAAS rating **10.2**
 4. Somal, A., Bhat, I.A., Singh, A.P., Panda, B.S., Desingu, P.A., Pandey, S., Bharti, M.K., Pal, A., Saikumar, G., Chandra, V. and Sharma, G.T., 2017. Impact of Cryopreservation on Caprine Fetal Adnexa Derived Stem Cells and Its Evaluation for Growth Kinetics, Phenotypic Characterization, and Wound Healing Potential in Xenogenic Rat Model. *Journal of Cellular Physiology*, 232(8), pp.2186-2200. NAAS rating **10.2**
 5. Gupta, S., Pandey, S., Parmar, M.S., Somal, A., Paul, A., Panda, B.S., Bhat, I.A., Baiju, I., Bharti, M.K., Saikumar, G. and Sarkar, M., 2017. Impact of oocyte-secreted factors on its developmental competence in buffalo. *Zygote*, pp.1-8. NAAS rating **7.4**
 6. Panda, B.S., Pandey, S., Somal, A., Parmar, M.S., Bhat, I.A., Baiju, I., Bharti, M.K., Kumar, G.S., Chandra, V. and Sharma, G.T., 2017. Leptin supplementation in vitro improved developmental competence of buffalo oocytes and embryos. *Theriogenology*, 98, pp.116-122. NAAS **rating 7.8**
 7. Pratheesh, M.D., Dubey, P.K., Gade, N.E., Nath, A., Sivanarayanan, T.B., Madhu, D.N., Somal, A., Baiju, I., Sreekumar, T.R., Gleeja, V.L. and Bhatt, I.A., 2017. Comparative study on characterization and wound healing potential of goat (*Capra hircus*) mesenchymal stem cells derived from fetal origin amniotic fluid and adult bone marrow. *Research in Veterinary Science*, 112, pp.81-88. NAAS **rating 7.4**

ii). Presentation

Dr. Geetanjali Singh presented project report in Biotechnology Vision and Way forward: Workshop by DEST in Shimla 17 July 17

iii). Manuals, Books, Booklets and Bulletin

Department	Author	Title	Pages	Publisher/On Line reference
Veterinary Physiology and Biochemistry	Dr. R. Kumar and Dr. Madan Verma	Veterinary Physiology Manual (Unit 1 & 2)	62	NA
Veterinary Physiology and Biochemistry	Dr. R. Kumar and Dr. Madan Verma	Veterinary Physiology Manual (Unit 3 & 4)	62	NA
Veterinary Physiology and Biochemistry	Dr. Geetanjali Singh and Dr. Rishika Vij	Veterinary Biochemistry Manual	103	NA

4. EXTENSION

a. Clinical camps/trainings/extension camps/animal health camps

S. No.	Particulars	Number	Participant		Remarks
			Male	Female	
1.	Training conducted	one	15	20	Four-day certificate course programme on Veterinary Emergency Response Unit with the support of National Disaster Management Authority, India and World Animal Protection Society

b. Clinical cases (routine and referrals)/disease investigations/disease outbreaks investigated

S. No.	Types of affection/disease/samples/condition	Specie wise numbers							Important findings and remarks
		Bovine	Canine	Feline	Equines	Avian	Wild life	Human	
1.	Blood and milk	215	-	-	-	-	-	-	Normal health and disease status established
	Total	215	-	-	-	-	--	-	

5. PARTICIPATION IN WORKSHOP/ CONFERENCES, TRAININGS ETC.**a) Trainings:**

S. No.	Date	Title	Name of Participants	Nature of participation
1.	May 2017	Awareness programme on application of radioisotopes and radiation technologies in food, environment, healthcare and industry' organised by GCNEP, BARC, Mumbai at Directorate of Extension Education, CSKHPKV, Palampur.	Dr. Anjali Somal and Rishika Vij	Participation
2.	17 July 17	Biotechnology Vision and Way forward: Workshop by DEST	Dr. Geetanjali Singh	Oral Presentation

6. INCOME GENERATED BY COMMERCIAL UNITS AND SERVICE WINDOWS

S. No.	Name of product/service	Person(s) associated	Income generated annually (Rs)
1.	Publishing of course manuals	Dr. R. Kumar, Dr. M S. Verma, Dr. Geetanjali Singh and Dr. Rishika Vij	11,145

7. EXTRA CURRICULUM DUTY: NCC/NSS/HOSTEL WARDEN/SPORTS ETC.

Name of teacher	Nature of duty	Period	Distinguished achievement, if any
Dr. Geetanjali Singh	Cultural In-charge	2016-2017	Organized various cultural activities

ANNEXURES

Faculty position

S. No.	Name	Designation
1	Dr R Kumar	Professor & Head
2	Dr. Naresh Kumar	Professor (retd.)
3	Dr. Geetanjali Singh	Associate Professor
4	Dr. Anjali Somal	Asstt. Prof
5	Dr. RishikaVij	Asstt. Prof.

Staff position

S. No.	Name	Designation
1	Kumari Promila	Clerk
2	Sh. Jai Chand	Laboratory assistant
3	Sh. Joginder Kumar*	Laboratory assistant
4	Sh. Bisan Dass	Laboratory assistant
5	Sh. Ravinder Kumar	Peon

Budget

S. No.	Scheme	Salaries	TA	Contingency	TOTAL
1	SCP-002-39	5629653	----	----	5629653
2	SCP-01-39	358380	----	----	358380

DEPARTMENT OF VETERINARY PUBLIC HEALTH & EPIDEMIOLOGY

1. INTRODUCTION

The department of Veterinary Public Health and Epidemiology is one of the 16 departments of Dr. G. C. Negi College of Veterinary and Animal Sciences. It was established as an independent department in the year 1991. Consequent upon the implementation of Veterinary Council of India (VCI) Regulation, 1993 (minimum standards of veterinary education curriculum) the department was renamed as the department of Veterinary Public Health in 1996. Following the implementation of revised (VCI) regulation 2008, Veterinary Epidemiology was merged with the department, and the discipline has been named as Veterinary Public Health and Epidemiology. The department attained the status of postgraduate department in 2007 with the start of M.V.Sc. programme.

This department has facilities for the microbiological evaluation of foods of animal origin, drinking water and studies of some important zoonotic diseases. The facilities for detection of common adulterants in milk and milk products have also been created. The department is also working on various aspects of organic farming and quality control of organic produce from a public health point of view. The department has submitted research project proposals to various government funding agencies. Faculty members also actively participate in the various extension activities of the University from time to time. The department has launched its own departmental webpage, i.e. <http://hillagric.ac.in/education/covas/vph> in the University website depicting its major achievements/activities. The department has prepared e-learning study materials on Veterinary Epidemiology & Zoonoses.

2. TEACHING

a. Undergraduates Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
1st Semester				
1.	VPE-311	Milk and Meat Hygiene, Food Safety and Public Health	2+1	Dr. S.K. Khurana and Dr. A.K. Panda
2.	VPE-511	Environment and Environmental Hygiene	2+1	Dr. A.K. Panda, and Dr. S.K. Khurana
3.	LPM-361 (odd semester)	NIL	NIL	
2nd Semester				
1.	VPE-321	Veterinary Epidemiology and Zoonoses	2+1	Dr. S.K. Khurana and Dr. A.K. Panda
2.	AMT-121	Animal Dairy Science	1+1	Dr. S.K. Khurana Dr. A.K. Panda

Postgraduate Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
M.V. Sc. Courses (1st Semester)				
1.	VPH-601	Elements of Veterinary Public Health	1+1	Dr. A.K. Panda & Dr. S.K. Khurana
2.	VPH-605	Principles of Food Hygiene and Safety	2+1	Dr. S.K. Khurana & Dr. A.K. Panda
3.	VPH-606	Food Borne Infections and Intoxications	2+1	Dr. A.K. Panda & Dr. S.K. Khurana
4.	VPH-607	Meat and Milk Hygiene	2+1	Dr. S.K. Khurana & Dr. A.K. Panda
M.V. Sc. Courses (2nd Semester)				
1.	VPH-602		2+1	Dr. S.K. Khurana & Dr. A.K. Panda
2.	VPH-604		2+1	Dr. S.K. Khurana & Dr. A.K. Panda
3.	VPH-608		3+1	Dr. A.K. Panda & Dr. S.K. Khurana
4.	VPH-691	Master's Seminar	1+0	Dr. A.K. Panda & Dr. S.K. Khurana

b) Numbers of students graduated (Please give data about foreign nationals in footnotes):

Degree	During last academic year	Accumulated total
M.V. Sc.	Nil	six
Ph.D.	NA	NA

3. RESEARCH**a. Postgraduate Research****Ongoing Masters Programme:**

S. No.	Name of the student	Admission No.	MAJOR ADVISOR	TITLE OF RESEARCH PROBLEM
1.	Ishan Kashyap	V-2014-30-08	Dr. S.K. Khurana	Detection of buffalo species in meat and meat products employing serological and DNA based techniques.
2.	Neena Kumari	V-2016-30-23	Dr. A.K. Panda	Isolation and Identification of <i>Aeromonas</i> spp. in ready-to-eat foods, beverages and water from different tourist places of Himachal Pradesh and its public health significance
3.	Neha Rana	V-2016-30-24	Dr. A.K. Panda	Isolation and Identification of <i>Bacillus</i> spp. in ready-to-eat foods, beverages and water from different tourist places of Himachal Pradesh and its public health significance

4.	Tanu Palsra	V-2016-30-25	Dr. S.K. Khurana	Studies on adulteration of fluid milk and its public health significance in Himachal Pradesh
5.	Dr. Abhilasha Patial	V-2016-30-022	Dr. S.K. Khurana	Isolation and Identification of <i>Salmonella</i> , <i>Escherichia</i> and <i>Aspergillus</i> in poultry feeds and its public health significance

b. Research Projects in Progress

S. No.	Title of Project	PI	Funding Agency	Budget	Year of start	Duration
1.	AICRP-Goat Improvement (Gaddi Field Unit) Deptt. Of LPM	Co-PI Dr. A.K. Panda Dr. S.D. Thakur	ICAR	19.93 lakh for the year 2014-2015	2009	Extended till date
2.	To study the therapeutic efficacy of LOC MAST Bolus in cows with clinical mastitis	Co-PI Dr. S.K. Khurana	RODEC Pharmaceuticals Pvt. Ltd. Budget	0.4 lakh	2017	Six months

c. Summary of research finding during the year

101 water samples were tested for its portability by MPN test, and only 41 /101 (40.59%) were found safe for drinking as per WHO standards. Mostly underground water samples were found potable. Out of 29 ready to eat foods of animal origin were tested for its microbial quality, 44.3% food samples were found to be unsatisfactory, 18 samples of (hand washing, eggshell washing, animal feed and scrapping from wooden blocks used for meat cutting) and 15 raw animal products were tested for the presence of *Salmonella*, *Escherichia coli*, *Streptococcus* and *Staphylococcus* contamination. In another experiment 80 poultry meat samples (raw and cooked) for isolation of coliform, *E. coli* and *Salmonella* spp and 21 samples were found positive for coliform out of which 10 were *E. coli* and 7 samples were positive for *Salmonella* spp. Microbiological analysis of 20 mastitic milk samples (Clinical cases) revealed the presence of *Staphylococcus*, *Streptococcus*, Coliforms and mixed infection. 29 fecal samples of stray animals (19 cattle and 10 dog) were examined for contamination with zoonotic parasites and only 26.3% of cattle faeces showed parasitic contamination but no dog faeces. However, no parasites of zoonotic significance could be detected from the fecal samples examined. A total of 10 soil samples (school, village/community grounds) were analyzed for contamination with zoonotic parasites and presence of coliforms. However, no soil samples were found positive for parasitic contamination. However, 80% samples showed the presence of coliforms. Higher level (≥ 2400 per gm of soil) of coliform contamination was detected in 30% soil samples. No ready to eat raw vegetables from market samples screened showed the presence of parasites of zoonotic importance.

