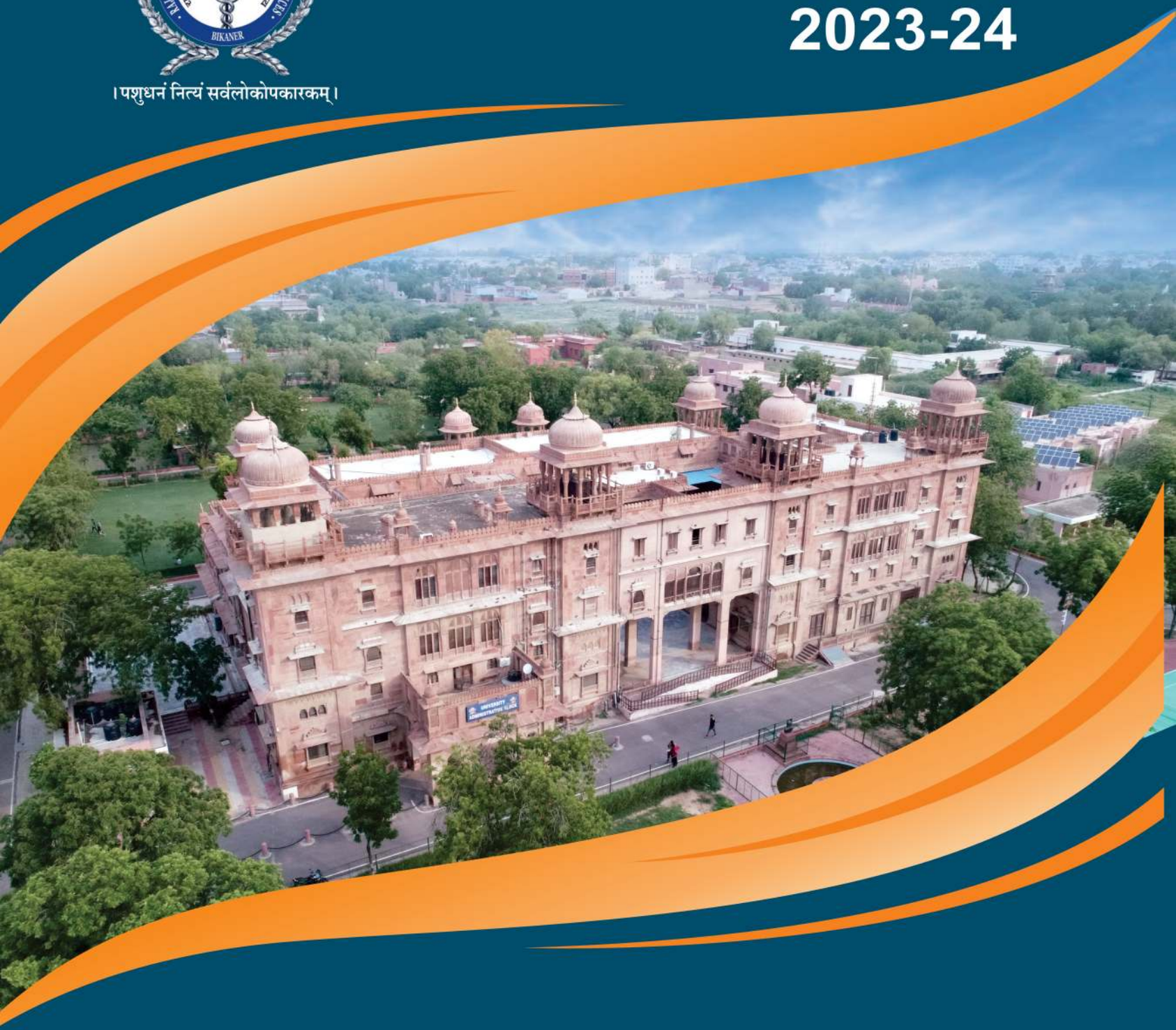
।पशुधनं नित्यं सर्वलोकोपकारकम्।

Annual Report
2023-24



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जय संविधान

ANNUAL REPORT

2023-24

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Rajasthan University of Veterinary and Animal Sciences

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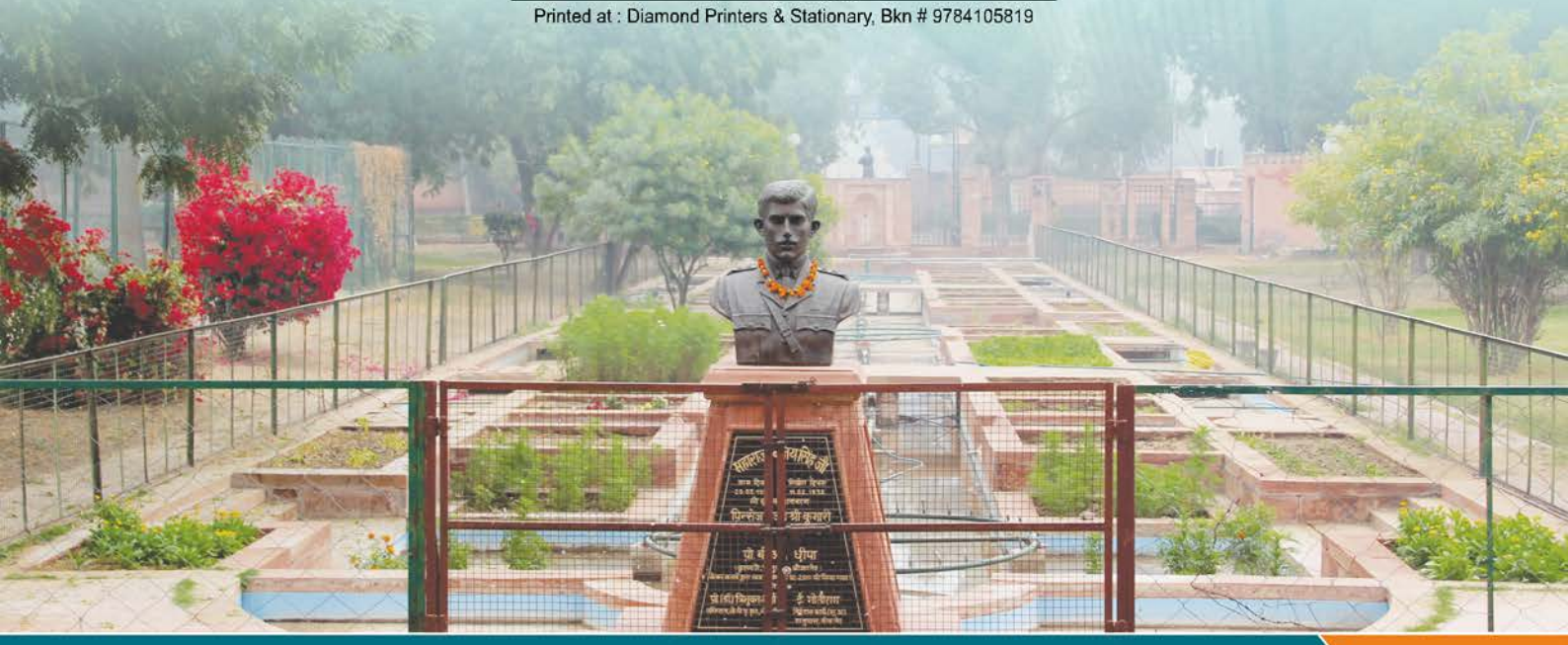

Prof. (Dr.) Satish K. Garg
Vice-Chancellor

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Foreword

It gives me immense pleasure and pride to present the Annual Progress Report of Rajasthan University of Veterinary and Animal Sciences (RAJUVAS), Bikanerfor the year 2023-24. Annual Report encompasses different activities and achievements of the University in teaching, research, extension and infrastructure development and portrays wide spectrum of academic and co-curricular activities in its different constituent colleges during 2023-24.

It is highly satisfying that the start and completion of our academic session including semester and annual examinations and declaration of results for different academic programmes was as per our academic calendar. For this all officers of university deserve appreciation. University successfully admitted students to B.V.Sc. & A.H. degree programme based on NEET score, to M.V.Sc.and Ph.D.degree programmes through ICAR-AIEEA and B.Tech. Dairy and Food Technology programmes based on score of Joint Entrance Test conducted by State Agricultural University of Rajasthan. Admissions to all the academic programmes had been very smooth and without any trouble.

Year 2023 especially starting from 16th August has been very special when we started celebrating the 'Platinum Jubilee Year'of College of Veterinary and Animal Sciences, Bikaner. We had taken a decision to celebrate Platinum year and organized several programmes and activities during this year which especially included Platinum Jubilee Lecture Series and construct new facilities like Guest house, Conference Hall, Girls Hostel and Platinum Jubilee monument to make this year memorable. I am happy that with the financial support from Government of Rajasthan we have marched ahead and achieved what we planned.

Apart from routine teaching, research and extension activities, University had been able to organize two ICAR sponsored 21 days winter schools and one national level conference during the period under report. Organization of "SPOCUL-23"and "SPOCUL-24"during this year had been a special fest after years of discontinuation to encourage students interest and participation in sports and cultural events.

Kind guidance and support received from the office of Hon'ble Chancellor, Government of Rajasthan,Board of Management and other authorities enabled us to take certain decisions.

The contributions made by Deans, Directors, University Officers, Heads and In-charges of departments, teaching fraternity, technical, non-technical, administrative and supportive staff and students for keeping the reputation of University high are duly appreciated. The efforts made by Prof.(Dr.)BasantBais, Director PME, RAJUVAS, Bikaner and whole editorial committee to bring out this Annual Report well in time depicting various activities and achievements of University is duly acknowledged and appreciated.

I hope this report will definitely increase the visibility of University. I am extremely thankful to Hon'ble Chancellor and Governor of Rajasthan, Govt. of Rajasthan and Indian Council of Agriculture Research, New Delhi for their support in overall development including financial assistance to RAJUVAS. I look forward that RAJUVAS will travel extra-miles to achieve academic excellence, make visible impact and transform livestock sector through basic and need-based research and effective extension and advisory services so as to ensure sustainable livelihood resources for rural masses including women empowerment.

"Jai-Hind"

(Satish K. Garg)

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Executive Summary

The Rajasthan University of Veterinary and Animal Sciences (RAJUVAS), Bikaner had taken up various activities and accomplished several successes in teaching, research and extension activities during the year 2023-24. RAJUVAS is recognized as an institution having well qualified faculty. University produced competent and skilled human resources. Many of its alumni are working in many prestigious and research institutions in India and abroad.

The university has three running constituents Veterinary Colleges i.e. CVAS, Bikaner, CVAS, Navania, Vallabhnagar (Udaipur), PGIVER, Jaipur and two colleges for a professional graduate degree programme in Dairy and Food Technology i.e. the College of Dairy Science and Technology (CDST), in Bikaner and College of Dairy and food technology(CDFT) in Bassi (Jaipur). One new Constituent Veterinary College at Jodhpur is coming up. University envisages to start teaching in this college for the academic session 2024-25.

Seven affiliated private Veterinary Colleges in Jaipur, Chomu, Sikar, Dungarpur, Bharatpur, Tonk and Karauli are functional.

The graduate degree programme is as per Veterinary Council of India's Minimum Standards of Veterinary Education Regulation 2016. Accordingly, RAJUVAS is offering 5½ years B.V.Sc. & A.H., two years Master's degree in 17 subjects and 3 years Doctoral degree (Ph.D.) in 16 subjects in all the three presently running constituent veterinary colleges. Two years Animal husbandry Diploma programme is running in 7 constituent AHDP institutes, 89 private affiliated institutes to University and 4 Government AHDP institutes. The intake capacity is around 6400. University also has one Krishi Vighyan Kendra and 17 Pashu Vigyan Kendras and nine Livestock Research Stations.

University campus has picturesque landscape and historical palatial buildings with clean and wide roads. The campus presents a spectacle of architecture, ethnic and natural beauty.

Teaching or Academics

- During 2023-24, a total of 856 students were admitted in different degree and diploma programmes in constituent veterinary colleges and AHDP institutes of university. Total 284 students were admitted in B.V.Sc. & AH, 141 students in M.V.Sc, 23 in Ph.D and 408 in AHDP programme.
- During 2023-24, among 100 AHDP colleges, 5036 students were admitted in the Animal Husbandry Diploma Programme (AHDP).
- Students of RAJUVAS, Bikaner excelled in the All-India Entrance Examination conducted by ICAR, New Delhi through National Testing Agency (NTA) for admissions in PG and Ph.D degree programmes in veterinary sciences in different agricultural and veterinary universities of India. During the reporting year 85 students were selected through ICAR-ASRB NET examination in different subjects of Veterinary and Animal Sciences among which 63 students were from CVAS, Bikaner alone.
- The Veterinary Clinical Complexes of RAJUVAS are well equipped with modern facilities which include large and small animal operation theatres, ICU for pets, and are fully operational in all the constituent veterinary colleges of university. The Clinics have various facilities for diagnosis and treatment of animal diseases, advanced diagnostic procedures like CT scan, radiography, sonography, digital X-Ray machine, ophthalmology and dentistry units etc. with advanced equipments facility. For examination of blood, serum, urine and faeces, Disease diagnostic laboratory is well equipped. There is also facility for stay of attendants of animal patients.
- During 2023-24, a total of 30107 cases were attended for treatment among which 17983cases were attended in CVAS, Bikaner alone followed by 8202in PGIVER and 3922 in CVAS, Navania clinics.
- During 2023-24, a total of 2494 samples of blood, faecal, milk, urine, skin scrapings and serum were examined in Veterinary Diagnostic Laboratories of TVCC.
- During the year under report, clinical services were provided by faculty of clinics and post graduate students of clinical departments in adopted villages of university and gaushal as also.
- Routine farm practices viz. de-worming and vaccination of livestock and poultry maintained at Livestock Farm Complex were conducted whereas sick animals were provided appropriate treatment.
- ILFC is serving as a model for UG, PG and Ph.D teaching and also for internship students to train them regarding dairy farming, poultry farming and other farm activities. The income generated from poultry unit of Bikaner poultry farm during 2023-24 was Rs. 12,36,038/- and from large ruminants unit was Rs. 1,32,029/-
- Different indigenous milk products like Paneer, Lassi, ghee, skimmed milk were prepared and sold at RAJUVAS milk parlour and the Revenue generation from the sale of milk and various milk products during the year 2023-24 was Rs. 62.60 lakh.
- Well developed digitalized library with RFID and good number of books, journals, computer with internet facility and reading space is available in all the constituent colleges of University.
- Library collection consists of textbooks, reference books, e-books, e-Journals, manuals, encyclopaedias, dictionaries and annual reports in all the constituent Veterinary colleges of university . A total of 56269 collection of general books,

book bank, social welfare books of various streams including and 203 E-Books are available at CVAS, Bikaner, 7464 general books at CVAS, Navania and 7650 general books and other materials are available in PGIVER, Jaipur library.

Research

- During the reporting year, 32 projects were operational. Out of these 21 externally funded projects were running at various Livestock Research Stations (LRS's)and in different departments of constituent colleges. Out of these five projects were funded by ICAR, 11 by State plan and05under RKVY, and 11 intramural university funded, Revolving Fund projects were also functional. Total amount sanctioned for these projects during year 2023-24 was Rs. 14, 834.00 lacs.
- Revenue Generation by Directorate of Research through Livestock Research Stations's during 2023-24 was Rs. 5.36Crore.
- One Tharparkar breed cow from LRS Chandan (cow no. 953) was auctioned for Rs. 2,00,000/- and one more Tharparkar breed cow from LRS Beechwal (cow no. TC-126) was auctioned for Rs. 2, 81, 500/-.
- During 2023-24, 10 Ph.D and 41 M.V.Sc. theses were submitted from different subjects of veterinary and animal sciences from all the constituent colleges of university.
- During the period under report, University published 267 research publications among which 128 publications were from CVAS, Bikaner, 77 from PGIVER, Jaipur and 52 from CVAS, Navania (Udaipur), 7 from CDST, Bikaner and 3 from CDFT, Bassi, Jaipur.

Extension

- The extension activities of University are carried out under Directorate of Extension Education through University's colleges, Krishi Vighyan Kendra, Pashu Vigyan Kendras and centres sanctioned under State plan for livestock, dairy, poultry and fish farmers.
- During 2023-24, Directorate of Extension Education organized 1025 trainings (On Campus, Off Campus, MANAGE Hyderabad, Gopalan, ATMA etc.) in which total 26260farmers were benefitted.
- Total 56 training programmes were organized by KVK Nohar for farmers on different aspects of agriculture, horticulture, home science and animal husbandry in which1446 farmers participated.
- A total of 180 Extension activities were performed by KVK in which 965299 farmers participated. Through Mobile Advisory Services 71060 farmers Benefitted.
- Total 932trainings were organized by PVK's in which 814 online and 118 on campus trainings were organized and 23339 farmers participated and benefitted.
- All PVK's of RAJUVAS organized 660 other extension activities like vichargosthies, transfer of technology, farmer's scientist interactions, awareness camps, animal treatment camps, field visits and feedback reviews during this year. Total 12319 farmers were participated and benefitted.
- Other extension activities like vichargosthies, farmer's scientist interactions, awareness camps, animal treatment camps, field visits and feedback reviews were also conducted regularly. Total 9057 farmers participated and benefitted through 482 extension activities.
- Total 8 exhibitions were arranged during this year in State and National level fairs organized for the farmer's community.
- Total 33 Trainings were organized by different constituent colleges of University, state plan centres and Livestock Research Station, Bikaner. Total 1087 participants including farmers, students, LSA and Veterinary Officers benefitted through these training programmes.
- To provide services for animal disease diagnosis and treatment, testing of feed and fodder as well as animal products Lab facilities have been established at all PVKs. Total 2869 samples were analysed and 2701 farmers were benefitted during the year.
- Eight exhibitions were organized by Directorate Extension Education, and KVK, Nohar at Ravindra Rangmanch, Bikaner, International Camel Festival, NRCC, Bikaner, Krishi Mahotsav, Jaipur, Kisan Mahotsav, Udaipur, Kisan Mahotsav Jodhpur, Vikasit Bharat SankalpYatra and KVK, Nohar.
- A Kisan Sammelan was organized in view of the possibility of making organic pesticides, vermin composting and organic fertilizers from cow dung and urine and its marketing under the joint aegis of RAJUVAS, Bikaner and Rajasthan Gau Sewa Parishad, Bikaner and about 800 livestock owners of Bikaner district participated in the seminar.
- University also participated in State Level Rajasthan Kisan Mahotsav at Jaipur to show various activities being done by the Veterinary University for the benefit of animal owners. A Jajam Chaupal was organized in the three-day Rajasthan Kisan Mahotsav.
- University also participated in Divisional level Kisan Mahotsav, in Udaipur and in Jodhpur. An exhibition and Jajam Chaupal was organized by DEE on both the places.
- Directorate of Extension Education regularly publish "Pashu Palan Naye Aayaam" a monthly bulletin on 1st day of every month.
- In 2023-24, 12 programmes of "Dhine ReBatya" were broadcasted through 17 Aakashwani Kendra of Rajasthan for half an hour from 5.30 PM to 6.00 PM on third Thursday of every month.
- In year 2023-24 two projects were sanctioned. A project proposal on 'Establishment of Integrated Farming System Model for Livelihood Security' of Rs 27.56 lacs was

sanctioned by NABARD under Farm Sector Promotion Fund and A project proposal on 'Nutritional Security and Livelihood Promotion of Schedule Caste Beneficiaries of different Districts of Rajasthan Through Scientific Intervention of Animal Husbandry under Schedule Caste-Sub Plan(SC-SP) of Rs 130 lacs was sanctioned by ICAR.

Seminars/Conference/Workshops etc.

- 23rd Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology and National Symposia on "Integrated Animal Health Care System: Opportunities and Challenges" and "Exploring New Avenues for Pharmacologists and Toxicologists from Employability Perspective" was held from 02-04.11.2023 in College of Veterinary and Animal Sciences, RAJUVAS, Bikaner. More than 200 delegates participated in the conference from all over India.
- A seminar on Millet was organized on 26th April, 2023 at Krishi Vigyan Kendra Nohar (Hanumangarh-II).
- Under the joint aegis of Social Development and Placement Cell Cell, RAJUVAS and Rajasthan Patrika, Bikaner a seminar was organized on 20th March, 2024 on "Importance of Journalism in the context of society and animal husbandry".
- A seminar on Cleanliness under Swachh Bharat Abhiyan was organized on 31st October, 2023 in collaboration with Medical officer in the university adopted village Gadwala and the students made aware about the importance of health and cleanliness.
- A sensitization workshop was organized from 5th to 7th July, 2023 which was exclusively designed for students from agricultural universities and colleges to introduce them to various features used in the developed Virtual Reality modules with thorough knowledge and practical exposure to the various functionalities of our newly created Virtual Reality (VR) system.
- The Veterinary University and the ICAR-Indian Agricultural Statistics Research Institute organized a one-day workshop on blended learning on 15.02.2024 in New Delhi.
- A one-day onion-processing workshop on March 27, 2024 was organised at the College of Dairy and Food Technology, Bassi, Jaipur to showcase onion processing through dehydration method. The workshop included demonstrations and discussions on processing techniques, equipment, and food safety measures.

Students participation

- Sports and Culture Week-2024 was organized in all constituent Colleges of Veterinary and Animal Sciences from 13th-18th January 2024. Various sports activities such as cricket, volleyball, badminton, basketball, chess, and athletics were organized throughout the week.
- Interclass sports & cultural tournament of the College of Veterinary and Animal Science, Bikaner was held from 04-08 March, 2024. Various sports activities such as cricket, volleyball, badminton, basketball, table tennis, lawn tennis, kabbadi and athletics were organized during SPIRIT-24. Various fine art, literary and cultural competitions were also held.
- Inter collegiate Sports and cultural meet 2023 "SPOCUL-23" was held from 15-18 May, 2023 for students of constituent colleges of university. Various sports, cultural, fine art and literary events were held during this meet. Prize distribution was held on 18.05.2023. College of Veterinary and Animal Science, Bikaner grabbed the Overall Championship trophy.
- A technical session was held at CVAS, Bikaner on 12.05.2023 for the students of Fourth professional B.V.Sc.& A.H. and Internee students by the Virbac Animal Health Pvt. Ltd. A professional quiz was also held during the session.
- Inter-collegiate sports and cultural competition "SPOCUL-24" was organized from 15-18.03.2024 for students of all three constituent veterinary colleges and two dairy colleges. About 178 participants from five constituent colleges participated in various sports, cultural, literary and fine arts competitions. College of Veterinary and Animal Science, Bikaner grabbed the Overall Champion trophy.
- An educational and awareness session was organized by SBI, Vallabhnagar for the students on 05 March 2024 to educate the students and staff about various schemes of the bank, security measures as per RBI guidelines, and promote the use of digital banking tools such as YONO app.
- An interactive session on opportunities and processes of obtaining employment in the USA and Canada was organized by Placement Cell on 14th March 2024 .Dr. Anil Arora, a renowned ENT specialist from Washington D.C., USA, expert addressed the students through this session and shared his invaluable perspectives on the scope and procedural complexities of working as a veterinarian in the United States.
- Orientation programme for newly admitted M.V.Sc. students of session 2023-24 was organized in all the constituent veterinary colleges of university.

Moment of Pride

- Hon'ble Vice Chancellor Prof. (Dr.) Satish Kumar Garg was conferred with the "Life Time Achievement Award" during 42nd Annual Conference of Toxicology Society organized by Calicut University, Kerala on 23-25 November, 2023 on latest progress and future trends in Toxicology for his excellent work in the field of toxicology and contribution to animal husbandry.
- Prof. Satish Kumar Garg, Hon'ble Vice-Chancellor was bestowed with "Prof. A.K. Srivastava Lifetime Achievement Award" by ISVPT Society during 23rdNational Conference of

the Indian Society of Veterinary Pharmacology and Toxicology organized at CVAS, Bikaner on 2nd November, 2023.

- Vice-Chancellor Prof. Satish K. Garg was honoured with "Distinguished Pharmacologist Award" as a recognition of outstanding contributions in teaching and research for the pharmacology professionals by Indian Pharmacology Society in IPSCON-2024 held from 12-16 December 2023 in SRM Chennai.

Awards and Recognition by faculty and students

- Total 82 faculty and students were awarded and recognized for their excellence and expertise in their field of specialization by reputed authorities or recognized societies.
- Prof. R.K. Dhuria, Director Extension Education, RAJUVAS, Bikaner honoured Fellow Award of NAVS, New Delhi during National Conference and Convocation Ceremony of NAVS organized at GADASU, Ludhiana (Punjab) from 1-2 July, 2023.
- Fellow of Association of Animal Scientists (FAAS) was conferred to Prof. R.K. Dhuria during 2nd Veterinary and Animal Science Congress & 2nd Annual convention of Association of Animal Scientists and National Symposium on "Technological Intervention for Improving Animal Health and Productivity" organized by Apollo College of Veterinary Medicine, Jaipur from 17-19 February, 2024.
- Prof. Balwant Meshram, was awarded with the Fellow Award of IAVA at National Seminar and 37th Annual Conference of the Indian Association of Veterinary Anatomists organized at Sri Venkateshwara Veterinary University, Tirupati, Andhra Pradesh held from 5 to 7 December 2023.
- Dr. Mahendra Singh Meel, was Honoured with the Associate Fellow Award at the 3 days 20th Biennial International Conference of ANA at Madras Veterinary College, Chennai held from 23rd to 25th January 2024.
- Prof. Rahul Singh Pal, received Extension Specialist Award from SVAHE during 5th National Conference of SVAHE organized at Khalsa Veterinary College, Amritsar from 12-14 October, 2023.
- Dr. Ashok Baindha, Assistant Professor, PGIVER, Jaipur was awarded with Best Ph.D. Thesis Award in 5th National Conference of SVAHE on Smart Livestock Extension for Enhancing Farmers' Income-An Extension Bounty organized at Khalsa Veterinary College, Amritsar from 12-14 October 2023.
- Dr. Sanjay Kumar Rewani, Assistant Professor, PGIVER, Jaipur was awarded with Young Scientist Award by SVAHE, during 1st International Extension Education Congress-2023 held at RARI, Durgapura, SKNAU, Jobner from 18-20, December 2023.
- Dr.Barkha Gupta, Assistant Professor, PGIVER, Jaipur awarded with Best Teacher Award for the year 2022 and Best Poster Presentation Award during the VII Annual Convention of SVBBI & International Symposium on multiomics to one health: challenges and way forward in biomedical research organized by IVRI, Izatnagar on 14-15 December, 2023.
- Dr. Priyanka Swami, Ph.D Scholar, CVAS, Navania, Udaipur won the first prize in poster presentation and Dr. Tanu Sharma, won the third prize for poster presentation. The award was presented in the 10th Annual Convention of SVSBT held on 5-7 October, 2023 at CVAS, Mhow, Madhya Pradesh.
- Dr. Rohitash Kumar and Dr. Umesh Kumar Jaiswal, Ph.D Scholar were awarded with 'Ganga Singh Chauhan Memorial Research Scholar Award' by SEE, Agra during 1st International Extension Education Congress-2023 held at RARI, Durgapura, SKNAU, Jobner from 18-20, December 2023.
- Dr. Rajesh Kumar M.V.Sc student of PGIVER, Jaipur received award for Best poster presentation during First International Extension Education Congress 2023 held at RARI, Durgapura, SKNAU, Jobner from 18-20, December 2023.

