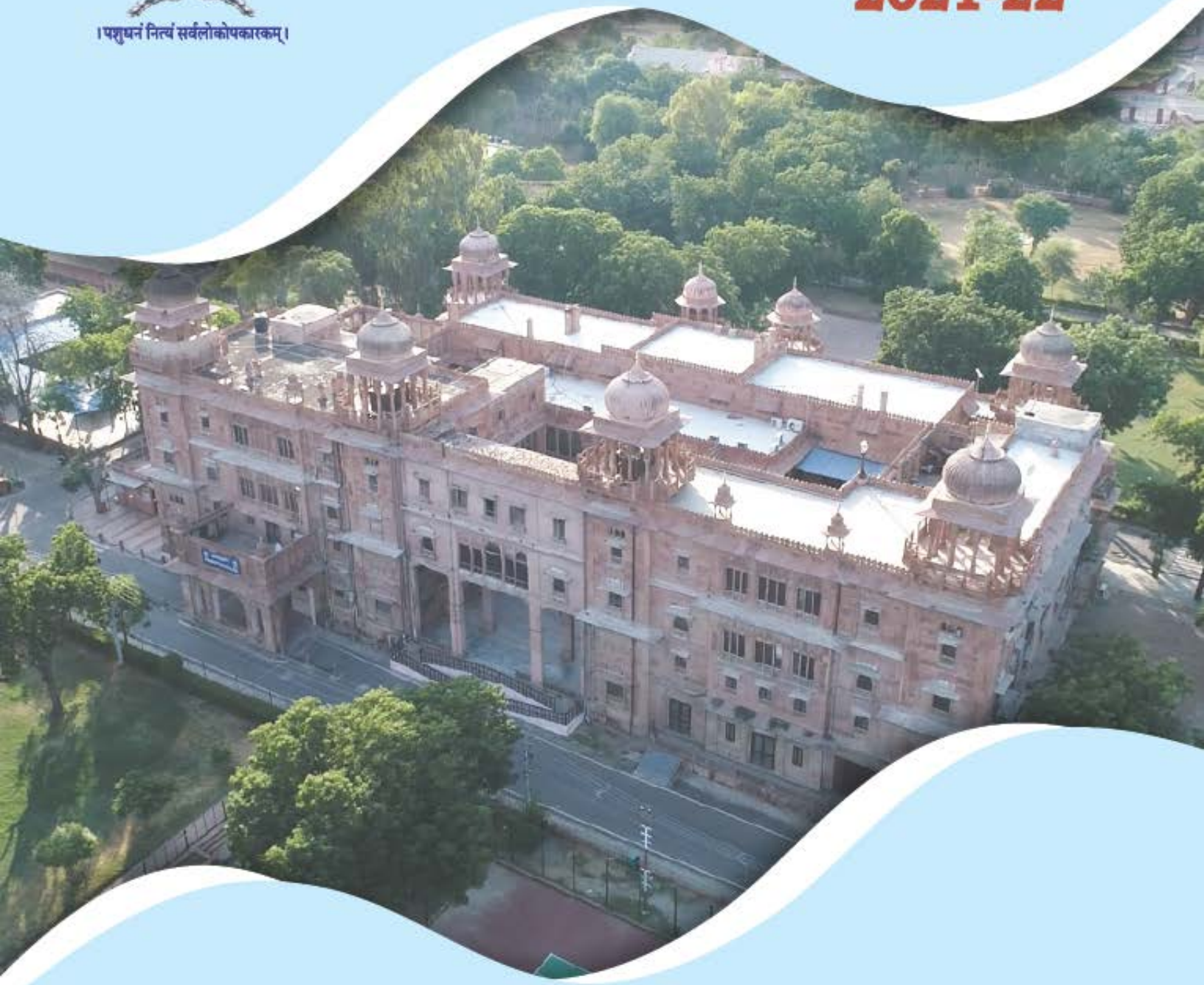
।पशुधनं नित्यं सर्वलोकोपकारकम्।

Annual Report

2021-22



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ANNUAL REPORT 2021-22

वार्षिक प्रतिवेदन 2021-22

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Rajasthan University of Veterinary and Animal Sciences

Bikaner-334 001

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Foreword

It gives me immense pleasure to present the Annual Report 2021-22 of Rajasthan University of Veterinary and Animal Sciences (RAJUVAS), Bikaner. Committed efforts of teachers, non- teaching staff and students have steered the University in achieving academic excellence, and generation and transfer of technologies. Annual Report of the University portrays wide spectrum of academic and co-curricular activities in its different constituent colleges during 2021-22. A kaleidoscopic view of the different activities and achievements of the University in teaching, research, extension and infrastructure development during the last one year has been presented in this report.

University conducted its entrance examinations RPVT-2022 and Pre PG-2022 successfully. Total 5675 students were admitted in different degree and diploma programmes in the academic session 2021-22. During 2021-22, 217 students completed their graduation (B.V.Sc.& A.H.), 147 M.V.Sc. and 37 Ph.D. degrees and 4483 students completed their Animal Husbandry Diploma Programme (AHDP). During the year under report, 31 students qualified ICAR All India Entrance Examination (PG and Ph.D.) and 73 students qualified ICAR-ASRB NET examination.

Veterinary Clinical Complexes of all the three constituent Veterinary Colleges of RAJUVAS are well equipped with modern facilities which include large and small animal operation theatres, ICU for pets, and other diagnostic facilities. During 2021-2022, a total of 28250 cases were treated in our TVCCs.

During the reporting year, 34 projects were operational in University, out of which five projects were funded by ICAR, 11 under State Plan and eight under RKVY and 10 intramural university funded Revolving Fund projects. Several Faculty members attended different seminars/workshops and training programmes. Ten International and National webinars on different subjects were organized which helped to have linkage with scientists of different national and international institutions.

Four MoUs were signed by University with different organizations to establish linkages and collaborate to accelerate research and extension activities.

Receiving **'District Green Champion Award'** instituted by Mahatma Gandhi National Council of Rural Education under the Department of Higher Education, Government of India was a matter of great pride for the University.

Government of Rajasthan issued administrative and financial sanction for starting three new constituent veterinary colleges during 2022-23.

Accreditation of University by ICAR with 'A grade' and recognition of all the three constituent veterinary colleges by VCI has given lot of enthusiasm to one and all.

I take the opportunity to acknowledge the support of all the Deans, Directors, University Officers, Heads and Incharges of departments, teaching fraternity, technical, non-technical, administrative and supportive staff and students for their commitment towards their work to keep the reputation of University high. The efforts made by the 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 increase the visibility of University. I am extremely thankful to the 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, undertake basic and need-based research and serve its all stake-holders in a befitting manner.

"Jai-Hind"

(Satish K. Garg)

Annual Report :: 2021-22

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Executive Summary

The Rajasthan University of Veterinary and Animal Sciences (RAJUVAS), Bikaner has taken up various activities and accomplished several successes in academic, research and extension activities during the year 2021-22. RAJUVAS is recognized as an institution having well qualified faculty for academic and research activities in the field of veterinary and animal sciences. University has produced competent and skilled human resource in the field of veterinary and animal science. Many of its alumini are working in many prestigious and research institutions in India and abroad. University is providing technical and scientific support for transforming animal husbandry profession from sustainability to improved profitability. Improved production in association with productivity spurt has led the state to become leader in milk, meat and wool production with the support of scientific and technological interventions and favorable policy environment. The university has three running constituents Veterinary Colleges for providing professional graduate and post graduate degree programmes in veterinary and animal sciences i.e. CVAS, Bikaner, CVAS, Vallabhnagar (Udaipur), PGIVER, Jaipur and seven affiliated private Veterinary Colleges in Jaipur, Chomu, Sikar, Dungarpur, Bharatpur, Tonk and Karauli. Construction of two new colleges. College of Veterinary & Animal Sciences, Jodhpur and College of Veterinary & Animal Sciences, Nawa, Nagaur are in progress. Three more new constituent veterinary colleges have been announced in State Budget 2022-23 by Government of Rajasthan at Mandawa (Jhunjhunu), Kotputali and Bharatpur.

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 various subjects and 3 years Doctoral degree (Ph.D.) in 16 subjects in all the three presently running veterinary colleges.

Two years Animal Husbandry Diploma is being conducted in 7 constituent AHDP institutes and 74 affiliated institutes to University, which have the total capacity to train around 4726 para-veterinarian per year. University also has one Krishi Vigyan Kendra and 14 Pashu Vigyan Kendras and 9 Livestock Research Stations.

In order to produce highly skilled and technical professionals for giving further boost to livestock, dairy and food sectors activities in Rajasthan, the Hon'ble Chief Minister of Rajasthan, had announced two new 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) in the year 2021.

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 harmony.

As per the mandate, the University envisaged "Teaching, Research and Extension" programmes in the field of Veterinary & Animal Sciences. RAJUVAS educates and trains the students through its various educational and training programmes to make them skilled professionals to face global challenges and for economic prosperity of the people of state. Teaching is under the administrative control and direction of Chairman of the Faculty of Veterinary and Animal Sciences, Deans of the constituent colleges and Heads of Academic Departments.

Teaching or Academics

- The academic activities of the University were carried out in all the three constituent veterinary colleges, seven private veterinary colleges, two Dairy and Food Technology colleges and 88 AHDP institutes.
- During 2021-22, a total of 5675 students were admitted in different degree and diploma programmes. Total 777 students were admitted in B.V.Sc.&AH, 120 students in M.V.Sc, 40 students in Ph.D. degree programmes, 12 in B.Tech (Dairy and Food Technology) and 4726 students in Animal Husbandry Diploma Programme (AHDP).
- During the period under report, 217 students were awarded B.V.Sc.&A.H., 147 M.V.Sc. and 37 Ph.D. degrees.
- During 2021-22, among 81 AHDP colleges, 4483 students completed their Animal Husbandry Diploma Programme (AHDP).
- Students of RAJUVAS, Bikaner excelled in the All-India Entrance Examination conducted by Indian Council of Agricultural Research (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 in India. During the reporting year, 31 students were selected through ICAR's All India Entrance Examination AIEEA (PG and Ph.D.).
- During 2021-22, 73 students qualified for ICAR-ASRB NET examination among which 50 PG students were from CVAS, Bikaner, 12 from PGIVER, Jaipur and 11 from CVAS, Navania (Udaipur).
- Veterinary Clinical Complexes of RAJUVAS are well equipped with modern facilities which include large and small animal operation theatres, ICU for pets, ophthalmology and dentistry units etc. Disease diagnostic laboratory is equipped and are fully operational in all the constituent veterinary colleges of university. The Clinic has various facilities for diagnosis and treatment of animal diseases. Advanced diagnostic procedures like CT scan, radiography, sonography, digital X-Ray machine and with advanced equipments for examination of blood, serum, urine and faeces. There is also facility for stay of attendants of animal patients. During 2021-2022, a total of 28250 cases were attended for treatment among which 15454 cases were attended in

CVAS, Bikaner alone followed by 8430 in PGIVER and 4366 in CVAS, Navania clinics.

- During 2021-2022, a total of 3071 samples of blood, faecal, milk, urine, skin scrapings and serum were examined in Veterinary Diagnostic Laboratories.
- 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 gaushalas.
- 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 poultry farming and other farm activities. The income generated from poultry unit of Bikaner poultry farm during 2021-22 was Rs. 19,21,779/- and from large ruminants unit was Rs. 99,315/-
- 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 various milk products during the year 2021-22 was Rs.13,91,329/-.
- 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, encyclopedias, dictionaries and annual reports. Total 54189 general books in book bank and social welfare books of various streams 304 E-Books are available at CVAS, Bikaner, 6598 general books at CVAS, Navania and 3417 general books and 3957 in book bank are available in PGIVER library.

Research

- During the reporting year, total of 34 projects were operational. Out of these 24 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 and 08 under RKVY, and 10 intramural university funded, Revolving Fund projects were also functional. Total amount sanctioned for these projects during 2021-22 was 550.60 lacs.
- Revenue Generation by Directorate of Research through Livestock Research Stations's during 2021-22 was Rs. 09.23 Crore.
- During 2021-22, 39 Ph.D and 106 M.V.Sc. theses were submitted from various departments in different subjects of veterinary and animal sciences.
- During the period under report, University published 228 research publications among which 132 publications were from CVAS, Bikaner, 32 from PGIVER, Jaipur and 64 from CVAS, Navania (Udaipur).