Air samples were evaluated for microbial contamination from different working and living areas of the University, and the lowest level (3-5cfu/cubic feet) was detected in COVAS canteen and university library) and highest level (>100cfu/cubic feet) was found in Girls' hostel mess and monal hostel mess during the period Feb-April. During the period Sept-October 62.06% of the samples were found satisfactory.

d. Establishment of research collaboration with national and international institutes

S. No.	Name of collaborating institute and country	Nature of collaborations	Collaborating person(s) at both institutes
1	IVRI Regional Station at Palampur	Jointly working on improvement of animal husbandry practices of livestock farmers and socio-economic upliftment	Dr. R. Bhar Scientist Incharge and Dr. A.K. Panda, Professor

e. Scientific Publications and Presentations**i) Publications**

1. Lakhanpal Priyanka, Panda AK, Thakur SD. 2016. Low prevalence of *Listeria monocytogenes* in ready to eat foods of animal origin from various tourist destinations of Himachal Pradesh, *Indian Journal of Communicable Diseases*, 48(3): 14-17.
2. Thakur SD and Panda A. K. 2016. Antimicrobial resistance: Role of animal husbandry and strategies to control. *Current Science* (Accepted)
3. Himani Dhanze, S.K. Khurana, B.G. Mane and Brijesh Bhardwaj (2014) Microbiological quality of raw chicken meat treated with aqueous extract of curry leaves during storage *Indian Journal of Poultry Science* 49(3): 292-96.
4. Lakhanpal Priyanka, Panda AK, Chahota Rajesh, Gupta Atul, Choudhary Shivani and Thakur SD. 2016. Prevalence of Vancomycin and methicillin resistant *Staphylococcus aureus* in ready to eat foods of animal origin from various tourist destinations of Himachal Pradesh, *Indian Journal of Animal Science* (Under Review).

ii). Presentations

1. Delivered a lecture on "The role of Food Hygiene, Zoonoses and Environmental Hygiene on Public Health" to the NSS volunteers of COA organized by the NSS Unit COA during the 10 days camp on 2nd June 2017 CSKHPKV. Dr. A.K. Panda
2. Delivered a lecture on "Important milk borne zoonotic diseases in dairy animals and methods to prevent them" to farmers/livestock farmers under Four days Training Programme on Dairy Farming for the farmers of Bilaspur Distt. Sponsored by Director of Animal Husbandry, Govt. of Himachal Pradesh on 18.05.2017. Dr. A.K. Panda
3. Delivered a lecture on Rabies in INSA and UGC sponsored seminar on "Animal Diseases its public health significance" at MCM DAV College, Chandigarh as expert on 31.08.2016.
4. Delivered a lecture on Bovine Brucellosis and its public health importance in INSA and UGC sponsored seminar on "Animal Diseases its public health significance" at MCM DAV College, Chandigarh as expert on 31.08.2016. Dr. A.K. Panda
5. Delivered a lecture on "Important milk borne zoonotic diseases in dairy animals and methods to prevent them" to farmers/livestock farmers under Four days Training Programme on Dairy Farming for the farmers of Una Distt. Sponsored by Director of Animal Husbandry, Govt. of Himachal Pradesh on 4.05.2017. Dr. A.K. Panda
6. Delivered a lecture on "Quality control of milk and milk products" in two days training programme for the farmers of Kullu district organized by H.P. Mid Himalayan Watershed Development Project on 23rd Feb 2017. Dr. A.K. Panda

4. EXTENSION

a. Clinical camps/trainings/extension camps/animal health camps

S. No.	Particulars	Number	Participant		Remarks
			Male	Female	
1.	Training conducted				
2.	Farmers training (i) On -campus (ii) Off-campus	4 2			Delivered lectures in training programmes, Kisan mela and gosthi organized by University, IVRI and Other Institutions
3.	Others, if any	1			Delivered a lecture on Rabies in INSA and UGC sponsored seminar on "Animal Diseases its public health significance" at MCM DAV College, Chandigarh as expert on 31.08.2016

b. Clinical cases (routine and referrals)/disease investigations/disease outbreaks investigated

S. No.	Types of affection/disease/samples/condition	Specie wise numbers						Important findings and remarks
		Bovine	Canine	Feline	Equines	Avian	Wild life	
1.	Animals came to the College hospital for treatment of different ailments (Testing for Brucellosis)	24						7/24 (29.2%) were positive for brucellosis (5/24 , 20.8% in the age group of >2years and 2/24,8.3% in the age group of 1-2years)
	Total							

5. PARTICIPATION IN WORKSHOP/ CONFERENCES, TRAININGS ETC.

a) Trainings:

S. No.	Date	Title	Name of Participants
1.	May 29-30, 2017	GCNEP awareness program on Application of Radioisotopes & Radiation Technology in Food, Agriculture, Environment, Healthcare and Industry	Dr. A.K. Panda Dr. S.K. Khurana
2.	December 15, 2016	Awareness workshop under digital Financial Literacy Campaign of the Government	Dr. A.K. Panda Dr. S.K. Khurana

b) Conferences/workshops/seminars/symposia:

S. No.	Date	Title	Name of Participants	Nature of participation
1.	27th October 2016	Gosthi on” Livelihood Security of livestock owner in Tribal dominated Villages of district Chamba” organized by ICAR-Indian Veterinary Research Institute, Regional Station at Palampur, H.P. at Garola Village, Tehsil Bharmour.	Dr. A.K. Panda	Member of organising committee
2.	4th December 2016.	Kisan Mela organized by the ICAR-Indian Veterinary Research Institute, Regional Station at Palampur, H.P. in collaboration with KVK, Berthin, CSKHPKV, Palampur, Deptt. of Animal Husbandry, Govt. of H.P. and ATMA, Hamirpur, H.P. on	Dr. A.K. Panda	Member of organising committee

6. HONOURS AND AWARDS

- Member of task force on Animal Health, CSKHPKV- Dr. A.K. Panda
- Member of the IAEC committees nominated by the GOI, MOEF, AW (Div.), New Delhi –Dr. A.K. Panda
- Member Technical Editorial Board Poultry Line- Dr. S.K. Khurana
- Member Editorial Board Journal of Foodborne and Zoonotic Diseases-Dr. S.K. Khurana
- Member Editorial Board Indian Journal of Communicable Diseases- Dr. S.K. Khurana

7. FACULTY VISITS ABROAD

Dr. S.D. Thakur is on PDF assignment, Canada

8. EXTRA CURRICULUM DUTY: NCC/NSS/HOSTEL WARDEN/SPORTS ETC.

Name of teacher	Nature of duty	Period	Distinguished achievement, if any
Dr. S.K. Khurana	In-charge chess, DGCN COVAS	2016-2017	Participated in Inter college chess tournament

9. MISCELLANEOUS

Nominated member of CPCSEA, GOI, Ministry of Environment and Forest for different Govt. and Private Research Institute/Educational institution in H.P.

DEPARTMENT OF VETERINARY SURGERY AND RADIOLOGY

1. INTRODUCTION

The Department of Surgery & Radiology was established in the year 1991 as an important constituent of College of Veterinary and Animal Sciences of CSKHP Agriculture University, Palampur to impart quality education to Veterinary graduates and postgraduates, to extend clinical services and to conduct need based research and extension activities. The department has gained appreciations and recognition not only from students and peers of the veterinary profession but also from State, National and International Authorities. The department has an excellent team of dedicated, highly qualified and exceptionally motivated academic and non-academic staff who have toiled hard all these years to build this department from a scratch. At present, the department has a



International conference on canine and feline cardiology

decent infrastructure, and its labs are equipped with a number of modern equipments. The department is, in fact, an institution in itself where diverse specialized aspects of veterinary surgery like diagnostic imaging, anesthesia, orthopedics, dentistry, ophthalmology, operative surgery and physiotherapy are being taken care of jointly.

Add to this fact the variety of animals are being treated ranging from cat, dogs, horse, cattle, pig, sheep, goats and wild animals etc. which have their specific requirement for treatment. Therefore, to provide quality services to veterinary patients as per international standard, further upliftment of department is of paramount importance which needs massive grants from diverse resources. There is an acute need to build/renovate infrastructure and procure modern equipments with a vision to develop super specialties of veterinary surgery and allied fields as per global standards.