Capacity Building and Skill Development

- A 21-day winter school was organized on "One Health Approach to combat antimicrobial resistance, zoonoses and food security" at "Centre for Diagnosis, Surveillance and Response of Zoonotic Diseases". A total of 23 participants from different states of the country participated in this training program.
- An ICAR sponsored 21 days winter school on "Animal Feed Safety and Quality Assessment to Ensure Safe Food of Animal Origin for Human Consumption" was organized from 5-25 February, 2024 by Department of Animal Nutrition, CVAS, Bikaner under the aegis of RAJUVAS, Bikaner.
- Students of B. Tech dairy Technology (1st year, 2nd semester) were sent for Inplant Training under READY programme at "Payas Milk Producer Company" for a period of one month (18.12.2023 to 21.01.2024). During their training period they were exposed to different sections in the plant like quality control, quality assurance, production, refrigeration and boiler.
- B Tech (Dairy Technology students) 2nd year, 4th semester have also underwent inplant training under READY programme at Urmul Dairy, Bikaner (1.03.2024 to 05.04.2024). During their training period, they learnt the milk quality assessment methodology, milk processing and storage protocols and gained knowledge of making of different dairy products like paneer.
- A three-day training program was organized on "Innovative techniques and knowledge of animal nutrition and animal

health" under the joint aegis of Directorate of Extension Education RAJUVAS, Bikaner and National Institute of Agricultural Extension Management (MANAGE), Hyderabad from July 26-28 through online mode. 160 trainees participated in the training.

- Training program on "Diagnosis of diseases in animals and poultry" organized by Apex Center of the CVAS, Bikaner from 11-13.03.2024.

Memorandum of Understanding (MoU)

- A memorandum of understanding (MoU) was signed in between RAJUVAS, Bikaner and Homoeopath University, Jaipur on 07.06.2023. The purpose of this MoU is to explore the usefulness, prevalence and new possibilities of research of homeopathy in the veterinary field.
- A Memorandum of Understanding (MoU) was signed between Tantia University, Shri Ganganagar and RAJUVAS on 16.10.2023.This MoU will be helpful for students of both universities with regarding to exchange the academic expertise, research innovations and outcome and extension technologies.
- A memorandum of understanding (MoU) was signed in between RAJUVAS, Bikaner and ICAR- Central Sheep and Wool Research Institute, Avikanagar on 15.05.2023.
- A memorandum of understanding (MoU) was signed in between RAJUVAS, Bikaner and BAIF Development Research Foundation , Udaipur on 8th February 2024 at CVAS, Navania, Udaipur .

Celebrations

- Gandhi Jayanti and a cleanliness drive under 'Swachhata Pakhwada - Swachhta Hi Seva - 2023', was organized on 02 October 2023 in all the constituent colleges of RAJUVAS, Bikaner.
- On 21st February, as part of the Amrit Mahotsav celebrations of India's Independence, the Department of Animal Husbandry of the Indian government organized a one-day awareness and breeding camp under the Livestock Awareness Campaign in the Dholiya village of Jaisalmer district. In the camp, 250 livestock farmers participated, and 1037 cattle were registered and 90 animals were treated.
- On June 1, 2023, CDST, Bikaner in collaboration with CVAS, Bikaner and the CDFT, Bassi, Jaipur celebrated World Milk Day to mark the recognition of milk as a global food by the Food and Agriculture Organization since 2001. The celebration included quizzes, poster, and essay competitions, with winners awarded certificates
- Various programmes were organized at PGIVER, Jaipur on 6th September, 2023 to commemorate the celebration of India becoming the first country in the world to successfully land Chandrayaan-3 on the South Pole of the Moon on 23rd August, 2023
- Freshers Welcome Party "Roobaroo" was organized by the senior batch students on 20.04.2023 for the junior batch students at CVAS, Bikaner. Cultural programmes were presented by the students on this occasion
- Freshers Welcome Party "ANVAY 2K23" was organized by the senior batch students on 19.08.2023 for the junior batch students at CVAS, Bikaner. Cultural programmes were presented by the students on this occasion
- Fresher's day on the theme "Mridung" was organized by the 2021 batch of B.V.Sc& A.H. students for the 2022 Batch at CVAS, Navania Udaipur on 20 July 2023.
- Fresher's Day "Aagaaz" was organized on 8th August, 2023 at PGIVER, Jaipur to welcome the newly admitted students of B.V.Sc. & A.H. Course of the session 2022-23.
- World Zoonosis Day was celebrated on 6th July 2023 in all the constituent colleges and Institutes of RAJUVAS.A public awareness program was organized for the livestock farmers on this occasion.
- 77th Independence Day on 15th August 2023 was celebrated with great enthusiasm on all campuses of RAJUVAS. Vice-Chancellor Prof. Satish K. Garg hoisted the national flag at "Diwan-e-Aam". Students, faculty and non-teaching staff were honoured for their excellent performance, remarkable services in teaching, research and extension. An intensive tree plantation was done by the faculty members and staff in the university campus.
- 161thbirth anniversary of Swami Vivekananda was celebrated as "राष्ट्रीय युवा दिवस" on 12thJanuary, 2024.
- 75th Republic Day was celebrated with great fervour and gaiety on 26th January 2024 in all University Campuses. Hon'ble Vice Chancellor Prof. Satish K. Garg unfurled the national flag in university. The whole campus came alive with spirit of patriotism. University Merit Holder students were felicitated on this occasion. Cultural programme was presented by students and staff members.
- 14th Foundation Day of RAJUVAS was celebrated on 18.05.2023. Prof. Satish Kumar Garg, Hon'ble Vice Chancellor, RAJUVAS, Bikaner during his presidential address briefed about the progress made by university during last years. Prof. Arun Kumar, Hon'ble Vice-Chancellor, SKRAU, Bikaner was Chief guest. Special guest of the function was Dr. Suresh Kumar Mittal, Professor, Purdue University, USA.
- Orientation programme for the newly admitted students of first professional B.V.Sc.&A.H. was organized at all university campuses on 17th October, 2023 in CVAS, Bikaner, on 20th October 2023 in CVAS, Navania, Udaipur and at PGIVER, Jaipur on 19thOctober, 2023.
- Students of the CVAS, Bikaner were demonstrated the use of EVMs and VVPAT under the voter awareness

programme on 21st July, 2023. Voters Awareness Rally was organized at CVAS, Navania from 1st November, 2023 and on 24th November, 2023 at PGIVER, Jaipur.

University Social Responsibility Activities

- In year 2023-24 Under "Mera Gaon Mera Gaurav" 35 teams of multidisciplinary scientists adopted 104 villages. Total 1186 activities were conducted in which total 8264 farmers and livestock owners were benefitted.
- A Sangosthi on Integrated Child Development was organized on April 27th, 2023 by the Directorate of Extension Education at the Anganwadi Centre of Gadwala village adopted under University Social Responsibility in collaboration with the Women and Girl Child Development Department, Bikaner.
- Centre for Disaster Management Technology for Animals, RAJUVAS, Bikaner organized disaster management training on 12th May, 2023 at Gadwala village under University Social Responsibility.
- On the occasion of World Environment Day, an awareness program was organized on 5th June, 2023 at the Panchayat Bhavan of adopted village Gadwala, under University Social Responsibility by the Centre of Disaster Management Technology for Animals, RAJUVAS, Bikaner.
- Centre for Conservation of Biodiversity, RAJUVAS, Bikaner organized animal health camp and awareness program on 21st June, 2023 at Gadwala village.
- A Water Conservation Awareness Rally was organized by National Service Scheme Unit, College of Veterinary and Animal Science, Bikaner at adopted village Gadwala on 28 June, 2023
- Centre for Conservation of Biodiversity, RAJUVAS, Bikaner organized a training programme at Gadwala village on the occasion of International Biodiversity Day-2023 under University Social Responsibility.
- A deworming camp was organized on 5th July 2023 at village Gadwala, adopted under University Social Responsibility by the All India Coordinated Research Project on Marwari Goats, College of Veterinary and Animal Science, Bikaner.
- A Plantation Drive was organized in the university adopted village Gadwa on 31st July, 2023. The programme was initiated by planting a sapling of bakken in the premises of Government Higher Secondary School, Gadwala.
- An Awareness Camp was organized on Biodiversity Conservation at adopted village Gadwala on 31st July 2023 by Centre for Animal Biodiversity Conservation, RAJUVAS, Bikaner to aware the students about the importance of animal biodiversity, its utility and conservation.
- A one-day vaccination awareness camp was organized by the All India Research Coordinated Project on Marwari Goat on 14th August at Gadwala under the University Social Responsibility.
- An awareness program was organized at Gadwala village on 19th August 2023 by the Animal Biomedical Waste Disposal Technology Centre RAJUVAS, Bikaner and the school students were awared about the importance of proper management of biomedical waste through posters and pamphlets and informed about infectious diseases spread from animals to humans.
- A computer literacy program was organized by the Veterinary University on 18th August 2023 in the adopted village Gadwala.
- A sangosthi on skill development was organized by the Rajasthan University of Veterinary and Animal Sciences, Bikaner on 30th September at Senior Upadhyaya Sanskrit School in adopted village Gadwala.
- A seminar on Cleanliness under Swachh Bharat Abhiyan was organized on 31st October, 2023 at Sanskrit Senior Upadhyaya Vidyalaya in the village Gadwala adopted under the University Social Responsibility.
- An Ayurvedic Health camp was organized by Directorate of Extension Education, RAJUVAS, Bikaner in coordination with Department of Ayurveda, Govt. of Rajasthan, Bikaner on 29th November, 2023 in adopted village Gadwala.
- A one-day vaccination awareness camp was organized by the All India Research Coordinated Project on Marwari Goat on 16th December 2023in the village Gadwala adopted by the Veterinary University under the University Social Responsibility.
- A medical camp was organized under the joint aegis of the Medical and Health Department, Bikaner and Director Extension Education, Rajasthan University of Veterinary and Animal Sciences, Bikaner on 29th December, 2023 in the village Gadwala.
- A sangosthi on adult literacy was organized on 31th January, 2024 by Directorate of Extension Education, RAJUVAS, Bikaner at the Government Senior Upadhyaya School, Gadwala village adopted under the University Social Responsibility.
- A veterinary health camp was organized on 21st February, 2024 in village Gadwala under the joint aegis of Rajasthan University of Veterinary and Animal Sciences, Bikaner and Animal Husbandry Department, Bikaner under the 100-day action plan of the state government of Rajasthan.
- A cleanliness drive was organized by NSS unit of College of Veterinary and Animal Science, RAJUVAS, Bikaner on 29th February, 2024. The drive was organized at Brahmin Mata Mandir Choraha campus of Gadwala.
- A meeting of the coordination committee was held on March 13th, 2024 to review the work done by various departments

in village Gadwala, adopted under University Social Responsibility. The meeting was chaired by Prof. A.P. Singh, Dean, CVAS, Bikaner. Prof. Rajesh Kumar Dhuria, Director Extension Education, RAJUVAS, Bikaner discussed the action plan point-wise and took information from all the departments about works done by them in Gadwala village.

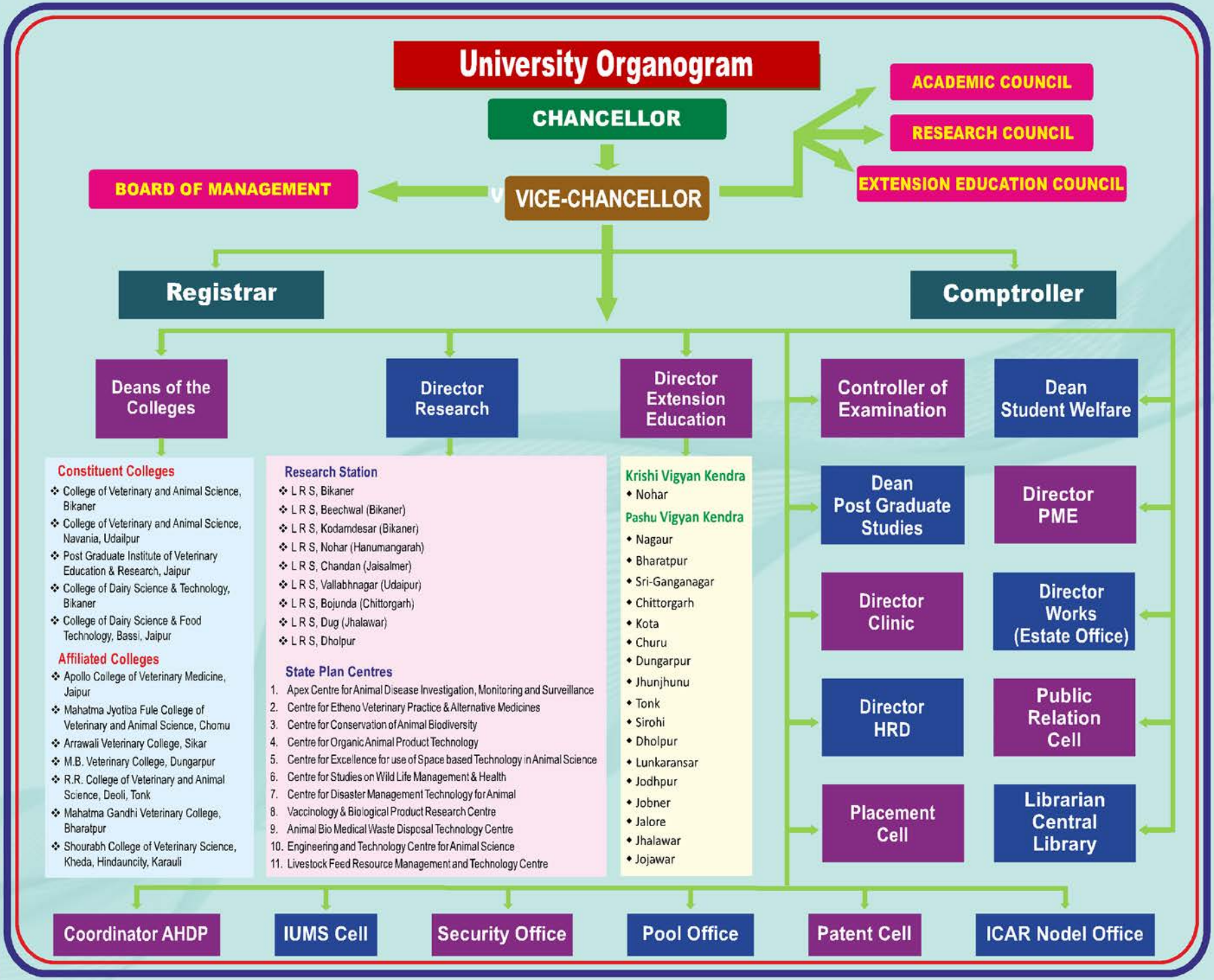
Infrastructures developed

- Prof. Satish K. Garg, Hon'ble Vice-Chancellor, RAJUVAS, Bikaner inaugurated second and third floors of the Girls Hostel at PGIVER, Jaipur on 14th April, 2023.
- Kisan Bhawan, Gymnasium and first and second floor of boys Hostel in PGIVER, Jaipur was inaugurated by Shri Jora Ram Kumawat, Honorable Cabinet Minister, Animal Husbandry and Dairying, Gopalan and Devasthan, Government of Rajasthan on 27 February 2024.
- The newly constructed building of Skill Development Centre, Bikaner was inaugurated by Dr. Ramesh Chandra Agarwal, DDG (Agricultural Education), ICAR, New Delhi on 5th February, 2024.
- A Farmers' Hostel and Goat & Poultry Demonstration units at KVK, Nohar (Hanumangarh-II) were inaugurated in the reporting year by Shri Rahul Kashan, MP, Churu 26th April, 2023.
- The Newly constructed building of PVK, Ramsin (Jalore) was inaugurated online by Shri Lalchand Kataria, former Minister of Agriculture, Animal Husbandry and Fisheries, Government of Rajasthan on 3rd May, 2023.
- A Saloon was inaugurated in CVAS, Navania on 05 October 2023 to provide the facility of saloon for staff and students in the college premises itself.
- On 29th February 2024, at the campus of College of Veterinary and Animal Sciences in Bikaner, the ground-breaking ceremony and inauguration of the Diagnostic Imaging Unit in TVCC and a Seminar Hall near Faculty house was done by the Hon'ble Vice Chancellor Prof. Satish K. Garg.

Platinum Jubilee Lecture Series

The University is celebrating the "Platinum Jubilee Year" of College of Veterinary and Animal Sciences, Bikaner. During this year, University arranged "Platinum Jubilee Lecture Series" by inviting distinguished alumni of this college and also eminent Veterinary professionals from different professions for motivation of veterinary graduate and post graduate students. Eminent speakers included Dr. N.K. Tinna, Ex. Commandant, SSB, Prof. Bhanu P. Choudhary, USA, Commandant Dr. G.S. Naag (B.S.F.), Professor Chandra shekhar Parik from Nicolaus Copernicus University, Torun, Poland

- Under Platinum Jubilee Year celebrations of CVAS, Bikaner a motivational lecture was organized for students at the CVAS, Bikaner on 20th December 2023. Dr. N.K. Tinna, Ex. Commandant, SSB delivered a lecture on the employ-ment opportunities for veterinary students in the SSB.
- An inspirational lecture for the students on 18.01.2024 under Platinum Jubilee Year celebrations of CVAS, Bikaner was organized. Renowned scientist and alumnus Prof. Bhanu P. Choudhary, who is based in America, gave an inspiring lecture on career opportunities for students in the veterinary field at abroad.
- Under Platinum Jubilee Year celebrations, on 26th February 2024, a motivational lecture was organized for students. Professor Chandra shekhar Parik from Nicolaus Copernicus University, Torun, Poland, gave a lecture on "Genomic Research" and explained the increasing importance of genomic research in the present time.
- During the lecture series organized under Platinum Jubilee celebration of CVAS, Bikaner on Saturday, Commandant Dr. G.S. Naag (B.S.F.) gave an inspiring lecture on the career opportunities for veterinary students in the B.S.F. and paramilitary services.



।पशुधनं नित्यं सर्वलोकोपकारकम्।

Introduction

The Rajasthan University of Veterinary and Animal Sciences (RAJUVAS), Bikaner is a constituted body corporate established under Sub-section (3) of Section 1 of the Rajasthan University of Veterinary and Animal Sciences Act, 2010. The University has been established with the following objectives

- Making provision for imparting education towards development of quality human resource in different branches of study in Veterinary and Animal Sciences.
- Furthering the advancement of learning and conducting of research.
- Undertaking extension education.
- Promoting partnership and linkage with National and International education institutions.
- Establishing vital linkage with the concerned line departments working in the fields of animal husbandry, fisheries and dairy development, animal technology in the State, by whatever name called, governed by the Govt. of Rajasthan as well as the Central Govt.

VISION

- To train and produce skilled and competent human resource
- To generate suitable technologies and transfer new technical knowledge to stakeholders
- To enhance income of farmers and livestock owners through Animal Husbandry

MISSION

- To augment livestock productivity, profitability and sustainability in Rajasthan
- To Promote liaisoning and linkages with National and International Research and educational Institutes, specialized in the field of veterinary, animal husbandry, dairy fishery science technologies
- To plan, coordinate, organize and guide the extension education programmes to ensure efficient working of the extension education activities

ROLE AND MANDATE

The RAJUVAS is envisaged to accomplish the following roles under the mandate of the University:

- To plan, initiate, guide, co-ordinate and monitor the research in the field of Veterinary and Animal Science.
- To maintain liaison with State and central government, ICAR, DST and other National and International Funding agencies for obtaining the financial support for various Veterinary and Animal Sciences research programmes.
- To monitor animal health programme through disease investigation and surveillance.
- To impart quality professional education.
- To develop technologies suitable for promoting animal production in the state of Rajasthan.
- To transfer the technologies to field functionaries.
- To develop a center of higher learning, research and extension in the field of Veterinary and Animal Science.

GOAL

- Empowerment of the society in terms of economic upliftment, entrepreneurship development and employment generation through Animal Husbandry.

ORGANIZATIONAL SETUP

The functioning of university is governed by various bodies and authorities of the university which exercise their powers at various levels to coordinate and regulate administration focused at education, research and extension activities. The organizational setup of university is in almost conformity with other agricultural, veterinary and academic universities.

A. AUTHORITIES OF THE UNIVERSITY

His Excellency, the Governor of Rajasthan is the Chancellor of the University. Vice Chancellor is the Academic Head and Principal Executive officer of the University. The University is governed by the following Authorities.

1. Board of Management
2. Academic Council
3. Faculty Chairman
4. Board of Studies
5. Research Council
6. Extension Education Council
7. Planning Board
8. Finance Committee

Besides these the Vice-Chancellor has also constituted a core Advisory Committee, Public Relation Cell, Director, Prioritization, Monitoring and Evaluation (DPME), Director Clinics, Dean Students Welfare, University Students Placement Cell, IUMS, Dean Postgraduate Studies, Director works, Controller of Examination, ICAR Nodal Office and R&V NCC Squadron and Regiment.

1. Board of Management (BOM)

The Board of Management (BOM) is the highest administrative body empowered to monitor supervise and control the university affairs. The BOM is the policy making body responsible for the management of the university.

Ex-officio Chairperson of the BOM

Hon'ble Vice-Chancellor, RAJUVAS, Bikaner

Ex-officio members of BOM

- Principal Secretary, Animal Husbandry, Dairy& Fisheries Department, GOR
- Additional Principal Secretary, Finance Department Government of GO Managing Director of Rajasthan Co-operative Dairy Federation,
- Director Animal Husbandry, of GOR
- Director of Fisheries, GOR Rajasthan ,
- Registrar, RAJUVAS, Bikaner.
- Two members are nominated by Hon'ble Governor of Rajasthan
- Three members are nominated by Vice-Chancellor.
- Four members by Government of Rajasthan
- One member is nominated by Veterinary Council of India.

2. Academic Council

The Academic Council is the principal academic body which controls and frame all the academic regulations and responsible for making standards of instructions, education and examination in the university.

Vice-Chancellor

Chairman

Registrar

Member Secretary.

Members of the Council

- Secretary to Government, Department of the Animal Husbandry Dairy and Fisheries
- Managing Director of Rajasthan Co-operative Dairy Federation, Director, Animal Husbandry, GOR
- Director Fisheries, GOR
- Chairperson, Faculty of Veterinary and Animal Science, Bikaner
- Dean, CVAS, Navania, Vallabhnagar
- Dean, P.G.I.V.E.R
- Dean, CVAS, Jodhpur
- Dean, CDST, Bikaner
- Dean, CDFT, Bassi, Jaipur
- Dean, Post Graduate Studies
- Dean, Students Welfare,

- Director Research
- Director Extension Education
- Director, PME
- Director Clinics
- Ten members amongst Head of the Departments to be nominated by Vice-Chancellor
- Three persons having special or practical experience in different aspect of veterinary and animal science to be nominated by Vice-Chancellor.

3. Faculty Chairman

To look after the work of teaching, research and extension in the fields of veterinary and animal science, dairying, fisheries and allied sciences in the state of Rajasthan Dean and Faculty Chairman is appointed by the Vice Chancellor.

4. Board of Studies

Board of Studies is for framing the curricula for under graduate and post graduate programmes and to make recommendations to academic council for establishment of new departments, abolition /subdivision or reconstitution of the existing departments. The Board of Studies of the faculty of Veterinary and Animal Science has been constituted as:

Dean of Faculty

Chairperson of the Board of studies

Members of the Board of studies (BOS)

- Deans of the constituent and affiliated colleges,
- Four Principals of affiliated Animal Husbandry Diploma Institutions,
- All Heads of the Departments-cum-Chairperson of Committees of Courses
- Conveners of the Committees of Courses of the concerned departments,
- One senior faculty member from each Department nominated by the Dean of Faculty
- Two External Experts nominated by the Dean and Chairman of the Faculty approved by the Academic Council.
- Senior most Head of the Department shall be the Member Secretary of BOS

5. Research Council

The Research Council is policy making body on research activities of the university .The set up of council is as below:

Vice-Chancellor

Chairman

Director Research

Member Secretary.

Members of Research Council

- Managing Director of Rajasthan Co-operative Dairy Federation,
- Director of Animal Husbandry, GOR,
- Director of Fisheries, GOR,
- Director of Extension Education
- Deans of Constituent colleges
- Directors of the University,
- Heads of the Departments,
- All In-charges of Livestock Research Stations,
- All Principal Investigators of research schemes and projects Four co-opted members as members of the council. The research in University is under the control of Director of Research with its head-quarter at Bikaner.

6. Extension Education Council

The Extension Education Council (EEC) is policy making body on extension activities of the university with Vice-Chancellor as its Chairman and Director Extension Education as its Member Secretary.

Vice-Chancellor

Chairman

Director Extension Education

Member Secretary.

Members of Extension Education Council

- Managing Director of Rajasthan Co-operative Dairy Federation,
- Director of Animal Husbandry, GOR,
- Director of Fisheries, GOR,
- Director of Research
- Deans of Constituent colleges
- Directors of the University,
- Heads of the Departments
- All Incharges of Pashu Vigyan Kendra
- All Incharges of Krishi Vigyan Kendra (KVKs)
- Two eminent persons in the field of Extension Education from outside nominated by the Vice-Chancellor,
- Two progressive livestock or fisheries farmers nominated by Vice-Chancellor
- CEO, URMUL Trust, Bikaner.