Extension

- The extension activities of University are carried out under Directorate of Extension Education through University's colleges, Krishi Vigyan Kendra, Pashu Vigyan Kendras and centres sanctioned under State plan for livestock, dairy, poultry and fish farmers.
- During 2021-22, Directorate of Extension Education organized 11 trainings under Agricultural Technology Management Agency (ATMA) in which total 330 farmers participated and were benefitted.
- 49 training programmes were organized by KVK Nohar for farmers on different aspects of agriculture, horticulture, home science and animal husbandry in which 1519 farmers participated among which 1297 were males and 222 were females.
- Total 817 off-campus and 153 on-campus trainings were organized by various Pashu Vigyan Kendras of University. Through these trainings, 26,500 farmers were benefited. University also organized many training programmes via digital mode.
- 55 Trainings were organized by different constituent colleges of University, state plan centres and Livestock Research Station, Bikaner. Total 1972 participants were 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 were established at all Pashu Vigyan Kendras. Total 2336 samples were analysed and 2131 farmers were benefitted during the year.
- One exhibition was organized by Pashu Vigyan Kendra, Kota at Veterinary Polyclinic, Kota on 22nd February, 2022 and Progressive Farmers' Training Programme in collaboration with Animal Husbandry Department, Kota, respectively.
- Directorate of Extension Education regularly published "Pashu Palan Naye Aayaam" a monthly bulletin on 1st day of every month. Two training manuals were also published by DEE, on ASCAD training programme viz. Unnat Pashu Palan, Javaik Pashu Palan and scientific animal husbandry and management.
- In 2021-22, 10 programmes of *"Dhine Re Batya"* 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 2021-2022 Under "Mera Gaon Mera Gaurav" 33 teams of multidisciplinary scientists adopted 143 villages. Total 2861 activities were conducted in which total 16610 farmers and livestock owners were benefitted
- Directorate of Extension Education, RAJUVAS, Bikaner organized one day Kisan and Pashupalak Mela at University campus on 24th December, 2021. Sh. Govind Ram Meghwal Hon'ble Cabnet Minister of Disaster Management and Relief Department, Govt of Rajasthan was Chief Guest, Prof. Satish K. Garg, Vice-Chancellor, RAJUVAS, Bikaner presided over the

function, Prof. A.K. Gahlot, Founder and former Vice-Chancellor, RAJUVAS, Bikaner was the Special Guest. ICAR Institutes like NRCC, CSWRI, NRCE, CAZRI, CIAH, SKRAU, Modi Dairy, IFFCO, Vishwas Seeds, URMUL Dairy, URMUL Setu, NABARD and other line departments displayed their schemes and products in the fair. Farmers from nine blocks visited the mela in collaboration of Project Director, ATMA, Bikaner. This fair was broadcasted live on the website of the university, which was seen and heard by thousands of people sitting at home. On this occasion, a Vichar Goshti was also organized for the livestock owners and farmers.

Trainings/Conference/Workshops

- 38th International Congress of the Indian Association of Veterinary Pathologists on Progress in veterinary pathology for the diagnosis and control of emerging diseases in animals, wild animals and poultry organized from 17th-19th December, 2021 through online mode.
- LIKES Centre of PGIVER, Jaipur organized a workshop on "entrepreneurship development" under National Agricultural Higher Education Project (NAHEP) in collaboration with Macmillan Education, India, Noida from 6th-8th December, 2021.
- The first clinical cases conference on "clinical approaches for health management of cattle, pet animals and wildlife" was organized in online mode at RAJUVAS on 14th December, 2021. Total 72 participants including graduates, interns, post graduates and Ph.D. students of all the three constituent veterinary colleges of RAJUVAS participated and 42 participants presented clinical case reports.
- Four days Workshop on "Personality Development and Communication Skill" was organized for under graduate and internship students under National Agriculture High Education Project (NAHEP) at College of Veterinary and Animal Science, Navania, Vallabhnagar (Udaipur) from 23rd-26th February in association with Mack Millan Education. India. Pvt. Ltd. In this Workshop, around 52 students participated.

Other Highlights and Activities

- CORONA vaccination camp was organized on 08.04.2021 at CVAS, Bikaner in collaboration with Medical & Health Department. Total 107 eligible person were vaccinated.
- Hon'ble Vice Chancellor, RAJUVAS, Bikaner initiated Avasar Webinar Series for Career Opportunity on Diversified opportunities in Veterinary Profession" for veterinary students to provide them opportunity to listen and interact with eminent personalities of Veterinary Profession. The Avasar Webinar Series were organized on 8th June, 2021, 14th June, 2021 and 22nd June, 2021.
- An International webinar to make the students aware about different job opportunities available in the field of veterinary sciences abroad was organized on 20th May 2021. Dr. Ravi Murarka, United States based Indian Veterinary Clinician as invitee expert, resolved the doubts of students and made student aware about the different examinations required for veterinary education, employment and higher studies in America.
- The 7th International Yoga Day was organized online on 21st June 2021 by all the constituent veterinary colleges of University on the theme "Yoga at Home and Yoga with Family".
- An International Webinar on COVID 19- where do we go from here to deal zoonosis was organized on 6th July, 2021. In this webinar, 622 professionals got registered and more than four thousand participants joined the live event from eleven different countries including England, USA, Sri Lanka, Bangladesh, Nepal etc.
- PGIVER, Jaipur organized a National Webinar on Compassion, Kindness and Commitment for Animals on 16th July, 2021.
- First calf through Embryo Transfer Technology was born in the Livestock Farm Complex of PGIVER, Jaipur on 16th July, 2021. Rathi cow gave birth to a Gir calf. The team for this achievement constituted of Dr. S.P. Singh, Dr. Sanjay Bhalodia and Dr. Devendra Swami of NDDB Dairy Services, Dr. Lal Singh and Dr. Sunil Jain of Directorate of Gopalan and Prof. Sanjita Sharma, Dean, PGIVER, Dr. Chandra Shekhar Sarswat, Dr. Nirmal Kumar Jeph, Dr. Navav Singh and Dr. Anand Kumar.
- National webinar on Role of RKVY in improving productivity in livestock sector with reference to the Rajasthan was organized on 28th August, 2021.
- A National Webinar on veterinary genomics and bioinformatics as career option for veterinary graduates was organized on 3rd September, 2021.
- Rajasthan Pre Veterinary Test (RPVT) was held on 19.09.2021 for the admissions in B.V.Sc.&A.H. course running at three constituent and 7 affiliated colleges of RAJUVAS. A total of 14824 students appeared in entrance examination. The examination was organized at Jaipur, Udaipur and Bikaner at 50 different centers.
- A five days Canine Cataract Surgery Camp with the help of Department of Veterinary Surgery and Radiology, CVAS, Bikaner was organized by PGIVER from 29th June, 2021 to 3rd July, 2021. A total of 17 dogs were successfully operated for cataract. In continuation to this, a two days Follow-Up Cataract Surgery Camp was also conducted from 17th-18th July, 2021
- "World Rabies Day" was celebrated on 28th September, 2021 at CVAS, Bikaner by Department of Clinical Veterinary Medicine in collaboration of Canine Welfare Society, Bikaner. A free Rabies vaccination-cum-health check-up camp was also organized on this occasion in which 55 dogs were vaccinated against Rabies and 43 rabies tokens were distributed to dog owners.
- Five online RAJUVAS e-Pashupalak Choupal for the livestock owners of the state were organized by Directorate of Extension Education on 14th July, 11th August, 25th August, 8th September and 22nd September, 2021 to provide online guidance and suggestion to the farmers.

Students Participation and Recognition

- Three students of CVAS, Bikaner participated in a "Brainstorming workshop on mainstreaming of Agriculture as a core subject in the school curriculum" held virtually on Zoom Platform on 16th June 2021 conducted by ICAR-IASRI.
- Two-days educational tour of PG students for entrepreneurship development programme was conducted from 24th-25th September 2021 at Banas Dairy, Gujarat under the banner of LIKES Centre, CVAS, Navania.
- Online digital Poster making competition was held on World Rabies Day 28.09.2021 in which students from all the three constituent colleges participated in the event
- "National online Quiz competition and Digital photograph"on the occasion of "world egg day" for veterinary students was organized by Virbac Animal Health on 08.10.2021. Mr. Shiv Kumar, student of CVAS, Bikaner stood Fourth in quiz competition all over India. Earlier in zonal round of quiz competition, students of CVAS, Bikaner Gyarsi Lal Yadav, Surabhi Dhaka and Satveer Mokharia grabbed first, second and third place respectively in West zone.
- Three students of RAJUVAS, Bikaner got academic excellence awards during general body meeting of Indian Dairy Association, Rajasthan state chapter and Dr. NR Bhasin Memorial Award Function held on 23.10.2021 at Jaipur. Mr. Vishal Yadav got Gold Medal and Mr. Keshav Gaur and Ms. Garima Rathore got Silver medal for their respective First and Second merits in University merit list of Final Year examinations 2019-20.
- Mr. Akhil Tiwari, Final year student of CVAS, Bikaner and Mr. Dipesh Dabi, third professional student of CVAS, Bikaner represented RAJUVAS, Bikaner in Zonal Student Elocution competition for XV Agricultural Science Congress, conducted by SKNAU, Jobner via online mode on 27.10.2021
- Campus Placement interview was conducted on 13.12.2021 at RAJUVAS main campus, Bikaner by H.R. Manager of Sangwan Poultry Farm, Haryana. Total 13 students were interviewed and on the basis of their performance and academic records, four students were selected for different posts.
- Technical session and quiz was held on 09.02.2022 for Internees and PG students of CVAS, Bikaner. General Manager Marketing and Technical of Sushima Pharmaceutical Pvt. Ltd. Dr Manish Kawatra interacted with the students on this occasion and delivered lecture on "Career prospects for Budding Veterinarians". Winner students were awarded prizes also.
- RAJUVAS Alumnus Dr. Amit Sharma, M.V.Sc student of Department of LPM, PGIVER Jaipur presently serving in Department of Animal Husbandry got patent on digital device for transferring material inside cervix/uterus and system thereof (Digital AI gun) from Patent Office, Government of India.
- A quiz competition by Society for Conservation of Domestic Animal Biodiversity was held on 28.03.2022 as Level-I stage at CVAS, Bikaner for under graduate students. Ms. Anjali Bishnoi of third professional B.V.Sc.&A.H. stood first and Mr. Ram Swaroop Saini of Second Professional B.V.Sc.&A.H. stood second in quiz.
- Hon'ble Chief Minister of Rajasthan Sh. Ashok Gahlot during the budget session increased the internship allowance of B.V.Sc. & A.H students from Rs.3500 to Rs.14000/- along with dearness allowance. The long-pending demand of increasing the internship allowance of the students of RAJUVAS got approval of the state government. Vice Chancellor Prof. Satish K. Garg congratulated all the students and thanked the state government.

Moment of Pride

- Rajasthan University of Veterinary and Animal Sciences, Bikaner has been awarded with **'District Green Champion Award'** by Mahatma Gandhi National Council of Rural Education under the Department of Higher Education, Government of India. During the online workshop organized at District Collectorate Office on 21st August, 2021. District Collector Sh. Namit Mehta presented award to Prof. Satish K. Garg, Hon'ble Vice-Chancellor, RAJUVAS, Bikaner.

Awards and Recognition by Faculty and Students

- Total 57 faculty and students were awarded and recognized for their excellence and expertise in their field of specialization by reputed authorities or recognized socities.
- Faculty members of Department of Surgery & Radiology grabbed three gold medals in various categories for their outstanding research work in the field of CT scan and ophthalmology during the 44th Annual Convention of Indian Society for Veterinary Surgery held at GBPUAT, Pantnagar from 24th-26th February, 2022. Dr. Praveen Bishnoi, Prof. & Head & Dr. Sakar Palecha, Assistant Professor, CVAS, Bikaner and Dr. Satyaveer Singh, Assistant Professor, PGIVER, Jaipur got gold medal for their research in CT scan and Dr Suresh Jhirwal, Assistant Professor, CVAS, Bikaner was awarded Gold medal and Best Clinician award.

Capacity Building and Skill Development

- Livestock Innovation Knowledge and Entrepreneur-ship Skill Centre, PGIVER, Jaipur organized four days training-cum-workshop on "personality development & soft skills" from 27th-30th September, 2021. During the inauguration Prof. Satish K. Garg, Vice-Chancellor, RAJUVAS, Bikaner emphasized about the importance of personality development in daily life in his address.
- A one-day training program on proper management and disposal of Animal Biomedical Waste was organized by the Animal Biomedical Waste Disposal Technical Centre of RAJUVAS on 28th September, 2021.

- The centre for Disaster Management Technology for Animals, RAJUVAS, Bikaner organized four online trainings during the months of July, August and September 2021. The training was attended by 44 livestock owners and farmers.
- A certificate course on "Wildlife Care and Management" was organized by the Center for Wildlife Management and Health Studies, RAJUVAS in hybrid mode for field vets and students. 24 trainees from different states of the country participated and total 40 lectures were presented by wildlife experts in 120-hour course from 27th July to 20th November, 2021.
- A three-days training-cum-seminar was organized under Scheduled Caste Sub-Plan by Surti Buffalo Project at LRS, Vallabhnagar from 22nd-24th December, 2021. Total 100 scheduled caste cattle breeders were benefitted.
- Five days training camp on scientific goat management was organized under the joint aegis of CVAS Navania and Pradhan, Abu Road, from 27th-31st December, 2021. Vice-Chancellor Prof. Satish Kumar Garg said that goat farmers should take special care of five special things i.e. good breed, housing, breeding, management and health for goat rearing in a scientific way.
- A three days online training program was organized for airport officials by the Sub-Centre for Wildlife Studies and Health Management, CVAS, Navania (Udaipur) from 23th-25th December, 2021. More than 50 officials of Delhi, Mumbai airports including Udaipur, Jodhpur, Jaipur, Assam participated. Dr. Vinita Sharma from the University of Jammu and Kashmir told how to identify birds by feathers, Dr. Vipin Sharma from America told about the process of collecting samples scientifically and sending them to the laboratory after the birds collided with the plane.
- Two days training of farmers under Agricultural Technology Management Agency (ATMA) project was organized by CDMTA from 22nd-23rd December, 2021. Total 30 farmers and livestock owners participated in this training. Dr. Praveen Bishnoi, PI delivered the information about impact of disasters on the animal behavior. Sh. Shailendra Singh and Dr. Sohel Mohammed delivered expert lectures.
- One day training programme for 30 livestock assistants posted in various veterinary hospitals and sub centers of Animal Husbandry department was organized by Animal Bio-medical waste disposal technology centre, RAJUVAS, Bikaner on 16.12.2021
- A valedictory function of Add on certificate course on "Wildlife care and management" was held on 20.11.2021. Total 24 veterinary officers/ students/ faculty members from different states participated in this add on certificate course. Total 40 lectures were held having 120 contact hours. Hands on training and field visits were also held for the participants.
- One day training of veterinary officers of Bikaner division was held on 11.02.2022 by the Animal Biomedical Waste Disposal Technology Center, Bikaner to make them aware about the various latest norms and technologies to dispose the biomedical waste in scientific manner.
- Rajasthan University of Veterinary and Animal Sciences, Bikaner organized one day training on 26th February, 2022 in collaboration with Rajasthan Gau Seva Parishad, Bikaner. Officer Incharges and Teaching Associates, working in Pashu Vigyan Kendras participated in the programme.
- Second add on certificate course on "Pet Animal Dentistry" started from 09.03.2022. Total 17 candidates from 7 states participated in this course. Department of Veterinary Surgery & Radiology, CVAS, Bikaner conducted this course.
- Seven days NSS camp was organized by NSS unit of CVAS, Bikaner from 24th-30th March, 2022. Various activities like cleanliness drive, awareness rallies, different competitions were held during the camp. NSS Unit of PGIVER, Jaipur organized this camp at adopted village Kanarwas and in the institute from 21st-27th March, 2022. At CVAS, Navania this camp was organized from 25th-31st March, 2022.
- A three days training was conducted for field veterinarians of Animal Husbandry department from 21st-23rd March, 2022 by the Department of Veterinary Surgery & Radiology, CVAS, Bikaner. Total 19 veterinary officers participated in this training and upscaled their professional knowledge in the area of ultrasonography, digital radiography, eye ailments etc.
- A three days training was organized by Department of Veterinary Surgery & Radiology, CVAS, Bikaner on the topic "Use of Anaesthesia in field conditions in animals" from 24th -26th March, 2022. Total 21 veterinary officers posted in department of Animal Husbandry participated in this training programme.
- Five days training was organized by Apex Center, CVAS, Bikaner on the topic "Disease diagnosis in animals and poultry" from 22nd to 26th March, 2022. A total of 32 Scheduled Caste students of constituent and affiliated colleges participated in this training.