2. TEACHING

a) Undergraduates Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
3rd Professional (BVSc & AH)				
1st Semester				
1.	Tracking Programme	Anaesthesiology	2+0	Dr. Adarsh Kumar
2.	Tracking Programme	Neuroscience	2+0	Dr. Amit Kumar
2nd Semester				
1.	Tracking Programme	Ophthalmology	2+0	Dr. SP Tyagi
4th Professional (BVSc & AH)				
1st Semester				

1.	VSR-411	General Veterinary Surgery, Anaesthesiology & Diagnostic Imaging	2+2	Dr. Amit Kumar (I/c) Dr. Adarsh Kumar Dr. SP Tyagi
2.	VCP-411	Veterinary Clinical Practice (To be offered by TVCC)	0+5	Dr. Adarsh Kumar, Dr. SP Tyagi Dr. Amit Kumar
2nd Semester				
3.	VSR-421	Regional Veterinary Surgery	2+1	Dr. Adarsh Kumar (I/C), Dr. SP Tyagi, Dr. Amit Kumar
4.	VCP-421	Veterinary Clinical Practice (To be offered by TVCC)	0+5	Dr. SP Tyagi, Dr. Adarsh Kumar Dr. Amit Kumar
5th Professional (BVSc & AH)				
1st Semester				
1.	VSR-511	Veterinary Orthopedics and Lameness	1+1	Dr. SP Tyagi, Dr. Amit Kumar, Dr. Adarsh Kumar
2.	VCP-511	Veterinary Clinical Practice	0+5	Dr. Amit Kumar, Dr. Adarsh Kumar, Dr. SP Tyagi
3.	VMD-512	Zoo/Wild Animal Breeding, Management, Nutrition & Health Care	1+1	To be taught jointly AGB, LPM, ANN, VPP and VSR (Dr. Amit Kumar)
4.	VMD-513	Pet Animal Breeding, Management, Nutrition & Health Care Management, Nutrition & Health Care	1+1	To be taught jointly AGB, LPM, ANN, VPP and VSR (Dr. Adarsh Kumar)
2nd Semester				
	Internship	Dr. Adarsh Kumar (I/c) and all Faculty Members		

b) Postgraduate Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
M.V. Sc. Courses (1st Semester)				
1.	VSR 602	Clinical Practice – I	0+3	Dr. Amit Kumar plus all faculty
2.	VSR 604	Small Animal Anaesthesia	2+1	Dr. Adarsh Kumar
3.	VSR 607	Veterinary Ophthalmology and Dentistry	1+1	Dr. Amit Kumar
4.	VSR 608	Small Animal Soft Tissue Surgery	2+1	Dr. SP Tyagi
5.	VSR 699	Master's Research	----	Respective Major Advisors
M.V. Sc. Courses (2nd Semester)				
1.	VSR 603	Clinical Practice – II	0+3	Dr. Amit Kumar plus all faculty
2.	VSR 606	Diagnostic Imaging Techniques	2+1	Dr. Adarsh Kumar, Dr. Amit Kumar
3.	VSR 610	Orthopaedic and Limb Surgery	2+1	Dr. SP Tyagi, Dr. Amit Kumar
4.	VSR 691	Master's Seminar	1+0	Dr. SP Tyagi
5.	VSR 699	Master's Research	----	Dr. Adarsh Kumar, Dr. SP Tyagi
Ph. D. Courses (1st Semester)				
1.	VSR 702	Clinical Surgical Practice – I	0+2	Dr. SP Tyagi, Dr. Adarsh Kumar
2.	VSR 705	Advances in Anaesthesiology	2+1	Dr. Adarsh Kumar
3.	VSR 707	Neurosurgery	2+1	Dr. SP Tyagi
Ph. D. Courses (2nd Semester)				
1.	VSR 701	Clinical Surgical Practice – I	0+2	Dr. SP Tyagi
2.	VSR 703	Clinical Surgical Practice – III	0+2	Dr. SP Tyagi

3.	VSR 706	Advances in Diagnostic Imaging Techniques	2+1	Dr. Adarsh Kumar
4.	VSR 793	Special problem in PhD	0+1	Dr. Adarsh Kumar
5.	VSR 791	Doctoral Seminar I	1+0	Dr. Adarsh Kumar
6.	VSR 799	Doctoral Research	---	Dr. SP Tyagi

c) Numbers of students graduated

Degree	During last academic year	Accumulated total
M.V. Sc.	6	56
Ph.D.	Nil	3

d) National and International Level Competition: UG/MSc/PhD

Competition	No. of students qualified	No. of students appeared	% age of qualified	Distinguished rank, if any
ICAR-JRF				
SRF	1	1	100	

f) Student got job/ placement in India or abroad:

Department	Name of the Student with Admission	Name of Advisor	Nature of Job/Designation	Organization
Veterinary Surgery and Radiology	Jobanjit Singh, V-2015-30-021	Dr. Adarsh Kumar	Assistant Professor	Khalsa College of veterinary & Animal Sciences, Amritsar
Veterinary Surgery and Radiology	Ashish Gupta, V-2015-30-018	Dr. Adarsh Kumar	Assistant Professor	Apollo College of Veterinary Medicine, Jaipur
Veterinary Surgery and Radiology	Jasmeen Kaur, V-2015-30-020	Dr. SP Tyagi	Assistant Professor	Khalsa College of Veterinary & Animal Sciences,
Enterprenuership	Mastakar Nikita Vivek, V-2015-30-022	Dr. SP Tyagi	Self Employed	-

3. RESEARCH**a. Postgraduate Research****Ongoing Masters Programme:**

S. No.	Name of the student	Admission No.	Major advisor	Title of Research Problem
1	Camara Adrian Acasio	V-2016-30-017	Dr. SP Tyagi	A study on the ocular affections in dogs with particular reference to fundus imaging
2	Davinder Saini	V-2016-30-018	Dr. Adarsh Kumar	Sonographic studies of Head and Neck region in bovines
3	Divya Sharma	V-2016-30-019	Dr. SP Tyagi	Thoracic radiography in dogs
4	Manisha Thakur	V-2016-30-020	Dr. Adarsh Kumar	Clinical studies on management of oral affections in dogs

5	Rohit B Bhat	V-2016-30-021	Dr. SP Tyagi	Diagnostic and therapeutic management of corneal and uveal affections in animals.
---	--------------	---------------	--------------	---

Ongoing Doctoral Programme:

S. No.	Name of the student	Admission No.	MAJOR ADVISOR	TITLE OF RESEARCH PROBLEM
1.	Amit Kumar	V-2014-40-003	Dr. SP Tyagi	The diagnosis and management of cataract in animals

Postgraduate Research Salient Achievements

S. No.	Title of Research problem	Salient Research Achievements
1.	Evaluation of interlocking nailing technique for fixation of long bone fractures in small animals	<ul style="list-style-type: none"> The overall regional incidence of fractures in animals is 13.67 per cent with highest incidence in equine (20%) followed by dogs (14.61%) and bovine (10.07%). Majority of fractures occur in juvenile age-group in cases of dogs and adults in cases of bovine and equine. The major causes of fracture are 'automobile accidents' in dogs, 'fall/jump from height' in bovine and 'slipping' in equine. The most frequently fractured bone is femur (23.52%) in dogs, metacarpal (21.42%) in bovine and radius/ulna and metatarsal (25% each) in equine. The intramedullary interlocking nailing (IILN) technique can be used successfully for repair of long-bone diaphyseal fractures in dogs in a variety of cases including severely comminuted fractures. The IILN locked with one screw each in proximal and distal segments provide adequate stability to fracture of humerus in dogs, but for femur and tibia, at least 2 screws are required in each segment. The IILN is relatively more time-consuming and involves more tissue trauma than the end-threaded intramedullary pinning (ETP) technique. The status of fracture fixation and overall clinical outcome are superior in IILN group in comparison to ETP for long bone fractures in dogs.
2.	Studies on positive pressure ventilation during anaesthesia in dogs	<ul style="list-style-type: none"> Inj. Diazepam @ 0.5 mg/kg I/V, Inj. Propofol @ 3-5 mg/kg I/V, Inj. Atracurium @ 0.1 mg/kg I/V and maintenance with Isoflurane under IPPV provided safe anesthesia with muscle relaxation for 40.1 ± 4.71 minutes. Inj. Diazepam @ 0.5 mg/kg I/V, Inj. Propofol @ 3-5 mg/kg I/V, Inj. Vecuronium @ 0.5 mg/kg I/V and maintenance with Isoflurane under IPPV provided safe anesthesia with muscle relaxation for 37.7 ± 1.01 minutes. NMBA induced muscle relaxation provided the centering of the eyeball within seconds and improved the position of the eye for the globe or corneal interventions. NMBA induced muscle relaxation facilitated easy manipulations in the orthopedic procedures like corrective osteotomies and fractures accompanying muscle contracture. IPPV with NMBA have isoflurane sparing effect. Both the combinations with Atracurium and Vecuronium along with IPPV minimally altered the physiological parameters without any clinical consequences, thus can be considered complication free anesthesia for procedures necessitating muscle relaxation.

3.	Diagnostic and therapeutic management of corneal and uveal affections in animals
	<ul style="list-style-type: none"> • The overall regional incidence of ocular affections in animals is 11.05 per cent with highest incidence in dogs (12.47%) followed by equine (12.34%), bovine (7.65%) and other species (7.31%). • Among the species, the incidence was higher in males in dogs (13.13% against 10.96% in females) and bovine (15.38% against 6.88 % in females), and females in equine (13% against 9% in males). • Age-wise, the incidence of ocular affections in dogs was more in senile group (18.18%) followed by juvenile (13.59%) and adult (10.12%) age groups. • Among the ocular affections, the distribution of corneal affections is 34.73 per cent and anterior uvea is 11.83 per cent. • Among the corneal affections, keratitis (43.95%) and among the uveal affections, the anterior uveitis (64.51%) are the most frequent conditions in animals • Superficial lamellar keratectomy can be used successfully in case of dermoid but should be done under magnification of operating microscope. • Pannus and pigmentary keratitis can be controlled with long term use of topical Prednisolone (1%) and cyclosporine (0.2%). • Refractory pigmentary keratitis can be surgically treated successfully by superficial lamellar keratectomy in association with canthoplasty and nasal fold resection as per the need of case. • Diamond burr superficial keratectomy in case of severe pigmentary keratitis is not useful and is fraught with complications of more surgical trauma. • Soft contact bandage lenses are useful as an adjunct therapy in condition of ulcer and after performing lamellar superficial keratectomy. • Deep keratitis can be successfully treated with aggressive use of the combinations of topical antibiotics, steroid, cycloplegic and lakhrimomimetic, sub conjunctival steroid with systemic antibiotic and anti-inflammatory drugs. • Superficial ulcers can be successfully treated with topical NSAIDs, anti-biotic and cycloplegic along with systemic antibiotic and anti-inflammatory drug whereas deep ulcers and staphyloma additionally require conjunctival grafting. • In case of corneal melting ulcer, autologous serum and 0.2% EDTA can be used successfully to restore corneal structural integrity • Cyclosporine is largely useful in treatment of KCS, but refractory cases require Parotid duct transposition • The idiopathic corneal oedema can be successfully treated with topical 5 per cent sodium chloride whereas those associated with glaucoma improve with topical dorzolamide-timolol combination • Topical atropine can be used to break the strand of PPMs and in treatment of Iris bombe successfully. • Combination of topical corticosteroid along with antibiotic and cycloplegic agent in uncomplicated cases of anterior uveitis relieve the symptoms
4.	Diagnostic and therapeutic studies on ear affections in animals
	<ul style="list-style-type: none"> • Video otoscopy allowed the visualization and documentation of imaging of ear canal. The configuration of the working channel facilitated sampling, improved efficacy of cleaning procedures, and decreased risks of iatrogenic injury to structures of the middle and inner ear. • The rostrocaudal lateral oblique and rostro 30° ventral-caudodorsal open mouth oblique views of anaesthetized dogs allowed the visualization of tympanic bullae and the outer wall of bullae without superimposition of any other skull structure.