7. Planning Board

The Planning Board of RAJUVAS shall advise generally on the planning and development of the University and keep under review the standard of education and research in the University. The Board has the right to advise the Board of Management, Academic Council, Research Council and Extension Education Council on any academic, research and extension matter. The Planning Board shall consist of the Vice-Chancellor, RAJUVAS as ex-officio chairperson and not more than eight persons of high academic standing nominated by the Vice-Chancellor.

8. Finance Committee:

The Finance Committee of university advise on matters related to administration of property and funds of university.

Vice-Chancellor

Chairman

Comptroller

Member Secretary

Members of Finance Committee

- Principal Secretary to the Government Animal Husbandry, Dairying and Fisheries Department
- Principal Secretary Finance Department
- Dean, College of Veterinary and Animal Science, Bikaner are its members.

B. OTHER FUNCTIONAL UNITS

1. Core Advisory Committee

The Vice-Chancellor has constituted Core Advisory Committee and nominated Registrar as its Member Secretary. The meeting of the above committee will be presided by Hon'ble Vice-Chancellor. Chairman Faculty and Dean, CVAS, Bikaner, Dean Post Graduate Studies, Director Extension Education, Director Clinics, Director Research, Veterinary and Animal Science, Dean, CVAS, Navania, Vallabhnagar, Dean Students 'Welfare, Controller of Examinations, Director, PME and Comptroller are the members of the committee.

2. Public Relations Cell

The Public Relations Cell is engaged in disseminating policies, programmes, research, extension and developmental activities of RAJUVAS for welfare of people of the state in particular and country as whole.

Public Relations Cell since its inception publishing newsletter quarterly named as "RAJUVAS Newsletter" including all research, extension and educational activities conducted during particular quarter. Four issues of RAJUVAS Newsletter were released during this year. This cell also published the RAJUVAS Calendar, RAJUVAS in Headlines and New Year Greetings in this year. This cell is also responsible for giving publicity to Press & Media.

3. Dean Students' Welfare

The office of the Dean Students' Welfare started working in the May 2010 with the establishment of the new University. Dean Students' Welfare coordinating the sports, cultural activities initiated by the State Government and Indian Council of Agricultural Research and Veterinary Council of India, National Service Scheme, National Cadet Corps. DSW coordinating literary, fine arts competitions and personality development programmes in the constituent colleges. It also acts as a nodal centre to promote cooperation and fellowship among students on campuses. DSW encourage students to give expression to their talents to enrich our social fabric and improve campus life besides pursuing their academic targets. The election of the student's union of University was not conducted due to COVID-19 pandemic.

4. Directorate of Prioritization, Monitoring and Evaluation (DPME)

The Directorate of Prioritization, Monitoring and Evaluation was established in the year 2010-11, with the objective to plan and monitor education, research, extension activities, human resource, finance etc. Directorate of Prioritization, Monitoring and Evaluation is responsible to explore and establish the priorities, monitor ongoing activities and evaluate the complete activities of the University. The directorate is responsible for coordinating all the units of the university in terms of seeking information, compilation and preparation of various types of university documents viz: Annual reports, Varshik Pragati Prativadan for vidhan-sabha etc. for furnishing to ICAR, Government of Rajasthan and various Agricultural Universities.

5. University Student's Placement Cell

To create and enhance the career opportunities to veterinary graduates and postgraduates, University Placement Cell was established by RAJUVAS. This cell is maintaining a computerized database of veterinary graduates and postgraduates. With the help of this database, the cell sponsors list of students to the recruiting agencies for employment opportunities. A software company has developed and installed the software programme for University placement Cell and is now in operation.

6. Integrated University Management System (IUMS)-

IUMS is web enabled application that takes care of almost all the functions of University. RAJUVAS has achieved new-found operational efficiency after successful implementation of the Integrated University Management System. After Implementation of IUMS, the University effectively manages the student's entire academic cycle beginning from pre-admission to alumni management; taking them through admission, academics, fee management, exams and results processing with issuance of the degree/certificate. It is also powered with user-friendly reports and user friendly interface thereby ensuring maximum user efficiency (bring analytical ability of reports here).

With increasing number of students every year, this system helps RAJUVAS to maintain students' entire life cycle details, which is accessible on a click. System also helped university in generation of various Dynamic & Analytical reports for planning & decision making. University has also implemented Employee/Student portal that has given great ease to students & employees in their normal day-to-day activities and interaction with university.

Now, Students applies their exams through online portal and get various notifications related to their attendance, fee, exams & results. Employee applies/approves their leaves through employee portal, generates their salary slips, get loan and advances details online. RAJUVAS has fully automated the entire Finance & HR practices of university like the recruitment, employee personal & professional details, payroll process, salary slip generation, detailed bank statement to be sent to the bank and conveyance as per the vouchers to name a few. It also helped RAJUVAS in documentation required in appointment letters, creation of masters, maintenance of increments, other allowances like arrears, calculation of supplementary bills, advances taken against salary, etc. The various modules were installed in IUMS i.e. OSES-On Screen Evaluation & Advanced Examination Management, Pre-Admission, Recruitment, Self Service Portal (SSP), HRMS, Payroll & Establishment, Stores & Purchase, Budget Management, Placement Service, VC & Administrative Offices, GPF & Pension, Financial Accounts, Admission & Academics, Examination & Results, Veterinary Hospital Management, Live-Stock & Farm Management, Industry University Interaction, Alumni Management, Research, Letter Movement System, File Movement System, Attendance & Fee management System, Meetings & Committee Management, Events & Seminar Management, Assets & Estate Management, Mail Server & SMS Server, Smart Class, Library Automation through RFID Technology.

7. Dean Post-Graduate Studies

The responsibility of the Dean, PGS is mainly to plan, articulate, coordinate, monitor and achieve the new dimension of post-graduate education and student research in consultation with the Deans of constituent colleges and Heads of the Departments. It

is one of the prime responsibilities of Dean, PGS to maintain high standards of PG education and research at the University. At present, the University offers Master of Veterinary Science and Doctor of Philosophy degree programmes in 17 disciplines. More than 550 students got approved their theses in M.V.Sc. and Ph.D. since its establishment. This office conducts Pre-PG test for M.V.Sc and Ph.D. programmes annually for admission in various disciplines. Besides this, the approval of programmes of work and plan of research for thesis, appointment of examiners, evaluation of theses and to maintain records of PG and Ph.D. students are carried out.

8. Directorate of Clinic

The Directorate of clinic was created with the objectives to run the clinical services at all the campuses of RAJUVAS and to make such services as referral facilities. The post and office of Director Clinic is at the University head office. At all the three campuses namely CVAS, Bikaner, CVAS, Navania, Udaipur, PGIVER, Jaipur and the three clinical departments as Veterinary Gynaecology and Obstetrics, Veterinary Medicine and Veterinary Surgery and Radiology are providing, the clinical services to the farmers and animal owners 24X7.

Time to time out skirt animal treatment camps are also organized specially in rural areas. A regular ambulatory service is in practice at all campuses which not only provide clinical services at distant places within the city but also become a good clinical academic learning for students. Under all the Veterinary Clinical Complexes everywhere a state-of the-art Clinical Diagnostic Laboratory is working. One pet animal ICU is developed at Bikaner VCC campus. Separate indoor ward facilities are there for indoor animal patients at Surgery, Medicine and Gynecology & Obstetrics departments. Farmers' hostel facility is developed with all essential facilities.

9. Controller of Examinations

The Controller of Examinations office is responsible for the enrolment of student in various academic programme (UG, PG, Ph.D. and Two-year Diploma programme), preparation of question papers, conduction of examinations, evaluation of answer scripts, declaration of results and issuing of Mark sheet, grade sheets and transcript. For the first time in the history of Rajasthan, the University has implemented on Screen Evaluation and Advanced Examination Management System (OSES), which may act as a catalyst to change the existing examination evaluation process. The unique strength of this project lies in its comprehensive and ground-breaking approach to reduce errors and save time in examination evaluation process. Using OSES system in the examination the university is able to declare the result of the different programme within 2-3 weeks after the examinations.

10. Directorate of Works (Estate Office)

Directorate of Works (Estate Office) plays an instrumental role in the management of assets of the University and responsible for the administration and management of Estates Residential/ Office Accommodation of RAJUVAS at Bikaner, Jaipur, Udaipur and other stations of the University located in different districts. The Estate Office deals with the entire activities involved in construction of building, their maintenance, maintenance of water and electricity supply as well as record keeping of all buildings and infrastructure.

11. Directorate of Human Resource Development

Human resource is the most crucial, vital and dynamic resource to achieve the objectives and goals of the University. There is always need to have a systematic approach to develop and improve competency of the human resource in terms of Skills, Knowledge and Attitude, Behaviour through appropriate training and development programmes from time to time. In order to strengthen and facilitate training and capacity building of all categories of the stakeholders, the Directorate of HRD shall be created to carry out activities with the purpose to ensure the growth and management of the faculty/staff/students/entrepreneurs/ farmers etc. in pursuance of the mandate of the university. Directorate of Human Resource Development is responsible to overall monitoring, implementation, evaluation and management of HR needs and requirements of the University.

12. ICAR Nodal Office

ICAR nodal office is a link office between the university and ICAR. This office explores the logistics, amenities of the university and justifying the needs of the university raises the financial demands under various heads from ICAR. It also communicates with the ICAR regarding students' fellowships of the ICAR sponsored students and also monitors the proper and timely utilization of funds provided by the ICAR. The office also monitors the allocation of ICAR funds after discussion with the university.

13. R&V NCC Squadron and Regiment

In order to inculcate the spirit of community service amongst students, there are two NCC units functional at CVAS, Bikaner and CVAS, Navania (Udaipur). 1 R&V NCC Sqn located at CVAS, Bikaner is fully equipped with horse line (having 13 army horses), an arena for exercising and show equestrian sports. 2 R&V Regiment located at CVAS, Vallabhnagar, Udaipur (having 26 army horses) is the largest R&V Regiment of India with an arena for exercising, horse shelter, drill ground and show equestrian sports. These units provides institutional training as well as various camp trainings, National integration, Advance leadership, Summer camp, Rock climbing, Para jumping, Mountaineering, Army attachment camp, Republic day camp etc.

Officers of the University

Vice-Chancellor	Prof. (Dr.) Satish Kumar Garg
Pro Vice-Chancellor	Prof. (Dr.) Hemant Dadhich
Dean and Chairman Faculty, College of Veterinary and Animal Science, Bikaner	Prof. (Dr.) A.P. Singh
Dean, College of Veterinary and Animal Science, Navania, Vallabhnagar, Udaipur	Prof. (Dr.) R.K. Nagda
Dean, Post Graduate Institute of Veterinary Education and Research (PGIVER), Jaipur	Prof. (Dr.) Sheela Choudhary
Director Research	Prof. (Dr.) Hemant Dadhich
Director, Extension Education	Prof. (Dr.) R.K. Dhuria
Director, Prioritization, Monitoring and Evaluation	Prof. (Dr.) Basant Bais
Director, Human Resource Department	Prof. (Dr.) B.N. Shringi
Dean, Post Graduate Studies, Bikaner	Prof. (Dr.) R.K. Dhuria
Dean, College of Dairy Science and Technology, Bikaner	Prof. (Dr.) Hemant Dadhich
Dean, College of Dairy and Food Technology	Prof. (Dr.) D.S. Meena
Dean, College of Veterinary and Animal Science, Jodhpur	Prof. (Dr.) S. K. Sharma
Director, Clinics	Prof. (Dr.) Praveen Bishnoi
Dean, Student Welfare	Prof. (Dr.) Praveen Bishnoi
Controller of Examination	Prof. (Dr.) Urmila pannu
Director, Works (Estate Office)	Prof. (Dr.) Hemant Dadhich
Registrar	Smt. Bindu Khatri
Comptroller	Sh. Banwari Lal Sarwa
OSD to Vice-Chancellor	Prof. (Dr.) R.K. Dhuria
Convener, Public Relation Cell	Prof. (Dr.) R.K. Dhuria

Important Meetings of University

6th Meeting of Council of Officers	10.04.2023
Interaction Meeting with Students	13.04.2023
Meeting for Academic Excellence	21.04.2023
30th Meeting of Board of Management	23.05.2023
Review Meeting for CM Budget Announcements	26.05.2023
Meeting of Affiliated Veterinary Colleges Officials	14.06.2023
Review Meeting of LRS	23.06.2023
Review Meeting for Academic Improvement	17.07.2023
25th Meeting of Academic Council	24.07.2023
31th Meeting of Board of Management	05.08.2023
32th Meeting of Board of Management	14.09.2023
Meeting on National Education Policy	18.11.2023
33th Meeting of Board of Management	06.12.2023
34th Meeting of Board of Management	15.03.2024

Administrative Meetings

30th Meeting of Board of Management

30th meeting of Board of Management RAJUVAS was conducted under chairmanship of Vice-Chancellor Prof. Satish K. Garg on 18th May 2023. In the meeting, it was approved to implement the old pension scheme for university teachers and employees as per the instructions of the state government. Approval was also given to the proposal for establishment of Directorate of Para-Veterinary Education and Subject-wise division of sanctioned academic posts for five Pashu Vigyan Kendra. All honourable members of BOM and representatives were present in meeting.

Meeting for Academic Excellence

An interaction meeting was conducted on hybrid mode for discussion on different educational issues under the chairmanship of Vice-Chancellor, Prof. Satish K. Garg on 21th April 2023. During the meeting Vice-Chancellor Prof. Garg said that academic improvement and excellence in the university is our main objective. For this, all the physical facilities in the college will be expanded on priority. During the meeting, all Dean, Directors and teachers were present.

Interaction Meeting with Students

An interaction meeting was conducted with students and teachers for discussion on different educational issues under the Chairmanship of Vice-Chancellor Prof. Satish K. Garg on 13th April 2023. During the meeting Vice-Chancellor, Prof. Garg, talked about class attendance of students, completion of courses according to academic session, timely evaluation of answer books and hostel and sports facilities available to students and gave many important suggestions and guidelines for educational reform and ensuring availability of facilities for the students. Dean Prof. A.P. Singh along with all teachers and students were present.

Meeting with Officials of Affiliated Veterinary Colleges

A review meeting for academic quality improvement was organized under Chairmanship of Vice-Chancellor Prof. Satish K. Garg on 14th June 2023 with all Deans, Directors and Principal of the constituent and affiliated Veterinary Colleges. Vice-Chancellor Prof. Garg said all colleges should make efforts for continuous improvement for quality educational environment and all-round development of students. A detailed discussion was held on affiliation fee, counselling enrolment details of students, all-round development of students, professional ethics and other administrative issues.

Review Meeting for CM Budget Announcements

A review meeting was organized under the Chairmanship of Vice-Chancellor Prof. Satish K. Garg for smooth implementation of different budget announcements of Chief Minister for Rajasthan on 26th May 2023. Vice-Chancellor Prof. Garg gave necessary guidelines to all the concerned officials and Estate Officer of the University to start and complete these announcements of the State Government on time.

Review Meeting of LRSs

Vice-Chancellor Prof. Satish K. Garg reviewed the action plan and progress of LRS working under the Directorate of Research of RAJUVAS on 23rd June 2023. All officers' In-charge of LRSs presented the progress reports of the research centres. Director Research Prof. Hemant Dadhich presented the overall progress of the research undertaken under Directorate of Research.

Review Meeting for Academic Improvement

A review meeting on hybrid mode was organized on 17th July 2023on hybrid mode under the Chairmanship of Vice-Chancellor Prof. Satish K. Garg for quality improvement in higher education. Vice-Chancellor Prof. Garg instructed and suggested about regular attendance of students in departments, academic calendar and for conducting courses as per regulation, constituting advisory committee for research, quality research work and publishing research papers. During the meeting all Dean, Directors, PG and Ph.D Students were present.

25th Meeting of Academic Council

25th Academic Council meeting of RAJUVAS was organized under the Chairmanship of Vice-Chancellor Prof. Satish K. Garg on 24th July 2023 on hybrid mode. Different agendas were approved by the members of Academic Council regarding establishment of separate Poultry Science Department in the three constituent colleges, establishment of separate Veterinary Biochemistry Department in Jaipur. The members of the council also approved the rules of the revised Postgraduate Academic Regulation-2023. Basic rules and score card for the selection of Deans-Directors were also approved in the meeting. All Deans, Directors and nominated members graced the meeting.

31st Meeting of Board of Management

31st meeting of Board of Management was conducted on 5th August 2023 under the Chairmanship of Vice-Chancellor Prof. Satish K. Garg. The BOM approved the results of the interview for 24 posts of Assistant Professors of different subjects for Dairy Science and Technology and Dairy Science and Food Technology Colleges of RAJUVAS. In the meeting, it was also approved to auction the surplus and unusable animals at all the LRS of university. The compliance report of the last meeting of the BOM and Academic Council was approved. All Hon'ble members of the Board of Management graced the meeting.

32th Meeting of Board of Management

The 32th meeting of Board of Management of RAJUVAS was held on 14th September 2023 under the chairmanship of Prof. Satish K. Garg, Vice-Chancellor RAJUVAS, Bikaner. Different educational issues were discussed and approved in the meeting. BOM approved the adoption of amended provisions of UGC 2023 in the main regulations of UGC 2018 and proposal of increase the admission seats of students from 50 to 100 in the constituent two-year Animal Husbandry Diploma Institutes of the University, Bojunda (Chittorgarh), Nohar (Hanumangarh) and Chandan (Jaisalmer). The expansion of affiliation of private veterinary colleges affiliated to the university was also approved. In the meeting, all Hon'ble members of BOM were present.

33rd Meeting of Board of Management

The 33rd meeting of Board of Management of RAJUVAS was held on 6th December, 2023 under Chairmanship of Vice-

Chancellor Prof. Satish K Garg. In the meeting, BOM approved the results of the interviews held for 48 posts of Assistant Professors, Assistant Director Extension, Assistant Director Research and Assistant Librarian. Vice-Chancellor Prof. Garg said this is a proud moment for the university as the recruitment of new posts will give impetus to the teaching, research and extension work of the university. The compliance report of the last meeting of the BOM was also approved in the meeting. In the meeting, all Hon'ble members of BOM were present.

Meeting on National Education Policy

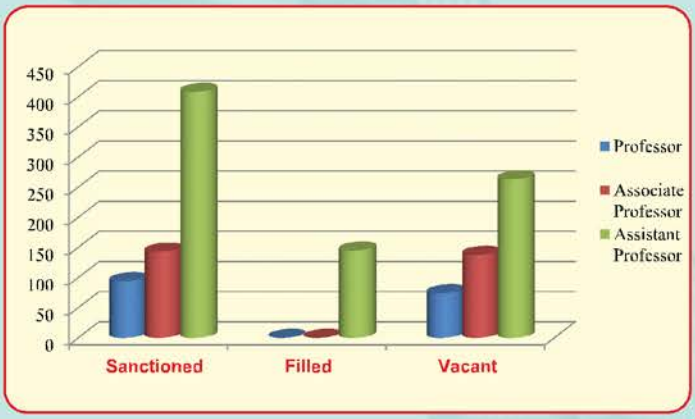
For implementation of National Education Policy in the academic courses a meeting was organized under the Chairmanship of Vice-Chancellor Prof. Satish K. Garg on 18th November, 2023 on hybrid mode. Vice-Chancellor Prof. Garg said that the field of veterinary science and animal husbandry is very wide, hence according to the National Education Policy, we have to pay attention to different dimensions in veterinary education so that opportunities can be available to develop entrepreneurship. The animal husbandry has been the main source of livelihood in Rajasthan; hence there is a need to create maximum employment in this sector by preparing a future outline in the field of veterinary science under the National Education Policy. In the meeting, all Deans and Directors were present.

34th Meeting of Board of Management

The 34th meeting of Board of Management of RAJUVAS was held on 15.03.2024 under Chairmanship of Vice-Chancellor Prof. Satish K Garg. The compliance report of the 33rd meeting of Board of Management was also approved in the meeting. The House authorize the Hon'ble Vice-Chancellor for nominating one senior professional as per the provisions mentioned in RAJUVAS, 2010 to serve as Member of the Search Committee for selection of Vice-Chancellor of RAJUVAS, Bikaner. The House resolved to approve the Balance Sheet for the Year 2020-21,2021-22 and2022-23. The House ratified and noted the action taken by the University in compliance of the order of Hon'ble High Court, Jodhpur for appointment of four Assistant Professor in the subject of Veterinary Anatomy. In the meeting, all Hon'ble members of BOM were present.

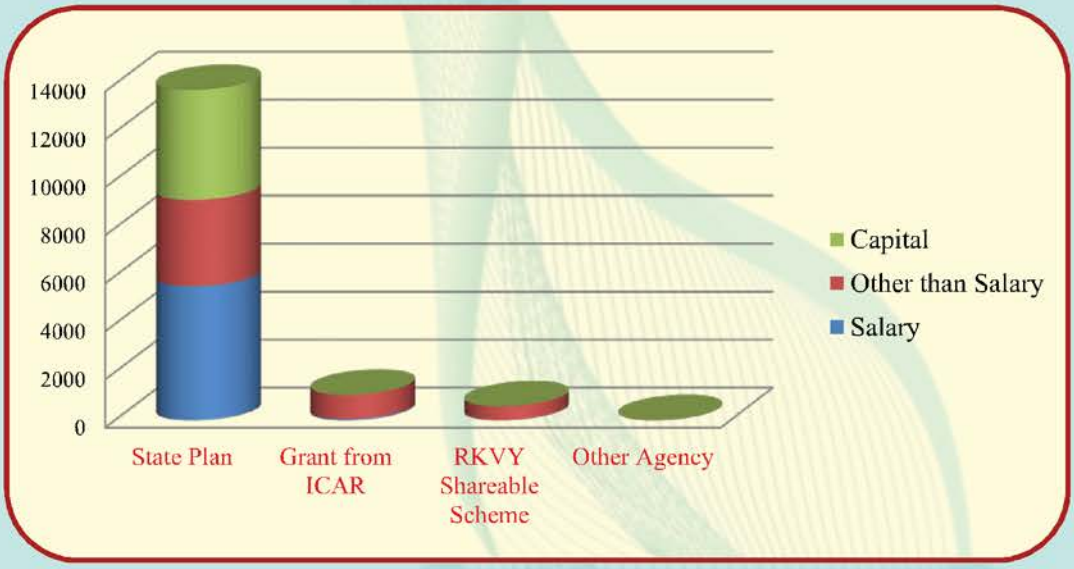
Faculty Strength

S. No	Name of Post	Sanctioned	Filled	Vacant
1.	Professor	94	-	94
2.	Professor under CAS	-	20	-
3.	Associate Professor	143	-	143
4.	Associate Professor under CAS	-	5	-
5.	Assistant professor	408	145	238
	Total	**645**	**170**	**475**



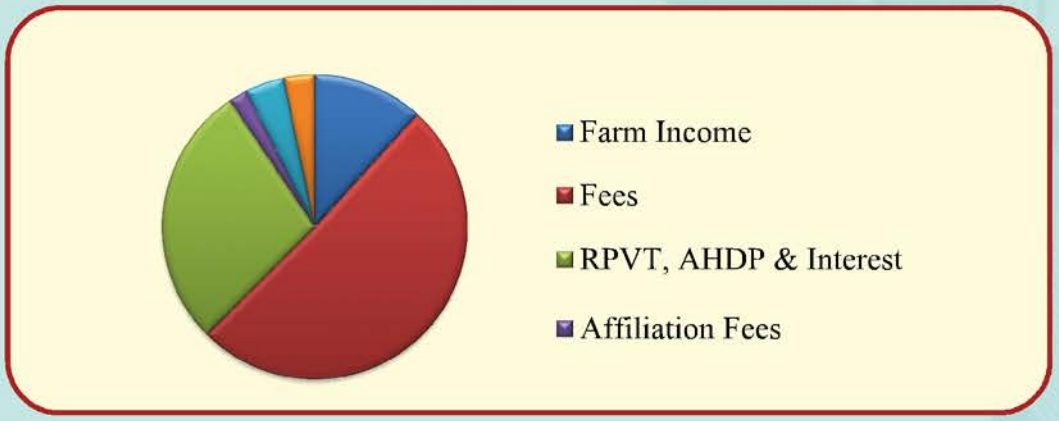
Finance and Budget

Particulars	2023-24 (Rs. In Lac)			
	Salary	Other than Salary	Capital	Total
State Plan	5580.00	3600.00	4585.00	**13765.00**
Grant from ICAR	50.56	1012.94	5.50	**1069.00**
RKVY Shareable Scheme	0.00	585.00	0.00	**0.00**
Other Agency	0.00	13.00	0.00	**13.00**
G. Total	**5630.56**	**4625.94**	**4590.95**	**14847.00**



UDF Income 2023-24

S. No.	Head	Amount (in Rs.)
1	Farm Income	77338112.00
2	Fees	334841032.00
3	RPVT, AHDP & Interest	185055947.00
4	Affiliation Fees	12975000.00
5	Other (Interest, HRA, Water, Electric. Charge, T.C OD Recovery)	27377071.00
6	Interest All Bank Account	21646693.00
	Total	**659233855.00**



।पशुधनं नित्यं सर्वलोकोपकारकम्।

University Colleges and Institutes

College of Veterinary and Animal Science, Bikaner

The College of Veterinary & Animal Science was started as the government college and named as the Rajasthan Veterinary College. Later on, it became a part of the faculty of Medicine and Veterinary of the Rajasthan University, Jaipur. In 1962, a separate Rajasthan Agriculture University was started and the college became the part of the faculty of this University. In 1964, college was affiliated with the University of Udaipur. This University was renamed as Mohan Lal Sukhadia University and then Sukhadia University. The Rajasthan Agricultural University (RAU), formerly a part of the Sukhadia University, Udaipur, became a separate entity on 1st of August 1987. RAU has been renamed as Swami Keshwan and Rajasthan Agricultural University, Bikaner (SKRAU, Bikaner) on June 09, 2009. In May 2010, it becomes the part of the Rajasthan University of Veterinary and Animal Sciences (RAJUVAS), Bikaner.