New Initiatives during 2021-22

- Hon'ble Governor of Rajasthan Sh. Kalrajji Mishra inaugurated the Indigenous Cattle Modern Dairy built by RAJUVAS, Bikaner at Raj Bhavan on 14th April, 2021. Hon'ble Governor visited the dairy and understood the working of state-of-the-art facilities developed for care of cows and appreciated the arrangements made in the Dairy.
- Virtual Classroom was inaugurated on 16.04.2021 by Sh. Narendra Singh Tomar, Union Minister of Agriculture & Farmers Welfare, Rural Development and Panchayati Raj, Govt. of India in the presence of Sh. Parshottam Rupala, Minister of State for Agriculture & Farmer Welfare, Govt. of India, Dr. Trilochan Mahapatra, Secretary, DARE & Director General, ICAR and other dignitaries. This virtual classroom has been established by ICAR under NAHEP.

- Government of Rajasthan issued administrative and financial sanction for posts and budget for new Veterinary College at Nawan, Nagaur. Total 29 teaching and 12 non-teaching posts has been sanctioned along with budget of 22.68 Cr for building, equipment's, infrastructure and other expenses.
- Shri Kalraj ji Mishra, Hon'ble Governor of Rajasthan and Shri Ashok ji Gahlot, Hon'ble Chief Minister, Government of Rajasthan laid the foundation stone of CVAS, Jodhpur and inaugurated the buildings of five Pashu Vigyan Kendras located in different districts of Rajasthan through online mode on 10th June, 2021
- RAJUVAS started new Dairy Science Technology College at Bikaner and new Dairy and Food Technology College at Bassi (Jaipur) as per Budget Announcement of Hon'ble Chief Minister during 2021-22.
- Hon'ble Minister of Agriculture and Animal Husbandry Sh. Lalchand Kataria inaugurated milk testing kit along with milk testing and disease diagnosis laboratory, students' hostels and new bank building on 3rd July, 2021 at PGIVER, Jaipur on online mode.

Contribution to Environment

- On 15th August 2021 after Independence Day celebration programme, a plantation drive was held in University campus and its all constituent colleges. Intensive tree plantation was done by the faculty members and staff in the university campus.
- Plantation drive was undertaken by the volunteers of NSS, CVAS, Bikaner on 15.09.2021 in the university campus. Dean & Chairman Faculty Prof. R K Singh inaugurated the drive and motivated students for cleanliness of campus.

Memorandum of Understanding (MoU)

- A memorandum of understanding (MoU) was signed in between RAJUVAS, Bikaner and Rajasthan Gau Seva Parishad on 06.07.2021.
- A Memorandum of Understanding (MoU) was signed between ICICI Foundation and RAJUVAS on 27.10.2021 for exchange of services and expertise in development and employment generation in animal husbandry sector for youth of state.
- MoU Between RAJUVAS and ICAR-Central Institute of Research on Goat (CIRG), Makdoom, Mathura, U.P. was signed on 13.07.2021.
- MoU Between RAJUVAS and Indian Red Cross Society Headquarters, 1, Red Cross Road, New Delhi was signed on 25.03.2022.

Alumini Recognition

- Alumni of CVAS, Bikaner Dr. Rohish Kaura was selected for fully funded doctoral programme in Life Sciences University, Astonia (UK). He will study on "Gut and respiratory tract infection and immunity in dairy cattle and calves".

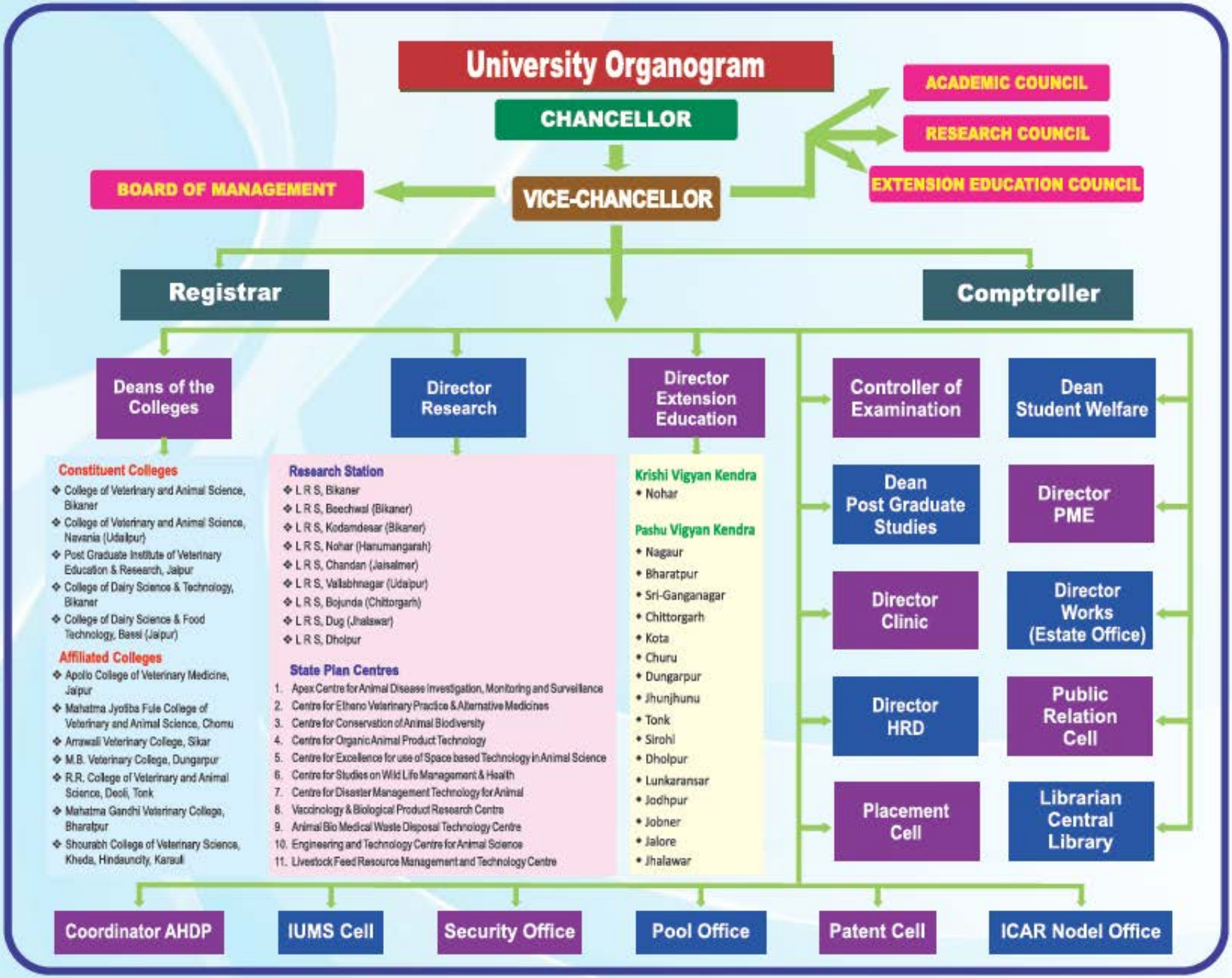
Celebrations

- World Veterinary Day 2021 was celebrated with enthusiasm on 24th April, 2021 at all the campuses of RAJUVAS on online mode. An online essay writing competition, extempore competition, drawing competition and quiz competitions were conducted for students. Winner and participating students were provided e-certificates also.
- 11th Foundation Day of RAJUVAS was celebrated on 18.05.2021 in the form of National Webinar on the topic "नई शिक्षा नीति में पशुचिकित्सा शिक्षा : परिदृश्य एवं संभावनाएं". Guest speaker were Prof. Inderjeet Singh, Hon'ble Vice Chancellor, GADVASU, Ludhiana, Prof. KM L Pathak, Former Vice Chancellor, DUVASU, Mathura, Dr. Umesh Chandra, President Veterinary Council of India and Prof. A K Gahlot, Former and Founder Vice Chancellor, RAJUVAS and Member Advisory Board to Governor Rajasthan.
- An online Pledge Taking Ceremony was organized by PGIVER, Jaipur on 31st May, 2021 on the occasion of 'World No Tobacco Day'.
- 75th Independence Day was celebrated with great enthusiasm on all campuses of RAJUVAS. Vice-Chancellor Prof. Satish K. Garg hoisted the national flag at "Diwan-e-Aam" and paid his gratitude to the country's freedom fighters, immortal martyrs and martyrs who sacrificed their lives for the country's freedom and called for unity, integrity and development of the country. He appreciated the faculty, staff and officers of the University for continuing the academic, research and extension activities even in the times of the COVID-19 global pandemic. Students, faculty and non-teaching staff were honoured for their excellent performance, remarkable services in teaching, research and extension. After this, intensive tree plantation was done by the faculty members and staff in the university campus.
- 152nd Birth Anniversary of Mahatma Gandhi was celebrated with full enthusiasm at CVAS, Bikaner. NSS volunteers contributed in cleanliness drive along with faculty members.
- Vijay Diwas was celebrated on 16.12.2021 in RAJUVAS, Bikaner to commemorate its victory over Pakistan in the 1971 war and pay homage to the brave soldiers. Camel safari by BSF soldiers was welcomed and riders were garlanded on this occasion.
- 159th birth anniversary of Swami Vivekananda was celebrated as 'राष्ट्रीय युवा दिवस' on 12th January, 2022.
- 73rd Republic Day was celebrated with great fervour and gaiety on 26th January 2022 at University Campus, Bikaner. Hon'ble Vice Chancellor Prof. Satish K. Garg unfurled the national flag. The whole campus came alive with spirit of patriotism. University Merit Holder students were felicitated on this occasion. All teaching and non-teaching staffs and students participated in this programme.

- Freshers Welcome Party "Abhinandanam" was organized by the senior batch students on 14.03.2022 for the junior batch students at CVAS, Bikaner.
- Farewell programme was organized for the passing out 2016 batch by the students of Batch 2017 on 16.03.2022. All the students shared their memories of degree period and pledged to serve the animals and the nation as veterinarian