- The dorsoventral view was beneficial in cases of chronic otitis externa to detect calcification and stenosis of the ear canal. However, the superimposition of pterosal part of the temporal bone caused interference in evaluating the tympanic bullae.
- Positive contrast canalography was extremely sensitive for diagnosis of obstructive otitis externa where the video otoscopy was not feasible. The evaluation of the tympanic membrane by positive canalography aided in diagnosis of otitis media where the integrity of the tympanic membrane was questionable.
- A 7.3 MHz microconvex array transducer was optimal for imaging of the tympanic bulla. The ventral transducer position allowed the Ultrasound beam to be angled in a plane of tympanic bulla. The ability of ultrasound to differentiate between gas and fluid within the bullae has important clinical implications as this is a common occurrence in dogs with middle ear disease.
- In Otic affections, Ceftriaxone was found to be the most sensitive antibiotic. For gram positive bacteria, Ceftriaxone and Cefotaxime demonstrated high sensitivity in vitro for clinical cases and for gram negative bacteria, Ceftriaxone and Ciprofloxacin, demonstrated high sensitivity in clinical cases.
- Yeast (*Malassezia*) cells and rod-shaped bacteria were found to be predominant in most of the infections of the ear canal.

5. Studies on Image guided Interventions in Large Animal Clinical Procedures

- The brachial plexus appeared as multiple hypoechoic structures surrounded by a hyperechoic rim. Ultrasound guided block provided absolutely complication free adequate low dosage analgesia.
- Ultrasound guidance for the identification of sciatic nerve and its approach from the proximal third of the femur was found to be a relatively simple technique.
- Satisfactory surgical analgesia was achieved using ultrasound-guided paravertebral regional block. An out-of-plane approach used for needle insertion proved to be more efficient in contrast to an in-plane-approach.
- Ultrasound guided puncture of the atlanto occipital joint for CSF collection and myelography proved to be very precise and easy which precludes the complications related to blind puncture. It doesn't necessitate the ventroflexion of the head thus avoiding stress, resistance to handling and possible respiratory depression in animals.
- Transhepatic ultrasound guided cholecystocentesis can be performed without difficulty and is of extreme diagnostic value in bovine medicine.
- The isolation of the star-shaped portal vein and its centesis was performed through the 11th, 10th and 9th intercostal spaces. Ultrasound steered percutaneous portocentesis is a simple and safe procedure.
- Ultrasonic guided abdominocentesis helped in identifying the smallest and safest location of puncture anywhere in the abdomen without complication. All the major identifiable organs of alimentary tract can easily be sampled using ultrasound.
- Ultrasound-guided biopsy of the right kidney, liver, spleen, and pancreas can be derived with exactitude and specificity of the area of interest.
- Thoracic cavity effusions can be managed effectively utilizing ultrasound-guided thoracocentesis.
- Laparoscopy guided biopsies precluded the invasive and often time consuming surgical interventions and facilitated the direct visualization of the target organ. Intra-operative laparoscopy assisted procedures like ovariectomy enabled the minimal exposure of the abdominal and pelvic cavities and their access under visual monitoring by minimal manipulation of visceral organs.
- Endoscopic resection of obstructive lesions inside the teat cistern ensured its maximum removal without damaging the healthy mucosa.

6.	Studies on Image guided interventions in Small Animal Clinical Procedures
	<ul style="list-style-type: none"> • Use of ultrasound guidance for performing the nerve blocks is a far better technique which allowed direct visualisation of the nerve area and appropriate site for injecting the drug, which reduces many complications. • Satisfactory low dosage surgical analgesia was achieved using ultrasound-guided sciatic and brachial plexus nerve block. • Ultrasound guided aspiration of various space occupying lesions helps us to take the sample from desired and safest location and even from very small lesion which is helpful in proper diagnosis at an early stage of the disease. • Cisternal puncture for CSF collection and myelography can be done efficiently and precisely under ultrasound guidance and risks associated with blind puncture (piercing of the spinal cord and surrounding vessels) is eliminated. • Complication free entry into thoracic cavity for managing thoracic disorders can be performed under ultrasound guidance. • The placement of needle for dental nerve blocks, intra-articular injections and intraosseous fluid administration at the desired site can be done accurately only under fluoroscopy. • Placement of feeding tube and chest tube at exact place can be efficiently done by using fluoroscopy. • Locating the tip of bone implants for its removal and exact level of the implant while its insertion could be made easily and safely by fluoroscopy guidance. • Laparoscopy/endoscopy guided closed cavity procedures precluded the invasive and often time consuming surgical interventions and moreover facilitates the direct visualization of the target organ.

b. Research Projects in Progress

S. No.	Title of Project	PI	Funding Agency	Budget (Lakh)	Year of start	Duration
1.	Funds for improvement S&T Infrastructure	Dr. Adarsh Kumar	FIST/DST	32.00	2010	5 years
2.	Consolidating Veterinary Clinical delivery services by expanding diagnostic and therapeutic technologies for capacity building and transfer of adaptive technology to field veterinary hospitals	Dr. Adarsh Kumar	RKVY	>53 Lakhs	2014	2 years
3.	Strengthening the clinical armamentarium for treating referral animal patients suffering from tumours and dental disorders	Dr. Adarsh Kumar	RKVY	33.00	2015	2 Years
4.	Establishment of advanced veterinary orthopaedic management system for animals	Dr. SP Tyagi	RKVY	34.00	2015	2 Years
5.	Evaluation of stainless steel Aesculap castrating forceps VF 308 N large & VF 301 for small ruminants	Dr. Adarsh Kumar		0.60	2017	2 Years

c. Summary of research finding during the year:

1. The anesthesia combinations with Atracurium and Vecuronium along with IPPV minimally altered the physiological parameters without any clinical consequences, thus can be considered complication free anesthesia for ophthalmic and orthopaedic procedures necessitating muscle relaxation.
2. The intramedullary interlocking nailing (IILN) technique can be used successfully for repair of long-bone diaphyseal fractures in dogs in a variety of cases including severely comminuted fractures.
3. Soft contact bandage lenses are useful as an adjunct therapy in condition of ulcer and after performing lamellar superficial keratectomy.
4. Deep keratitis can be successfully treated with aggressive use of the combinations of topical antibiotics, steroid, cycloplegic and lakhrimomimetic, sub conjunctival steroid with systemic antibiotic and anti-inflammatory drugs.
5. Video otoscopy allowed the visualization and documentation of imaging of ear canal. The configuration of the working channel facilitated sampling, improved efficacy of cleaning procedures, and decreased risks of iatrogenic injury to structures of the middle and inner ear
6. Use of ultrasound guidance for performing the nerve blocks is a far better technique which allowed direct visualisation of the nerve area and appropriate site for injecting the drug, which reduces many complications.

d. Establishment of research collaboration with national and international institutes: Nil**e. Scientific Publications and Presentations****i) Publications**

S. No.	Publication	NAAS
1.	Amit Kumar, S.P Tyagi, Dr Adarsh Kumar and Rohin Sharma. 2017. Surgical and Anaesthetic management of regional pyometra and unilateral Ovario-bursal abscess in dog. <i>Intas Polivet</i> . (Accepted)	4.79
2.	Amit Kumar, S.P Tyagi, Dr Adarsh Kumar and Nikita Mastkar. 2017. Incidence of canine cataract in Palampur, Himachal Pradesh. <i>Himachal Journal of Agricultural Research</i> . (Accepted)	3.91
3.	Farooq, U.B., Adarsh Kumar, R. Chaudhry. 2017. Ultrasonographic examination of caecum and colon of normal Adult Spiti horses and Himalayan Hill mules of India. <i>Indian Journal of Animal Research</i> .	6.09
4.	Amit Kumar, Nikita Mastkar, Priyanka Thakur, Ashish Gupta and Rohit Kumar. 2016. Surgical retrieval of a needle from pharynx of a dog. <i>Himachal Journal of Agricultural Research</i> 42 (1): 99-100.	3.91
5.	Farooq, U.B., Adarsh Kumar, R. Chaudhry. 2016. Ultrasonographic examination of the stomach, duodenum and jejunum of normal adult spiti horses and Himalayan hill mules of India. <i>Indian Journal of Animal Research</i> .	6.09
6.	Amit Kumar, S.P. Tyagi, Piyush Shastri, Richa Dogra, Adarsh Kumar. 2015. Synergistic efficacy of combination of Seabuckthorn seed oil and famotidine or lansoprazole for treatment of gastric ulcers and erosions in dogs. <i>In Proceedings: 7th International Conference on the theme of "Seabuckthorn-Emerging Technologies for Health Protection and Environmental Conservation"</i> from 24-26 Nov, 2015. 411-415	-
7.	Diviank Thakur, S.P. Tyagi, Amit Kumar, Shilpa Gupta, Virendra Singh. 2015. The comparative therapeutic efficacy of the combination of seabuckthorn seed oil and misoprostol or sucralfate in gastric ulcers and erosions in dogs. <i>In Proceedings: 7th International Conference on the theme of "Seabuckthorn-Emerging Technologies for Health Protection and Environmental Conservation"</i> from 24-26 Nov, 2015. 377-382	-

ii) Presentations:

40th Annual Congress of Indian Society for Veterinary Surgery and National Symposium on Biomaterials and stem cells for tissue repair and regeneration in veterinary Surgery is being organized at Madras Veterinary College, Chennai, Tamil Nadu w.e.f. December, 02-04, 2016