The college has 17 well established departments having well equipped laboratories with sophisticated instruments and gadgets; a well-developed library , three examination halls of the capacity of >200 students; clinical complex having indoors, outdoors, dormitory and outpatient departments of major clinical departments with richest clinical facilities like CT Scan, Ultra Sonography, laproscopy, dentistry, laser surgery ; apex centre for animal disease diagnosis, monitoring and surveillance etc. The college also have animal biotechnology laboratory, a radioisotope laboratory, computer facilities, LAN server, central instrumentation facility, animal house, canine welfare society, placement cell, internet facility and 24x7 days a week clinical and hospital facility, diagnostic laboratory, NCC (R&V) squadron unit, numerous research projects. Every department is equipped with smart classroom to facilitate improved teaching. The facilities for students are excellent in terms of 6 boys' hostels, 2 girls' hostels; spacious canteen and an elegant auditorium. The college is having ample student and faculty amenities. Staff colonies of the college have 92 quarters for all cadres. Ample playgrounds like football, hockey, basketball, tennis, volleyball, kabaddi, badminton, tennis, football, hockey, pavilion etc. and a well equipped gymnasium within the campus. Heritage buildings amalgamate very well with the latest ones on the campus. The campus is having a branch of ICICI Bank and a post-office, located just attached to the campus.

The college is offering four academic programmes namely Bachelor of Veterinary Science and Animal Husbandry (B.V.Sc.&A.H.), Master of Veterinary Science (M.V.Sc.), Doctor of Philosophy (Ph.D) and Animal Husbandry Diploma Programme (AHDP) following programmes of study. During 2023-24 College of Veterinary and Animal Sciences, Bikaner admitted 97 students (100 seats are sanctioned) for B.V.Sc. &A.H., 64 for M.V.Sc. degree programmes in CVAS, Bikaner. In two year Animal Husbandry Diploma Programmes 38 students were admitted. During the reporting year 14 Students completed their M.V.Sc. and 8 completed their Ph.D from CVAS, Bikaner. A total of 63 Students selected for ICAR-ASRB NET from CVAS, Bikaner. Total 124 research papers were published in journals by the faculty of CVAS, Bikaner during 2023-2024.

College of Veterinary and Animal Science, Navania, Vallabhnagar, Udaipur

College of Veterinary and Animal Science, Navania is the second constituent veterinary college of the **RAJUVAS**, which is situated in the southern region of Mewar in Udaipur district. The premises of the college are spread over an area of 892 big has (224 hectares) of land. The College possesses well-equipped laboratories, adequate number of classrooms, library, computer lab, stores, canteen and clinical and research facilities. The College is developing as an institution of academic excellence, including research and extension, in the field of Veterinary and Animal Sciences.

The institute is running four academic programmes namely Bachelor of Veterinary Science and Animal Husbandry (B.V.Sc. & A.H.), Master of Veterinary Science (M.V.Sc.), Doctor of Philosophy (Ph.D) and Animal Husbandry Diploma Programme (AHDP). The facilities for students are excellent in terms of one boys' hostel with capacity of having 99 rooms and one girls hostel of 94 room capacity; canteen and an elegant open auditorium. The R&V Regiment located at CVAS, Vallabhnagar, Udaipur (having 26 army horses) is the largest R&V Regiment of India with an arena for exercising, horse shelter, drill ground and show equestrian sports. All the 17 departments are well equipped with instruments, chemicals, laboratories, teaching materials etc. The college has established a TVCC with fully fledged facilities and ILFC having large animal(cattle and buffalo) unit, small animal unit, Poultry Unit, Vermicompost Unit, Fish Culture pond, Pet unit, Hydroponics Unit, Silage Unit, Biogas Based Electric Production Unit etc.

During 2023-24 College of Veterinary and Animal Sciences, Navania, Vallabhnagar admitted 91 students (100 seats are sanctioned) for B.V.Sc. & A.H., 41 for M.V.Sc. degree programmes in CVAS, Navania. In two year Animal Husbandry Diploma Programmes 46 students were admitted. A total of 4 Students were selected for ICAR's All India Entrance Examination AIEEA (PG) and 7 Students selected for ICAR-ASRB NET from CVAS, Navania. During the reporting year 11 Students completed their M.V.Sc. and one student completed Ph.D. Total 52 research papers and 34 other articles viz, book chapters or popular articles were published in journals by the faculty of CVAS, Navania during 2023-2024. A total of 38 students of College have been selected for the post of Veterinary Officer in EMRI - Green Health Service Ahmedabad, Gujarat

Post Graduate Institute of Veterinary Education & Research (PGIVER), Jaipur

PGIVER was established in 2012 at Jaipur, as a constituent college of Rajasthan University of Veterinary and Animal Sciences, Bikaner. Further in 2015- B.V.Sc. & A.H. course at Jaipur started after duly granted permission of Veterinary Council of India, New Delhi with effect from 29.10.2015. The main campus of the Institute is located at National Highway-21, Agra Road, Jamdoli, Jaipur on 18.90 acres (75608 sq.m.) of land where a newly constructed academic and administrative building with academic departments, administrative block and library being functional, Veterinary Clinical Complex building with 4 clinical departments and OPD and IPD are functional and Livestock Farm Complex having dairy, sheep & goat and poultry unit has been established. Besides the main campus, the institute is in possession of 1.52 acres of land at B-2 Bypass, Mansarovar, Jaipur, where the AHDP course is being conducted along with research projects and the university office. In addition to this, the institute has 14.22 acres of land at Kho-Nagorian, Jaipur for the purpose of feed and fodder production and NCC unit including an equine unit. The institute is running four academic programmes namely Bachelor of Veterinary Science and Animal Husbandry (B.V.Sc. & A.H.), Master of Veterinary Science (M.V.Sc.), Doctor of Philosophy (Ph.D) and Animal Husbandry Diploma Programme (AHDP).

The institute has a unique campus, which alongside main college, farms and teaching veterinary clinical complex buildings, has 17 core academic departments covering clinical, para-clinical and non-clinical aspects of veterinary science and animal husbandry curricula. Well-equipped sports facilities and attractive leisure time opportunities are offered to the students and employees of the institute. The facilities for students are excellent in terms of one boys' hostel with capacity of having 68 rooms with 204 beds and one girls hostel of 51

room capacity with 153 beds facility. In the college there is Centre for Excellence on Milk Quality and Safety Laboratory, the university office and Guest House. In addition to this, the institute has 14.22 acres of land at Kho- Nagorian, Jaipur for the purpose of feed and fodder production and NCC unit including an equine unit.

During 2023-24 PGIVER, Jaipur admitted 96 students (100 seats are sanctioned) for B.V.Sc. & A.H., 36 for M.V.Sc. degree programmes. In two year Animal Husbandry Diploma Programmes 41 students were admitted. A total of 5 Students were selected for ICAR's All India Entrance Examination AIEEA (PG) from PGIVER. During the reporting year 15 Students were selected for ICAR-ASRB NET examination.

16 Students completed their M.V.Sc. and 1 Ph.D. Total 77 research papers were published in journals by the faculty of PGIVER, Jaipur during 2023-2024.

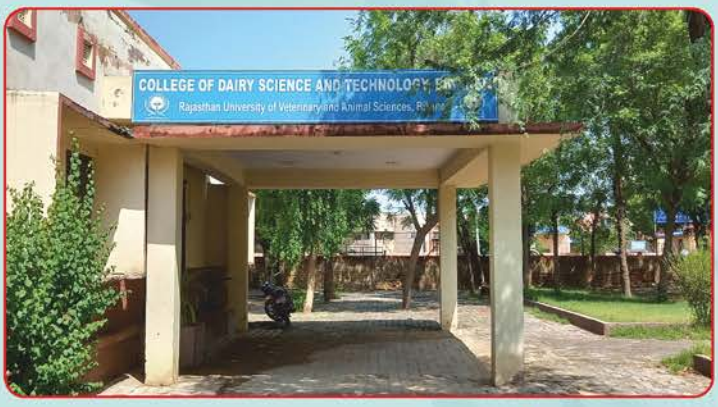
College of Veterinary and Animal Science, Jodhpur (RAJUVAS- Bikaner)

The College of Veterinary and Animal Science, Jodhpur is a constituent college of Rajasthan University of Veterinary and Animal Sciences (RAJUVAS) Bikaner, situated near Netra Toll Plaza on Jodhpur-Nagaur National Highway. It is 41 km away from the main city. Institutes of National Repute such as IIT, Rural AIIMS, NIFT and Ayurved University are located in the vicinity of 10-12 km only. The premises of the college are spread over an area of 80 bighas (20 hectares) of land. The foundation laying stone of this veterinary college building was laid by Shri. Kalraj Mishra, Hon'ble Governor, Rajasthan State and Chancellor, RAJUVAS, Bikaner on 10 June 2021. This college is the first veterinary college of Marwar region of Rajasthan and it has been established with the aim to develop the human resources in the field of Veterinary Science. Presently, this college has established the Departments required for teaching of Ist and IInd year B.V.Sc. and A.H. along with the Veterinary Clinical Complex and Livestock Farm Complex as per MSVE 2016 (VCI Regulations).Further, separate hostels for boys and girls, staff quarters etc. has also been constructed and furnished. The main building also possess 3 lecture halls, a double storied library building, 4 examination halls, a spacious canteen, seminar halls, committee rooms and administrative sections. A total of 17 rooms with triple seated capacity and a dining hall have been constructed in both the hostels till now and more rooms will be constructed in near future. A total of four staff quarters are ready for faculty members.

An auditorium for cultural activities and the playground, central instrumentation facility (CIF) at the college campus to support research and academic development activities. The veterinary clinical complex consists of five sections viz. Veterinary Medicine, Veterinary Surgery and Radiology, Veterinary Gynecology and Obstetrics, Veterinary Laboratory Diagnosis and Ambulatory section.. Under livestock farm complex (LFC) animal houses for different livestock species such as cattle, buffalo, sheep, goat and poultry are almost complete. This livestock farm complex will also be used for instructional demonstration of livestock management in a precise way. The animals will be procured in very near future.

The opening of this college will give impetus to the overall development of Veterinary and Animal Husbandry in the Marwar Region of Rajasthan State. Presently, CVAS, Jodhpur has 20 faculty members including 18 Assistant Professors, 01 Assistant Librarian and one Dean. Prof. (Dr.) S.K. Sharma .Soon the college will start the admission of academic programme namely Bachelor of Veterinary Science and Animal Husbandry (B.V.Sc. & A.H.) in coming session.

College of Dairy Science & Technology (CDST), Bikaner (RAJUVAS-Bikaner)



The College of Dairy Science & Technology (CDST), Bikaner is a constituent College of Rajasthan University of Veterinary and Animal Sciences (RAJUVAS), Bikaner. In order to create technical professionals, the Hon'ble Chief Minister of Rajasthan, has announced new colleges for a professional graduate degree programme in Dairy and Food Technology in the budget announced in the year 2021.

The CDST, Bikaner is fully operational as per fifth Dean's committee recommendation of ICAR. A four-year Undergraduate Programmes B. Tech. in Dairy Technology was started in year 2021 with well-established and well-equipped Laboratories, plant & machineries in each department and other facilities viz., smart

classrooms, Games/Sports. The college is blessed with young and dynamic faculty with wide exposure. A graduate in Dairy Technology is well-qualified to give their services in cooperatives, banks, government, and private sector industries. Dairy Technology graduate would be eligible in central and state government jobs for the posts of dairy extension officers, food safety officers, food analyst etc. Presently the College of Dairy Science and Technology, has started their schedule at Department of Livestock Production and Management, RAJUVAS, Bikaner. Total 7 research papers were published in journals by the faculty of CDST, Bikaner

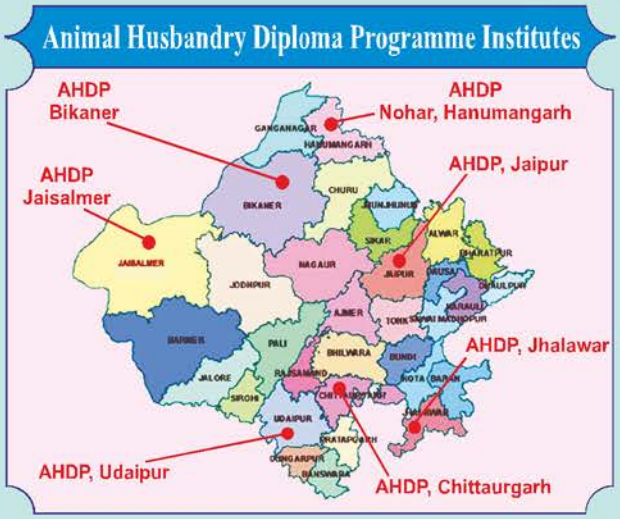
College of Dairy and Food Technology, Bassi, Jaipur (RAJUVAS-BIKANER)

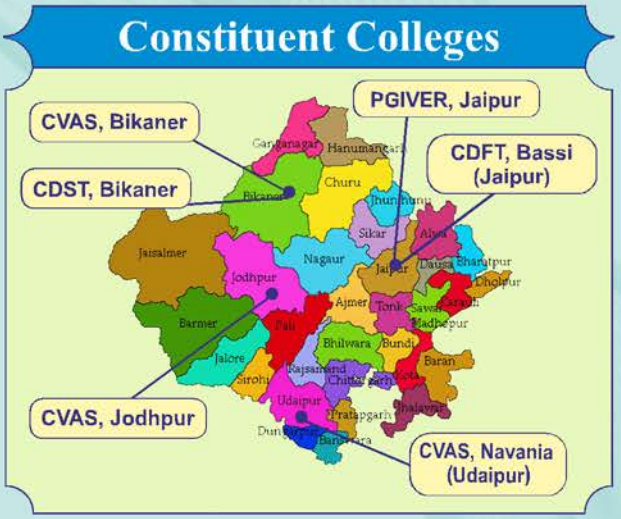
The college of Dairy & Food Technology (CDFT), Bassi, Jaipur is a constituent College of Rajasthan University of Veterinary and Animal Sciences (RAJUVAS), Bikaner. The CDFT, Bassi, Jaipur is fully operational as per Fifth Dean's committee recommendation of ICAR with Two four-year Undergraduate Programmes viz., B. Tech. in Dairy Technology and B. Tech. in Food Technology. The college is developing its infrastructure with well-established and well-equipped Laboratories, plant & machineries (Dairy and Food) in each department and other facilities viz., smart classrooms, Games/Sports. A graduate in dairy/food technology is well-qualified to give their services in cooperatives, banks, Government, and private sector industries. Dairy/ Food Technology graduate would be eligible in central and state government jobs for the posts of dairy extension officers, food safety officers etc. Presently the College of Dairy & Food Technology (CDFT) has started their schedule at Campus-PGIVER, NH-21, opposite Chanda Garden, Agra Road, Jamdoli-302031, Jaipur. The construction of the college building commenced in last year with the aim of providing state-of-the-art facilities to students and faculty members. The structural framework of ground floor of the college building has been constructed. Total **3** research papers were published in journals by the faculty of CDFT, Bassi, Jaipur.

Animal Husbandry Diploma Programme

The university is imparting two years Animal Husbandry Diploma Programme in constituent AHDP institutes affiliated to University, which have the capacity to train about 2023-24, 5036 students were admitted in the first year AHDP. Admission for AHDP Programme are being done on the merit drawn on the basis of Senior Secondary (10+2) or equivalent. There are 50 seats in each institute.

All seats (100%) of the constituent and affiliated Government AHDP institutes as well as 85% seats of all affiliated private institutions are State quota seats and filled from the candidates of Rajasthan domicile by merit-cum-reservation as per rules. At present 100 institutes (constituent/Govt./private) affiliated to this University are imparting Animal Husbandry Diploma course. To date, there are 7 constituent AHDP institutes of the university located at CVAS Bikaner, PGIVER Jaipur, CVAS, Navania Udaipur, LRS Nohar Hanumangarh, LRS Chandan Jaisalmer, LRS Bojunda Chittorgarh, LRS Jhalawar and four are State Govt institutes located at Jaipur, Kota, Jodhpur and Udaipur. There are 89 private AHDP institutes affiliated to RAJUVAS and located at different parts of Rajasthan.





Intake Capacity and Student strength

Intake Capacity in Constituent Veterinary Colleges of RAJUVAS, Bikaner

S. No	Name of college	Total No of Seat	State	Payment	VCI/ ICAR	NRI/Other State
Intake Capacity (B.V.Sc. & A.H.)						
1	College of Veterinary & Animal Science Bikaner	**100**	35	45	15 VCI	5 NRI
2.	College of Veterinary & Animal Science , Navania, Vallabhnagar, Udaipur	**100**	35	45	15 VCI	5 NRI
3	Post Graduate Institute of Veterinary Education & Research, Jaipur	**100**	35	45	15 VCI	5 NRI
Intake Capacity (M.V.Sc.)						
1	College of Veterinary & Animal Science Bikaner	**65**	31	19	9 ICAR	6 Other State
2.	College of Veterinary & Animal Science, Navania, Vallabhnagar, Udaipur	**35**	19	12	-	4 Other State
3	Post Graduate Institute of Veterinary Education & Research, Jaipur	**36**	19	14	2 ICAR	1 Other State
Intake Capacity (Ph.D.)						
1	College of Veterinary & Animal Science Bikaner	**25**	14	11	-	-
2.	College of Veterinary & Animal Science, Navania, Vallabhnagar, Udaipur	**20**	10	10	-	-
3	Post Graduate Institute of Veterinary Education & Research, Jaipur	**18**	9	9	-	-

Intake Capacity (M.V.Sc) Department wise in Constituent Veterinary Colleges

Total No of Seat (Department Wise)	CVAS, Bikaner				CVAS, Navania, Udaipur				PGIVER, Jaipur			
	State	Payment	ICAR	Other State	State	Payment	ICAR	Other State	State	Payment	ICAR	Other State
Animal Genetics & Breeiding	1	0	1	0	1	0	0	0	0	1	1	0
Animal Nutrition	2	1	1	1	2	1	0	0	1	1	1	0
Animal Reproduction, Gynecology and Obstetrics	2	2	0	1	2	1	0	1	1	1	0	1
Livestock Production Management	2	1	1	0	2	1	0	0	1	1	1	0
Livestock Product Technology	1	1	0	0	1	1	0	0	1	1	0	0
Veterinary Anatomy and Histology	2	2	1	0	2	1	0	0	0	0	0	0
Veterinary Animal Husbandry & Extension	2	1	0	0	0	0	0	0	2	1	0	0
Veterinary Bochemistry	1	1	0	0	0	0	0	0	1	1	0	0
Veterinary Clinical Medicine, Ethics and Jurisprudence	2	1	0	1	2	1	0	1	4	2	0	1
Veterinary Microbiology	2	1	0	0	2	1	0	0	1	1	0	0
Veterinary Parasitology	1	1	1	0	1	1	0	0	1	1	0	0
Veterinary Pathology	2	1	1	1	2	2	0	1	1	1	0	1
Veterinary Pharmacology and Toxicology	3	1	1	0	0	0	0	0	0	0	0	0
Veterinary Physiology	1	0	1	0	1	1	0	0	1	1	0	0
Veterinary Public Health and Epidemiology	1	1	0	0	1	1	0	0	1	0	0	0
Veterinary Surgery and Radiology	5	3	1	1	0	0	0	1	3	1	0	1
Poultry Science	1	1	0	1	0	0	0	0	0	0	0	0
Total	**31**	**19**	**9**	**6**	**19**	**12**	**0**	**4**	**19**	**14**	**3**	**4**

Intake Capacity (Ph.D.) Department wise in Constituent Veterinary Colleges

S.No.	Total No of Seat (Department Wise)	CVAS, Bikaner		CVAS, Navania		PGIVER, Jaipur	
		State	Payment	State	Payment	State	Payment
1.	Animal Genetics & Breeiding	0	0	1	0	1	0
2.	Animal Nutrition	2	1	1	1	0	0
3.	Animal Reproduction, Gynecology and Obstetrics	1	1	0	1	0	1
4.	Livestock Production Management	0	1	1	0	1	0
5.	Livestock Product Techno logy	1	1	1	1	0	1
6.	Veterinary Clinical Medicine, Ethics and Jurisprudence	1	0	1	0	2	2
7.	Veterinary Microbiology	1	1	1	1	1	1
8.	Veterinary Pathology	1	1	2	2	0	1
9.	Veterinary Public Health	1	0	0	1	0	1
10.	Veterinary Surgery and Radiology	2	1	0	0	2	1
11.	Veterinary Anatomy and Histology	1	1	0	1	0	0
12.	Veterinary Physiology	0	0	1	1	1	1
13.	Veterinary Parasitology	1	0	1	1	0	0
14.	Veterinary Animal Husbandry & Extension	1	1	0	0	0	0
15.	Veterinary Bochemistry	0	1	0	0	1	0
16.	Veterinary Pharmacology and Toxicology	1	1	0	0	0	0
	Total	**14**	**11**	**10**	**10**	**9**	**9**

*Unfilled seats reserved for any category will be filled as per state reservation policy
** Unfilled seats of ICAR admitted candidates will be filled by state reservation policy

Student Strength College wise during 2023-24

B.V.Sc.&A.H						M.V.Sc.			Ph.D				2 Years Diploma in A.H.			
CVAS, Bikaner																
I	II	III	IV	Intern	**Total**	I	II	**Total**	I	II	III	**Total**	I	II	**Total**	**G. Total**
97	73	80	54	69	**373**	64	55	**119**	10	20	22	**52**	38	42	**80**	**624**
CVAS, Navania, Vallabhnagar																
I	II	III	IV	Intern	**Total**	I	II	**Total**	I	II	III	**Total**	I	II	**Total**	**G. Total**
91	87	70	53	77	**378**	41	30	**71**	02	05	03	**10**	46	46	**92**	**551**
PGIVER, Jaipur																
I	II	III	IV	Intern	**Total**	I	II	**Total**	I	II	III	**Total**	I	II	**Total**	**G. Total**
96	78	74	51	64	**363**	36	40	**76**	11	12	6	**29**	41	45	**86**	**554**

Intake Capacity and Student strength in constituent Dairy Colleges RAJUVAS, Bikaner

S. No.	Name of college	Total No of Seat	Seat Filled				Total
Intake Capacity (B.Tech.)			**I**	**II**	**III**	**IV**	
1	College of Dairy Science & Technology, Bikaner	**40**	36	6	-	-	42
2	College of Dairy and Food Technology, Bassi, Jaipur						
	A. Dairy Technology	**40**	3	11	-	-	14
	B. Food Technology	**40**	1	9	-	-	10
	Grand Total	**120**	**40**	**26**	**-**	**-**	**66**

Student Strength in Constituent Animal Husbandry Diploma Institutes

S.N.	Name of the constituent Animal Husbandry Diploma Institutes	AHDP		Total
		I	II	
1.	College of Veterinary & Animal Science, Bikaner	38	42	80
2.	College of Veterinary and Animal Science, Udaipur	46	48	94
3.	Post Graduate Institute of Veterinary Education and Research Jaipur	41	50	91
4.	Livestock Research Station, Hanumangarh	84	47	131
5.	Livestock Research Station, Jaisalmer	56	40	96
6.	Animal Husbandry Diploma Institute Livestock Research Station, Chittorgarh	98	49	147
7.	AHDP Livestock Research Station, Dist. Jhalawar	45	47	92

Ph.D and M.V.Sc. Theses Completed

Ph.D Thesis Completed from CVAS, Bikaner

S. No.	Name of Students	Name of Advisor	Title of Thesis	Name of Department
1	Manoj Kumar Kalwaniya	Dr. Deepika Goklaney	Seroprevalence and Molecular Detection of Brucellosis in Cattle and Goat in Shekhawati Region of Rajasthan and its Public Health Significance	Veterinary Public Health
2	Nistha Yadav	Dr Urmila Pannu	Geneticanalysis of Coat Colour Variations and Hair Production in Indian Dromedary Camel	Animal Genetics & Breeding
3	Jagriti Srivastav	Dr. R.K. Dhuria	Effect of Dietary Supplementation of Nano Zinc and Phytase Enzyme on Performance of Kadaknath Layers	Animal Nutrition
4	Babulal Kumawat	Dr. Pramod Kumar	Effect of insulin sensitizer metformin on ovarian folliculogenesis in sheep	Veterinary Gynaecology and Obstetrics
5	Tapendra Kumar	Dr. Sandeep Dholpuria	Effect of dietary supplementation of Moringa oleifera leaves extract on reproductive performance of pubertal Marwari rams	Veterinary Gynaecology and Obstetrics
6	Abhishek Joshi	Dr. S.C. Goswami	Effect of Herbal Additives Amla (Emblica officinalis) and Giloy (Tinospora Cordifolia) on Performance of Magra Lambs in Different Management Systems in Arid Zone of Rajasthan	Livestock Production and Management
7	Sandeep	Dr. A.P. Singh	Study on Antioxidative, Anti-Inflamatory and Immunomodulatory Effects of Polyherbal Formulations in Lumpy Skin Disease in Cattle	Veterinary Medicine
8	Manoj Kumar Dhaka	Dr. A.P. Singh	Efficacy of Polyherbal Formulations in Lumpy Skin Disease in Cattle	Veterinary Medicine

M.V.Sc Thesis Completed from CVAS, Bikaner

S. No.	Name of Students	Name of Advisor	Title of Thesis	Name of Department
1	Amita	Dr. Deepika Goklaney	Isolation and Molecular Characterization of *Escherichia coli* from Raw Camel Milk and Camel Milk Powder	Veterinary Public Health & Epidemiology
2	Vimala Choudhary	Prof. Basant Bais	Quality evaluation of herbs enriched shrikhand developed from buffalo and camel milk	Livestock Products Technology
3	Phool Kanwar	Prof. Basant Bais	Quality Evaluation of Fruits Enriched Shrikhand Developed From Buffalo And Camel Milk	Livestock Products Technology
4	Ashutosh Bangar	Dr. Praveen Kumar Pilania	Gastrointestinal Parasitoses i n Camels of Western Rajasthan	Veterinary Parasitology
5	Punam Chaudhary	Dr. Manisha Mathur	Studies on Changes due to Heat Stress in Hematobiochemical Parameters and Pathological Changes in Different Age Groups of Broilers	Veterinary Pathology
6	Rajbala	Dr. Shesh Asopa	Pathomorphological and Biochemical Analysis of Liver in Poultry	Veterinary Pathology
7	Manisha Singaria	Dr. Ruchi Maan	"Haematological profile in non-cyclic anestrous buffaloes of bikaner region"	Veterinary physiology
8	Kalpana	Dr. N.S. Rathore	Gene Expression Studies of Clinically Important Cytokines in Summer Dermatitis in Horses	Veterinary Biochemistry
9	Kiran Kumari	Dr. Sita Ram Gupta	Studies on Therapeutic Potential of Polyherbal Formulation in Subclinical Mastitis in Cattle	Veterinary Medicine
10	Monika	Dr. J.P. Kachhawa	Epidemiological And Molecular Study of tropical theleriosis in Cattle	Veterinary Medicine
11	Mamta Gurjar	Dr. B. N. Shringi	"*In vitro* Evaluation of Lumpy Skin Disease Virus Derived Synthetic Peptides for their Cytokine Profile"	Veterinary Microbiology
12	Mukani Kumari	Dr. Laxminarayan Sankhala	Evaluation of *in-vitro* antibacterial activity of some plant extracts against *Staphylococcus aureus* and *Dermatophilus congolensis* isolated from skin lesions of horses	Veterinary Pharmacology
13	Virendar Kumar Bishnoi	Dr. Amita Ranjan	Evaluation of antibacterial activity and phytochemical analysis of selected plant extracts against *K. Pneumonia* and *E. Coli*."	Veterinary Pharmacology
14	Komal Rathore	Dr. R.K. Dhuria	Effect of supplementation of spirulina (*Arthrospira platensis*) powder as feed additive on performance of broiler chick	Animal Nutrition