University Social Responsibility Activities

- Corona Vaccination Awareness campaign at Village Garhwala and Jaimalsar on 29th and 30th April, and an Ayurvedic Health Camp was organized at Garhwala village on 28th May, 2021 and Jaimalsar village on 31st May, 2021 by Directorate of Extension Education under University Social Responsibility.
- An online webinar on combat stress with positivity was organized on 2nd June 2021 through University Social Responsibility and Participation Cell RAJUVAS. Dr. Gaurav Bissa as the keynote speaker said that the lack of efforts having high expectations in student life causes stress. Therefore, instead of dreaming, one should be mastered in his work. Fear of the unknown, fear of failure and extreme laziness lead to mental paralysis.
- The plantation drive was organized at adopted villages Garhwala and Jaimalsar on 29th and 30th July, 2021, respectively and a cleanliness drive was organized in campus of Gram Panchyat Bhawan at Jaimalsar village under University Social Responsibility on 22nd October, 2021 at Garhwala village on 27th October, 2021.
- Two Skill Development Gosthis were organized by Directorate of Extension Education, RAJUVAS, Bikaner at its adopted villages Jaimalsar on 29th and 30th September, 2021.
- The On-line computer literacy programme was organized on Basic knowledge of Computer, Internet, Google, G-mail, M.S. Word etc. for school students of adopted village Garhwala from 26th-28th August, 2021.
- A training programme for skill development of farmers from 20th-21st October, 22nd-23rd October, 2021 at village Jaimalsar and 15th-16th December, 2021 at Garhwala on Unnat Bakri Palan Evum Prabandhan was organized by Directorate of Extension Education, RAJUVAS, Bikaner in coordination with Project Director, ATMA.
- A blood donation camp on 29th November 2021 and a Senior Citizen Health Camps on 29th and 30th November, 2021 at adopted village Jaimalsar and Garhwala was organized by DEE, RAJUVAS, Bikaner in coordination with Deptt. of Ayurveda, Bikaner.
- A total of 228 patients were treated in the health cum COVID-19 vaccination camp organized on 30th December, 2021 at adopted village Jaimalsar and Garhwala by DEE, in coordination with Department of Medical, Health and Family Welfare, Bikaner. In the camp, 75 people got vaccinated against Corona with first dose and 100 with second dose.
- An awareness rally for adult literacy was organized on 29th January, 2022 at adopted village Garhwala by National Service Scheme Unit, CVAS, Bikaner.
- A two days off-campus skill development training programme for Scheduled Caste livestock farmers on Backyard Poultry Farming was organized by DEE in coordination with ATMA, Bikaner from 17th-18th February, 2022. Lectures were delivered on economic importance of poultry farming, feeding management, vaccination, deworming, housing and general management, etc.
- A two days skill development on-campus training programme for farmers on "Unnat Bakri Palan Evm Prabandhan" was organized by DEE, RAJUVAS, Bikaner in coordination with ATMA, Bikaner from 24th-25th February 2022 and from 29th-30th March, 2022. Lectures were delivered on economic importance of goat farming, feeding management, vaccination, deworming, housing and general management, etc. A quiz competition was also organized.
- A Swachhta Gosthi on 28th February, 2022 and a Nasha Mukti Rally on 25th March, 2022 was organized in adopted village Garhwala by NSS Unit of College of Veterinary and Animal Science, Bikaner. Dr. Neeraj Kumar Sharma, Co-ordinator, University Social Responsibility awared the villagers about hazardous effect of any addiction like cigarette, alcohol etc. A cleanliness drive was also organized in Gram Panchayat campus.
- A total of 20 women and girls were trained for duration of 5 months in the Silai Kendra run by the Jan Shikshan Sansthaan, Bikaner in coordination with RAJUVAS, Bikaner Prof. Satish K. Garg, Vice-Chancellor, RAJUVAS visited the Silai Kendraon on 28th March, 2022. Vice-Chancellor addressed that it is important for rural women to become self-reliant by learning sewing, embroidery and provide support to their families to enable rural women to become self-reliant as well as entitled to self-respect.


University Organogram
CHANCELLOR
VICE-CHANCELLOR
BOARD OF MANAGEMENT
ACADEMIC COUNCIL
RESEARCH COUNCIL
EXTENSION EDUCATION COUNCIL
Registrar
Comptroller
Deans of the Colleges
Director Research
Director Extension Education
Controller of Examination
Dean Student Welfare
Dean Post Graduate Studies
Director PME
Director Clinic
Director Works (Estate Office)
Director HRD
Public Relation Cell
Placement Cell
Librarian Central Library
Constituent Colleges
College of Veterinary and Animal Science, Bikaner
College of Veterinary and Animal Science, Navania (Udaipur)
Post Graduate Institute of Veterinary Education & Research, Jaipur
College of Dairy Science & Technology, Bikaner
College of Dairy Science & Food Technology, Bassi (Jaipur)
Affiliated Colleges
Apollo College of Veterinary Medicine, Jaipur
Mahatma Jyotiba Fule College of Veterinary and Animal Science, Chomu
Amrawali Veterinary College, Sikar
M.B. Veterinary College, Dungarpur
R.R. College of Veterinary and Animal Science, Deoli, Tonk
Mahatma Gandhi Veterinary College, Bharatpur
Shourabh College of Veterinary Science, Kheda, Hindauncity, Karauli
Research Station
L R S, Bikaner
L R S, Beechwal (Bikaner)
L R S, Kodamdesar (Bikaner)
L R S, Nohar (Hanumangarah)
L R S, Chandan (Jaisalmer)
L R S, Vallabhnagar (Udaipur)
L R S, Bojunda (Chittorgarh)
L R S, Dug (Jhalawar)
L R S, Dholpur
State Plan Centres
1. Apex Centre for Animal Disease Investigation, Monitoring and Surveillance
2. Centre for Ethano Veterinary Practice & Alternative Medicines
3. Centre for Conservation of Animal Biodiversity
4. Centre for Organic Animal Product Technology
5. Centre for Excellence for use of Space based Technology in Animal Science
6. Centre for Studies on Wild Life Management & Health
7. Centre for Disaster Management Technology for Animal
8. Vaccinology & Biological Product Research Centre
9. Animal Bio Medical Waste Disposal Technology Centre
10. Engineering and Technology Centre for Animal Science
11. Livestock Feed Resource Management and Technology Centre
Krishi Vigyan Kendra
Nohar
Pashu Vigyan Kendra
Nagaur
Bharatpur
Sri-Ganganagar
Chittorgarh
Kota
Churu
Dungarpur
Jhunjhunu
Tonk
Sirohi
Dholpur
Lunkaransar
Jodhpur
Jobner
Jalore
Jhalawar
Coordinator AHDP
IUMS Cell
Security Office
Pool Office
Patent Cell
ICAR Nodel Office

।पशुधनं वित्तं 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, 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 Incharges 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 Accommo-dation 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
Chairperson of the Faculty and Dean, CVAS, Bikaner	Prof. (Dr.) R. K.Singh
Dean, College of Veterinary and Animal Science, Navania, Vallabhnaga, Udaipur	Prof. (Dr.) R.K. Joshi
Dean, Post Graduate Institute of Veterinary Education and Research (PGIVER), Jaipur	Prof. (Dr.) Sanjeeta Sharma
Dean, Post Graduate Studies, Bikaner	Prof. (Dr.) A.P. Singh
Dean, Student Welfare	Prof. (Dr.) S. C. Goswami
Dean, College of Dairy Science and Tec hnology, Bikaner	Prof. (Dr.) Hemant Dadhich
Dean, College of Dairy and Food Technology,	Prof. (Dr.) D.S. Meena
Director Research	Prof. (Dr.) Hemant Dadhich
Director, Clinics	Prof. (Dr.) J S Mehta
Director, Extension Education	Prof. (Dr.) R.K. Dhuria
Director, Prioritization, Monitoring and Evaluation	Prof. (Dr.) Anju Chahar
Director, Human Resource Department	Prof. (Dr.) B. N. Shringi
Director, Works (Estate Office)	Er. Praveen Mohan Mittal
Controller of Examination	Prof. (Dr.) Urmila Pannu
Comptroller	Sh. Pratap Singh Poonia
Registrar	Sh. Ajeet Singh Rajawat
OSD to Vice-Chancellor	Prof. (Dr.) R.K. Dhuria
Convener, Public Relation Cell	Prof. (Dr.) R.K. Dhuria
University Students Placement Cell	Dr. S.K. Jhirwal

Important Meetings of University

Meetings	Dates
24th Meeting of Board of Management	03.05.2021
Online Review Meeting of Deans, Directors and University Officers	10.05.2021
Online Review Meeting of Education and Student's Welfare Activities	11.05.2021
Online Review Meeting of Livestock Research Stations	12.05.2021
Online Review Meeting of Deans and Trustees of Affiliated Veterinary Colleges	19.05.2021
Meeting of Vice-Chancellor with Officials of Animal Husbandry, Finance and Gopalan	01.09.2021
First Meeting of Planning Board University	07.09.2021
Meeting of Vice-Chancellor with Divisional Commissioner, Jodhpur	21.09.2022
19th Meeting of Academic Council	30.09.2021
Review Meeting of Livestock Research Stations	21.10.2021
Review Meeting of Advanced Research Centers	22.10.2021
25th Meeting of Board of Management	23.10.2021
8thSAC Meeting of KVK, Nohar	25.10.2021
Departmental Review Meeting	13.11.2021
Review Meeting of Affiliated Veterinary Colleges	18.11.2021
Academic and Research Review Meeting	06.12.2021
First Regional Meeting of Animal Husbandry Extension Technology Forum (RAHAT)	16.01.2022
First Meeting of "RAHET" at PGIVER, Jaipur	08.03.2022
20th Meeting of Academic Council	21.03.2022


20th Academic Council Meeting

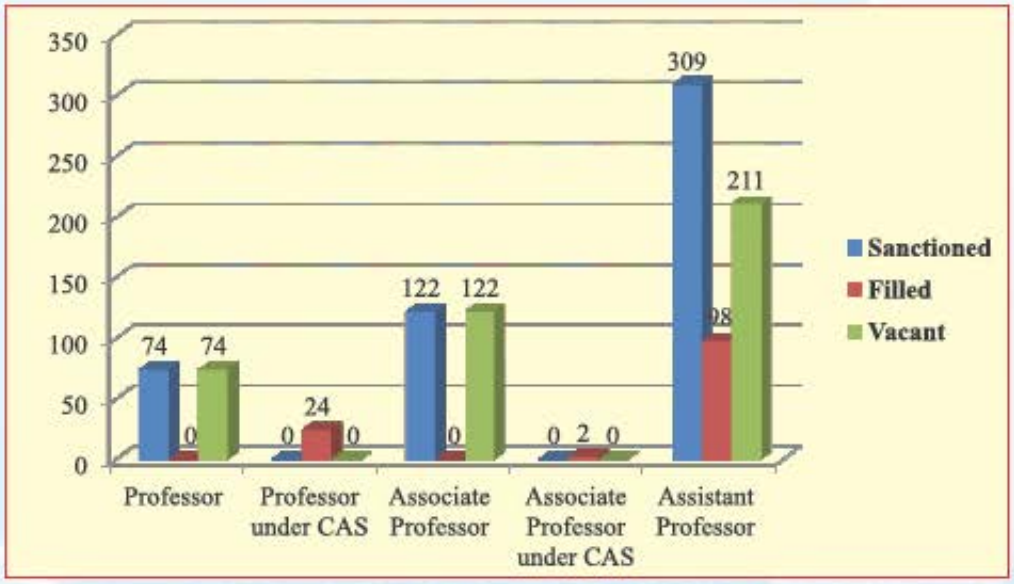

10th Academic Council Meeting


Board of Management Meeting

Faculty Strength

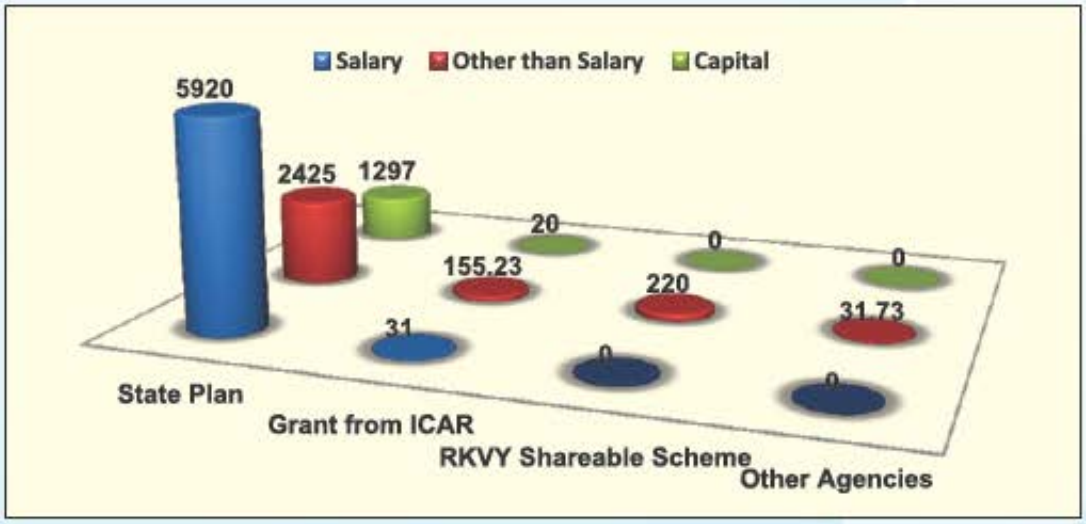
The Cadre-wise Strength of Teaching & Administrative Staff of RAJUVAS is shown in Below.