- Amit Kumar, Adarsh Kumar, SP Tyagi, Arvind Sharma and Priyanka Thakur. 2016. Propofol and Ketofol as general anaesthetic agent in diazepam pre-medicated and isoflurane anaesthetised dogs.
- Priyanka Thakur, Adarsh Kumar, SP Tyagi and Amit Kumar. 2016. Abdominal diagnostic laparoscopy in bovines.
- Vasant MC, Adarsh Kumar. 2016. Diagnostic ultrasonography of bovine teat and udder affections.

iii) **Books:** Seabuckthorn (*Hippophae* L.) A Multipurpose Wonder Plant (5th Edition)

F. Technologies or patent Developed /Registered/Research infrastructure developed

S. No	Technology/infrastructure	Significance	Scientist(s) involved
1.	The End threaded intramedullary positive profile screw ended self-tapping pin-now available in the market by name of ADMIT PIN	A cost effective novel field compatible innovation for management of long bone fractures in small animals	Adarsh Kumar SP Tyagi Amit Kumar
2.	Establishment of Laser surgery Unit	Used for surgical excision of tumors and tumors like growths.	Adarsh Kumar SP Tyagi Amit Kumar
3.	Establishment of Small anesthesia workstation	Used for safe anesthesia along with ventilatory support in complicated surgeries	Adarsh Kumar SP Tyagi Amit Kumar
4.	Establishment of advanced orthopaedic unit	Used for effectively managing fractures in animals using advanced techniques	SP Tyagi Adarsh Kumar Amit Kumar

4. EXTENSION

a. Extension Publication: Diagnosis and management of Downer cows in technical bulletin by VET Mankind Pharmaceuticals.

b. Radio talk/ TV Telecast: Nil

c. Clinical camps:

Sr. No	Date	Camp Location
1.	06-08-2016	V.D – Khaira (C.V.D – Bhoda)
2.	20-08-2016	V.D – Dhanpather (V.H – Sansai)
3.	27-08-2016	V.D – Utrala (V.H – Paprola)
4.	03-09-2016	V.D – Banghat (V.H – Majhera)
5.	17-09-2016	V.D – Lahat (V.H – Dhatti)
6.	24-09-2016	V.D- Sakoh (V.H – Alampur)
7.	01-10-2016	V.D – Talwar (V.H – Lambagaon)
8.	15-10-2016	V.D – Challah (V.H – Thural)
9.	22-10-2016	V.D – Sagoor (V.H – Paprola)
10.	29-10-2016	V.D – Malnoo (V.D – Bhawarna)
11.	05-11-2016	V.D – Rahhoon C.V.D – Nora)
12.	19-11-2016	V.D – Jharet (V.H – Darang)

Annual Report 2016-17

13.	26-11-2016	V.D – Biara (V.H – Saliana)
14.	21.01.2017	V.D – Shivnagar (VH – Dhatti)
15.	28.01.2017	V.D –Challah (VH – Thural)
16.	04.02.2017	V.D – Kosri (V.H – Ropari)
17.	18.02.2017	V.D – Parour (V.H – Darang)
18.	25.02.2017	V.D – Atiala Dai (C.V.D – Garh)
19.	04.03.2017	V.D – Arla (C.V.D – Khalet)
20.	18.03.2017	V.D – Gwal Tikker (V.H – Kandbari)
21.	25.03.2017	V.D – Ghorpith (V.H – Paprola)
22.	01.04.2017	V.D – Khera (V.H – Dhatti)
23.	22.04.2017	V.D – Chobu (V.H – Kunsal)
24.	06.05.2017	V.D – Banghat (V.H – Majhera)
25.	Badukhar	The camps for sonographic health survey of urinary bladder were organized in these places in the Districts of Kullu and Mandi
26.	Janheli	
27.	Kirting	
28.	Udaipur	
29.	Trilokinath	
30.	Deori	
31.	Dhiugi	
32.	Shanged	
33.	Thunag	
34.	Manhan	

d. Clinical cases (routine and referrals)/disease investigations/disease outbreaks investigated

S. No.	Types of affection/disease/samples/condition	Specie wise numbers					Important findings and remarks
		Bovine	Canine	Caprine	Equines	others	
	2016-17	539	1789	47	80	57	
	Total	539	1789	47	80	57	

5. PARTICIPATION IN WORKSHOP/ CONFERENCES, TRAININGS ETC.

a) Trainings:

S. No.	Date	Title	Name of Participants
1.	29-05-2017 to 30-05-2017	Awareness programme on application of radioisotopes and radiation technology in Food, environment, healthcare and Industry w.e.f. May 29th – 30th, 2017	70

b) Conferences/workshops/seminars/symposia:

S. No.	Date	Title	Name of Participants
1.	02-04 December 2016	40 th Annual Congress of Indian Society for Veterinary Surgery and National Symposium on Biomaterials and stem cells for tissue repair and regeneration in veterinary Surgery is being organized at Madras Veterinary College, Chennai, Tamil Nadu.	Dr.(s) Adarsh Kumar and Amit Kumar

6. WORKSHOP/SEMINAR/TRAININGS ETC. ORGANIZED

Sr. No.	Name of programme	Period		No. of trainees/ participants
		From	To	
1	International Conference on Canine and Feline Cardiology	17	19 Feb, 2017	50
2	Continuing Education Workshop on Veterinary Emergency and Critical Care	27 th march, 2017		50

7. HONOURS AND AWARDS

S. No.	Name of faculty Member	Awards
1	Dr.(s) Amit Kumar, Adarsh Kumar and SP Tyagi	Certificate of Appreciation in Anaesthesia Session of 40 th Annual Congress of ISVS

8. INCOME GENERATED BY COMMERCIAL UNITS AND SERVICE WINDOWS

S. No.	Name of product/service	Person(s) associated	Income generated annually (Rs)
1.	X-RAY	Dr.(s) Amit Kumar, Adarsh Kumar and SP Tyagi	128300
2.	ULTRASOUND	-do-	10000
3.	SURGERIES (SA)	-do-	50500
4.	SURGERIES (LA)	-do-	2750

9. EXTRA CURRICULUM DUTY: NCC/NSS/HOSTEL WARDEN/SPORTS ETC.

Name of teacher	Nature of duty	Period	Distinguished achievement, if any
Dr. SP Tyagi	Incharge hiking and trekking	Aug 2016-Aug2017	
Dr. Adarsh Kumar	Literary incharge	Aug 2016-Aug2017	

10. MISCELLANEOUS

1. Member Secretary, Institutional Animal ethics committee (CPCSEA)
2. Member Secretary, Blue Cross Society of Himachal Pradesh.
3. Nodal Officer NISAGNET (CSKHPKV)
4. Web Designer, Department of Veterinary Surgery and Radiology website
5. Member Result Frame Document (RFD) committee CSKHPKV, Palampur
6. Web Administrator www.consultvetpalampur.org
7. Member task Force (Animal health) under Directorate of research, CSKHPKV.
8. Member Internal complaint committee of CSKHPKV
9. Member technical committee for smooth functioning of CPDU
10. Member Proceedings committee of 16th Research council
11. Member CSKHPKV Departmental promotion committees
12. Prepared a lecture on various transformation education initiatives in our university for Vice Chancellors Secretariat.
13. Incharge Bio-waste disposal of the College

ANNEXURES

Faculty position

S. No.	Name	Designation
1.	Dr. Adarsh Kumar	Professor and Head
2.	Dr. S.P. Tyagi	Professor
3.	Dr. Amit Kumar	Assistant Professor

Staff position

S. No.	Name	Designation
1.	Smt. Seema Devi	Senior Assistant
2.	Sh. Karm Chand	Clerk
3.	Sh. Baldev Raj	STA Gr-I
4.	Sh. Virender Singh	Radiographer
5.	Sh. Narinder Singh	Lab Attendant
6.	Sh. Prem Chand	Beldar

Budget

S. No.	Scheme	Salaries	TA	Contingency	TOTAL
1.	SCP-001-41	1841746	-	-	1841746
2.	SCP-002-41	6697373	-	-	6697373
3.	RKVY 2153-41	-	-	754669	754669
4.	RKVY 2163-41	-	-	4096507	4096507

DEPARTMENT OF TEACHING VETERINARY CLINICAL COMPLEX

1. INTRODUCTION

The department functions in the premises of “advanced multidisciplinary veterinary services farmer’s capacity building centre” of DGCN COVAS. The intent is accomplished with co-ordination and extension of services from different departments. The most important ones include Veterinary-Gynaecology, Surgery and Medicine involved in diagnosis and treatment of animals. The other paraclinical and supporting departments such as Veterinary Microbiology, Pathology and Parasitology also play an important role in providing diagnostic expertise. The department is also equipped with a lab rendering instant diagnostic results for certain biological specimens from live animals. The other dimension of the department is in providing practical exposure to the undergraduate and postgraduate students from different clinical and paraclinical departments as outlined by Veterinary Council of India.



Animals present in one of the camps at Trilokinath

2. TEACHING

a) Undergraduates Courses:

S. No.	Course No.	Course Title	Cr. Hrs.	Name of Teacher(s)
1st Semester				
1.	VCP-411	Veterinary Clinical Practice	0+5	Drs. Pankaj Sood (I/C), Adarsh Kumar, SP Tyagi, Amit Singla, Des Raj, Ajay Katoch, Pravesh Kumar, Amit Sharma and Madhumeet Singh
2.	VCP-511	Veterinary Clinical Practice	0+5	-DO-
3.	VLD-411	Veterinary Clinical Biochemistry and Laboratory Diagnosis - I	0+1	Dr. Geetanjali, Prasenjit Dhar, KB Nagal, RD Patil
2nd Semester				
1.	VCP-421	Veterinary Clinical Practice	0+5	Drs. Pankaj Sood (I/C), Adarsh Kumar, SP Tyagi, Amit Singla, Des Raj, Ajay Katoch, Pravesh Kumar, Amit Sharma and Madhumeet Singh
2.	VLD-421	Veterinary Clinical Biochemistry and Laboratory Diagnosis - II	0+1	Drs Geetanjali, Rajesh Chahota, KB Nagal, RD Patil, Dinesh

3.	Internship	Compulsory Internship Programme	-	Drs Pankaj Sood (I/C), Shivani, Prasenjit
4.	TVC-421	Veterinarian in Society	1+0(N.C)	Dr Alok

3. RESEARCH

a. Postgraduate Research

i) Ongoing Masters Programme: Nil

ii) Ongoing Doctoral Programme:

S. No.	Name of the student	Admission No.	MAJOR ADVISOR	TITLE OF RESEARCH PROBLEM
1.	Amit Sharma	V-14-40-02	Dr. Pankaj Sood	Investigation on follicular dynamics and semen cryopreservation in goats

iii) Postgraduate Research Salient Achievements

S. No.	Title of Research problem	Salient Research Achievements
1.	Investigation on follicular dynamics and semen cryopreservation in goats	<ul style="list-style-type: none"> Follicular dynamics in Gaddi goats during breeding and non-breeding season has been accomplished and compared. The ovarian activity during non-breeding season are present. However, the follicles fail to achieve final follicular dominance and ovulation in non-breeding season. The protocol and technique for cryopreservation of Gaddi Goat semen has been established and the semen successfully cryopreserved. The cryopreserved semen has been inseminated in the Gaddi does during spontaneous breeding season. Conception rates are awaited.

b. Research Projects in Progress

S. No.	Title of Project	PI	Funding Agency	Budget	Year of start	Duration
1.	Propagation of AI in goats of Himachal Pradesh"	Pankaj Sood	Ministry of Agriculture, Government of India	72.98 lakhs	2013	3 years [till March, 2019]

c. Summary of research finding during the year

i. GOAT SEMEN [Under the project "Propagation of Artificial Insemination in Goats in H.P"-GOI-2127-37]

- Standardized the semen collection and freezing protocol in GADDI GOATS (goat semen is toughest to cryopreserve among domestic animals). The quality of semen so

preserved is much better than that reported by several studies, both in India and abroad.