Ph.D Thesis Completed from CVAS, Navania

S. No.	Name of Students	Name of Advisor	Title of Thesis	Name of Department
1	Dr. Dinesh Manoharrao Chavhan	Dr. Arun Kumar	Green synthesis of nanoparticles using leaf extracts of Moringa and Fenugreek and their application in chicken nuggets	Livestock Products Technology

M.V.Sc Thesis Completed from CVAS, Navania

S. No.	Name of Students	Name of Advisor	Title of Thesis	Name of Department
1	Vachna Ram	Dr. Dinesh Jhamb	Effect of addition of lyophilized heterologous seminal plasma on cooled stallion epididymal semen quality	Gynaecology & Obstetrics
2	Hansraj Karela	Dr. Hina Ashraf Waiz	Effect on performance, hormonal profile and histopathology of broiler chickens raised under various light regimens	Livestock Production Management
3	Divya Daranga	Dr Goverdhan Singh	Clinicopathological studies on induced lead toxicity in rats and its amelioration with Aloe vera (*Aloe barbedensis miller*) extract	Pathology
4	Pushpendra Chawla Khatik	Dr. Mamta Kumari	Studies on experimentally induced arsenic toxicity in rats and its amelioration with *Withaniasomniferaroot* extract	Pathology
5	Sachin Chaudhary	Dr. Kavita Shende	Effect of dietary supplementation of tejpatta (*Cinnamomumtamala*)leafpowder as a feed additive on Growth Performance and gut morphology of Broilers".	Animal Nutrition
6	Devki Nandan	Dr. Mitesh Gaur	Comparative study on Streptomycin-Penicillin and Gentamicin-Tylosin-Lincomycin-Spectinomycin antibiotic regimens' effect on pre-freeze and post-thaw quality and bacterial load in Surti buffalo (*Bubalus bubalis*) bull semen	Gynaecology & Obstetrics
7	Teena Gurjar	Dr. Rajesh Singathia	Virulence and Antimicrobial Resistance Gene Profiling of *E.coli* Strain isolated from Diaarhoeic Lambs (2023)	Microbiology
8	Ritu Mahala	Dr. S.K Sharma	Studies on Clinico –Haemato Biochemical changes associate with Various skin diseases in Buffalo	Medicine
9	Deepa Rathore	Dr.Tarunpreet	Electrocardiographic studies on Gastroenteritis affected dogs in southern part of Rajasthan	Medicine
10	Dashrath Khemada	Dr. R. K Khinchi	Clinico, haemato-biochemical and therapeutic studies on Canine Demodicosis in Dogs	Medicine
11	Rohit Kumar Damor	Dr. Sandhya Morwal	Studies on some aspects of haemo -protozoan diseases in cattle	Medicine

Ph.D Thesis Completed from PGIVER, Jaipur

S. No.	Name of Students	Name of Advisor	Title of Thesis	Name of Department
1	Rakesh Mishra	Dr. Y. P. Singh	Evaluation of MSICS Technique for Treatment of Cataract by Comparing the Refractive State of Phakic Eyes with Aphakic and Pseudophakic Eyes in Dogs	Surgery & Radiology

M.V.Sc. Thesis Completed from PGIVER, Jaipur

S. No.	Name of Students	Name of Advisor	Title of Thesis	Name of Department
1	Abhishek Kumar Meena	Dr. Bhavana Rathore (Major)	Epidemiological studies on gastrointestinal parasitic infections in buffaloes of flood prone eastern plains of Rajasthan	Parasitology
2	Priyanka Saini	Dr. Bhavana Rathore (Major)	Epidemiological studies on gastrointestinal parasitic infections in cattle of flood prone eastern plains of Rajasthan	Parasitology
3	Ashok Kumar Sharma	Dr. Ashok Baindha	Knowledge and adoption level of commercial poultry farmers about scientific poultry farming in Rajasthan	Veterinary And A.H. Extension Education
4	Sanjay Kumar Verma	Dr. Sanjay Kumar Rewani	Assessment of training needs of broiler poultry farmers in Ajmer district of Rajasthan	Veterinary And A.H. Extension Education
5	Shiv Kumar Basotia	Dr. Sandeep Kumar Sharma	Detection of antibiotic resistance and its associated genes of staphylococcus aureus obtained from cattle mastitis in Jaipur	Microbiology
6	Devendra	Dr. Nirmal Kumar Jeph	Studies on sero-prevalence of brucellosis in camel (*camelus dromedarius*) in and around Jaipur	Medicine
7	Vimal Gurjar	Dr. Vikas Galav	A study on occurrence and pathology of various conditions in urinary system of goats *(capra hircus)* in Jaipur	Pathology
8	Richa Soni	Prof. (Dr.) Rohitash Dadhich	A study on occurrence and pathology of various conditions of hepatobiliary system of sheep (ovis aries) in Jaipur	Pathology
9	Priya Saini	Dr. Sarjna Meena	A study on occurrence and pathomorphological Alterations in liver of goat (*capra hircus*) in Jaipur	Pathology
10	Indubala Menna	Dr Anurag Pandey	Studies on the effect of gum acacia (*acacia senegal*) incorporation on quality characteristics of mutton patties	LPT
11	Vijay Menna	Dr Anurag Pandey	Effect of chia seed (salvia hispanica) incorporation on quality characterstics of mutton nuggets	LPT
12	Hemant Singh	Dr Samita Saini	Analysis of growth performance of kadaknath breed of chicken under intensive care system in Rajasthan	Animal Genetics & Breeding
13	Anju Kumari	Dr Samita Saini	Survival analysis in pre and post-weaning lambs of malpura sheep	Animal Genetics & Breeding
14	Deepa Meena	Dr. Y. P. Singh	Comparative evaluation of normal and cataractous eys in dogs using b-mode ultrasonography	Surgery & Radiology
15	Jamta Ram	Dr. M. C. Parashar	Evaluation of positive profile end threaded intramedullary pinning with or without composite bone graft for repair of long bone fracture in dogs	Surgery & Radiology
16	Amit Kumar	Dr. Barkha Gupta	Studies on haematological profile, metabolites and macrominerals during transition period of murrah buffaloes in eastern Rajasthan	Biochemistry

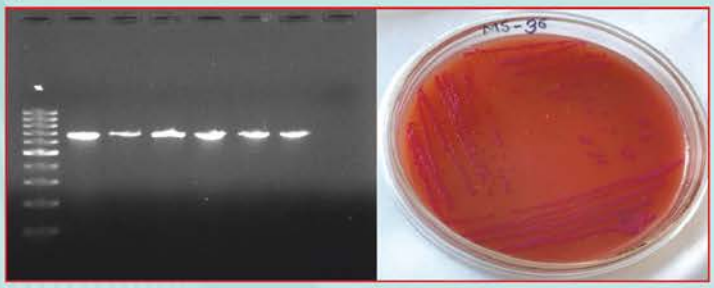
Academic Research Highlights

1. Effect of supplementation of spirulina (*Aarthrospiraplatensis*) powder as feed additive on performance of broiler chick

An experiment was conducted to investigate the use of spirulina powder (*Arthrospiraplatensis*) as a feed additive in broiler rations to improve the efficiency of nutrient utilization. A feeding trial of six weeks followed by a metabolic trial was conducted, using 150 one day-old broiler chicks (Cobb-430Y), randomly distributed in completely randomized design. The broiler chicks were divided into five dietary treatments groups (T1-T5) and each dietary group was replicated to three sub-groups (R1-R3) to make sure uniformity in various treatment groups. The feeding of broilers chicks in both starter and finisher phase was done as per BIS (1992). The T1 i.e., control group was fed on basal diet, while T2, T3, T4 and T5 treatment groups were supplemented with 0.50%, 0.75%, 1.0% and 1.25% of spirulina powder (*Arthrospiraplatensis*) in the basal broiler starter and finisher ration, respectively. Significant effect of supplementation of spirulina powder (*Arthrospiraplatensis*) was observed on overall feed intake, live body weight, body weight gain, feed conversion ratio, performance index and protein efficiency ratio. T4 treatment group supplemented with 1.0% of spirulina powder being highest among all the treatment groups. Supplementation of spirulina powder (*Arthrospiraplatensis*) at graded levels reduces the overall cost of feed per kg gain as compared to control group but maximum reduction in overall cost of feed per kg gain was obtained in T5 with 7.09% reduction. At the end it can be concluded that the supplementation of spirulina powder (*Arthrospiraplatensis*) at 1% level is very beneficial and could be a viable proposition for lucrative broiler farming for meat production.

2. Isolation and Molecular Characterization of *Escherichia coli* from Raw Camel Milk and Camel Milk Powder

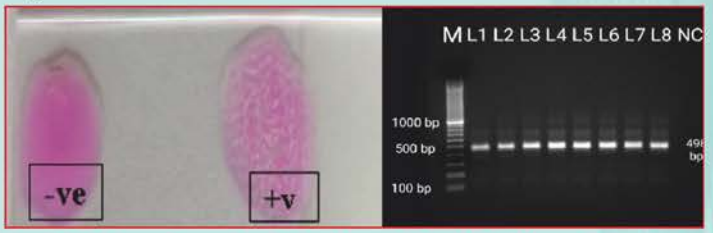
In the present investigation, 200 samples of raw camel milk and camel milk powder comprising 100 raw camel milk and 100 camel milk powder each were aseptically collected from ICAR-National Research Centre on Camel, Jorbeer, Bikaner (Rajasthan). The samples were aseptically collected and immediately subjected to microbial analysis. All samples were subjected first to enrichment in Mac Conkey broth followed by plating on Mac Conkey agar and Eosin Methylene Blue agar. 28% (28 isolates) of raw camel milk samples tested positive for Escherichia coli, while only 5% (5 isolates) of camel milk powder samples tested positive. These findings suggested that there is a higher prevalence of Escherichia coli contamination in raw camel milk as compared to camel milk powder. All 28 Escherichia coli isolates of raw camel milk and 5 Escherichia coli isolates of camel milk powder underwent genotypic confirmation using species-specific primers targeting the 16s rRNA gene, stx1 gene, and stx2 gene. All 33 isolates confirmed the presence of the 16s rRNA gene while stx1 gene and stx2 gene were not detected in E. coli isolates. All 33 isolates were analyzed for their antimicrobial susceptibility pattern using a panel of 12 antibiotics commonly utilized in veterinary medicine. The results revealed that the majority of strains demonstrated resistance to penicillin G (100%), followed by ampicillin (90.90%), chloramphenicol (87.87%) and amoxicillin (81.81%). Conversely, they exhibited sensitivity to ciprofloxacin (100%), followed by azithromycin (72.72%), streptomycin (60.60%), and gentamicin (57.57%).



3. Seroprevalence and Molecular Detection of Brucellosis in Cattle and Goat in Shekhawati Region of Rajasthan and its Public Health Significance

The present study was carried out to determine the seroprevalence of brucellosis and molecular detection of *Brucella* spp. in cattle and goat with respect to public health significance in Shekhawati region of Rajasthan. A total of 400 samples were collected and examined for brucellosis by serodiagnostic techniques applying RBPT, STAT and ELISA. Out of 400 samples, a total of 30 (7.50%), 35 (8.75%) and 34 (8.50%) sera samples were found to be positive for brucellosis by RBPT, STAT and ELISA tests, respectively. Species wise overall seroprevalence was found highest in cattle followed by goat and human, for all three serological tests with statistically non-significant ($P<0.05$) difference. Statistically significant difference ($P>0.05$) was found among these districts with highest seroprevalence in cattle of Churu district followed by Sikar and Jhunjhunu using RBPT, while testing with STAT, no significant difference ($P>0.05$) was reported among these districts. Whereas, testing of serum samples with ELISA, highest seroprevalence of brucellosis was found in Churu district followed by Sikar and Jhunjhunu. A significantly ($P>0.05$) higher seroprevalence of caprine brucellosis was observed in Sikar district investigated by RBPT and STAT teat, followed by Churu and Jhunjhunu district. Whereas, on screening of brucellosis by ELISA test, significantly ($P>0.05$) higher seroprevalence was observed in Churu district followed by Jhunjhunu and Sikar district. A significantly ($P>0.05$) higher rate of human seroprevalence was observed in Sikar district by RBPT, STAT and ELISA followed by Churu and Jhunjhunu district. Age wise highest seroprevalence of human brucellosis was recorded 6.67% by RBPT in age group below 20 years age group,

8% by STAT in age group 40-60 years of age and 6.67% by ELISA in age group below 20 years of age group. Sex wise seroprevalence of human brucellosis was recorded higher in males than females. Out of all seropositive samples, 8 samples (8.51%) were found to be positive for genus *Brucellaabortus* yielding a product of size 498bp by electrophoreses through 2% agarose gel. None of the samples were found to be positive for *Brucellamelitensis*. Others ELISA positive samples which were tested for *Brucella* gene were found negative in case of both goat and human samples. It was concluded from the results that *B. abortus* is prevalent in three districts of Shekhawati region viz., Churu, Sikar and Jhunjhunu of Rajasthan as a cause of brucellosis in cattle.



4. Quality evaluation of herbs enriched shrikhand developed from buffalo and camel milk

The present study was carried out with objectives to estimate the physicochemical properties of buffalo and camel milk to formulate buffalo and camel milk shrikhand, to determine the physicochemical properties and storage study of buffalo and camel milk shrikhand. Formulation of shrikhandwas done by using different ratios (80:20, 70:30, 60:40 and 50:50) of buffalo and camel milk chakka. The best result obtained on the basis of yield and consistency of chakka by combination of 70% buffalo milk and 30% camel milk. Shrikhand was prepared by combining different amounts of ginger and black pepper (0.5%, 1%, 1.5%), either separately or in combination, with chakka. Based on sensory scores, the shrikhand prepared with 1% level of ginger and black pepper incorporation, either alone or in combination, scored the highest for almost all sensory quality parameters, including appearance and colour, flavour, body and texture, and overall acceptability, as comparedto the control and other treatments (0.5% and 1.5%). These were chosen to further storage studies at 4 ± 1°C, and quality characteristics were assessed inevery 3 days of interval up to 15 days of storage. The mean ± SE values of pH, ABTS % radical scavenging activity and DPPH% activity showed highly significant decrease with an increase in refrigerated storage period from 0 to 15 days, while the values of TBARS and titrable acidity were found to be increased significantly with an increase in storage duration. All treatment groups had greater ABTS% and DPPH% activity as compared to the control group. The microbiological load of the standard plate count increased significantly in the control and all treatment shrikhand, whereas the initial yeast and mould count was nil until the 9th day of storage, and then increase significantly high. During storage, no coliform count was detected in storage period. The proximate analysis of different treatments revealed that the control had higherpercentage of moisture, ether extract, and crude protein, but the black pepper- enriched shrikhand (T2) had more total ash and all treatments significantly differed from each other under storage study. Based on the above findings, it is concluded that 1% level of herbs enriched buffalo and camel milk shrikhand with very good acceptability was acceptable up to 12 days of refrigerated (4±1°C) storage without significant deterioration of quality characteristics because herbs are source of natural antioxidant and used as natural preservative. Hence consumption of herbs as an adjunct or confectionary in milk-based products will positively benefit the consumers.

5. Quality Evaluation of Fruits Enriched Shrikhand Developed from Buffalo and Camel milk

The present study was carried out to quality evaluation of fruits enriched shrikhand developed from buffalo and camel milk to determine the physico-chemical properties and storage study of buffalo and camel milk shrikhand. The overall compositions of buffalo milk showed that the milk had higher concentrations of protein, fat, SNF and lactose than camel milk. Formulation of shrikhand was done by using different ratio (80:20, 70:30, 60:40 and 50:50) of buffalo and camel milk chakka. Best result obtained on the basis of yield and consistency of milk chakka by combination of 70% buffalo milk and30% camel milk. This combination suitable for preparation of buffalo and camel milk shrikhand. Formulation of shrikhand was done by using different percentage (5%, 10%, 15%) of fruits mango and banana in single or in combination. On the basis of sensory scores and physico-chemical properties, 10 per cent level of mango and banana incorporation in single or in combination, scored maximum foralmost all sensory quality parameters and this was selected for pursuing the storage studies at refrigerated storage (4±1°C). and were evaluated at every 3 days interval up to a period of 15days.The mean ± SE values of pH showed highly significant decrease with increase in refrigerated storage. The mean ± SE values of 2-thiobarbituric acidreactive substance and Titratable acidity were also found to be increased highly significant with increase in storage period. The statistical analysis of data revealed that there was a highly significant decrease on storage in the ABTS % radical scavenging activity of all the samples of buffalo and camel milk shrikhand. The ABTS% activity of all treatment groups was higher than control and The DPPH activity of all samples was highly significant decreased with increase storage period of shrikhand. The proximate analysis of different treatments revealed that percent ether extract, crude protein and total ash were found significant for control sample, whereas per cent moisture was observed to be significant for 10 percent mango incorporated buffalo and camel milk shrikhand (T1) among all the treatments. The microbial load of standard plate count, and yeast and mould count increased significantly higher in the control and all treatment shrikhand during the refrigerated (4±1°C) storage period and no

coliform count was observed during storage. Based on the above findings, it may be concluded that 10 per cent level of mango, banana and mango + banana enriched buffalo and camel milk shrikhand with very good acceptability were acceptable up to 9 days of refrigerated (4±1°C) storage without significant deterioration of quality characteristics. Hence consumption of fruits as an adjunct or confectionary in buffalo and camel milk shrikhand and other milk based products will positively benefit the consumers. Looking towards the antioxidant properties, longer shelf life and good acceptability, the fruits enriched shrikhand may be recommended for consumption to the consumers.

6. Gastrointestinal parasitoses in camels of western Rajasthan

In order to determine the prevalence and associated risk factors with gastrointestinal parasitoses in camels of western Rajasthan, a total of 608 faecal samples were collected randomly from the camels of Bikaner, Barmer, Jodhpur and Jaisalmer districts. Coprological examination revealed an overall prevalence (52.96%) of gastrointestinal parasites in camel population. Among various gastrointestinal parasites, Strongyle type was predominant (45.39%) followed by *Trichuris*sp (21.87%), *Nematodirus*sp. (12.17%), *Strongyloides*sp. (10.85%.) and *Eimeria*sp (10.85%). Quantitative analysis revealed the intensity of infection, varying from 480.11±30.19 (100-1700), 570.96±41.43 (100-1900) and 245.14±34.14 (100-900) for *Trichuris*sp., strongyle and *Strongyloides*sp respectively. Seasonal analysis revealed a significantly higher ($p \leq 0.01$) prevalence during rainy season (59.51%) followed by winter (56.92%) and summer (42.78%). Similarly district wise analysis showed ($p \leq 0.01$) highest prevalence in Bikaner (65.06%), Jodhpur (58.94%), Jaisalmer (46.40%) and Barmer (42.40%). Age wise analysis showed maximum prevalence among animals 5-10 yr of age group (59.51%) and minimum in animals below 2 yr of age group (44.86%). Sex wise analysis revealed higher prevalence in males (58.41%) than females (47.09%). Among gastrointestinal parasites, *Trichuris*sp., strongyle, *Strongyloides*sp., *Nematodirus*sp and *Eimeria*sp showed comparatively higher prevalence in males than females. The coproculture study revealed that *Haemonchus*sp. (49.67%) was highest contributor among strongyle larvae whereas during sporulation of coccidian oocyst *E. cameli* and *E. dromedarii* was found in this region.

7. *In vitro* Evaluation of Lumpy Skin Disease Virus Derived Synthetic Peptides for their Cytokine Profile

The rise of diseases presents significant challenges to global public health and agriculture. In recent years, India has witnessed a notable increase in various diseases affecting humans and animals, with Lumpy Skin Disease (LSD) emerging as a particularly concerning issue, especially within the bovine community. LSD's rapid spread among cattle has led to a marked increase in mortality rates, prompting concerns among researchers, veterinarians, and policy makers. The peptides were picked and modifications were made to enhance stability and immune-stimulating properties. Chemical synthesis technique was standardized with some alterations to construct peptide epitopes in the laboratory. This study investigates the potential T cell epitopes of Lumpy Skin Disease Virus (LSDV) using bioinformatics tools and evaluates their efficacy in stimulating cellular immune responses. T cell epitopes, crucial for initiating immune responses against viruses, are presented by antigen-presenting cells via MHC-I molecules, activating cytotoxic T cells. The study focused on a peptide (P3) identified through bioinformatics as a potential T cell epitope. Peripheral blood mononuclear cells (PBMCs) from LSDV-vaccinated animals were used to assess the P3 to induce IFN-gamma production and cell proliferation, critical markers of cellular immune responses. Results showed significant upregulation of IFN-gamma and cell proliferation, indicating as P3 potential as a T cell epitope. Additionally, levels of IL-2, IL-10, IL-12, IL-18, and TNF-alpha were evaluated, with downregulation observed for IL-2, IL-10, IL-12, and IL-18. This study highlights P3 is potential as an LSDV T cell epitope and provides insights into cytokine profiles influencing cytotoxic T cell functions. Further *in vivo* studies are warranted to confirm P3 peptide is potency as a T cell epitope for LSDV infection.

8. Effect of Supplementation of Amla Fruit Powder (*Emblicaofficinalis*) and Giloy Stem Powder (*Tinosporacordifolia*) on Performance of Rathi Calve's

The present study was conducted on Rathi calves to observe the effect of Amla fruit powder (*Emblicaofficinalis*) and Giloy stem powder (*Tinosporacordifolia*) supplementation on the growth performance, haematobiochemical and physiological parameter of Rathicalve's. The feeding trial was conducted 60 days under standard feeding and managemental condition. 0-to-6-month Rathi calves were divided into 4 treatment groups (T1 to T4) with each group has 5 claves. calves were offered basal feed as per the BIS (2007). The treatment groups consisted of control group (T1) fed only with non-supplemented basal diet, group T2 was supplemented with 40gm/animal Amla fruit powder, group T3 with 40gm/ animal Giloy stem powder and group T4 with 20gm Amla fruit powder + 20gm Giloy stem powder in basal feed. Statistical analysis of variance revealed a significant effect ($p<0.05$) on overall body weight gain of trial. At the end of the experiment, the highest body weight was recorded in T3 group of calves among all treatment groups of calves. All body measurement were found to be non-significant at the end of experimental trial. Significant effect was found on haematological parameter *viz.* haemoglobin, packed cell volume, N:L ratio. No significant effect was found on the blood glucose level. Significant changes were found in rectal temperature, they were within normal physiological range among all treatment group. Non-significant effect was found in respiration and pulse rate among all treatment group. At the end, based on the performance of calves, it appears that incorporation of 20gm Amla

fruit powder + 20gm Giloy stem powder can be used as a part of strategy to be adopted to improve performance of calves in arid zone of Rajasthan.

9. Effect of Herbal Additives Amla (*Emblicaofficinalis*) and Giloy *TinosporaCordifolia*) on Performance of Magra Lambs in Different Management Systems in Arid Zone of Rajasthan

In an attempt to determine the effect of supplementation of the Amla (*Emblicaofficinalis*) and Giloy (*TinosporaCordifolia*) alone and in combination on performance of magra lambs in different management system, a growth trial of thirteen weeks followed by metabolism trial of seven days were conducted, using twenty eight Magra lambs of 3-4 months of age and uniform body conformation. The experimental lambs were distributed in complete randomized block design into four groups having seven lambs in each group in each system. The study aimed to investigate the effects of different dosages of *Emblicaofficinalis* and *Tinosporacordifolia* on the magra lambs. The T_1 and T_2 groups were administered with separate doses of 1.5g/kg body weight, while the T_3 group received a combination of both herbs at a lower dosage of 0.75g/kg body weight. In the extensive system, the lambs' basal diet was mainly based on grazing, and the amount of feed supplements was the same as in the semi-intensive system. In each of the four groups, Dexamethasone(6mg) was administered at the end of the experiment for immunological studies.Environment stress was observed during the experimental period, as environmental temperature and THI were recorded on the normal side from the first to middle weeks of the experimental period and on the higher side than the threshold level for the last week of the experimental period. Statistical analysis of variance due to supplementation of the Amla (*Emblicaofficinalis*) and Giloy (*TinosporaCordifolia*) alone and in combination revealed significant effect ($P<0.05$) on final body weight, mean body weight in extensive system, body weight gain, average daily gain, feed conversion ratio, feed conversion efficiency, body confirmation, hot carcass weight (kg), cold carcass weight (kg), chemical composition of meat except moisture and ash, physical properties of meat except L-brightness, dry matter intake (g/d), organic matter intake (g/d), digestibility of DM, OM, CP, CF, EE, NFE, NDF, ADF and hemicellulose, plane of nutrition, nutritional worth in terms of % DCP, N-excreted in urine (g/d), N- balance g/d, N-retention (%), balance of calcium and phosphorus, rumen ammonia nitrogen (mg/dl), grazing behaviour, immunological parameters in both management systems whereas remained non significant for wool parameters, carcass characteristics except hot carcass weight (kg), cold carcass weight (kg) chemical composition of meat in terms of moisture and ash, hue angle°, dry matter intake (kg/100kgb.w.),dry matter intake (g/Kg b.wt.$^{0.75}$), organic matter intake (kg/100kgb.w.), organic matter intake (g/kg b.wt.$^{0.75}$), N-intake (g/d), N-excreted in faeces (g/d), nutritional worth in terms of % TDN, NR, ME (kcal/g), DE (kcal/g), rumen parameters except rumen ammonia nitrogen (mg/dl), physiological parameters, blood parameters, biochemical parameters, liver function test, routine behaviour in both management systems. The supplement also reduced the total feed cost per kg body weight gain compared to the control, but the maximum reduction in total feed cost per kg body weight gain was achieved at T_2 in both management system.These herbal feed additives could potentially enhance the immune system of Magra lambs in both management system, leading to reduced disease incidence and improved overall health. Furthermore, incorporating Amla and Giloy in the diet may have additional benefits such as enhanced antioxidant activity and improved nutrient absorption. In conclusion, integrating herbal feed additives into livestock nutrition holds great promise for optimizing animal health, productivity, and sustainability in the agricultural industry.