Sr. No.	Name of Post	Sanctioned	Filled	Vacant
1	Professor	74	-	74
2	Professor under CAS	-	24	-
3	Associate Professor	122	-	122
4	Associate Professor under CAS	-	2	-
5	Assistant Professor	309	98	211
	Total	**505**	**124**	**407**



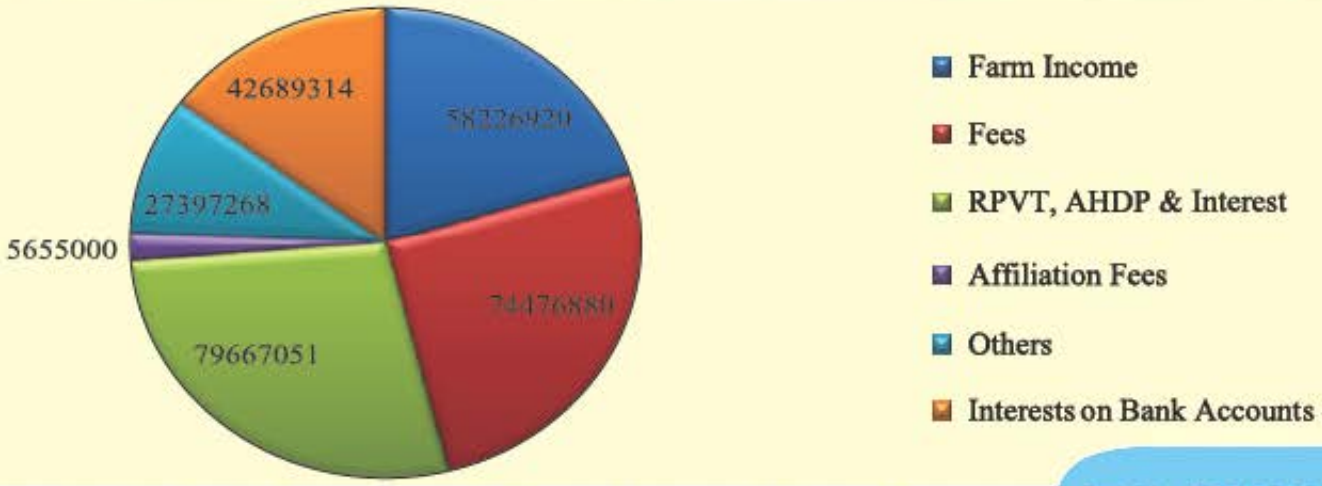
Finance and Budget

Particulars	2021-22			(Rs. In Lac)
	Salary	Other than Salary	Capital	Total
State Plan	5920.00	2425.00	1297.00	9642.00
Grant from ICAR	31.00	155.23	20.00	206.23
RKVY Shareable Scheme	0.00	220.00	0.00	220.00
Other Agencies	0.00	31.73	0.00	31.73
G.Total	5951.00	2831.96	1317.00	10099.96

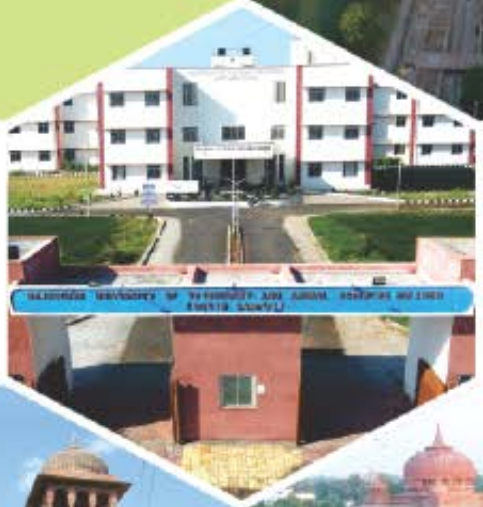


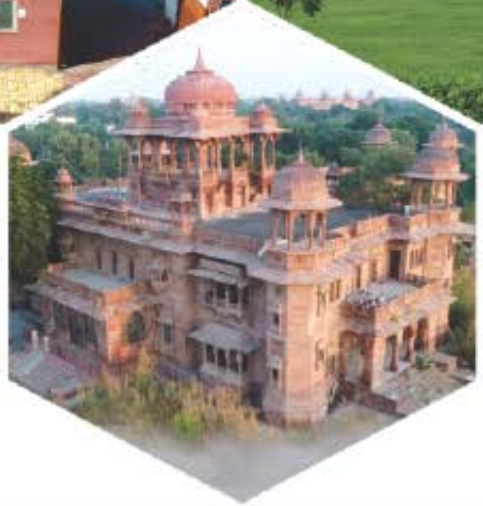
UDF Income 2021-22

S. No.	Head	Amount (in Rs.)
1	Farm Income	58226920.00
2	Fees	74476880.00
3	RPVT, AHDP & Int erest	79667051.00
4	Affiliation Fees	5655000.00
5	Others (Interest, HRA, Water, Electr icity Charges, T.C OD Recovery)	27397268.00
6	Interests on Bank Accounts	42689314.00
	Total	**288112433.00**





।पशुधनं वित्तं 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 Keshwanand Rajasthan Agricultural University, Bikaner (SKRAU, Bikaner on June 09th, 2009. In May 2010, it becomes the part of the Rajasthan University of Veterinary and Animal Sciences (RAJUVAS), Bikaner.

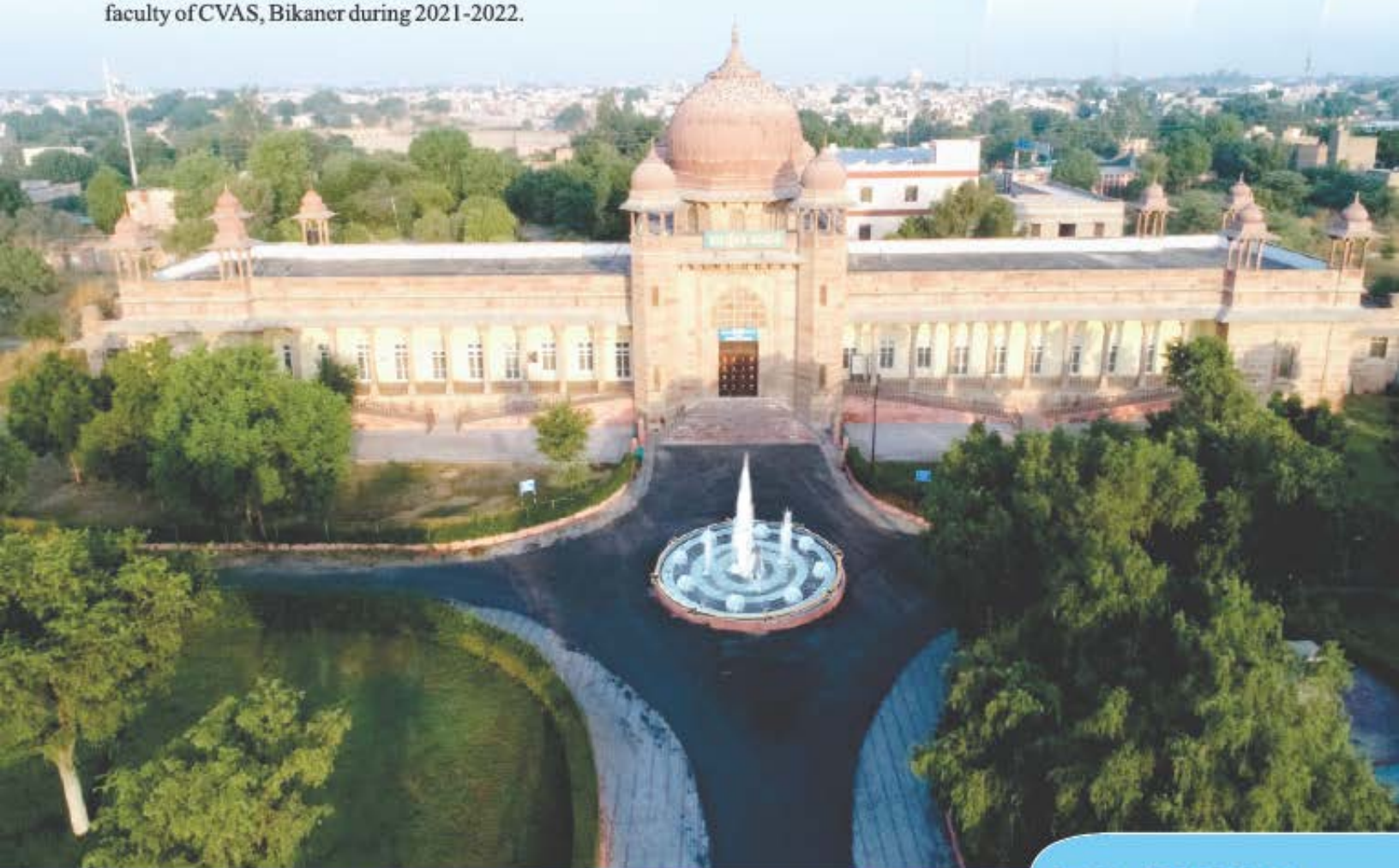
The college has 17 well established departments having well equipped laboratories with sophisticated instruments and gadgets; a well-developed library with 54189 books, journals and thesis; a workshop; three examination halls of the capacity of >200 students; clinical complex having indoors, outdoors, 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. Much stress is being laid over improved practical training to the students. 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 2021-22 College of Veterinary and Animal Sciences, Bikaner admitted 94 students (100 seats are sanctioned) for B.V.Sc.&A.H., 60 for M.V.Sc. and 29 for Ph.D. degree programmes in CVAS, Bikaner. In two year Animal Husbandry Diploma Programmes 50 students were admitted. A total of 50 Students were selected for ICAR-ASRB NET 2021-22 and 2 for ICAR's All India Entrance Examination AIEEA (PG) from CVAS, Bikaner. During the reporting year 64 Students completed their M.V.Sc. and 25 completed their Ph.D from CVAS, Bikaner. Total 134 research papers were published in journals by the faculty of CVAS, Bikaner during 2021-2022.



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. This college was registered under registration No.P.14 (18) Edu.-4/2007 dated 28.5.2007 and the first batch of B.V.Sc. &A.H. was started on 10th September, 2007.

The premises of the college are spread over an area of 892 big has (224 hectares) of land. The College possesses well-equipped laboratories, an 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.

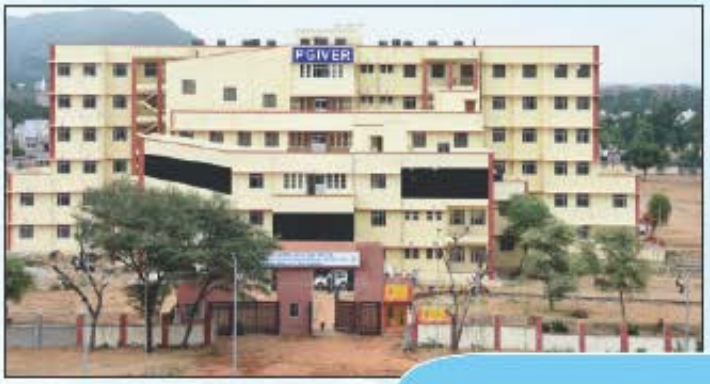
The institute is running four academic programmes namely Bachelor of Veterinary Science and Animal Husbandry (B.V.Sc. & A.H.), Master of Veterinary Science (M.V.Sc.), Doctor of Philosophy (Ph.D) and Animal Husbandry Diploma Programme (AHDP). College has been included in the first schedule of Indian Veterinary Council act 1984. 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 2021-22 College of Veterinary and Animal Sciences, Navania, Vallabhnagar admitted 88 students (100 seats are sanctioned) for B.V.Sc. & A.H., 27 for M.V.Sc. and 5 for Ph.D. degree programmes in CVAS, Navania. In two year Animal Husbandry Diploma Programmes 50 students were admitted. A total of 11 Students were selected for ICAR-ASRB NET 2021-22 and 13 for ICAR's All India Entrance Examination AIEEA (PG) from CVAS, Navania. During the reporting year 23 Students completed their M.V.Sc. and 3 completed their Ph.D from CVAS, Navania. Total 64 research papers were published in journals by the faculty of CVAS, Navania during 2021-2022.One workshop, 9 trainings and 6 webinars were organized by the college during reporting year. Ten faculty/students recognized for receiving award during 2021-22.

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;

During 2021-22 PGIVER, Jaipur admitted 92 students (100 seats are sanctioned) for B.V.Sc. & A.H., 33 for M.V.Sc. and 6 for Ph.D. degree programmes. In two year Animal Husbandry Diploma Programmes 45 students were admitted. A total of 12 Students were selected for ICAR-ASRB NET 2021-22 and 16 for ICAR's All India Entrance Examination AIEEA (PG) from PGIVER.

During the reporting year 26 Students completed their M.V.Sc.. Total 32 research papers were published in journals by the faculty of PGIVER, Jaipur during 2021-2022.One Training-cum-workshop from 27th-30th September, 2021, one trainings from 7th–11th March, 2022 and one international and 4 national webinars were organized by the college during reporting year. Nineteen faculty/students recognized for receiving award during 2021-22.

College of Dairy Science & Technology (CDST), 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.

During 2021-22 in First yr. B. Tech. in Dairy Technology 6 students were admitted.

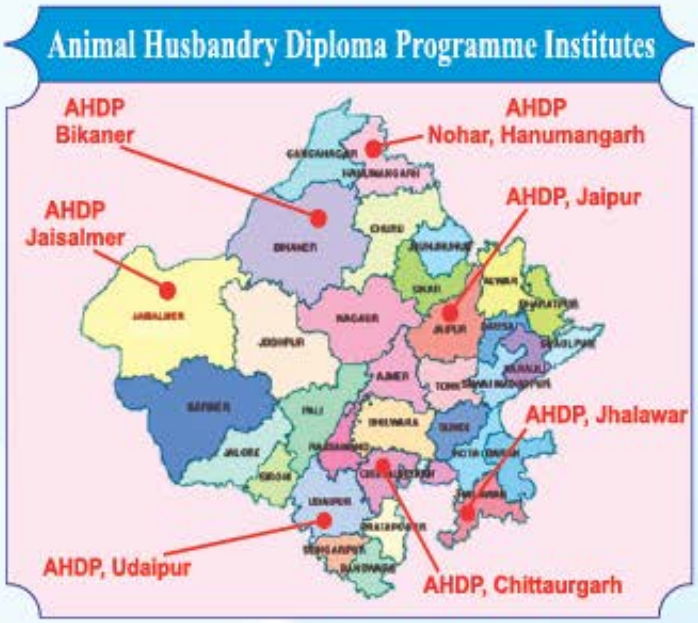
College of Dairy and Food Technology (CDFT), Bassi (Jaipur)

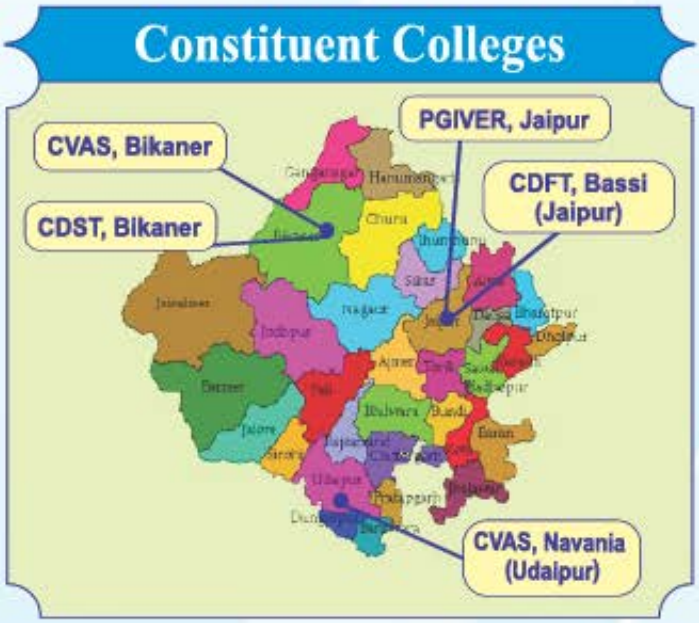
The college of Dairy & Food Technology (CDFT), Bassi, Jaipur is a constituent College of Rajasthan University of Veterinary and Animal Sciences (RAJUVAS), Bikaner. The CDFT, Bassi, Jaipur is fully operational as per Fifth Dean's committee recommendation of ICAR with Two four-year Undergraduate Programmes viz., B. Tech. in Dairy Technology and B. Tech. in Food Technology were started in year 2021. 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. During 2021 -22 In First yr. B. Tech. in Dairy Technology 2 students and B. Tech. in Food Technology 4 students were admitted.