- Artificial insemination in goats is not being undertaken in H.P as of now. Hence, the semen prepared by us will be used for artificial insemination in goats in H.P.

ii. TRIBAL CAMPS

- Identified an alarmingly high rate of abortions and hydroallantois (a plakental abnormality) in cattle of Trilokinath area of Lahaul and Spiti during tribal camps.

d. Establishment of research collaboration with national and international institutes

S. No.	Name of collaborating institute and country	Nature of collaborations	Collaborating person(s) at both institutes
1.	NDRI., Karnal., India	Project	Nishant (NDRI) Pankaj Sood (CSK HPKV)

e. Scientific Publications and Presentations (as per standard format)

i) Publications

1. Sood P and S. Vatsayan. 2016. Urovagina in Chronic Repeat Breeder Cows: A First Indian Study. *Indian Veterinary Journal*. 94 (07): 09-11. **NAAS Rating-4.42.**
2. Sood P, Zachut M, Dekel I, Dube H, Jacoby S, Moallem U. 2017. Preovulatory follicle characteristics and oocyte competence in repeat breeder dairy cows. *Journal of Dairy Science*. doi: 10.3168/jds.2017-12973 [Epub ahead of print]. **NAAS Rating-8.41.**
3. Zachut M, Sood P, Levin Y, Moallem U. 2016. Proteomic analysis of preovulatory follicular fluid reveals differentially abundant proteins in less fertile dairy cows. *Journal of Proteomics*. 139:122-9. doi: 10.1016/j.jprot.2016.03.027. **NAAS rating-9.87**
4. Zachut M, Sood P, Livshitz L, Kra G, Levin Y, Moallem U. 2016. Proteome dataset of pre-ovulatory follicular fluids from less fertile dairy cows. *Data Brief*. 7:1515-8. doi: 10.1016/j.dib.2016.04.051. (Elsevier, not listed in NAAS)

ii). Presentations

1. Sood P, H D Sarma, P K Dogra, V Kadwad and SS Sachdev. 2017. Ovarian follicular dynamics, endocrinology and estrous behaviour in repeat breeder cattle. *Proceedings - 2017 American Dairy Science Association Annual Conference, Pittsburgh (USA)*. Abstract number 306. Pp122.
2. Sood P, M. Zachut, I. Dekel, H. Dube and U. Moallem. 2017. Preovulatory follicle characteristics and oocyte competence in repeat breeder dairy cows. *Proceedings - 2017 American Dairy Science Association Annual Conference, Pittsburgh (USA)*. Abstract number 307. Pp122

f. Technologies or patent Developed /Registered/Research infrastructure developed

S. No	Technology/infras tructure	Significance	Scientist(s) involved
1.	Technology: Cryopreservation of Gaddi Goat	<ul style="list-style-type: none"> • Cryopreservation of goat semen is entirely different from cattle / buffalo semen and is difficult to cryopreserve. However, rigorous 	<ul style="list-style-type: none"> • Pankaj Sood • Amit Sharma • PK Dogra

	Semen was established.	testing protocols have enabled us to achieve acceptable results on the subject per se. <ul style="list-style-type: none"> The technology will be extremely helpful in (i) planned breeding, (ii) preservation of rapidly deleting superior germplasm of Gaddi Goats and (iii) to obtain two crops of kids under intensive management system using out-of-season breeding 	
--	------------------------	---	--

4. EXTENSION

a. Clinical camps/trainings/extension camps/animal health camps

S. No.	Particulars	Number	Participant		Remarks
			Male	Female	
1.	Camps organized	26	-	-	636 cases diagnosed/treated

5. PARTICIPATION IN WORKSHOP/ CONFERENCES, TRAININGS ETC.

a) Trainings:

S. No.	Date	Title	Name of Participants
1.	21 and 22 June, 2017	'Technical Vocabulary on Agriculture Sciences' Palampur	Dr. Surender Kumar

b) Conferences/workshops/seminars/symposia:

S. No.	Date	Title	Name of Participants	Nature of participation
1.	25-28 June, 2017	2017 American Dairy Science Association Annual Conference. USA	Pankaj Sood	Presenter

6. WORKSHOP/SEMINAR/TRAININGS ETC. ORGANIZED Nil

7. HONOURS AND AWARDS

- Dr. Pankaj Sood, Award INTERNATIONAL TRAVEL GRANT from Department of Science and Technology, New Delhi, to attend an International Conference at United States of America.

8. FACULTY VISITS ABROAD

- Dr. Pankaj Sood visited Pittsburgh, USA for attending 2017 American Dairy Science Association Annual Conference in June 25-28, 2017.

9. INCOME GENERATED BY COMMERCIAL UNITS AND SERVICE WINDOWS

S. No.	Name of product/service	Person(s) associated	Income generated annually (Rs)
1.	Use of Clinical Diagnosis Aids in Clinical Cases Presented in the Advanced and Multispecialty Veterinary Clinics.	Clinical Faculty	4,17,775/-

10. MISCELLANEOUS**Dignitary visit**

- i. Dr. G S Khush; 29-03-2017; University Visit
- ii. Dr. N S Rathore, Deputy Director General, Indian Council of Agricultural Research, on 10-07-2017; Oath Taking Ceremony
- iii. Sh. Arvind Mehta (IAS) Additional Chief Secretary, Government of Himachal Pradesh on 27-07-2017; participatory meeting to discuss preliminary performance based audit report of CSK Himachal Pradesh Agricultural University.

ANNEXURES**Faculty position**

S. No.	Name	Designation
1.	Dr. Pankaj Sood	Professor and Head
2.	Dr. Surender Kumar	Asstt. Prof. [30 th May, 2017 onwards]

Staff position

S. No.	Name	Designation
1.	Mr. Rakesh Kumar	Veterinary Supervisor
2.	Mr. Rampal	Junior Technician
3.	Mr. Madan	Lab Helper

Budget

S. No.	Scheme	Salaries	TA	Contingency	TOTAL
1.	CDA	-	-	-	4,67,000

News items about: University/Important/General

Dated: 25.5.2017 Total Pages: 2

25.5.2017

लो जनाब! अब दोगना अंडे देंगी मुर्गियां, मालामाल होंगे किसान

कृषि विवि के पशु चिकित्सा एवं पशु विज्ञान कॉलेज ने तैयार की हिम समृद्धि ब्रीड

कुछद नोट • पालमपुर

पेठे की जवामय से जुड़े लोगों के लिए अच्छी खबर है। अब मुर्गियों सालाना 80-100 नती बिक्री 150 से 180 अंडे देगी। चिकित्सा के अलावा यह विकृत सत्य है। इसे साकार किया है कि कृषि विश्वविद्यालय पालमपुर के पशु चिकित्सा एवं पशु विज्ञान कॉलेज ने। महाविद्यालय में अब आम मुर्गियों से दोगना अंडे देने वाली नस्ल किम नमूदा विकसित की है। इसके तालम गे को वह नस्ल आम मुर्गी से काफी भिन्न है। इसकी खास बात यह है कि वह दूसरी नस्लों के मुकाबले जल्द बड़ी होती है और अंडे भी सामान्य आकार से बड़े और अधिक होते हैं।

हिम समृद्धि नस्ल के इन कुक्कुटों पर काम 2009-10 में आरंभ हुआ था। इसके लिए भारतीय कृषि अनुसंधान परिषद ने 346.88 लाख रुपये 12वीं पंचवर्षीय योजना के तहत विनियमित की थी। इसका उद्देश्य पहाड़ी क्षेत्रों के ग्रामीणों में वहां की जलवायु के अनुसार कुक्कुट पालन साकार को प्रोत्साहित कर उनके अर्थ में वृद्धि करना था। (विभाग में शुरूआत में इस नस्ल को 2016-17 में 450 किसानों को प्रदान किया। नस्ल चंबा व लखल-रूपित जैसे

उंडे क्षेत्रों के किसानों को ये पद। वर्तमान में वैज्ञानिक इनके अतिरिक्त नस्ल के चूने तैयार कर किसानों को दे रहे हैं।

नस्ल की विशेषता

नस्ल की विशेषता सालाना 150 से 180 अंडे देना है। स्वस्थ ही लाल पूरा फल का रंग, अच्छा बिकाल, अच्छे से खाना दूधना व जल्दी अंडे देना है। 100 नर और मादा का क्रमः 1.750 से 2.200 किग्रा और 1.500 से 1.750 किग्रा है। 16-18 से 20 साल के बीच अंडे देना आरंभ कर देती है और इतना आकार भी बड़ा होता है।

सुदृढ़ हो रही आर्थिकी

भारत के किसानों को एक बार, सुरंग कृषि, जमान व सुरंग ने बताया कि इस नस्ल की मुर्गियां के अंडे बड़े होते हैं और बाजार में इनके अच्छे दाम मिलते हैं। कहा कि कुक्कुट पालन से उनकी आर्थिक स्थिति सुदृढ़ होगी।