10. Studies on Therapeutic Potential of Polyherbal Formulation in Subclinical Mastitis in Cattle

The present study was conducted to evaluate the therapeutic potential of polyherbal formulation in subclinical mastitis. In the present study, 392 functional quarters of 100 apparently healthy lactating cattle were screened for subclinical mastitis by MCMT. All the quarters positive in modified California mastitis test were subsequently confirmed with gold standard culture examination. Isolation and Identification of bacterial isolates were done with culture examination and biochemical testing kits, respectively. The prevalence of subclinical mastitis was 46 percent and 24.48 per cent on cow and quarter basis in modified California mastitis test, respectively. Right side hind quarters were more affected than the left side fore quarters. Parity wise and lactation stage wise highest prevalence of SCM was recorded in IVth parity (71.43 %) and early lactation stage (46.67 %), respectively. Out of 96 positive quarters milk samples, 57.29 percent, 37.50 percent and 5.20 percent quarters were found weak(+), distinct(++) and strongly(+++) positive, respectively. In the present study, a total of 96 bacterial isolates were recovered from 76 culture positive quarter milk samples. *Staphylococcus* spp. (54.17 %) was the major bacteria isolated from subclinical mastitis infected quarters followed by *Escherichia coli* (23.96 %), *Streptococcus* spp. (18.75 %)and *Klebsiella*spp.(3.12 %). The polyherbal formulation showed *in vitro* antibacterial activity against all bacteria isolated from

subclinical mastitis infected quarters. In the present investigation, 16 apparently healthy cattle found positive for subclinical mastitis by MCMT and culture examination were randomly categorized into two groups (G II and III) having 8 animals in each group. The polyherbal formulation I and II were given orally as per therapeutic regimen to each animal of every group to evaluate the therapeutic potential of polyherbal formulation in subclinical mastitis. The pre-treatment mean values of total leucocytes count, neutrophils, total protein, globulin, AST, ALP, TNF-α, IL-6, MDA, Ig G and Ig M were significantly higher in SCM affected cows whereas pre-treatment mean values of lymphocytes, albumin, A : G ratio and SOD were significantly decreased in SCM affected cows. After 15 days treatment the significant improvement was recorded in MCMT score and mean values of total leucocyte counts, neutrophils, lymphocytes, total protein, albumin, globulin, A : G ratio, AST, ALT, SOD, MDA, TNF-α, IL-6, Ig G and Ig M in all groups of subclinical mastitis affected cattle. The bacteriological cure rate of treatment regimen of group II was ranked first with bacteriological cure rate 73.91 %, followed by group III placed at ranked second. Based on post-treatment improvement therapeutic efficacy of polyherbal formulation I was highest and most effective than polyherbalformulationII.

11. Epidemiological and Molecular Study of tropical theileriosis in Cattle

Bovine Tropical Theileriosis is an important haemoprotozoan disease usually caused by *Theileria annulata* and it causes huge economic losses to the dairy industry. The present study was carried out to determine bovine tropical theileriosis prevalence in cattle of Bikaner district of Rajasthan, India using combination of different tests *viz.* Blood Smear examination, molecular test by PCR and Serological test by sandwich ELISA. A total of 202 blood samples were collected from different tehsils of Bikaner district. The prevalence of bovine tropical theileriosis in the cattle was 24.25%, 43.06% and 59.90% by blood smear examination, PCR and sandwich ELISA in Bikaner tehsil. Bikaner tehsil recorded the highest prevalence whereas lowest prevalence was recorded in Khajuwala tehsil by all the tests. Higher prevalence rate was found in 0-6 months age group and least in 6 month-2-year age group. Prevalence in femalecattlewas27.70%, 47.99%, 64.86% by blood smear examination, PCR and sandwich ELISA, respectively. Prevalence in male was 14.81%, 29.62%, 46.29% by blood smear examination, PCR and sandwich ELISA, respectively. Breed wise, highest prevalence of bovine tropical theileriosis was recorded in Holstein-Friesian crossbreed followed by Rathi, Tharparkar and non-descript cattle. Seasons wise, highest prevalence of bovine tropical theileriosis was recorded in summer season followed by rainy season and winter season. Taking sandwich ELISA as standard, sensitivity was observed in order Blood smear examination < PCR. Whereas specificity values were 100% in Blood smear examination and PCR. Combination of sandwich ELISA and PCR were found most suitable to declare bovine tropical theileriosis status of the animals.

12. Study on Antioxidative, Anti-Inflamatory and Immunomodulatory Effects of Polyherbal Formulations in Lumpy Skin Disease in Cattle

The present study was conducted to determine clinico-haemato-biochemical changes and anti-oxidative, anti-inflammatory and immunomodulatory effects of polyherbal formulation in treatment of lumpy skin disease in cattle. A total of 24 adult cattle showing classical clinical signs of lumpy skin disease and confirmed by PCR of ORF 103 gene of virus were selected for study and eight apparently healthy PCR negative cattle were included in study as control. Major clinical manifestations were pyrexia, lacrimation, lethargy, lymph node enlargement, skin nodules and oedema. Clinical vital parameters revealed significantly ($p<0.05$) higher values of rectal temperature, heart rate and respiration rate while significantly ($p<0.05$) decreased rumen motility. Haemato-biochemical findings revealed significantly ($p<0.05$) higher values of TEC, neutrophils, ALT, AST, ALT and direct bilirubin while significantly ($p<0.05$) lower values of Hb, PCV, TLC, lymphocytes, platelet, total protein, albumin, globulin and glucose. Significant ($p<0.05$) decrease in TAC and GSHPx while significant ($p<0.05$) increase in MDA, CAT, IgG, IgM, IL-4, TNF-α and IFN-γ in LSD affected cattle as compared to healthy group of cattle. About 24 LSD affected cattle were randomly categorized in three groups, 8 animals in each group and treated separately. G-II animals were given standard symptomatic treatment once daily for five days, G-III animals polyherbal formulation A and G-IV animals polyherbal formulation B orally for 15 days. The standard symptomatic treatment was helpful in early controlling of pyrexia and secondary bacterial infection while the polyherbal formulation A was found more effective in comparison to Polyherbal formulation B in maintenance of altered haemogram and leucogram attributed to LSDV infection and alleviation of systemic inflammatory changes as the disease progresses in respect of oxidative stress, systemic inflammation results in maintenance of homeostasis in diseased animal, it also play vital role in immunomodulation of general defense mechanism of LSD affected animals and the polyherbal formulation A possesses potent antioxidant, anti-inflammatory and immunomodulatory properties and it can be used in the treatment of clinical cases of LSD

13. Efficacy of Polyherbal Formulations in Lumpy Skin Disease in Cattle

The proposed study was carried out on adult cross cattle of similar age groups, showing classic clinical signs of Lumpy skin disease at private dairy farms as well as on animals of individual holdings in the Bikaner district of Rajasthan. This was verified by a clinical examination, and PCR was preferred for confirmation of LSDV in the experiment. The 32 cattle were selected for this experiment, which underwent clinical examinations and had their hematology, serum biochemistry, oxidative stress marker, inflammatory marker, and immunological marker evaluated. Cattle were randomly divided into 4 groups, Group-II (symptomatic treatment), Group-III (RAJUVAS immune booster powder), Group-IV (polyherbal preparation A) and Group-V (polyherbal preparation B) and eight healthy adult cattle were retained as the control group (Group-I). In LSD affected cattle, Major clinical manifestations were pyrexia, lacrimation, lethargy, lymph node enlargement, skin nodules and oedema. Clinical vital parameters revealed significantly ($p<0.05$) higher values of rectal temperature, heart rate and respiration rate while significantly ($p<0.05$) decreased rumen motility. Haematological results show significantly reduced

($p<0.01$) in mean values of Hb, PCV, TEC, TLC and platelet count were compared to healthy cattle. There was significant neutrophilia and lymphopenia, in affected cattle. Pre-treatment hypoproteinemia, hypoalbuminemia, hyperglobulinemia, and increased concentration of total bilirubin, creatinine, AST, ALT and ALP and increased level of blood urea nitrogen (BUN) showed by LSD affected cattle. In the oxidative stress, immunoglobulins and inflammatory biomarker there was significantly decrease ($p<0.01$) in mean values of GSH-Px, while mean values of MDA, IgG, IgM IL-4, TNF-α and IFN-γ was significantly increased in LSD affected cattle. After therapeutic management of LSD affected cattle with polyherbal formulation for 15 days, improvement towards normalcy in haematobiochemical parameters and serum level of oxidative stress, immunological and inflammatory biomarker were observed with variation in efficacies of different treatment regimens at different time intervals. Therapeutic effect of polyherbal formulations was observed in the LSD affected cattle and all therapeutic groups showed significant results G-III and GV better results were found in various clinical signs, haemato-biochemical parameters, serum level of oxidative stress, immunological and inflammatory biomarkers.

14. Haematological profile in non-cyclic anestrous buffaloes of Bikaner region

An investigation was carried out to determine haematological and metabolic profile of non-cyclic anestrous buffaloes during moderate and hot ambience. Haematological profile included packed cell volume(PCV), haemoglobin, erythrocyte sedimentation rate (ESR), enumeration of erythrocyte (RBC), enumeration of platelets, mean corpuscular haemoglobin (MCH), mean corpuscular volume(MCV) and mean corpuscular haemoglobin concentration(MCHC). Metabolic profile included plasma glucose, plasma urea and plasma creatinine.The overall mean values of packed cell volume, hemoglobin, erythrocyte sedimentation rate, erythrocyte count, platelet count, mean corpuscular hemoglobin, mean corpuscular volume , mean corpuscular hemoglobin concentration, plasma glucose , plasma urea and plasma creatinine were 30.30±0.19 % ;11.32±0.04 g/dl ; 42.99±0.97 mm/hr; $5.95\pm0.03\times10^{6}$/µl; $293.97\pm3.44\times10^{3}$/µl. ; 19.12±0.11pg/cell ;51.13±0.37fl ; 37.71±0.28 g/dl ; 3.53±0.00 mmol/l; 7.46±0.05 mmol/l and 134.87±1.21µmol/l respectively obtained from 220 animals irrespective of cyclicity. The overall mean values of packed cell volume, hemoglobin, erythrocyte sedimentation rate, erythrocyte count and platelets count during moderate(control) ambience were 28.59± 0.26 % ; 11.18± 0.05 g/dl ; 50.05± 1.27 mm/hr; $5.56\pm 0.04\times10^{6}$/ µl and $287.27\pm 4.26\times10^{3}$ /µl respectively. The overall mean values of mean corpuscular hemoglobin(MCH), mean corpuscular volume(MCV) and mean corpuscular hemoglobin concentration(MCHC) during moderate ambience were 20.21± 0.16 pg/cell ; 51.72± 0.62 fl and 39.49± 0.42 g/dl respectively and the overall mean value of plasma glucose , plasma urea and plasma creatinine during moderate ambience were 3.5± 0.01 mmol/l ; 7.17± 0.06 mmol/l and 123.48± 1.18 µmol/l respectively. The increase in overall mean values of packed cell volume, hemoglobin, erythrocyte count, plasma glucose, plasma urea and plasma creatinine were highly significant ($p<0.01$) during hot ambience as compared to overall moderate mean value. The effect cyclic and non-cyclic stages was significantly ($p<0.01$) high in both ambiences.The overall mean value were significantly ($p<0.01$) high in cyclic animals than non-cyclic animals. The interactions between ambience X stage were non-significant for packed cell volume, hemoglobin and erythrocyte count and significant ($p<0.05$) for plasma glucose and plasma creatinine and highly significant ($p<0.01$) for plasma urea. The decrease in overall mean values of erythrocyte sedimentation rate, mean corpuscular hemoglobin(MCH) and mean corpuscular hemoglobin concentration(MCHC) were significant ly ($p<0.01$) high during hot ambience as compared to moderate ambience. The cyclic and non-cyclic effect were non-significant for both ambience. The interactions between ambience X stage were non-significant revealed by analysis of variance. Platelet count showed non-significant increase during hot ambience as compared to moderate ambience. A significant ($p<0.05$) effect of variation in ambience was observed by analysis of variance. The overall cyclic and non-cyclic effect were highly significant ($p<0.01$) in both ambience. The overall mean value were significantly ($p<0.01$) high in cyclic animals than non-cyclic animals. The interactions between ambience X stage were non-significant ($p>0.05$) for platelet count revealed by analysis of variance.Mean corpuscular volume (MCV) was non-significant during hot ambience. A non- significant effect of variation in ambience was observed by analysis of variance. The overall cyclic and non-cyclic effects were non-significant in both ambience. The interactions between ambience X stage were non-significant ($p>0.05$) revealed by analysis of variance.This study reveals variations in haematological parameters of animals exposed to adverse environmental variations. The increase in PCV, hemoglobin may be due to hemoconcentration. The rise may also be attributed to increased demand of oxygen under stressful condition and proper nutritional status of cyclic animals. Thus, it can be concluded that balanced nutrition and proper management of animals not only improves reproductive efficiency but also protects the animals from adverse environmental conditions.

15. Gross, Histological and Histochemical Studies on the Spleen of Buffalo (*Bubalus bubalis*).

The present study was conducted on 20 Indian Buffalo. The spleen was situated in the left hypochondriac region between the diaphragm and dorsal sac of the rumen with an elongated elliptical in shape and bright purple colour. It was fixed in position by gastrosplenic and phrenicosplenic ligaments. In the spleen of the buffalo two surfaces, two borders, and two ends were observed. The average weight, volume, and length were recorded as 708.55 ± 46.786 gm, 703.30 ± 49.45 ml, and 41.34± 1.194 cm, respectively. The average width was 13.823±0.465 cm and average thickness was 8.333±0.433 mm.The histological studies of spleen showed that its capsule was composed of smooth muscle fibers, collagenous, elastic and reticular fibers. Branching trabeculae emerged from the capsule in all regions and entered the core of splenic parenchyma and separated it into more manageable sections by creating a net like framework. The space between the capsule and trabeculae was filled by the splenic pulp or stroma,

which consisted of white pulp and red pulp. The white pulp was a lymphoreticular tissue made up of macrophages, plasma cells, and lymphocytes that were enmeshed in a reticular network. Periarterial lymphatic sheath encircled the central artery in a coaxial pattern. The central artery was found in the splenic nodules with an eccentric position. The splenic sinusoids were poorly developed and less abundant. The penicillar arteries, also known as the pulp arteries, had a radiating pattern. The histochemical studies of spleen showed that its capsule and trabeculae showed intensely strong reactions to carbohydrate. After application of saliva, it showed negative reaction. The white pulp showed moderate reaction at pH 0.4 and pH 1.0 while weak reaction at pH 2.5.

16. Gross, Histological and Histochemical Studies on the kidney of Buffalo (*Bubalus bubalis*)

The present study was carried out on the 30 pairs of kidneys obtained from recently slaughtered adult buffaloes. The kidney apppeared reddish brown. The whole organ was superficially lobulated and covered by peri-renal fat. The right kidney situated more cranially then left. The weight, volume, length and number of lobes in left and right were remained non-significant. The circumference of right kidney at cranial end was more than the left one. The width of right kidney at cranial end and middle was more than the left one. The thickness of left kidney at middle and caudal end was more than the right one. The renal parenchyma was divided into cortex and medulla. The renal parenchyma composed of reticular and collagen fibers. Histologically renal capsule composed of collagen and reticular fibers. The renal corpuscle composed of Bowman's capsule and glomerulus. The Bowman's capsule consisted of parietal and visceral layer. The parietal layer of Bowman's capsule was lined by simple squamous epithelium and the visceral layer of Bowman's capsule was formed by podocyte. The proximal, distal convoluted tubule and thick segment of Henle's loop was lined by simple cuboidal epithelium. The thin segment of Henle's loop was lined by simple squamous epithelium. Both segments of Henle's loop were surrounded by collagen fibers. The papillary duct was lined by columnar epithelium which became transitional before its opening into the papilla. The tip of papilla and minor calyx was lined by transitional epithelium. The juxtaglomerular apparatus was included juxtaglomerular cells, macula densa, mesengial cells or polkissen cells. Intense PAS positive reaction was observed by all parts of nephron and component of JG apparatus except renal interstitium. The various component of kidney showed weak to strong reaction to the acidic mucopolysaccharides at different pH.

17. Gross, Histological and Histochemical Studies on the Adrenal Gland of Buffalo (*Bubalus bubalis*)

The present investigation was carried out on 20 pairs of adrenal glands from apparently healthy and recently slaughtered adult female buffaloes. The adrenals were situated at the some distance from cranial aspect of the kidney embedded in perirenalfat. The right adrenal gland was irregular elongated triangular and the left was flat and "C" shaped. Each gland was reddish-brown in colour. The left adrenal gland wasslightly heavier, longer, thicker and wider than the right one. Histologically, theadrenals were divided in stroma and parenchyma. Stroma consisted of capsule andtrabeculae. Collagen and reticular fibres were present at the capsule and trabeculae.Parenchyma composed of the cortex and medulla. Cortex was divided into three parts according to their cell arrangements in zona glomerulosa, zona fasciculata and zonareticularis. The trabeculae were entered into the cortex to various distances. TheMedulla was divided in the inner and outer parts. The outer zone was lined bycolumnar shaped cells and inner area had the polyhedral cells. Patches of medullawere seen at some cortex area. Intense PAS positive reaction was seen in the capsule,trabeculae and zona glomerulosa. All zones of adrenal gland showed negative reactionfor glycogen in PAS with saliva stain. Mucosubstances showed strong reaction incapsule, trabeculae, zona glomerulosa and outer medullary area.

18. Genetic Analysis of Coat Colour Variations and Hair Production in Indian Dromedary Camel.

The present study was conducted on four Indian dromedary camel breeds namely, Biakneri, Jaisalmeri, Kachchhi and Mewari maintained at the ICAR-NRCC, Bikaner. The study was aimed for phenotypic and genetic characterization of coat colour variations and hair production traits. Theassociation of coat colour phenotypes on physiological, haematological and biochemical parameters was studied. The molecular and functional characterization of candidate genes as MC1R, ASIP and KRTAP7 was also done. The coat colour distribution pattern indicated exclusive blackish coat colour in Bikaneri breed while whitish in Mewari breed. The seven basic coat colour were classified into three shades based on their RGB values and arranged as acatalogue of the coat colour phenotype of Indian dromedary camel breeds. The significant effect of breed, coat colour patterns, sex, age and shearing was noticed on hair fibre traits. The maximum annual hair yield was noticed for Bikaneri breed. The hair fibre quality of yearling revealed superior fine came lcalf fibers than adult fibers. The mean fibre diameter and medullation %revealed good prospect for preparation of blends from camel hair-fibre with natural or synthetic fibres. The animals with light shaded coat colours (yellowish followed by whitish) were showing most hardy nature. As the lightshaded coat-coloured animals had little difference for most of the physiologicaland biochemical parameters in extreme seasons i.e., winter and summer. The MC1R and KRTAP7 genes were found monomorphic, which might be due toabsence of solid white phenotypes. The variations in exon 2 of ASIP for blackcoat-coloured animals indicate the candidate association of this gene in Indiandromedary camel. The phylogenetic analysis of the MC1R, KRTAP7 and ASIPgenes revealed closest relationship with *Camelidae* species for the consideredgenes. The predicted amino acid composition and important post-translational modifications of the MC1R, KRTAP7 and ASIP protein revealed the effect onskin pigmentation and are associated with phenotypic variations in coat colourtraits in camel. The secondary and 3D structures of the consensus translatedprotein revealed important functionally active sites for mutations and protein-protein interactions.

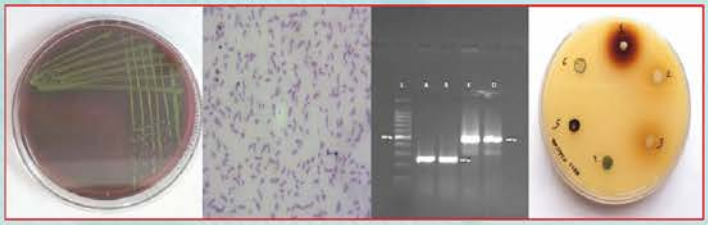
19. Evaluation of *in-vitro* antibacterial activity of some plant extracts against Staphylococcus *aureus* and *Dermatophilus congolensis* isolated from skin lesions of horses

Staphylococcus aureus and *Dermatophilus congolensis* are two common Gram-positive bacterium which causes various skin

lesions such as crusting, scaling, pruritis, cellulitis, subcutaneous abscesses, folliculitis/furunculosis, alopecia and photosensitization in horse that reduce aesthetic value of horses. The current system of Allopathic and modern medicines comes with lots of challenges of dose-dependent side effects and toxicity, development of resistance by bacterial agent against available antibacterial drug. Therefore, Study was designed to isolate and identify *Staphylococcus aureus* and *Dermatophilus congolensis* from skin lesions of horses and to evaluate in-vitro antibacterial activity of Aqueous, methanolic, ethanolic, chloroform and petroleum ether extract of leaves of *Capparis decidua, Calotropis gigentean, Leptadenia pyrotechnica, Aerva javanica, Azadirachta indica*, Aloe vera and *Eucalyptus camladulensis* by using agar well diffusion method. Minimum inhibitory concentration of plant which were showed zone of inhibition in screening test was also determined by using broth micro dilution method. The peculiar "Tram track" appearance of coccoid forms and bunches of grapes like cocci in stained smears prepared from culture revealed the presence of *Dermatophilus congolensis* and Staphylococcus aureus, respectively. 16S rRNA PCR yielded 500 bp amplicon specific for *Dermatophilus congolensis* and 1250 bp amplicon specific for Staphylococcus aureus further confirm the presence of these bacteria. Antibacterial screening revealed that aqueous, methanolic, ethanolic, chloroform and petroleum ether of Eucalyptus Camaldulensis showed highest antibacterial activity against Staphylococcus aureus and *Dermatophilus congolensis* with zone of inhibition in range of 13 mm to 21 mm and MIC in range of 1.562 to 3.125 mg/ml. *Azadirachta indica* (Chloroform, methanolic and ethanolic extract) and Aloe vera (methanolic and ethanolic extract) also showed antibacterial activity against both the pathogen with zone of inhibition 15 mm to 22 mm (MIC- 3.125 to 25mg/ml) and 9 mm to 12 mm (MIC- 12.5 to 25mg/ml), respectively while, aqueous and petroleum ether extract of *Azadirachta indica* and Aloe vera does not showed zone of inhibition. Extracts of remaining plant also does not expressed any antibacterial activity against both the pathogen. The results of this study indicate that *Eucalyptus camaldulensis*, *Azadirachta indica* and Aloe vera have antibacterial activity against skin pathogen so can be used/ added in topical antibacterial preparations to treat skin infection caused by these bacteria.

20. Evaluation of antibacterial activity and phytochemical analysis of selected plant extracts against *K. Pneumonia* and *E. coli.*

Klebsiella pneumoniae is an important pulmonary pathogen of domestic animals, including horses, cattle and camel. In camels, it can cause acute destructive bronchopneumonia with abscess, cavitation and empyema. It can cause several clinical conditions like peritonitis, septicemia, urinary tract infections etc. *Escherichia coli* is one of the leading causes of neonatal calf diarrhoea and also responsible for bovine mastitis and urinary tract infections. Like other pathogenic bacteria, there are growing evidences suggesting emergence of drug resistance in both of these bacteria. Therefore, search for strategies to combat drug resistance problem is warranted. The current system of allopathic and modern medicine comes with lots of challenges of dose-dependent side effects and toxicity, development of resistance by bacterial agent against available antibacterial drug. Therefore, present study was designed to identify *Klebsiella pneumoniae* and *E. coli* from isolated cultures and to evaluate *in-vitro* antibacterial activity of aqueous, methanolic and chloroform extract of leaves of *Ocimum sanctum*, *Moringa oleifera*and *Murraya koenigii* by using agar well diffusion method. Minimum inhibitory concentration(MIC) of plant which showed zone of inhibition in screening test was also determined by using broth micro dilution method. 16S-23S rDNA PCR yielded 260 bp amplicon specific for *Klebsiella pneumoniae* and uidA gene PCR yielded486 bp amplicon specific for *E. coli* further confirm the presence of these bacteria. Antibacterial screening revealed that aqueous extracts of *Ocimum sanctum*, *Moringa oleifera* and *Murraya koenigii* did not exhibit any anti-bacterial activity. Methanolic and chloroform extracts of *Ocimum sanctum*, *Moringa oleifera* and *Murraya koenigii* showed little zone of inhibition and MIC in the range of 6.25 to 100 mg/ ml against *Klebsiella pneumoniae* and *E. coli.* The results of this study indicate that*Ocimum sanctum*, *Moringa oleifera* and *Murraya koenigii*have antibacterial activity against *Klebsiella pneumoniae* and *E. coli*hence these can be used/added in antibacterial preparations to treat infection caused by these bacteria.