Animal Husbandry Diploma Programme Institutes

The university is imparting two years Animal Husbandry Diploma Programme in constituent AHDP institutes and institutes affiliated to University, which have the capacity to train about 4726 para-veterinarian per year. Admission for AHDP programmes are being done on merit drawn on the basis of marks of Senior Secondary (10+2) or equivalent. There are 50 seats in each institute. All seats (100%) of constituent colleges and affiliated Government institutes as well as 85% seats of all affiliated private institutions are State seats and filled from Rajasthan domicile, to be filled by merit-cum-reservation, as per rules.

At present 81 institutions (both constituent and affiliated) are available for admission. Out of which, seven institutes are constituent colleges of university located at CVAS Bikaner, PGIVER Jaipur, CVAS, Navania Udaipur, LRS Nohar Hanumangarh, LRS Chandan Jaisalmer, LRS Bojunda Chittorgarh, LRS Dug Jhalawar and four are state Govt institutes located at Jaipur, Kota, Jodhpur and Udaipur and 70 institutes are private affiliated institutes located at different parts of Rajasthan.





Intake Capacity and Student Strength

Intake Capacity and Student strength in constituent veterinary colleges of RAJUVAS

S. No.	Name of college	Total No. of Seat	State	Payment	VCI/ICAR
Intake Capacity (B.V.Sc. & A.H.)					
1	College of Veterinary & Animal Science Bikaner	**100**	35	50	15 VCI
2	College of Veterinary & Animal Science , Navania, Vallabhnagar, Udaipur	**100**	35	50	15 VCI
3	Post Graduate Institute of Veterinary Education & Research, Jaipur	**100**	35	50	15 VCI
Intake Capacity (M.V.Sc.)					
1	College of Veterinary & Animal Science Bikaner	**60**	26	22	12 ICAR
2	College of Veterinary & Animal Science , Navania, Vallabhnagar, Udaipur	**43**	29	14	--
3	Post Graduate Institute of Veterinary Education & Research, Jaipur	**33**	17	16	--
Intake Capacity (Ph.D.)					
1	College of Veterinary & Animal Science Bikaner	**32**	10	14	08 ICAR
2	College of Veterinary & Animal Science , Navania, Vallabhnagar, Udaipur	**24**	12	12	--
3	Post Graduate Institute of Veterinary Education & Research, Jaipur	**08**	04	04	--

Intake Capacity (M.V.Sc) Department wise in colleges

S. No.	Total No of Seat (Department Wise)	CVAS, Bikaner			CVAS Navania (Udaipur)			PGIVER, Jaipur		
		State	Payment	ICAR	State	Payment	ICAR	State	Payment	ICAR
1.	Animal Genetics & Breeiding	01	01	01	02	01	--	1	1	--
2.	Animal Nutrition	02	02	01	03	02	--	2	1	--
3.	Animal Reproduction, Gynecology and Obstetrics	02	02	01	02	01	--	1	1	--
4.	Livestock Production Management	02	02	01	02	01	--	1	1	--
5.	Livestock Product Technology	01	01	--	--	01	--	1	1	--
6.	Veterinary Anatomy and Histology	01	01	01	02	01	--	--	--	--
7.	Veterinary Animal Husbandry & Extension	01	01	01	01	--	--	1	1	--
8.	Veterinary Boche mistry	01	01	01	--	--	--	1	1	--
9.	Veterinary Clinical Medicine, Ethics and Jurisprudence	02	01	01	03	01	--	2	2	--
10.	Epidemiology and Preventive Veterinary Medicine	--	--	--	--	--	--	--	--	--
11.	Veterinary Microbiology	01	01	01	03	01	--	1	1	--
12.	Veterinary Parasitology	--	--	--	02	01	--	1	1	--
13.	Veterinary Pathology	02	02	01	03	01	--	1	1	--
14.	Veterinary Pharmacology and Toxicology	02	02	--	--	--	--	--	--	--
15.	Veterinary Physiology	01	01	01	02	01	--	1	1	--
16.	Veterinary Public Health	02	01	--	02	01	--	1	1	--
17.	Veterinary Surgery and Radiology	05	03	01	02	01	--	2	2	--
	Total	**26**	**22**	**12**	**29**	**14**	--	**17**	**16**	--

Intake Capacity (Ph.D.) College wise

S. No.	Total No of Seat (Department Wise)	CVAS, Bikaner			CVAS Navania (Udaipur)			PGIVER, Jaipur		
		State	Payment	ICAR	State	Payment	ICAR	State	Payment	ICAR
1.	Animal Genetics & Breeiding	--	--	01	02	02	--	--	--	--
2.	Animal Nutrition	01	01	01	01	01	--	01	01	--
3.	Animal Reproduction, Gynecology and Obstetrics	01	01	01	01	01	--	--	--	--
4.	Livestock Product Technology	--	01	--	--	--	--	--	--	--
5.	Livestock Production Management	02	01	01	01	01	--	01	01	--
6.	Veterinary Clinical Medicine, Ethics and Jurisprudence	01	01	01	01	01	--	01	01	--
7.	Veterinary Microbiology	--	01	01	01	01	--	--	--	--
8.	Veterinary Pathology	01	01	01	02	02	--	--	--	--
9.	Veterinary Public Health	--	01	--	--	--	--	--	--	--
10.	Veterinary Surgery and Radiology	02	01	01	--	--	--	--	--	--
11.	Veterinary Anatomy and Histology	--	01	--	01	01	--	--	--	--
12.	Veterinary Physiology	--	--	--	01	01	--	01	01	--
13.	Veterinary Parasitology	--	--	--	01	01	--	--	--	--
14.	Veterinary Animal Husbandry & Extension	01	01	--	--	--	--	--	--	--
15.	Veterinary Bochemistry	--	01	--	--	--	--	--	--	--
16.	Veterinary Pharmacology and Toxicology	01	01	--	--	--	--	--	--	--
	Total	**10**	**14**	**8**	**12**	**12**	**--**	**04**	**04**	**--**

Student Strength College wise during 2021-22

CVAS, Bikaner

B.V.Sc.&A.H					Total	M.V.Sc.		Total	Ph.D			Total	2 Years Diploma in A.H.		Total	G. Total
I	II	III	IV	Intern		I	II		I	II	III		I	II		
94	62	79	73	65	**373**	60	50	**110**	27	11	12	**50**	50	35	**85**	**618**

CVAS, Navania, Vallabhnagar

I	II	III	IV	IV (old batch)	Intern	Total	I	II	Total	I	II	III	Total	I	II	Total	G. Total
88	56	5	78	69	61	**357**	27	21	**48**	05	--	01	**06**	50	44	**94**	**505**

PGIVER, Jaipur

I	II	III	IV	Intern	Total	I	II	Total	I	II	III	Total	I	II	Total	G. Total
92	56	74	73	69	**364**	33	28	**61**	06	01	13	**20**	45	46	**91**	**536**

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

S. N.	Name of college	Total No of Seat	Seat filled
Intake Capacity (B.Tech.)			
1	College of Dairy Science & Technology, Bikaner	**40**	04
2.	College of Dairy and Food Technology, Bassi (Jaipur)		
A.	**Dairy Technology**	**40**	02
B.	**Food Technology**	**40**	06

Students Strength in Constituent Animal Husbandry Diploma Institutes

S. No.	Name of the constituent Animal Husbandry Diploma Institutes	AHDP		Total
		I	II	
1.	College of Veterinary & Animal Science, Bikaner	48	39	87
2.	College of Veterinary and Animal Science, Navania (Udaipur)	49	47	96
3.	Post Graduate Institute of Veterinary Education & Research, Jaipur	47	46	93
4.	AHDP Institute, Livetock Research Station, Nohar (Hanumangarh)	47	45	92
5.	AHDP Institute, Livestock Research Station, Chandan (Jaisalmer)	46	37	83
6.	AHDP Live stock Research Station, Bojunda (Chittorgarh)	50	45	95
7.	AHDP Live stock Research Station, Dug (Jhalawar)	48	44	92

Ph.D Theses Completed

S. No.	Name of student	Name of the Advisor	Title of Thesis	Name of Department
1	Chander Shekher Sarswat	Prof. Sunanda Sharma	Effect of Exogenous Melatonin Administration on Testicular Biometry Libido Parameters Seminal Parameters, Hormone Levels and Freezability of Sirohi Buck Semen During Non-Breeding Season in Southern Rajasthan.	Animal Reproduction, Gynaecology & Obstetrics
2	Dharmendra Chharang	Prof. Sheela Choudhary	Effect of Probiotics Supplementation of Nutrient Utilization in Captive Asian Elephants.	Animal Nutrition
3	Ashok Gaur	Dr. Amita Ranjan	Disposition Kinetics of Moxifloxacin and its Pharmacokinetic Interaction Study with Flunixin in Sheep and Goats.	Veterinary Pharmacology and Toxicology
4	Devendra Singh	Prof. Sanjeev Joshi	Gross Anatomical, Histological, Histochemical, Ultrastructural And Immunohistochemical Studies of the Thyroid Gland In Dromedary Camel (Camelus Dromedarious).	Veterinary Anatomy and Histology
5	Tanvi Mahajan	Prof. Sanjeev Joshi	Gross, Histological, Histochemical, Electron Microscopic and Immuno Histochemical Studies on the Female Reproductive Tract of Kadaknath and White Leghorn Hens.	Veterinary Anatomy and Histology
6	Neha Sharma	Prof. Tribhuwan Sharma	Effect of Cinnamon (*Cinnamomum Verum*) And Ajwain (*Trachyspermum Ammi*) as Feed Additives on the Performance of Broiler Chicks.	Animal Nutrition
7	Rajendra Yadav	Prof. A.P. Singh	Studies on Therapeutic Efficacy of Holarrhena Antidysenterica In Neonatal Calf Diarrhoea with special reference to *E. Coli* and *Salmonella.*	Veterinary Clinical Medicine, Ethics and Jurisprudence
8	Jyoti Choudhary	Prof. B.N. Shringi	Sequencing and analysis of Camel (*Camelusdromedarius*) TLRs4 to 10.	Veterinary Microbiology
9	Vasundhara Rathore	Prof. A.K. Kataria	Differentiation of *Staphylococcus aureus* isolates obtained from animate and inanimate sources in reference to some genes responsible for virulence and antibiotic resistance.	Animal Biotechnology
10	Y R Ambedkar	Dr. Anurag Pandey	Effect of ageing on tenderization of tough meat through selective multiple approaches in different Species (Buffalo,Pork, Sheep, Goat).	Livestock Products Technology
11	Geetesh Mishra	Prof. S.C. Goswami	Effect of Season and Stage of Lactation on Bioactive Components and Antioxidant Activity in Milk of Sahiwal and Kankrej Cattle in Arid Region of Rajasthan	Livestock Production & Management
12	Renu	Prof. Hemant Dadhich	Histopathological and Molecular detection of *Clostridium perfringens* type D Enterotoxemia in sheep (Ovis*aries*).	Veterinary Pathology
13	Femina Anjum	Prof. B.N. Shringi	Clonality and Antimicrobial Resistance Mechanisms in Enteric Escherichia Coli Isolated from Poultry at Different Age Intervals.	Animal Biotechnology
14	Vijayata	Dr. Abhishek Gupta	Identification and Molecular Characterization of the genes targeting ribosomal binding protein UBP-1 and transcription factor p57 of Trypanosomaevansi isolated from Camel.	Veterinary Parasitology
15	Monika	Dr. Abhishek Gupta	Epidemiological Studies on Bovine Cryptosporidiosis in North-Western Rajasthan.	Veterinary Parasitology
16	Vishnu Kumar	Prof. R.K. Nagda	Study of Performance Traits in Sirohi Goat at Farmer's Flocks.	Animal Genetics & Breeding
17	Jitendra Bargujar	Prof. Dharm Singh Meena	Studies on Renal Failure in Dogs with Special Reference to Biomarkers.	Veterinary Clinical Medicine, Ethics & Jurisprudence
18	Parma Ram Gorachiya	Prof. Basant Bais	Effect of Natural Antioxidants on Quality Characteristics and Shelf Life of Functional Chicken Sausage.	Livestock Products Technology
19	Sita Ram Gupta	Prof. A.P. Singh	Studies on Therapeutic Potential of Nigella Sativa (Kalonji) and Phyllanthus Emblica (Amla) in Bovine Subclinical Mastitis.	Veterinary Clinical Medicine, Ethics & Jurisprudence
20	Pushpa Sharma	Prof. B.N. Shringi	Phenotypic And Genotypic Characterization of Some Bacteria Isolated From Female Reproductive Tract Infection.	Animal Biotechnology
21	Ritu Sharma	Dr. Rajani Joshi	Assessment of Raw Milk in terms of Microbial Load and Adulterants in Bikaner.	Veterinary Public Health
22	Neharika Saxena	Dr. Rajani Joshi	Seroprevalence and Molecular Detection of Brucellosis in Camel and its Public Health Significance in and Around Bikaner.	Veterinary Public Health