सुं तैयार की गई है नस्ल

प्रोजेक्ट के प्रिंसिपल इन्वेस्टिगेशन डॉ. रावजी ठाकुर और उनके सहयोगी प्रिंसिपल के.ए.के. प्रियदर्शन के सहयोग से प्रोजेक्ट का शुुरुआत किया गया। प्रिंसिपल के.ए.के. प्रियदर्शन ने प्रोजेक्ट के अंतर्गत अनेक कार्य किए। प्रिंसिपल के.ए.के. प्रियदर्शन ने प्रोजेक्ट के अंतर्गत अनेक कार्य किए। प्रिंसिपल के.ए.के. प्रियदर्शन ने प्रोजेक्ट के अंतर्गत अनेक कार्य किए।

वे हैं विशेषताएं

नस्ल की विशेषता सालाना 150 से 180 अंडे देना है। स्वस्थ ही लाल पूरा फल का रंग, अच्छा बिकाल, अच्छे से खाना दूधना व जल्दी अंडे देना है। 100 नर और मादा का क्रमः 1.750 से 2.200 किग्रा और 1.500 से 1.750 किग्रा है। 16-18 से 20 साल के बीच अंडे देना आरंभ कर देती है और इतना आकार भी बड़ा होता है।

25.5.2017

अब आएगी ज्यादा अंडे देने वाली मुर्गी

प्रदेश कृषि विश्वविद्यालय ने विकसित की 'हिमसमृद्धि' नामक नई कुक्कुट नस्ल

जलद ही विकसित होगी

नस्ल के लगभग 35 हजार चूने विकसित किए गए। प्रदर्शन हेतु कुक्कुट इकाइयों प्रदान की गईं। जहां स्थानीय लोगों को कुक्कुट पालन से आम में वृद्धि नहीं हो रही, उन क्षेत्रों में वैक्यूम कुक्कुट पालन को प्रोत्साहित किया जा सके। इसके अलावा डॉ. जैसी नेगी पशु चिकित्सा और पशु चिकित्सा प्रो. अशोक कुमार लखल तथा डॉ. बरुण सांखाने द्वारा विकसित 'हिमसमृद्धि' को अखिल भारतीय समन्वित अनुसंधान परियोजना को सलाहना समीक्षा बैठक में आर्ग्युमेंटेशन से अनुमोदन के बाद प्रचार के लिए जारी किया गया है।

वे हैं हिमसमृद्धि की विशेषताएं

लाल भूरे रंग के पंख, अच्छा बिकाल, जल्दी पंख आना, अधिक लोभम अनुकूलन क्षमता, अच्छे से खाना दूधने की क्षमता, जल्द अंडे देना है। इसके अलावा डॉ. जैसी नेगी पशु चिकित्सा और पशु चिकित्सा प्रो. अशोक कुमार लखल तथा डॉ. बरुण सांखाने द्वारा विकसित 'हिमसमृद्धि' को अखिल भारतीय समन्वित अनुसंधान परियोजना को सलाहना समीक्षा बैठक में आर्ग्युमेंटेशन से अनुमोदन के बाद प्रचार के लिए जारी किया गया है।

2016-17 में 450

The Tribune

JALANDHAR | THURSDAY | 6 OCTOBER 2016

Vets hold infertility camps in Chamba villages

OUR CORRESPONDENT

PALAMPUR, OCTOBER 5

A team of veterinary scientists from CSK Himachal Pradesh Agriculture University organised 11 infertility camps in remote villages of Chamba district here.

The camps were organised under Rashtriya Krishi Vikas Yojna (RKVY) in collaboration with HP State Animal Husbandry Department at Bharmour, Holi (Bharmour sub-division), Masroond, Koti, Kiyani (Chamba sub-division), Kihar (Salooni sub-division), Sural, Takwas, Karyas, Saach and Kumar (Pangi sub-division) villages over the past one week.

Principal Investigator of the project Prof Madhumeet Singh said around 150 cows,

yaks and their crosses suffering from infertility problems were examined and treated during the camps. Prof Madhumeet Singh said 146 infertility treatment camps have been organised across all parts of Himachal Pradesh under this project. The camps would continue next year also as similar projects worth Rs 25 lakh had been sanctioned under the RKVY.

Dr Pravesh Kumar Manoj Negi, Vijay Rana and Rakesh Kumar from Department of veterinary gynaecology and obstetrics and Dr GC Negi of College of Veterinary and Animal Sciences were also on team. Prof Ashok Kumar Sarial, Vice-Chancellor, has appreciated the scientists for organising infertility camps in remote areas.



पालतू जानवर हो रहे हृदय रोग के शिकार

पालमपुर में अंतर्राष्ट्रीय कांफ्रेंस में विशेषज्ञ करेंगे मंथन

जानवरों को बीमार कर रही हैं। ऐसे में अब देश में इन पालतू जानवरों को हृदय रोग से संबंधित बढ़ रही समस्याओं के दृष्टिगत इसके उपचार को लेकर कवायद आरंभ होने लगी है। देश में कुत्ते व बिल्ली जैसे पालतू जानवरों में हृदय रोग के मामले बढ़ रहे स्तर पर उभर कर सामने आए हैं।

खान-पान बन रहा मुख्य कारण

विशेषज्ञों अनुसार कुत्ते व बिल्ली जैसे पालतू जानवरों में हृदय रोग की समस्या का प्रमुख कारण खान-पान है तो इन्सेक्टीसाइड व पैस्टीसाइड भी इस रोग का कारण बन रहे हैं, वहीं अनुवांशिक कारणों से भी इन जानवरों में हृदय रोग की समस्या उभर कर सामने आ रही है। यद्यपि भारत में अभी तक कितने ऐसे पालतू जानवर इस रोग की चपेट में हैं, ऐसा कोई अध्ययन अभी तक नहीं हो पाया है परंतु एक अध्ययन के अनुसार अमरीका में लगभग 10 लाख कुत्ते हृदय रोग से पीड़ित हैं।

विशेषज्ञों की टीम होगी तैयार

समस्या के समाधान के लिए विशेषज्ञों की टीम तैयार करने की ओर गम बढ़ाए जाने की कवायद आरंभ हुई है। इसी कड़ी में पालमपुर में एक अंतर्राष्ट्रीय कांफ्रेंस का आयोजन किया जा रहा है। इस कांफ्रेंस का सूत्रधार वैटर्नरी कालेज पालमपुर का सर्जरी एवं रेडियोलॉजी विभाग बनने जा रहा है। विभाग पहले भी राष्ट्रीय स्तर पर विशेषज्ञ प्रशिक्षण देने का एक प्रमुख केंद्र बनकर उभरा है। 17 से 19 फरवरी तक प्रस्तावित इस अंतर्राष्ट्रीय कांफ्रेंस में यू.एस.ए. के 2 विशेषज्ञ डाक्टर वलार्क ई. एटकिंस तथा डा. मरिजा एमज पालतू जानवरों में हृदय से संबंधित समस्याओं के बारे में जानकारी देगी। बताया जा रहा है कि इस अंतर्राष्ट्रीय कांफ्रेंस में देशभर से 50 प्रतिभागी प्रशिक्षण प्राप्त करने के लिए पहुंचेंगे।

HINDUSTAN TIMES, CHANDIGARH
FRIDAY, NOVEMBER 11, 2016

Veterinary officers undergo three-day training programme

HT Correspondent
letterschd@hindustantimes.com

DHARAMSHALA: Addressing a three-day training programme for veterinarians, Ashok Kumar Sarial, vice-chancellor of Chaudhary Sarwan Kumar Himachal Pradesh Agriculture University (HPAU), Palampur, sought suggestions on ways to deal with the problem of abandoned cows.

Prof Madhumeet Singh, professor-cum-head, department of veterinary gynaecology & obstetrics, was the course-coordinator

also, said that 17 veterinary officials from the state department of animal husbandry took part in the training programme on the latest techniques in reproduction and frozen semen technology.

The participants were updated on the latest animal reproduction techniques such as ultrasonography, laparoscopy, embryo-transfer technology and management of infertility in animals.

Dr NK Vasisht, Dr Amit Sharma and Dr Pravesh Kumar were the resource persons during the event.

दिव्य हिमाचल

धर्मशाला, बुधवार, 28 जून, 2017

110 पशुओं के सैंपल किए एकत्रित

जनजातीय क्षेत्रों में पहुंचे वैटरिनरी कालेज के पशु चिकित्सक

■ कार्यालय संवाददाता, पालमपुर

प्रदेश कृषि विश्वविद्यालय के डा. जी.सी. नेगी पशु चिकित्सा एवं पशुविज्ञान महाविद्यालय के वैज्ञानिकों की एक टीम ने प्रदेश पशुपालन विभाग के साथ मिलकर प्रदेश के ऊंचे व जनजातीय क्षेत्रों में सात पशु चिकित्सीय शिविरों का आयोजन किया। राष्ट्रीय कृषि विकास परियोजना के तहत गत दिनों ये शिविर किन्नोर जिला के सांगला, बोनिंग-श्रंग व पूह तथा स्पीति घाटी के ताबो, किब्बर व काजा में आयोजित किए गए। इन शिविरों में 110 गायों, याक तथा उनकी संकरित नस्लों में गर्भाशय में



पाए जाने वाले फर्फूद संक्रमण की जांच के लिए खून व गर्भाशय स्त्राव के सैंपल भी एकत्रित किए गए। गत साढ़े तीन वर्षों में प्रदेश भर में लगभग पांच हजार गायों, भैंसों तथा कुछ याक व उनकी विकसित और संकरित नस्लों की बाइपन व गर्भापात संबंधी समस्याओं की जांच हेतु 197 पशु रोग निदान व पशु

चिकित्सीय शिविरों का आयोजन किया गया। इन शिविरों में रोग ग्रस्त पशुओं के उपचार के लिए निःशुल्क दवाइयां भी वितरित की गईं। कुलपति प्रो. अशोक कुमार सरयाल ने दूरदराज क्षेत्रों में पशुओं की बाइपन व गर्भाधान संबंधी रोगों के निदान व इलाज के लिए आयोजित करने के लिए वैज्ञानिकों की प्रशंसा