21. Study on Computed Tomography and Ultrasonography Imaging of Thyroid Gland in Dogs

The present study entitled "Study on Computed Tomography and Ultrasonography Imaging of Thyroid Gland in Dogs" was conducted on 12 healthy dogs unrelated to the thyroid problems and 8 dogs with clinically diagnosed hypothyroidism to evaluate the appearance and evaluate measurements of thyroid gland by CT and USG imaging techniques. Two diagnostic imaging modalities *i.e.* Computed Tomography and Ultrasonography was employed in dogs to conduct imaging studies on thyroid glands in dogs. The mean age of healthy and hypothyroidism dogs was 4.25 years and 7.65 years, respectively and mean body weight 16.10 kg and 34.13 kg, respectively. All thyroid lobes were homogeneous on the pre- and post-contrast CT images in normal as well as in dogs with hypothyroidism. Transverse CT images demonstrated an ovoid, oval, triangular and polygonal shape of the thyroid lobes. Dorsal CT images demonstrated an elongated ovoid, elliptical and ovoid shape of the thyroid lobes. The thyroid lobes on transverse CT images were dorso-lateral to the trachea. The right lobes were more

cranially located than the left thyroid lobes relative to the tracheal rings in dogs. The dogs with hypothyroidism had significantly lower pre-contrast overall mean attenuation value (64.48± 2.49 HU) than in dogs with normal thyroid glands (79.93± 2.32 HU). In post-contrast series, overall mean attenuation values of thyroid glands was significantly lower in dogs with hypothyroidism (101.29± 4.47 HU) than normal thyroid glands (122.84± 4.86 HU). No statistical differences between the dimensions of the left and right thyroid lobes in dogs with normal thyroid glands as well as in dogs with hypothyroidism were recorded. The mean total thyroid volume was 897.17± 63.68 mm^3 and 807.79±112.76 mm^3 respectively, in dogs with normal glands and hypothyroidism were non-significantly different. No any focal lesion was detected on CT examination. On USG examination, both thyroid glands were hyperechoic to the surrounding musculature and have homogeneous parenchyma and a sharply delineated hyperechoic fibrous capsule. In dogs with hypothyroidism, diffusely hypoechoic parenchyma (75.00 %) and hyperechoic (25.00 %) were recorded. The capsule was smooth and sharply delineated in (37.50 %) while 62.50 % lobes had irregular capsule. The shapes of the lobes on transverse images were triangular, oval shape. In sagittal USG images, fusiform of the thyroid lobes were recorded. The mean total thyroid volume was 1035.72± 88.08 mm^3 and 959.72± 124.61 mm^3 respectively, in dogs with normal glands and hypothyroidism were non-significantly different. The total thyroid volume in dogs with normal thyroid glands measured by CT 897.17 ± 63.68 mm^3 was non-significantly lesser than that measured by USG 1035.72±88.08 mm^3. Likewise, the total thyroid volume in dogs with hypothyroidism measured by CT 807.79 ± 112.76 mm^3 was non-significantly lesser than that measured by USG 959.72±124.61 mm^3. The thyroid hormone assay demonstrated lower values of Triiodothyronine (T3) (0.26-0.81 ng/mL), Thyroxine (T4) value (0.6-4.0 µg/dL) and Thyroid stimulating hormone (TSH) value (<0.01-0.07 µIU/mL) were recorded in dogs with hypothyroidism. It is concluded that mean attenuation values were significantly decreased in dogs with hypothyroidism. Both CT and USG can be used to measure thyroid volume in dogs.

22. Clinical Study of Diverse Dental Affections and their Surgical Management in Dog (*Canis lupus familiaris*)

The study was carried out in 31 dogs to evaluate clinical findings, diagnosis and treatment for diverse dental affections. Twenty dogs were male and 11 were female. The periodontal and endodontal affections were 93.24% and 6.76%, respectively. The highest occurrence was recorded as periodontitis (41.89%) followed by uncomplicated crown fracture (18.92%), enamel hypoplasia & malocclusion of teeth (6.76%, each), dental caries (5.41%), dental attrition, ginigival hyperplasia &discolouration of teeth (4.05%, each) and complicated crown fracture, epulis& root canal infection (2.7%, each). Breed wise occurrence was recorded as labrador retriever (52.70%), non-descript (18.92%), german shepherd (9.46%), pomeranian& chow chow (5.41%, each) bull dog &rottweiler (2.70%, each) and dachshund & cocker spaneil (1.35%, each). Feed wise occurrence was as vegetarian (41.89%), vegetarian (veg.)-commercial (21.62%), veg.-non veg. (14.87%) and non veg. & non veg.-commercial feed (10.81%, each). Age wise occurrence was 48.65% in 8-12 years, 25.68% in 4-8 years, 22.97% in 12-15 years and 2.70% in 1-4 years age group. Clinical findings were halitosis (93.55%), gingivitis (96.77%), dental calculus (100%), excessive salivation (68.75%), missing teeth (35.48%), loose teeth (29.03%), exposure of furcation (25.81%), gingival bleeding & receding of gums (19.35%), gingival enlargement, defective discoloured enamel & dull yellow coloured crown (6.76%, each), crown fracture (51.61%), abnormal or excessive wear of occluding tooth surface (9.68%). The gingival pocket depth was recorded as ranged from 1mm to 13mm. The descending order of occurrence of periodontal disease grade was recorded as PD-0 (44.50%), PD-1 (34.06%), PD-2 (17.19%) and PD-3 (4.18%). The highest occurrence of periodontal disease was recorded as canine (91.80%), followed by molar (73.03%), premolar (72.69%) and incisor teeth (8.41%). First incisor teeth of all quadrants were recorded as always cleaned and had no periodontitis. *Staphylococcus, Escherichia coli, Klebsiella*andmixed infection of E.*coli*+ *Klebsiella*were in 38.71%, 25.81%, 19.35% and 6.45%, respectively. Antibiotic sensitivity test revealed ciprofloxacin as the highest sensitive in periodontal diseases. Nineteen dogs were found anaemic and lower value than normal range of PCV. Twenty dogs showed leukocytosis, neutrophilia and lymphocytopaenia. Higher value of ALT, AST, bilirubin, BUN and CRT than normal reference range was showed in 17, 24, 19 and 22 dogs, respectively. Intraoral radiographs of teeth showed calculus as radiolucent area on radiodense crown of teeth, interdental alveolar bone loss, alveolar bone attachment loss, periodontal ligament space loss, furcation exposure, infected pulp/root cavity and missing teeth. In 2 dogs fibrous epulis and 3 dogs ulcerative gingival hyperplasia was found on histopathological examinations. By 20 days halitosis had disappeared in 90.32% cases. Gingivitis also effectively reduced after 7 days of treatment. Root canal therapy was given in canine tooth fracture with root canal infection and the dogs recovered without any complications. Malpositioned teeth were extracted by gingival flap method only in 2 cases and no complications were observed. Loose teeth were extracted, surgical excision of the epulis in 2 cases and gingival hyperplasia in one case was performed using a diode laser, restoration of dental caries was done using a composite restorative material and no complications were observed in the cases.

23. A comparative study of laparoscopic ovariohysterectomy in female dogs using electro-coagulation, extracorporeal ligation and endo-stapling techniques .

The present study was conducted on 18 female dogs of different ages and body weights and were divided into three groups (n = 6 in each group) as per haemostasis techniques i.e. Group I- Laparoscopic ovariohysterectomy by electro-coagulation, Group II- Laparoscopic ovariohysterectomy by extracorporeal ligation

and Group III- Laparoscopic ovariohysterectomy by endo-stapling. In all three groups postoperative mean rectal temperature, heart rate and respiratory rate up to 48 hrs were higher than preoperative values and at 96 hrs postoperative it was almost similar to preoperative value. The postoperative mean Hb, PCV, TEC, monocyte count, lymphocyte count and eosinophil count values upto 48 hrs were non-significantly lower than preoperative values and at 96 hrs these were well-nigh to preoperative values. The postoperative mean TLC, neutrophil count, AST, ALT, BUN, serum creatinine, serum cortisol and blood glucose values upto 48 hrs were higher than preoperative values and at 96 hrs these values were observed nearer to the preoperative values within all the groups. However, all the pre and postoperative physiological and haemato-biochemical parameters were found within normal range. The mean post-operative pain score values were non-significantly decreases from 24 to 48 hrs and at 96 hrs significantly decrease within all the groups. The mean total surgical operating time for laparoscopic ovariohysterectomy in animals of group I, II and III were 39.33±0.80, 73.83±0.95 and 51.17±0.75 minutes, respectively. The laparoscopic ovariohysterectomy with electro coagulation technique required less surgical time, while extracorporeal ligation required more surgical time in comparison to endo-stapling techniques. In nulliparous and lean animals all three haemostasis techniques for laparoscopic ovariohysterectomy were found similarly effective and feasible; however, in pluriparous and fatty female dogs only the electrocoagulation and extracorporeal ligation techniques were effective.

24. Gastrointestinal Parasitoses in Camels of Western Rajasthan

In order to determine the prevalence and associated risk factors with gastrointestinal parasitoses in camels of western Rajasthan, a total of 608 faecal samples were collected randomly from the camels of Bikaner, Barmer, Jodhpur and Jaisalmer districts.

Coprological examination revealed an overall prevalence (52.96%) of gastrointestinal parasites in camel population. Among various gastrointestinal parasites, Strongyle type was predominant (45.39%) followed by *Trichuris* sp (21.87%), *Nematodirus* sp. (12.17%), *Strongyloides* sp. (10.85%.) and *Eimeria* sp (10.85%). Quantitative analysis revealed the intensity of infection, varying from 480.11±30.19 (100-1700), 570.96±41.43 (100-1900) and 245.14±34.14 (100-900) for *Trichuris* sp., strongyle and *Strongyloides* sp. respectively. Seasonal analysis revealed a significantly higher ($p \leq 0.01$) prevalence during rainy season (59.51%) followed by winter (56.92%) and summer (42.78%). Similarly district wise analysis showed ($p \leq 0.01$) highest prevalence in Bikaner (65.06%), Jodhpur (58.94%), Jaisalmer (46.40%) and Barmer (42.40%). Age wise analysis showed maximum prevalence among animals 5-10 yr of age group (59.51%) and minimum in animals below 2 yr of age group (44.86%). Sex wise analysis revealed higher prevalence in males (58.41%) than females (47.09%). Among gastrointestinal parasites, *Trichuris* sp., strongyle, *Strongyloides* sp., *Nematodirus* sp. and *Eimeria* sp showed comparatively higher prevalence in males than females. The coproculture study revealed that *Haemonchus* sp. (49.67%) was highest contributor among strongyle larvae whereas during sporulation of coccidian oocyst *E. cameli* and *E. dromedarii* was found in this region.

25. Effect of insulin sensitizer metformin on ovarian folliculogenesis in sheep

The study aimed to investigate the impact of an insulin-sensitizing drug metformin on preovulatory follicle (POF) turnover, ovulation rate, and prolificacy in sheep. At the outset, an exploratory pilot trial was conducted to assess the effect of short-term metformin (2 weeks) on ovarian dynamics and associated blood biochemicals *viz.* glucose and lipid profile in Malpura sheep inserted with intravaginal progesterone sponge. Forty cyclic Malpura ewes of 2-5 years' age, lambed once at least, having body condition score ≥3 on a five-point scale, and maintained in iso-managerial conditions were included in the experiment. Ewes (n=20) in the treatment group (MET) were orally administered with metformin @ 500 mg once daily for two weeks as against untreated controls (CON; n=20). The treatment exerted a stimulatory effect on follicular turnover and ovulation rate. There was 23% additional number of preovulatory follicles (P=0.08) and 22% higher ovulation rate (P=0.11) in treated group. Relatively, a higher proportion of ewes carried multiple ovulations in treatment group (55% vs. 25%, respectively). Besides, systemic levels of total cholesterol ($P<0.01$) and LDL-cholesterol ($P<0.05$) were reduced significantly after treatment, while plasma-glucose, HDL-cholesterol, and triglyceride concentrations remained comparable between the groups. After observing the promising outcomes on follicular turnover and ovulation rate in ewes following the pilot study, a comprehensive study was subsequently conducted, which included a long-term metformin treatment and additional study parameters. The experiment involved forty-six cyclic Malpura ewes, aged between 2 to 5 years, in their first to third parity with mean body weight of 41.95±0.64 kg and mean body condition score of 3.27±0.06. Following estrus synchronization, the ewes were evenly divided into two groups (n=23). Treatment group received metformin at the similar dose rate *viz.* 500 mg/animal daily, PO for around 12 weeks, spanning five estrous cycles, as against untreated control. All the ewes were bred with proven sires at the end of treatment. Ultrasonographic ovarian scans were carried out in every estrus and on D 9 of each cycle to evaluate the number and diameter of POFs and corpora lutea, respectively. A comprehensive assessment was conducted on circulating hormones including, estradiol, progesterone, androstenedione, and insulin as well as metabolic indicators like glucose, and lipid profile parameters. By the end of medication, the treatment showed a stimulatory effect on follicular turnover with a 53.2% ($P< 0.001$) rise in the number of POFs. It further elevated the ovulation rate by 67.4% ($P< 0.01$), with a higher proportion ($\chi^2_{df1} = 10.7$, $P< 0.001$) of ewes in MET group having multiple ovulations compared to the CON (82.6 vs. 30.4%, respectively). This improvement in ovarian

dynamics led to relatively increased conception rates (92 vs 77 %), pregnancies (100 vs. 87 %), fetal rates on day 30 of gestation (1.57±0.15 vs. 1.15±0.08), and prolificacy at lambing (1.48±0.12 vs. 1.15±0.08) in treated ewes compared to their control counterparts.The proportion of ewes with multiple births was nearly three-fold in MET group compared to the CON. The plasma estradiol, insulin, glucose, total cholesterol, and LDL-cholesterol concentrations were lower ($P< 0.05$) in the MET ewes than in the CON. The findings of the present study indicate that metformin can augment POF numbers, ovulation rate, and prolificacy in ewe concurrent with reduced plasma estradiol, insulin, glucose and cholesterols in treated ewes. This may be foreseen as a valuable adjunct towards fecundity improvement in small ruminants. Nevertheless, further comprehensive investigations are necessary to elucidate the precise mechanisms that underlie the improvement in ovulation rate in ewe induced by metformin.

26. Effect of dietary supplementation of *Moringa oleifera* leaves extract on reproductive performance of pubertal Marwari rams

The present study was aimed to investigate the effect of *Moringa oleifera* leaves ethanolic extract (MOLEE) supplementation on sexual behaviour, seminal attributes, serum biochemical, body weight, testicular biometry, endocrinal and antioxidant profile of Marwari pubertal ram. Twenty four pubertal rams of 7-8 month old having 28 kg average body weight were selected and equally distributed in 4 experimental groups, consisting of 6 rams in each. The rams were fed standard diet as without MOLEE supplementation was considered as control whereas rams of group T1, T2 and T3 were fed additional MOLEE @ 40, 80 and 160 mg/kg along with standard diet as per recommendation of ICAR (2013) respectively for 90 days. All the parameters were recorded at fortnightly interval from initial day of experiment to one fortnight beyond the end of feeding trial. Results revealed that overall mean value of sexual behaviour frequency like sniffing, pawing/foreleg kick, flehman response, vocalization, total mounts attempts with ejaculation and overall libido level was significantly higher ($P<0.05$) whereas false mounting attempts, reaction time significantly lower ($P>0.05$) in MOLEE treated groups as compared to control. The sexual performance was recorded highest in T3 group as compared to other group whereas nudging behaviour didn't differ with MOLEE treated groups it was nonsignificant. The overall mean values of seminal parameters like semen volume, mass motility, individual sperm motility, sperm concentration, live sperm percentage, HOST positive sperm and acrosome integrity percentage were increased significantly ($P<0.05$) in treatment group. These seminal quality parameters were observed highest in T3 and T2 group as compared to T1 and Cwhereas, total sperm abnormality observed significantly ($P>0.05$) lower in treatment group as compared to control while pH didn't affect with MOLEE treated groups it was nonsignificant. The overall mean values of serum total protein was significantly ($P<0.05$) higher in the treatment group as compared to the control whereas the other biochemical parameters like serum aspartate aminotransferase (AST), alanine transaminase (ALT), urea and creatininedidn't differ significantly in between treatment and control groups while blood glucose and total cholesterol level was significantly ($P>0.05$) lower down in MOLEE supplemented groups as compared to control. The overall mean value of body weight and testicular biometary like scrotal circumference, testicular length, testicular width and testicular volume was significantly higher ($P<0.05$) in MOLEE treated groups as compared to control. The overall mean value of serum total testosterone and total antioxidant capacity recorded significantly ($P<0.05$) higher in the treatment group as compared to the control.The highest concentration of total testosterone and total antioxidant capacity significantly ($P<0.05$) higher in T3 group.In conclusion, the pubertal Marwari rams were supplemented with MOLEE of @160 mg/kg b.wt dose showed maximum beneficial effect on sexual behaviour and libido as well as produced better semen quality, testicular biometry, testosterone level and antioxidant capacity. Therefore, MOLEE could be used as feed additive and their supplementation can be helpful in advancement of puberty and necessary for sexual maturity.

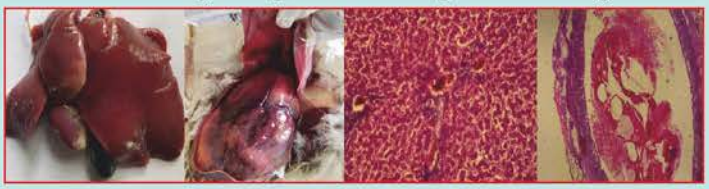
27. "*In vitro* Evaluation of Lumpy Skin Disease Virus Derived Synthetic Peptides for their Cytokine Profile".

The rise of diseases presents significant challenges to global public health and agriculture. In recent years, India has witnessed a notable increase in various diseases affecting humans and animals, with Lumpy Skin Disease (LSD) emerging as a particularly concerning issue, especially within the bovine community. LSD's rapid spread among cattle has led to a marked increase in mortality rates, prompting concerns among researchers, veterinarians, and policy makers. The peptides were picked and modifications were made to enhance stability and immune-stimulating properties. Chemical synthesis technique was standardized with some alterations to construct peptide epitopes in the laboratory. This study investigates the potential T cell epitopes of Lumpy Skin Disease Virus (LSDV) using bioinformatics tools and evaluates their efficacy in stimulating cellular immune responses. T cell epitopes, crucial for initiating immune responses against viruses, are presented by antigen-presenting cells via MHC-I molecules,

activating cytotoxic T cells. The study focused on a peptide (P3) identified through bioinformatics as a potential T cell epitope. Peripheral blood mononuclear cells (PBMCs) from LSDV-vaccinated animals were used to assess the P3 to induce IFN-gamma production and cell proliferation, critical markers of cellular immune responses. Results showed significant upregulation of IFN-gamma and cell proliferation, indicating as P3 potential as a T cell epitope. Additionally, levels of IL-2, IL-10, IL-12, IL-18, and TNF-alpha were evaluated, with downregulation observed for IL-2, IL-10, IL-12, and IL-18. This study highlights P3 is potential as an LSDV T cell epitope and provides insights into cytokine profiles influencing cytotoxic T cell functions. Further *in vivo* studies are warranted to confirm P3 peptide is potency as a T cell epitope for LSDV infection.

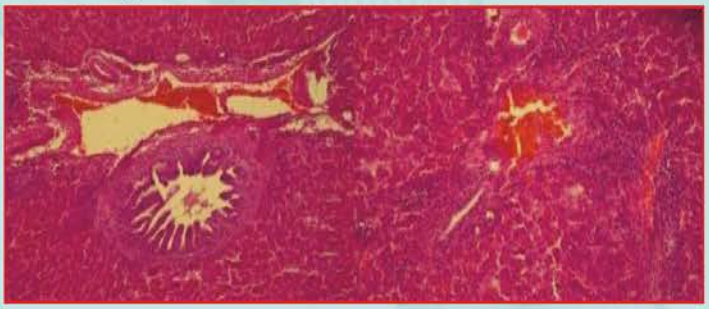
28. Studies on Changes due to Heat Stress in Hematobiochemical Parameters and Pathological Changes in Different Age Groups of Broilers (abstract from pathology)

The preresent study was under taken to study the effects of heat stressed on haematobichemical parameres and pathological changes of broilers. The study was made on commercial broiler birds at Ajmer poultry farm, and Rajuvas poultry farm district Bikaner. One hundred and fifty broilers were screened during heat stress and healthy broilers used as control group. Broiler birds of 4 to 8 weeks of age were used for this study. The study was conducted during extreme hot period the month of April to June. For comparison, base level data were obtained by conducting similar study normal healthy birds at same temperature. Samples like blood, serum, and tissues were collected from heat stressed birds and control birds. The serum cholesterol level singnificaltly increased ($p \leq 0.05$) in heat stressed broilers as well as level of blood glucose was found to be significantly decreased ($p \leq 0.05$) in the birds exposed to heat stressed temperature. The activity of AST and ALT significantly increased ($p \leq 0.05$) under heat stressed birds compared to normal healthy birds. The ALT and AST activity in the due to liver function affected during high environmental temperature. In the study, significantly increased ($p \leq 0.05$) serum creatinine and BUN in heat stroke suffering broilers compared to control broilers. The level of total serum protein and ratio of albumin and globulin was not altered in the heat stressed birds. High environmental temperature caused decreased the levels of serum electrolytes. During the high environmental temperature the levels of serum electrolyte Na, K and Ca were also found to be significaltly decreased ($p \leq 0.05$) under heat stressed condition. The values of Hb, PCV and RBC counts significaltly decreased ($p \leq 0.05$) during the heat stressed condition. The total leucocytic counts as well as absolute counts of lymphocyte were found to decreased. There was increase in absolute count of heterophil in heat stressed condition . A significant increased ($p \leq 0.01$) was observed in H : L ratio in the heat stressed condition.The increase in body temperature directly correlated with the increase in the environmental temperature. The birds affected with heat stroke were sacrificed.They showed gross pathological findings like mild congestion, severe haemorrhages of trachea, lunges, liver, heart and spleen. Severity of these,lesions were increased in the birds died due to heat stroke. The microscopic lesions in the form of congestion , haemorrhages, oedema were observed in lungs, trachea, liver, kidney, heart along with necrosis, cloudy swelling, ballooning degeneration, fatty changes in liver , kidney and heart also lymphoid depletion in spleen in most of the cases. Some cases of heat stress showed deposition of fibrosis tissue around central vein of liver and bronchioles of lungs. The heat stress cause maximum mortality during seventh and eighth weeks of age.



29. Pathomorphological and Biochemical Analysis of Liver in Poultry

For the present investigation, a total 750 liver specimens of poultry of different age groups, sex and breeds subjected to post- mortem examination were examined from Rajasthan. Out of these, 192 samples representative of gross lesions were processed for subsequent histopathological examination. An overall occurrence of liver lesions in poultry was recorded as 25.60%. Various liver lesions were observed as circulatory disturbances (10.93%) as congestion (6.25%) and haemorrhages (4.68%); degenerative changes (11.97%) as cloudy swelling (2.08%) hydropic degeneration (4.16%) and fatty change (5.72%); necrosis (31.25%) as focal necrosis (9.89%), centrilobular necrosis (8.33%), periportal necrosis (7.29%) and diffuse necrosis (5.72%); inflammatory changes (40.62%) as acute hepatitis (9.89%), sub-acute hepatitis (7.81%), chronic hepatitis (8.85%), perihepatitis (7.81%) and cholangiohepatitis (6.25%)); miscellaneous conditions (5.20%) as FLHS (1.56%), liver abscess(1.04%), calcification (1.04%), bile duct hyperplasia (1.04%) and telangiectasis (0.52%). For biochemical study, a total no. of 45 serum samples were collected from affected poultry, 10 samples from normal birds were also collected and studied. The biochemical profile included ALT, AST, Total protein, Albumin, Globulin and A:G ratio. ALT & AST enzymes were highly significantly ($P<0.01$) increased, total serum protein, albumin & A:G ratio were significantly decreased ($P<0.05$) and globulin was non-significantly increased in affected birds as compared to normal birds.



30. Gene Expression Studies of Clinically Important Cytokines in Summer Dermatitis Horses.

In this study, a gene that may be used therapeutically to cure horses' summer dermatitis was examined. The present study was therefore, designed with following objectives: (1) To study gene expression of some pro-inflammatory cytokines (IL-4, IL-5, TNF-α) skin

biopsy of summer dermatitis affected horses. (2) To study gene expression of some anti-inflammatory cytokines (IL-10, TGF- β1, TGF-β2) in skin biopsy of summer dermatitis affected horses. Horses (n=12) which were having history of repeated occurrence of itching and alopecia summer season, and found negative for the presence of mites, fungal infection and bacterial infections were selected for this study. Control healthy horses (n = 12) were chosen randomly from the same stables with no history clinical signs of skin diseases. Alopecia on the mane, back, and tail, together with irritating scabs, were primary clinical manifestations of summer dermatitis in horses. The microscopic examination H and E stained biopsy slides of summer dermatitis affected horses have hyperkeratosis, acanthosis in epidermis and infiltration of eosinophils, mast cells, lymphocytes in dermis. The expression level of cytokines in skin samples of summer dermatitis affected horses were evaluated by the RT-PCR and compare with the skin samples of healthy horses. Expression of IL-4 were significantly lower ($p \leq 0.05$) in summer dermatitis affected horses compared to the skin of healthy horses. Expression level of IL5 and TGF-β1 were significantly higher ($P \leq 0.05$) in summer dermatitis affected horses compared to the skin of healthy horses, but no significant differences were observed regarding the expression levels of pro-inflammatory cytokines TNF-α and anti- inflammatory cytokines IL-10 and TGf-β2. According to the results of the current study, horses with summer dermatitis have long-lasting inflammatory lesions that are brought on by allergic reactions, inflammatory changes, and persistent damage from scratching. The expression of anti-inflammatory cytokines, such as TGF-β1 and IL-10, may beuseful therapeutic targets to manage chronic instances of summer dermatitis.