S. No.	Name of student	Name of the Advisor	Title of Thesis	Name of Department
23	Hemlata Chouhan	Prof. Urmila Pannu	Study of Milk Production Genes and their association with Production Reproduction Traits in Rathi Cattle.	Animal Genetics & Breeding
24	Mahendar Singh Meel	Prof. Tribhuwan Sharma	Effect of *Moringaoleifera*Leaf Meal With or Without Multi Enzyme as Feed Additive on Growth Performance and Carcass Characteristics of Broiler Chicks.	Animal Nutrition
25	Sanweer Khatoon	Dr. Hakim Manzer Alam	Molecular detection of *Theileriaannulata* and Bio control of its vector by*Entomopathogenic* Nematodes in cattle of Udaipur (Rajasthan).	Veterinary Parasitology
26	Dinesh Kumar	Prof. Sunanda Sharma	Effect of L-arginine and trehalose supplementation to semen extender on quality and fertility of cryopreserved stallion semen.	Animal Reproduction, Gynaecology & Obstetrics
27	Laxmi Narayan Sankhala	Dr. Amita Ranjan	Studies on Toxicopathology of Imidacloprid in Poultry and its Amelioration with Cow Urine Distillate.	Veterinary Pharmacology and Toxicology
28	Sudeep Solanki	Dr. Deepak Kumar Sharma	Characterization of Some Most Important Bacterial Pathogens and their Genes for Virulence Associated with Bovine Subclinical Mastitis in Sirohi (Rajasthan).	Veterinary Microbiology
29	Subhash Gharu	Prof. P. Bishnoi	Clinical Diagnosis, Categorization, Surgico-Therapeutic Treatment and Rehabilitation of Large Downer Animals.	Veterinary Surgery and Radiology
30	Suresh Kr Palsania	Prof. P. Bishnoi	Evaluation of External Fixation stem for Repair of Long Bone Fracture in Cattle	Veterinary Surgery and Radiology
31	Dr. Narender Kumar Poonia	Dr. S.C. Goswami	Effect of Dietary supplementation of giloy herb and ascorbic acid along with different bedding materials on performance of Japanese quail during growth and egg production period	Livestock Production & Management
32	Dr. Praveen Pilaniya	Prof. S.C. Goswami	Effect of Giloy (*Tinospora cordifolia*) and Vitamine –E Supplementation on Performance of Kadaknath and Rhode Island Red reared under different Bedding Material in Arid Zone of Raj.	Livestock Production & Management
33	Dr. Satendra Kumar Yadav	Prof. S.C. Goswami	Effect of Moringa (*Moringa oleifera*) leaves dry extract Supplementation on sexual performance and semen quality of Marwari Ram	Livestock Production & Management
34	Femina Anjum	Prof. B.N. Shringi	Clonality and antimicrobial resistance mechanisms in enteric *E. coli* isolated from poultry at different age interval.	Veterinary Microbiology and Animal Biotechnology
35	Pushpa Sharma	Prof. B.N. Shringi	Phenotypic and Genotypic Characterization of Some bacteria isolated from female reproductive tract infection.	Veterinary Microbiology and Animal Biotechnology
36	Ram Kumar	Prof. B.N. Shringi	Studies on the role of ROCK Signalling pathway in Buffalo pox virus replication.	Veterinary Microbiology and Animal Biotechnology
37	Mukul	Prof. B.N. Shringi	Genomic Characterization of Nucleotide Oligomerization Domain (NOD) like receptors (NLR's) in Camelusdromedarius	Veterinary Microbiology and Animal Biotechnology
38	Aarti Sharma	Prof. Balwant Meshram	Gross Anatomical In-Vitro Disquisition on Brain in Pratapdhan and Kadaknath (G. Gallus Domesticus) birds with special reference onto the Histological, Histochemical and Ultrastructural Comprehensive Inquisition Of Their Pituitary Glands	Veterinary Anatomy
39	Atul Shanker Arora	Dr. Devi Singh	Assessment of knowledge Level and Training Needs of Cattle Owners in Rajasthan	Veterinary & Animal Husbandry Extension Education

M.V.Sc. Theses Completed

M.V.Sc. Theses Completed from CVAS, Bikaner

S. No.	Name of Students	Name of Advisor	Title of Thesis	Name of Department
1	Arjit Anil	Dr. Dinesh Jain	Effect of supplementation of arjunabark powder (*Terminaliaarjuna*) as herbal feed additive on performance of broiler chicks	Animal Nutrition
2	BabluVerma	Dr. Rajesh Nehra	Replacement of roughage with neem (*Azadirachtaindica*) leaves in the diet of camel	Animal Nutrition
3	Sanjay Kumar	Dr. Rajesh Nehra	Effect of feeding cactus (*Opuntiaficusindica*) in fresh form as roughage source in the diet of camel	Animal Nutrition
4	Kanika Poonia	Prof. R.K. Dhuria	Effect of phytochemical rich diet on growth performance and nutrient utilization efficiency in camel calves	Animal Nutrition
5	Puraram	Dr. Pankaj Kumar Thanvi	Gross, histological and histochemical studies on the rectum of pig (*Sus scrofa domesticus*)	Veterinary Anatomy
6	Raj Kumar	Dr. Ashok Dangi	Gross, histological and histochemical studies on the rectum of goat (*Capra hircus*)	Veterinary Anatomy
7	Bhanu Prakash	Dr. Amit Kumar	Comparative studies on effects of ascorbic acid, butylated hydroxytoluene and melatonin on cooled storage of Magra rams semen	Veterinary Gynaecology and Obstetrics
8	Tipu Sultan	Prof. J. S. Mehta	Effect of zinc and gold nanoparticles on cooled and post thaw quality of stallion semen	Veterinary Gynaecology and Obstetrics
9	Rajendra Mehra	Dr. Ashok Kumar	Effect of addition of lypholised heterologous seminal plasma and colostrums to semen extender on cooled and post thaw stallion semen quality	Veterinary Gynaecology and Obstetrics
10	Amit	Dr. Amit Kumar	Effect of *Moringa oleifera* leaves supplementation on serum biochemical profile, fresh and cooled semen characteristics of Magra rams	Veterinary Gynaecology and Obstetrics
11	Lakhan Ram Yadav	Dr. Sandeep Dholpuria	Studies on incidence and haemato-biochemical profiles in goats with dystocia	Veterinary Gynaecology and Obstetrics
12	Renu Meena	Dr. Neeraj Kumar Sharma	Performance and prospects of Clinical Service Rendered by VCC,RAJUVAS, Bikaner Among Livestock Owners	Veterinary & Animal Husbandry Extension Education
13	Sonu Shekhawat	Dr. Devi Singh	Knowledge and Adoption Level of Cattle Owners About Animal Welfare Practices in Jhujhunu District of Rajasthan	Veterinary & Animal Husbandry Extension Education
14	Chandra Pal Singh	Dr. Neeraj Kumar Sharma	A Study on Job Seeking Behaviour of Veterinary Student in Rajasthan	Veterinary & Animal Husbandry Extension Education
15	Pushpa	Dr. Devi Singh	A Study on Participation of Rural Women in Animal Husbandry Activities in Sri Ganganagar District of Rajasthan	Veterinary & Animal Husbandry Extension Education
16	Seema Bisnoi	Prof. Manisha Mathur	Pathomorphological and Enzymatic analysis in Liver of Goat (*Capra hircus*). Major Advisor	Veterinary Pathology
17	Pooja Prajapat	Prof. Manisha Mathur	Pathomorphological and Biochemical analysis in kidney of poultry. Advisor-	Veterinary Pathology
18	Deepak Kumar Pankaj	Prof. sunita Rani	Occurrence and pathology of various conditions of liver of Pig (*Sus scrofa domesticus*)	Veterinary Pathology
19	Manish Kumar Maurya	Prof. Hemant dadhich	Pathomorphological and anzymatic analysis in liver of Buffalo (*Bubalis bubalis*).	Veterinary Pathology
20	Shobha Burdak	Prof. Indu Vyas	Occurrence and pathology of various conditions of kidney in Pig (*Sus scrofa domesticus*)	Veterinary Pathology
21	Priyanka Kalani	Prof. Indu Vyas	Occurrence and pathology of various conditions of CardioVascular system in Pigs (*Sus domesticus*)	Veterinary Pathology

S. No.	Name of Students	Name of Advisor	Title of Thesis	Name of Department
22	Pradeep Makawana	Dr. Manisha Mehra	Pathomorphological and Enzymatic analysis in Liver of Sheep (*Ovis aries*).	Veterinary Pathology
23	Rashmi	Dr. Manisha Mehra	Pathomorphological and Biochemical analysis in kidney of Goats (*Capra hircus*)	Veterinary Pathology
24	Poonam Gupta	Dr. Shesh Asopa	October 2021- Occurrence and Pathology of various conditions of intestine in pig (*Sus scrofa domesticus*).	Veterinary Pathology
25	Nalini Singhal	Dr. Shesh Asopa	Pathological and bacteriological studies of liver lesions in poultry	Veterinary Pathology
26	Seema Bisnoi	Dr. Manisha Mathur	Pathomorphological and Enzymatic analysis in Liver of Goat (*Capra hircus*). Major Advisor	Veterinary Pathology
27	Pooja Prajapat	Dr. Manisha Mathur	Pathomorphological and Biochemical analysis in kidney of poultry. Advisor-	Veterinary Pathology
28	Vinod Kumar Bajiya	Dr. Rajni Arora	Study on Performance and welfare of cattle in Goushala in Arid Region of Rajasthan	Livestock Production Management
29	Anita	Dr. A.K. Jhirwal	Effect of Daitary Supplimention of Giloy Stem Powder and Moringa Leaves Powder along with Different type of Bedding Materials on Performance of Broilers	Livestock Production Management
30	Gaurav Pargi	Prof. S.C. Goswami	Effect of Dietary Supplementation of Giloy (*Tinospora cordifolia*) Stem Powder and Neem (*Azadirachta indica*) Leaves Powder along with different Bedding Materials on performance of Japanese Quails	Livestock Production Management
31	Kusumlata Jhajharia	Dr. A.K.Jhirwal	Study on effect of various stocking densities along with the dietary Supplementation of Giloy (*Tinospora cordifolia*) and Moringa (*Moringa oleifera*) on the Performance of Broilers chick	Livestock Production Management
32	Lalita Deora	Dr. Tara Bothra	Effect of bedding materials on performance of broiler chick	Livestock Production Management
33	Lokesh Kumar	Dr. Rajni Arora	Effect of Lemon and Orange Peel Essential oil on Performance of Broilers reared under treated beeding Material with Dry Neem leaves during summer season	Livestock Production Management
34	Anjana Pandit	Dr. S.C. Goswami	Effect of different litter treatment on the performance of Japanes quail (*Coturnix coturnix japonica*)	Livestock Production Management
35	Deepika Jain	Dr. Rajni Joshi	Studies on bacteriological profile of bio-medical waste and assessment of efficacy of autoclave, microwave and incinerator	Veterinary Public Health
36	Sanju	Dr. Taruna Bhati	Evaluation of single and combined effects of antibiotics and some antimicrobial peptides on Biofilms of Staphylococcus aureus and E. coli.	Veterinary Microbiology
37	Khushboo Panwar	Dr. Taruna Bhati	Profiling of Some virulence and antibiotic Resistance Associated Genes in *Escherichia coli* isolates from Egypytian vultures (Neophronpercnopterus) at Jorbeer conservation Reserve, Bikaner (Raj.)	Veterinary Microbiology
38	Sudesh Kumar	Dr. Taruna Bhati	Characterization of *Escherichia coli* isolates from Diarrheic calves.	Veterinary Microbiology
39	Ram Kumar Gahlot	Dr Narendra Singh Rathore Dr Anil Moolchandani	Molecular Characterization of TLR-2 Gene in Bikaneri Camel (*camelusdromedarius*)	Animal Biochemistry
40	Gagan Deep Singh	Dr Narendra Singh Rathore Dr Meenaxi Sareen	Study on Haemato-Biochemical Analysis of different types of colic in Indigenous horses	Animal Biochemistry
41	Bhagraj Godara	Dr Narendra Singh Rathore Dr Meenaxi Sareen	Sequencing and analysis of NLRP6 Gene of Camel (*camelus dromedarius*)	Animal Biochemistry
42	Kirti Suthar	Dr Narendra Singh Rathore Dr Anil Moolchandani	Molecular Identification of Antibiotic Resistance Genes in *Escherichia coli* isolates from camel calves	Animal Biochemistry