की, विशेषकर 50 से अधिक पशु चिकित्सीय शिविर केवल जनजातीय क्षेत्रों में आयोजित करने हेतु उन्होंने कहा कि पशु चिकित्सीय सुविधा घर द्वार उपलब्ध होने से किसानों को अवश्य ही लाभ होगा। उन्होंने आने वाले समय में भी पशुपालकों के हित में ऐसे ही पशु चिकित्सीय शिविरों का आयोजित करने की सलाह दी। जनजातीय क्षेत्रों में पहुंचे वैटरिनरी कालेज की टीम में डा. जी.सी. नेगी पशु चिकित्सा एवं पशु विज्ञान महाविद्यालय के मादा पशु रोग एवं प्रसूति विज्ञान विभाग से डा. मधुमती सिंह, डा. प्रवेश कुमार तथा विजय राणा शामिल थे।

कांगड़ा केसरी

रविवार SUNDAY

9 जुलाई 2017

पशुओं के लिए लगा निःशुल्क कैप

बडूखर, 8 जुलाई (चंद्र): श्री सत्य साई संगठन भजन बडूखर साई समिति द्वारा पशु जांच का निःशुल्क कैप लगाया गया। कैप को सफल बनाने के लिए स्थानीय लोगों ने काफ़ी सहयोग किया। पालमपुर विश्वविद्यालय के प्रसिद्ध डा. मधुमती सिंह और डा. परवेज सिंह ने पशुओं का उपचार किया। शिविर में लगभग 63 पशुओं के स्वास्थ्य की जांच कर दवाई वितरित की गई। इस मौके पर अधिवक्ता रोहित मन्हास और शिव देव सिंह आदि लोग उपस्थित रहे।

दैनिक सवेरा | शिमला, बुधवार, 28 जून 2017

जनजातीय क्षेत्रों में पशु-चिकित्सीय शिविर लगाए

पालमपुर, 27 जून (नवीन) : चैसकु हिमाचल प्रदेश कृषि विश्वविद्यालय के डा. जी.सी. नेगी पशु चिकित्सा एवं पशुविज्ञान महाविद्यालय के वैज्ञानिकों की एक टीम ने प्रदेश पशुपालन विभाग के साथ मिलकर प्रदेश के ऊंचे व जनजातीय क्षेत्रों में 7 पशु-चिकित्सीय शिविरों का आयोजन किया।

राष्ट्रीय कृषि विकास परियोजना के तहत गत दिनों ये शिविर किन्नोर जिला के सांगला, बोनिंग-श्रंग व पूह तथा स्पीति घाटी के ताबो, किब्बर व काजा में आयोजित किए गए। इन शिविरों में 110 गायों, याक तथा उनकी संकरित नस्लों में गर्भाशय में पाए जाने वाले फर्फूद संक्रमण की जांच के लिए खून व गर्भाशय स्त्राव के सैंपल भी एकत्रित किए गए। गत साढ़े तीन वर्षों में प्रदेश भर में लगभग 5000 गायों, भैंसों तथा कुछ याक व उनकी विकसित और संकरित नस्लों

की बाइपन व गर्भापात संबंधी समस्याओं की जांच हेतु 197 पशु रोग निदान व पशुचिकित्सीय शिविरों का आयोजन किया गया। इन शिविरों में रोग ग्रस्त पशुओं के उपचार के लिए निःशुल्क दवाइयां भी वितरित की गईं। कुलपति प्रो. अशोक कुमार सरयाल ने दूरदराज क्षेत्रों में पशुओं की बाइपन व गर्भाधान सम्बन्धी रोगों के निदान व इलाज के लिए आयोजित करने के लिए वैज्ञानिकों की प्रशंसा की। उन्होंने कहा कि पशु चिकित्सीय सुविधा घरद्वार पर उपलब्ध होने से किसानों को अवश्य ही लाभ होगा। उन्होंने आने वाले समय में भी पशुपालकों के हित में ऐसे ही पशुचिकित्सीय शिविरों का आयोजित करने की सलाह दी। टीम में डा. जी.सी. नेगी पशु चिकित्सा एवं पशु विज्ञान महाविद्यालय के मादा पशु रोग एवं प्रसूति विज्ञान विभाग से डा. मधुमती सिंह, डा. प्रवेश कुमार तथा विजय राणा शामिल थे।

Dainik Jagran Una

09.07.2017

बडूखर में की पशुओं के स्वास्थ्य की जांच

बडूखर : श्री सत्य साई संगठन भजन बडूखर साई समिति की ओर से पशुओं की जांच के लिए निःशुल्क शिविर का आयोजन किया गया। शिविर में कृषि विश्वविद्यालय पालमपुर के डॉ. मधुमती

सिंह व डॉ. परवेज सिंह ने पशुओं का उपचार किया। 63 पशुओं के स्वास्थ्य की जांच की गई। इस मौके पर अधिवक्ता रोहित मन्हास, शिव देव सिंह डडवाल, प्रधान शोध भूषण व किसान मौजूद रहे।

Amar ujala Kullu 16.7.17



बडूखर में पशुपालन विभाग की ओर से लगाए गए शिविर में पशु पालकों को जानकारी देने डॉक्टर।

घोड़ों में उदर शूल की पहचान के लिए दो शिक्षकों को स्वर्ण पदक



स्वर्ण पत्र हरितान करते डॉ. जीरवी भेगी पशु चिकित्सा एवं पशु विज्ञान महाविद्यालय के डॉ. आदर्श कुमार।

संवाद साहय्यो, पालमपुर : घोड़ों में उदर शूल की पहचान के लिए डॉ. जीरवी भेगी पशु चिकित्सा एवं पशु विज्ञान महाविद्यालय पालमपुर के दो शिक्षकों को स्वर्ण पदक से नवाजा गया है। हिमाचल प्रदेश कृषि विध्वंसिद्यालय के इस कॉलेज के पशु उल्लय चिकित्सा एवं चिकित्सा विभाग के डॉ. आदर्श कुमार व डॉ. सुबी पराशक को वेन्सई में यह सम्मान मिला। उन्होंने भारतीय पशु उल्लय चिकित्साक संसदकेटी के वार्षिक अधिवेशन तथा वेन्सई में 'घोड़ों में चिकित्सा द्वारा सती व सलत उदर शूल में चिन्मता व पहचान' शीर्षक से सर्वश्रेष्ठ शोध पेशर प्रस्तुति दी। इस सलतकपूर्व शोध के लिए उन्हें स्वर्ण पदक व प्रमाण पत्र दिए गए। संसदकेटी के वार्षिक अधिवेशन में डॉ. एलोक शर्मा, डॉ. अमित कुमार व नेता करुणल को भी उल्लय चिकित्सा पर कार्य करने के लिए प्रशंसा प्रमाण पत्र दिए गए। बड़े व छोटे पशुओं को चिकित्सा के

- पशु चिकित्सा एवं पशु विज्ञान महाविद्यालय में कार्यरत हैं दोनों
- वेन्सई में पेश किए सर्वश्रेष्ठ शोध के लिए मिला पुरस्कार

चिकित्सा द्वारा उल्लय शूल-पहचान व उल्लय चिकित्सा के क्षेत्र में वैज्ञानिक योगदान हेतु महाविद्यालय के पशु उल्लय चिकित्सा एवं चिकित्सा विभाग की सराहना हुई। अधिवेशन में डॉ. आदर्श कुमार ने एक सत्र की अध्यक्षता की और निर्वाचक सलिति में कार्य किया। कुलसली प्रो. अलोक कुमार सरचाल ने महाविद्यालय के पशु उल्लय चिकित्सा विभाग के इन अध्यक्षकों तथा सलतकर विध्वंसिचों को चेतन प्रदर्शन के लिए बधाई दी है।

Screenshot of Web story about extension outreach activities published by Factor Daily

Emergency helpline for farmers in Himachal Pradesh

Naveen Awasthi, 28, is staring into his phone. "Can you keep your phone down for some time and finish your tea?" shouts his mother.

With India's rising obsession with smartphones, this is the usual scene in most houses in India these days. But, what happens next is not usual.

"I'm on WhatsApp," Naveen tells her, and she nods approvingly.

Naveen explains: "She understands how much WhatsApp has helped me with my work."

Naveen is a first-generation dairy farmer, with little experience in this line of work. Life in the mountains is tough, especially in the winter. On one such morning in December, at 3am, one of his cows, Gaantu, fell ill. Getting a doctor to visit before 10am was out of the question, and taking the sick animal to a veterinarian in Palampur, 30km away, was very difficult. He thought Gaantu was going to die until he remembered a WhatsApp group set up by an agricultural research scholar.

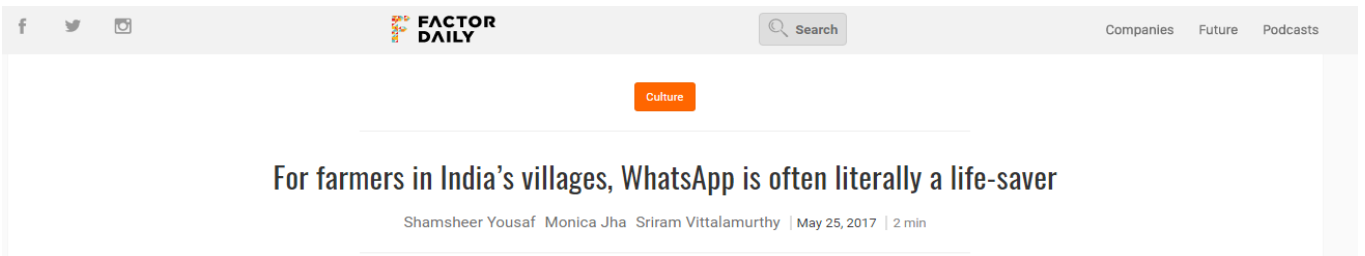


PHOTO GALLERY



FARMER WITH BREEDING BUCK SUPPLIED UNDER AICRP ON GOATIMPROVEMENT



Student outreach work among the farming community



Continuing Education Workshop on Veterinary Emergency and Critical care



Dignitaries on the dais for Professor Ashok Kale lecture in the campus



Network Meeting in collaboration with National Innovation Foundation-India on scouting, documentation and On Farm Experimentation to the Veterinary Pharmacists of the H.P. State animal husbandry department



VERU training course



Clinical camp in remote village of Himachal Pradesh



Weed Eradication drive in the campus



Cattle suffering from Warts in shoulder & neck

ANNUAL REPORT 2016-17

This report is a compilation of glorious achievements and various activities encompassing teaching, research, extension, outreach, academics and sports etc. performed by the faculty, staff and students of the Dr. GC Negi College of Veterinary and Animal Sciences, CSK HP Agricultural University Palampur HP, during the year 2016-17



Editorial Team

Dr. Rajesh Chahota

Dr. Pardeep Sharma

Dr. Ajayta Rialch