31. Effect of addition of lyophilized heterologous seminal plasma on cooled

Twelve Stallions of Indigenous Marwari breed aged between 4-11 years reported for routine castration at Veterinary polyclinic, Udaipur and VCC, Navania were utilized in study. Biometrical parameters such as testicular weight (gm), length (cm), circumference (cm), volume (cm^3) were recorded. Testes-epididymis of each stallion were stored at 5 for 0 h (immediately processed, first epididymis) and 24 h of post-orchiectomy (second epididymus). The epididymal spermatozoa were harvested immediately and 24 h of testes-epididymis complex storage. Sperm quality parameters sperm concentration, progressive motility, percentage of live sperm cells (viability) and sperm abnormality, membrane integrity and acrosomal integrity were assessed. The skimmed milk glucose extender supplemented with lyophilized heterologous seminal plasma for first and second epididymis sperm suspension of all four groups ((Control group (0 mg/ml), 2 mg/ml, 5 mg/ml and 10 mg/ml)) was evaluated for progressivemotility, percentage of live sperm cells (viability), sperm abnormality, membrane integrity and acrosomal integrity at immediate (0 hour), 12 hours and 24 hours of cool storage. Non-significant ($p>.05$) difference was observed between left and right testis for mean testicular weight, mean circumference of testis (cm), mean testicular length (cm), mean testicular volume (cm^3) of testicle and total epididymal sperm output ($\times 10^9$).Highly significant ($p<=.01$) difference was observed in mean progressive motility (%) of epididymal sperm suspension retrieved after 0 and 24 hours of testicular-epididymal complex storage at 5C, while non-significant ($p>0.05$) difference was observed in mean live sperm (%),HOST (%), acrosomal integrity (%), head abnormality (%), mid-piece abnormality (%), tail abnormality (%) and total sperm abnormality (%). Addition of 2 mg/ml LHSP has beneficial ($P \leq 0.05$) effect as compared to control on progressive motility and HOST in first and second epididymal sperm suspension at 12 h and 24 h of cool storage 5^0C. 5mg/ml had intermediate effect and 10 mg/ml LHSP had detrimental effect in first and second epididymal sperm suspension storage at 5^0C at 0 h, 12 h and 24 h.Addition of 2 mg/ml, 5 mg/ml and 10 mg/ml LHSP has non-significant effect on viability, abnormality and acrosomal integrity in first and second epididymal sperm suspension at 5C 0 h, 12 h and 24 h.The present study concluded that testes-epididymis complex storage at 5C for 24 hour preserve the epididymal sperm suspension quality.2 mg/ml lyophilized heterologous seminal plasma from good fertility stallion is suitable concentration for cool-storage of equine epididymal sperm suspension.

32. Effect on performance, hormonal profile and histopathology of broiler chickens raised under various light regimens

The present work was intended to study the body weights, weight gain, behavioral traits, blood-biochemical parameters, hormonal profile, histopathology and economics of broiler chicken. A total of one hundred and forty four (144) day old chicks of either sex were randomly allocated to three treatment groups comprising of four replicates with twelve birds in each replicate. Chicks in the first experimental group T1 (control) were exposed to light produced from 60 watt incandescent lamp, while the T2 and T3 treatment groups were subjected to light emitting from Compact florescent lamp (CFL) andLight emitting diode (LED) lamps having the intensity of 26 and 9 watts respectively. The pre-starter ration offered up to 8 days starter up to 21 days and finisher ration up to 42 days as per BIS (2007). Other management practices were standard and similar to all the treatments. The body weights, gains, feed consumption, feed conversion ratio were significant ($P \leq 0.05$) among all the three treatment groups. The highest body weight at 42^{nd} day of age were recorded for T3 group, subjected to 9W LED illuminance (2224.71g) followed by T2 CFL group emitting 26W light intensity(2193.36 g)and lowest in T1 control group exposed to 60w ICD illuminance (2170 g) respectively. Significant ($P \leq 0.05$) influence of light regimens (source and intensity) on weekly body weight was recorded. Likewise at 6^{th} week highest weekly weight gain was observed for T3 group (557.59g) followed by control group T2 (536.71g) and lowest in control group T3 (534.28g) respectively. A statistically significant difference ($P \leq 0.05$) was observed between weekly body weight gains of birds from all

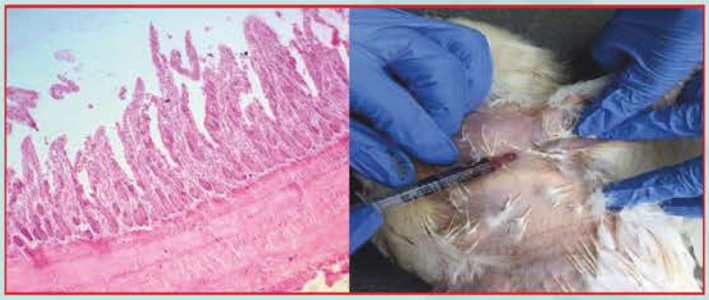
treatment groups. The overall mean weekly feed consumption of birds was highest for T1 control group (1045.71g) exposed to 60w ICD illuminancefollowed by T2 CFL group emitting 26W light (1032.89 g) and lowest in T3 exposed to 9W LED illuminance (1029.85 g) respectively. A statistically significant difference ($P \leq 0.05$) between the total mean weekly feed intakes of birds from all treatment groups was obtained. The weekly feed conversion ratio was significantly ($P \leq 0.05$) affected by light regimens (source and intensity). Highest weekly feed conversion ratio was observed for T1 control group exposed to 60w ICD illuminance (1.92) followed T2 CFL group emitting 26W light (1.90) and lowest for T3 group, subjected to 9W LED illuminance (1.87). Behavior was significantly ($P<0.05$) influenced under three different light regimens. In comparison to the other groups, lying, eating, standing, drinking frequency was highest in T3 LED treatment group subjected to 9W illuminance and lowest was observed in T1 (control) ICD group exposed to 60W Illuminance. whereas, pecking, non-aggressive pecking and aggressive pecking behavior were significantly ($P<0.05$) higher in the T1 (control) ICD group emitting 60W light and lowest in T3 LED treatment group subjected to 9W illuminance respectively. However preening and foraging behavior was unaffected by light regimens. A significant difference observed ($P <0.05$) inheterophil to lymphocyte (H/L) ratio. The H/L concentration was highest in T1 (control) ICD group exposed to 60W Illuminance (0.47), followed by T2 CFL group emitting 26W light (0.46) and lowest in T3 exposed to 9W LED illuminance (0.40) respectively. However, non- significant effect of light regimens on biochemical variables (total cholesterol, glucose and triglycerides), hormonal profile (T3, T4 and corticosterone) and histopathology of lymphoid organs (bursa of fabricius, thymus and spleen) were observed across all the three treatment groups. The broiler performance efficiency index was highest for T3 LED group (2.6) compared to T2 CFL group (2.5) and lowest was observed in ICD led T1 control group (2.4) respectively

33. Studies on experimentally induced arsenic toxicity in rats and its amelioration with *Withaniasomnifera*root extract

The present study was conducted to study experimentally induced arsenic toxicity in rats and its amelioration with *Withaniasomnifera* root extract. In-vitro evaluation of extract revealed presence of phenol, tannin, flavonoid, alkaloids, cardiac glycosides and terpenoids in the extract. For experimental study, a total of 48 rats were divided randomly into two study groups I and II of 24 rats each. Further, each group was divided into four subgroups (A, B, C & D) of 6 rats each. Group B and C were administered with Sodium Arsenite given @ 4 mg/Kg B.wt. for 45 days. Aqueous root extract of *Withaniasomnifera*wasgiven @ 200 mg/Kg B.wt to group C and D daily for 45 days. The clinical signs observed in arsenic treated rats include depression, anorexia, and alopecia and nervous signs. Hemato-biochemical analysis showed macrocytic hypochromic anemiaand increase leucocytosis. Liver and Kidney specific enzymes were increased in arsenic toxicity. However, the changes were less severe in extract supplemented group. Oxidative stress reduced in root extract supplemented group. Lesions observed were congestion, haemorrhage, edema and swelling were major changes noticed in various organs. Microscopically, congestion, hemorrhages, degeneration, necrosis and infiltration of leucocytes were major changes observed. Ultrastructurally, damage to mitochondria, RER and nucleus was observed. These changes were mild in extract supplemented group. Mutagenic studies revealed DNA damage as assessed by study of chromosomes and sperms and presence of micronuclei in erythrocytes. It is concluded that *W. somnifera* root extract reduced the severity of arsenic toxicity in rats.

34. Effect of dietary supplementation of tejpatta (*Cinnamomumtamala*) leaf powder as a feed additive on Growth Performance and gut morphology of Broilers"

The present trial was conducted in order to evaluate the effect of dietary supplementation of Tejpatta (*Cinnamomumtamala*) leaf powder as feed additive on growth performance and gut morphology of broilers. A feeding trial of six-weeks along with metabolic trial of five-days was performed using 225 day-old broiler chicks (Vencobb-400) by applying completely randomized block design. The chicks were randomly allocated to 5 dietary treatment groups with three replicates within each group, having 15 birds perreplicate. The treatment group T1 was fed basal diet and served as control, while T2, T3, T4 and T5 groups were supplemented with 0.25%, 0.75%, 1.25% and 1.75% Tejpatta leaf powder, respectively. The parameters were evaluated viz. body weight, body weight gain, average daily weight gain, feed consumption, feed conversation ratio, performance index, dry matter metabolizability, nitrogen balance, carcass traits, gut morphology, hemato-biochemical parameters, percent mortality and comparative economics. Highlysignificant ($P<0.01$) effect on growth characteristics was noticed in broiler chicks due to dietary supplementation of Tejpatta leaf powder. Significantly higher (P<0.01) body weight, weekly body weight gain, average daily body weight gain and performance index was noticed in T 4 group and lowest was observed in T 1 group. Significantly higher ($P<0.01$) feed intake was observed in T 5 group and lowest was in T 1 group. Lowest feed conversion ratio was observed in T 4 group and was highest in T 1 group. Significantly ($P<0.01$) increased dry matter metabolizability and nitrogen retention was found in T 4 group in comparison to T1 group. However, there was non-significant difference noticed in carcass characteristics like dressing percentage, eviscerated weight, heart weight, liver weight, gizzard weight and giblet weight. Similarly, hemoglobin, PCV, RBC, blood glucose, serum protein, serum cholesterol and creatinine levels were found non-significant in varying dietary treatment groups. Significantly higher ($P<0.01$) villus height and width of jejunum was observed in T4 group and lowest was observed in control group. Significantly lower crypt depth was observed in T4 group and higher was observed in T1 group i.e. control group. Mortality



percent was observed reduced in all treatment groups as compared to control group. Net profit per bird was highest in T4 group and lowest was observed in T1 groups. Based on the findings of this study, it is possible to conclude that supplementing broiler diet with Tejpatta leaf powder @ 1.25% could be beneficial for improving broiler chick growth performance, nutrient utilization, carcass traits, gut morphology, and hemato-biochemical parameters while having no adverse effects on broiler chicks.

35. Streptomycin-Penicillin and Gentamicin-Tylosin-Lincomycin-Spectinomycin antibiotic regimens' effect on pre-freeze and post-thaw quality and bacterial load in Surti buffalo (*Bubalusbubalis*) bull semen

The present study evaluated the effect of two different antibiotic combinations SP (streptomycin, penicillin) and GTLS (gentamicin, tylosin, lincomycin and spectinomycin), as antibiotic regimens in TCFY (Tris-citric acid-fructose-yolk) semen extenderofSurti buffalo bull semen. A total of 12 ejaculates from 6 bulls were collected and evaluated for various macroscopic parameters (colour, consistency, volume, pH), microscopic parameters (sperm concentration, mass motility, individual sperm progressive motility, live sperm percentage, sperm abnormalities percentage and HOS responsive sperm percentage) and microbial parameter (bacterial load).Extended semen was divided into three equal parts and antibiotic combination SP and GTLS was added into part 2 and part 3 at the concentration of streptomycin1000 µg/ml, penicillin 1000 IU/ml (Treatment-1), and gentamicin 500 µg/ml, tylosin 100 µg/ml, lincomycin 300 µg/ml and spectinomycin 600 µg/ml (Treatment-2) with one control group (part 1)having no antibiotics. During fresh semen evaluation, semen was creamy white to milky white in colour and consistency varied from thick to thin. The mean ejaculate volume, semen pH, sperm concentration and mass motility (0-5 scale) in Surti buffalo bulls were found to be 2.25±0.10 ml, 6.81±0.03, 810.83±17.60 and 3.13±0.07, respectively. Pre-freeze microbial and seminal parameters, *viz.*, individual progressive sperm motility, live sperm percentage and HOS responsive spermatozoa were found to be significantly ($p<0.05$) higher, whereas bacterial load (CFU/ml) and sperm abnormalities were significantly ($p<0.05$) lower in semen samples treated with antibiotic combinations SP (Treatment-1) and GTLS (Treatment-2) in comparison to control. Similarly, the effects of antibiotics in semen were also recorded in semen thawed after 24 hr of cryopreservation. The post-thaw (24 hr) individual sperm progressive motility percentage, live sperm percentage, and HOS-responsive sperm percentage were significantly ($p<0.05$) higher, whereas bacterial load (CFU/ml) and sperm abnormalities were significantly ($p<0.05$) lower in SP (Treatment-1) and GTLS (Treatment-2) treated extender compared to control. The Treatment-1 (SP) had significantly($p<0.05$) higherpre-freeze and post-thaw (24 hr) individual progressive motility percentage, live sperm percentage, and HOS response sperm percentage, but significantly($p<0.05$) lower bacterial load (CFU/ml) and sperm abnormalities percentage as compared to the control. However, no significant difference was observed at pre-freeze and post-thaw stages in individual progressive motility percentage, live sperm percentage, HOS response sperm percentage and sperm

abnormalities percentage between Treaatment-1 (SP) and Treatment-2 (GTLS). The Treatment-1 (SP) had a significantly ($p<0.05$) lower bacterial load at the pre-freeze and post-thaw stage as compared to the control, but significantly higher than Treatment-2 (GTLS).It was concluded that SP and GTLS show significant improvement in semen quality compared to control and no significant difference was observed between SP and GTLS at pre-freeze and post-thaw stagefor sperm parameters. Furthermore, the GTLS combination significantly reduced the bacterial load compared to SP and control in pre-freeze and post-thaw semen samples.

36. Virulence and Antimicrobial Resistance Genes Profiling of *E. coli* Strains isolated from Diarrhoeic Lambs

The present study aimed to determine the virulence genes and antimicrobial resistance genes profile of *E. coli* isolated from diarrhoeic lambs. A total of 61 faecal samples were collected from 0 to 4 months old diarrhoeic lambs from the institutional flock and farmer's flocks in and around areas of Udaipur.Based on cultural, morphological, biochemical and molecular characteristics, a total of 46 *E. coli* isolates were identified.The overall prevalence of *E. coli* in diarrhoeic lambs was found 75.41%. Whereas, the prevalence of *E. coli* in diarrhoeic lambs in the institutional flock was 65% and in farmer's flocks was 80.49%.In the present study, the prevalence of *E. coli* in diarrhoeic lambs decreased with the increasing age up to 31-60 days after that a sudden change was seen as increased prevalence at 61-90 days. After 90 days the prevalence was found to decrease as previously. The virulence genes including*stx1, stx2, eaeA, bfpA,lt,st*and*etrA*determinedby PCR method. Seven isolates (15.22%) harbored*stx1* and/or *stx2* and were classified as STEC. In the present study,the*stx1*(13.04%) gene was more prevalent than the*stx2* (6.52%) gene. Four isolates (8.70%) were assigned to EPEC because they possessed the *eaeA*gene. All the EPEC isolates were aEPEC because the *bfp A* gene was not detected in these isolates.16.67% of STEC isolates possessed the *eaeA* gene and was characterized as EHEC. None of the isolates belonged to ETEC as the enterotoxin encoding *lt* and *st*geneswerenot detected in these isolates, whereas, higher prevalence of EAEC (76.09%) was found.All isolates were subjected to antimicrobial susceptibility testing against 15 different antimicrobials.In all *E. coli* isolates resistance to antimicrobial agents in decreasing order was Azithromycin (100%), Cephalothin (100%), Penicillin-G (100%), Polymixin-B (91.30%), Cefixime (43.48%), Gentamicin (41.30%), Ampicillin (28.26%), Ceftriaxone (21.74%), Tetracycline (21.74%), Trimethoprim (17.39%), Co-trimazole (13.04%), Ciprofloxacin (6.52%), Sulfafurazole (6.52%), Ofloxacin (4.35%) and Chloramphenicol (0%).The majority of the *E. coli* isolates were found resistant to penicillin-G (100%), cephalothin (100%) and Azithromycin

(100%). In the present study, two antibiotic resistance genes *viz. tetA* and *blaTEM* were detected with a prevalence rate of 10.87% and 28.26% respectively.

37. Clinicopathological studies on induced lead toxicity in rats and its amelioration with Aloe vera (*Aloe barbedensis miller*) extract

The present investigation was conducted to study the lead induced toxicity and its amelioration with (Aloevera) Aloe barbedensis miller in Wistar albino rats to evaluate clinical symptoms, effect on body weight, organ weight, hematological alterations, biochemical profiles and pathomorphological changes in respective specimens. The antioxidatant effect of aloe barbedensis miller (300 mg/kg b.wt.) was observed against toxicity of lead. The clinical signs observed in lead treated rats were anorexia, alopecia, diarrheoa, epistaxis, bending of limbs, kyphosis and orchitis. Significant ($P \leq 0.05$) reduction in body weight gains were recorded in lead treated rats. Relative organ weight of liver, lung, kidney & spleen was significantly higher in lead treated group which was restored by co administration lead and aloe vera extract. The relative weights of other organs were showing non-significant effect. The lead treated rats showed a significant increase in total leukocyte count. Significant decrease in total erythrocyte count, hemoglobin, packed cell volume, mean corpuscular hemoglobin, mean corpuscular hemoglobin concentration and mean corpuscular volume was observed. Significant ($P \leq 0.05$) increase in ALT, AST, ALP and serum creatinine level receiving the dose of lead acetate.Significant ($P \leq 0.05$) reduction of serum total protein was observed. Aloe vera could restore the above in group treated with lead at low dose level. The histopathological changes observed in present study were more prominent in liver, kidney, intestine, lung, brain when compared to other organs further it is specifying that the liver, kidney, intestine, lung, brain were primary organ in Pb toxicity. The administration of Aloe vera in lead-treated rats partially improved the studied parameters and improved the structure with de- creases in the severity of histopathological changes. Therefore, our results suggest that Aloe vera, at 300 mg/kg bodyweight, could produce modulating action various changes occurs due to lead poisoning.

38. Studies on some aspects of haemo-protozoan diseases in cattle

The present study was carried out to determine the prevalence, haemato-biochemical changes of haemo-protozoan diseases in cattle. A total of one hundred ninety five cattle were examined during April 2022 to November 2022 out of which, fifty cattle were found positive for haemo-protozoan infection based on history, clinical sign, laboratory (blood smear and lymph node aspirate smear) examination. The overall prevalence of haemo-protozoan diseasesamong cattle was found to be 25.64 per cent. The prevalence of Theileriosis was higher (15.38%) than Babesiosis (6.15%) and less prevalence Trypanosomiasis (4.10%) was recorded. The major clinical symptom of these cattle were pyrexia, presence of ticks, pale mucous membrane, swollen prescapular lymph node, Swollen parotid lymph node, Swollen prefemoral lymph node, salivation, nasal discharge, lacrimation, anorexia, Inappetence, reduced milk yield, dehydration, weakness, tachycardia, hyperpnoea, dyspnoea, diarrhoea, Emaciation and Haemoglobinuria. The mean value of haemoglobin, packed cell volume, total erythrocyte counts, was significantly decreased and the mean values of total leucocyte count were significantly increased in cattle infected with haemo-protozoan diseases as compared to healthy cattle.Haemo-protozoan diseases cattle showed significant neutrophilia with significant lymphocytopenia. Among, biochemical parameters there was significant decrease in serum total protein, albumin and globulin significant decrease in theileriosis and Trypanosomiasis infected cattle. There was significant increase in serumvaluesoftotal protein and globulin and significant decrease albumin in babesia infected cattle. The mean values ofserum ALT, AST and serum creatinine wassignificantly higher while the value of serum glucose was significantly decreased in theileriosis infected cattle. The mean values of serum ALT, AST were significantly higher while the value of serum glucose and serum creatinine was significantly decreased in Babesiosis and Trypanosomiasis infected cattle.

39. Green synthesis of nanoparticles using leaf extracts of Moringa and Fenugreek and their application in chicken nuggets

The AgNPs were biosynthesized using leaf extracts of *Trigonellafoenum-graecum* and *Moringa oleifera* (Lam.) and characterized by TEM, SEM, EDAX, XRD and ZP. The obtained AgNPs were roughly spherical, aggregated and almost neutral. The MIC value of methi and moringaAgNPs against the *Staphylococcus aureus* was determined. The impact of different levels of plant mediated AgNPs on product quality and shelf life of chicken nuggets were evaluated by estimating physicochemical attributes, antioxidant assay, TBA value, PV, proximate composition, fibre content, microbial quality, sensory attributes of fresh and stored products kept under refrigeration for 20 days and evaluated at 5 days interval. The costs of the developed products were calculated. The percent emulsion stability and cooking yield were non-significantly different. The non-significant differences were found among the pH values of all the samples on the 0^{th} day of storage conversely on the 5^{th} day onwards significant changes ($P<0.05$) were recorded between control and treated samples. Significant ($P<0.05$) inclined trends in pH values of all the groups were observed with the increasing storage period. Non-significantly different TBA values and PV were observed in all the groups on 0^{th} day but from 5 days onwards the mean TBA values of all the groups increased significantly ($P<0.05$)with the increasing storage period. The mean values of percent moisture, protein, fat, ash and crude fibre content of all the samples were non-significantly different from each other. The mean values of TPC of the treated groups were significantly lower ($P<0.05$) than the control group and non-significant differences existed among the treatment groups throughout the storage period. The TPC of the

control and treated groups revealed a significant ($P<0.05$) increasing trend with the progression of the storageperiod. None of the samples was found positive for the coliform count. No growth of yeast and mould in treated groups for up to 10 days but the control group showed the count on the 10th day of storage and onwards. Treatment did not influence the sensory attributes of the product and desirable to slightly desirable scores were secured by them. The appearance, colour and odour score was significantly ($P<0.05$) decreased with the advancement of the storage period. Fenugreek and moringaAgNPs treated chicken nuggets showed higher shelf life compared to control at refrigeration temperature. Though the treated samples' cost was more than the control sample but the differences were negligible. On the basis of the above observations, it can be concluded that the leaf extracts of fenugreek and moringa could be used to synthesize the silver nanoparticles which could be incorporated to increase the shelf life of chicken nuggets at refrigeration.

40. Knowledge and Adoption Level of Commercial Poultry Farmers about Scientific Poultry Farming in Rajasthan

In Rajasthan, poultry sector is in initial stages of development and there is huge potential for growth of this sector. In order to fulfill the technological and extension needs of broiler and layer poultry farms there is need to assess their knowledge and adoption level about scientific poultry farming. With this objective the present study was carried out purposively, in Ajmer district of Rajasthan with 120 poultry farmers from four blocks (Ajmer, Beawar, Nasirabad and Kishangarh). Socio-economic, communication and socio-psychological variables were studied. Data were collected through the pre-tested interview-schedule. Analyses of data revealed that majority of respondents were young, having high school levels of education. Majority had small land-holding, with poultry as their primary occupation. Majority had medium poultry farms, with medium level of experience and medium annual income from poultry. Majority of poultry farmers were literate with medium social participation. There was medium extension agency contact. Mobile phone, publications supplied by feed and medical companies, chick and feed dealers and other successful poultry farmers were utilized information sources by all the farmers. 68.33% of poultry farmers had medium level of overall knowledge on scientific poultry farming. Majority of poultry farmers had medium knowledge level with respect to bio-security and diseases control practices. Majority of poultry farmers had medium knowledge level with respect to housing practices. Majority of poultry farmers had medium knowledge level with respect to feeding practices, brooding practices. 67.50% of poultry farmers had medium level of overall adoption of scientific poultry farming practices, housing practices, feeding practices, brooding practices. bio-security and diseases control practices. High cost of feed, low price of egg and meat and risk of uncertainty were most important constraints perceived by poultry farmers in adoption of scientific poultry farming practices.

41. Assessment of Training Needs of Broiler Poultry Farmers in Ajmer District of Rajasthan

The present study entitled "Assessment of Training Needs of Broiler Poultry Farmers in Ajmer District of Rajasthan" was taken up with general objective of assessing the training needs of broiler poultry farmers. The data were collected from randomly selected 120 broiler poultry farmers belonging to four tehsils viz. Ajmer, Beawar, Nasirabad and Peesangan of Ajmer district through structured interview schedule. Results of the study revealed that majority of the broiler poultry farmers were middle aged, educated upto high school level, belonging to Hindu religion and Other Backward Caste with poultry rearing as primary as well as secondary occupation. Majority of them were living in nuclear family system with medium size of family. Most of the broiler poultry farmers had small land holding, single shed with medium flock size and medium level of annual gross income, experience in broiler poultry farming, extension contact, mass media exposure, social participation and had taken training of broiler poultry farming. The study also revealed that majority of the broiler poultry farmers (63.33%) had medium level of overall knowledge about scientific broiler farming practices. Most of the broiler poultry farmers (95.00%) were having high level of overall training needs and they need training in almost every areas of the broiler poultry farming. Training needs in bio-security aspect was ranked first with a mean score of 3.38 followed by breed selection and identification of quality chicks (3.37), feeding management (3.33), health care (3.20), brooding management (3.15), marketing (3.06), finance (3.05) and housing management (2.99) in that order. The "most preferred" type of training was off–campus training (74.17%), venue of training was own village (71.67%), method of training was question- answer + practical training (90.83%), training interval was every year (80.83%), duration of training was one week (50.83%) and time of training was lean period (41.67%). It was also observed during the study that broiler poultry farmers were facing lot of problems. Most important among them were high cost of construction of shed, high cost of feed, high cost of feed ingredients and irregular visits of veterinary officers.

42. Studies on Sero-Prevalence of Brucellosis in Camel (*Camelus dromedarius*) in and around Jaipur

The present study was undertaken in a total of 202 camels, randomly selected from different locations in and around Jaipur with the objectives to record the sero-prevalence and determine the comparative efficacy of serological tests viz. RBPT and i - ELISA for the diagnosis of Brucellosis. After screening, the seroprevalence of brucellosis in camel were found 7.42% and 7.92% by RBPT and i-ELISA, respectively. In present study, animals were divided in three age groups *i.e.,* 1 to 8 years, 8 to 15 years and more than 15 years. Highest prevalence was observed in between 8 to 15 years of age group as 17.50% and 15% by RBPT and i-ELISA, respectively. Adult age group of camel are more susceptible than younger age group for brucellosis with a statistically significant difference ($p<0.05$) by RBPT while non-significant difference was observed by i-ELISA. In present study the prevalence was found higher in males as 7.9 % and 13.15% by RBPT and i-ELISA, respectively. All serological tests showed higher prevalence in males as compared to females. No-Significant effect was found for sex on brucellosis by RBPT and i-ELISA test. The statistical differences estimated using ANOVA for sero-prevalence and variables for the individual risk factor