S. No.	Name of Students	Name of Advisor	Title of Thesis	Name of Department
43	Jyoti Kumari	Prof. Basant Bais	Development and quality evaluation of ginger and garlic incorporated indigenous cattle milk paneer spread	Livestock Products Technology
44	Pankaj Kanwar	Prof. Basant Bais	Quality evaluation of fruits enriched paneer spread developed from indigenous cow milk	Livestock Products Technology
45	Nitesh chand	Prof. Basant Bais	Development and Quality evaluation of Aloevera and coconut water based whey beverages prepared from camel and goat milk	Livestock Products Technology
46	Yogenda Singh	Prof. Basant Bais	Development and studies of beetroot and muskmelon based whey beverages prepared from camel and goat milk	Livestock Products Technology
47	Vaishali Pareek	Prof. Urmila Pannu	Study on different statistical models of lactation curve in Kankrej cattle	Animal Genetics Breeding
48	Ishani Sharma	Dr Manju Nehara	Genetic evaluation of wool yield and wool quality attributes of Chokla sheep using Animal models	Animal Genetics Breeding
49	Ajay Saini	Dr Virendra Kumar	Evaluation of wool yield and wool quality traits in Marwari sheep	Animal Genetics Breeding
50	Subhita	Dr Manju Nehara	Comparative study of multiple linear regression and artificial neural network for prediction of first lactation 305 days milk yield in Tharparkar cattle	Animal Genetics Breeding
51	Madhusudan Jagawat	Dr Manju Nehara	Genetic characterization of MHC class II DQA gene in Indian camel (*Camelus dromedarius*)	Animal Genetics Breeding
52	Babita Kumari	Dr Sunita Pareek	Body condition score versus metabolic and antioxidant profile of *Marwari* sheep from arid tracts of Rajasthan during extreme cold ambiance	Vet. Physiology
53	Priyanka Tewari	Dr Ruchi Maan	Remodelling of metabolome in *Marwari* goat from the arid tract of Rajasthan during extreme hot ambience	Vet. Physiology
54	Punam	Dr Ruchi Maan	Altered blood oxidative stress markers and interrelated analytes in broilers during hot humid ambience	Vet. Physiology
55	Sajjan Kumar	Dr Sunita Pareek	Exploration of the antioxidant status in broilers during varying environmental conditions	Vet. Physiology
56	Subith C	Dr. Suresh Kumar Jhirwal	Ocular Imaging Studies of Dromedary Camels	Veterinary Surgery and Radiology
57	Dharampal	Dr. Suresh Kumar Jhirwal	Evaluation of Tear Production and Intraocular Pressure in Clinically Healthy Dromedary Camels.	Veterinary Surgery and Radiology
58	Ajay Saharan	Dr. Anil Kumar Bishnoi	Clinical Study of Internal Fixation of Humeral and Femoral fractures in Young Bovines.	Veterinary Surgery and Radiology
59	Mohan Lal Sharma	Dr. Mahendra Tanwar	Comparison of Two Techniques of Ovarian Pedicle Haemostasis During Laparoscopic Assisted Ovariectomy.	Veterinary Surgery and Radiology
60	Komal Galgat	Dr. Sakar Palecha	Clinical Application of Computed Tomography and Myelography in diagnosis of Spine and Vertebral column Disorders in Dogs.	Veterinary Surgery and Radiology
61	Subith C	Dr. Suresh Kumar Jhirwal	Ocular Imaging Studies of Dromedary Camels	Veterinary Surgery and Radiology
62	Dharampal	Dr. Suresh Kumar Jhirwal	Evaluation of Tear Production and Intraocular Pressure in Clinically Healthy Dromedary Camels.	Veterinary Surgery and Radiology
63	Suvidhi	Dr. L.N. Sankhala	Effect of diosmin and hesperidin Supplementation on haematological and serum-biochemical profile in donkey (*Equusasinus*).	Veterinary Pharmacology and Toxicology
64	Hukma Ram Parihar	Dr. Amita Ranjan	Evaluation of antibacterial activity of selected plant extracts against *Corynebacterium pseudo tuberculosis* isolated from *Camelusdromedaries*.	Veterinary Pharmacology and Toxicology

M.V.Sc. Theses Completed from CVAS, Navania (Udaipur)

S. No.	Name of student	Name of Advisor	Title of Thesis	Name of Department
1	Bhavana Kanwar Rathor	Dr. Mahendar Singh Meel	Effect of Ajwain (*Trachyspermum ammi*) Supplementation on Growth Performance and Carcass Characteristics of Broiler Chickens	Animal Nutrition
2	Suman Meena	Dr. Tikam Goyal	Study on Job Performance and Job Satisfaction of Veterinary Officers in Rajasthan State	Vety. & A.H. Ext ension Education
3	Shyoji Ram Nagar	Dr. Sanweer Khatoon	Epidemiological Studies On Gastrointestinal Helminths Of Horses Of Udaipur (Rajasthan)	Veterinary Parasitology
4	Anuj Kumar Dixit	Dr. Hakim Manzer Alam	In-Vitro Study on Acaricidal Efficacy of Dhatur a Stramonium and Calotropis gigantea Extracts against Rhipicephalus (Boophilus) microplus with Refference to Deltamethrin Udaipur (Rajasthan)	Veterinary Parasitology
5	Pavan Kumar Damor	Dr. Arun Kumar	Development and Quality Assessment of Chia Seed, Mulethi and Green Tea Incorporated Chicken Nuggets	Livestock Products Technology
6	Gunjan	Dr.Kamal Purohit	Pathomorphological Studies of Lung Lesions In Buffalo (Bubalus Bubalis) In Southern Region of Rajasthan	Veterinary Pathology
7	Ritesh Limbat	Dr Mamta Kumari	Clinico-pathological and microbiological studies on diarrhoeic goats in Southern Rajasthan	Veterinary Pathology
8	Poonam	Dr Mamta Kumari	A comparative study of Natural clearing agents with routine chemicals used in tissue processing for histopathological examination of necropsied animals.	Veterinary Pathology
9	Kishan Tosawada	Dr Hina Ashraf Waiz	Impact of Space Allowance on Performance of Sirohi Kids under Intensive Management System	Livestock Production Management
10	Vinit Kumar	Prof. Balwant Meshram	Comparative Gross, Histomorphological and Histochemical Studies on Pancreas in White Leghorn (Gallus gallus domesticus) and Guinea Fowl (Numida meleagris) Birds	Veterinary Anatomy
11	Nitika	Prof. Balwant Meshram	Macroscopical, Microscopical and Microchemical In-Vitro Studies on the Kidney of Sonadi Sheep (Ovis aries)	Veterinary Anatomy
12	Vipin Chand Bairwa	Dr Abhishek Gaurav	Characterization of multidrug resistant *Escherichia coli* isolated from bovine subclinical mastitic milk	Veterinary Public Health
13	Manisha Doot	Dr Abhishek Gaurav	Molecular characterization of methicillin resistant *Staphylococcus aureus* isolated from bovine subclinical mastitic milk	Veterinary Public Health
14	Ishwar Mal Harizan	Dr R.K. Khinchi	Studies on clinico-therapeutic aspects and oxidative stress indices in parvoviral enteritis in dogs	Veterinary Medicine
15	Kamlesh Kumar saini	Dr. R.K. Khinchi	Studies on clinico-therapeutic approaches and biomarkers of oxidative stress in babesia infected cattle	Veterinary Medicine
16	Indu Bala	Dr Goverdhan Singh	Occurrence and Pathology of Various Conditions of Lower Respiratory Tract in Cattle (Bos Indicus) in Southern Region of Rajasthan	Veterinary Pathology

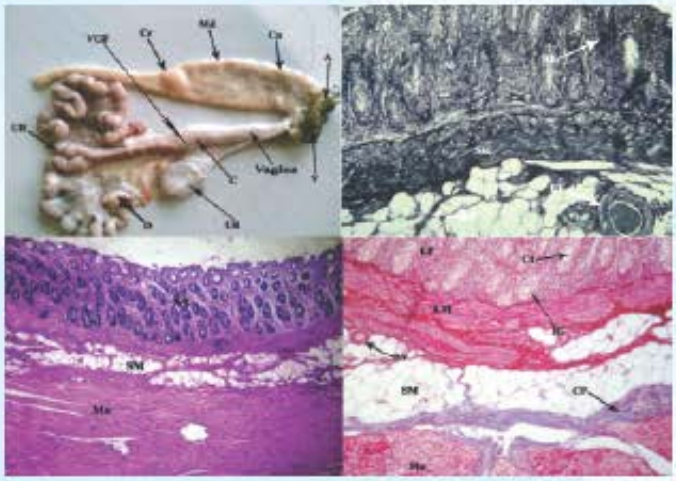
M.V.Sc. Theses Completed from PGIVER, Jaipur

S. No.	Name of Students	Name of Advisor	Title of Thesis	Name of Department
1	Abhishek Saini	Prof. Sanjita Sharma	Effect of different stocking density on broiler performance with and without ashwagandha (*Withania somnifera*) supplementation	Livestock Production Management
2	Ajay Kumar	Dr. Sandeep Kumar Sharma	Molecular Characterization of *Escherichia coli* from Diarrhoeic Dogs in Context of Antibiotic Resistance	Veterinary Microbiology & Biotechnology
3	Anjana Godara	Dr. Rohitash Dadhich	Clinico-pathological Studies of Kidney Dysfunction in Dogs with Special Reference to SDMA Assay	Veterinary Pathology
4	Chanchal Kala	Dr. Dharm Singh Meena	Clinico-therapeutic Studies on Ruminal Acidosis in Goats	Veterinary Medicine
5	Dinesh Maruti	Dr. G.S. Gottam	Effect of Hot Humid and Cold Season on Hematological and Biochemical Parameters in Sirohi Goat	Veterinary Physiology
6	Kamlesh Suthar	Dr. Monika Karnani	Effect of Supplementation of *Moringa oleifera* and *Morus alba* Forage on Dry Roughage Based Maintenance Dietin Sheep	Animal Nutrition
7	Kavita Meena	Dr. Manju	Effect of Supplementation of Herbs and Spices as Feed Additives on Performance of Broiler Chickens	Animal Nutrition
8	Krishna Kumar Sharma	Dr. Chander Shekar Sarswat	Effect of methanolic extract of *Moringa oleifera* leaves on seminal quality of Magra ram during cooled storage	Veterinary Gynaecology and Obstetrics
9	Lalit Kumar Saini	Dr. G.S. Gottam	Effect of hot-humid and cold season on haematological and biochemical parameters in Murrah buffalo	Veterinary Physiology
10	Madhu Kumari	Dr. Yogendra Pal Singh	Ultra-Sonographic Evaluation of Internal Structures of Eye in Dogs	Veterinary Surgery and Radiology
11	Mahipal Singh Nathawat	Dr. Barkha Gupta	Studies on Biochemical and Hematological Parameters due to Seasonal Variation in Sirohi Goat	Veterinary Biochemistry
12	Mohan Singh	Dr. Barkha Gupta	Effect of Season on Biochemical and Haematological Profile in Murrah Buffalo	Veterinary Biochemistry
13	Mukesh Kumar Gahan	Dr. Samita Saini	Comparative study of the growth hormone gene polymorphism in indigenous and exotic breeds of chicken	Animal Genetics and Breeding
14	Narendra Kumar Nogia	Dr. Vikas Galav	A Study on Occurrence and Pathology of Urinary System of Cattle in Jaipur	Veterinary Pathology
15	Nikhil Pal Bajia	Dr. Sumit Prakash Yadav	Effect of Ethanolic Extract of Giloy (*Tinospora cordifolia*) on Seminal Quality of Magra Ram during Cooled Storage at 4 Degree C	Veterinary Gynaecology and Obstetrics
16	Praveen Meena	Dr. Jitendra Bargujar	Studies on renal failure in dogs with special reference to ultrasonography	Veterinary Medici ne
17	Pushpendra Singh Rathore	Dr. Sandeep Kumar Sharma	Molecular Characterization of *Pseudomonas aeruginosa* from Poultry with Reference to Antibiotic Resistance	Veterinary Microbiology & Biotechnology
18	Rakesh Kumar	Dr. P.C. Sharma	Genetic evaluation of Gir and Sahiwal bull for fertility trait	Animal Genetics and Breeding
19	Shashi Choudhary	Dr. Nazeer Mohammed	Clinical studies on Diabetes mellitus in canine	Veterinary Medicine
20	Sulochana Dariya	Dr. Rohitash Dadhich	Occurrence and pathology of various conditions in lower respiratory tract of goats (*Capra hircus*) in Jaipur	Veterinary Pathology
21	Sunil Kumar Jangid	Dr. Sarjna Meena	Cytological and Histopathological Studies on Cutaneous and Subcutaneous Neoplastic Masses of Dog (*Canis familiaris*) in Jaipur District	Veterinary Pathology
22	Sunil Kumar Meena	Dr. P.C. Sharma	comparative study of certain semen parameters of various genotype (breed) with particular reference to cattle and buffalo in Rajasthan	Animal Genetics and Breeding
23	Upkar Choudhary	Dr. Bhavana Rathore	Studies on dynamics of gastrointestinal nematodes of goat in semi arid Rajasthan	Veterinary Parasitology

Academic Research Highlights

1. Gross, histological and histochemical studies on the rectum of pig (*Sus scrofa domesticus*)

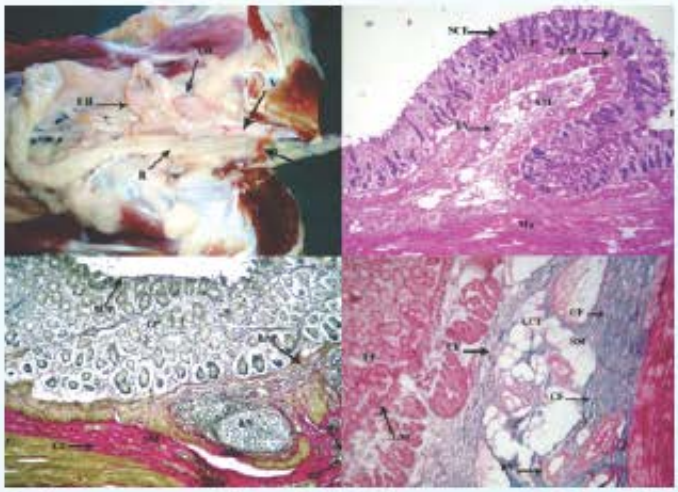
The present investigation was carried out on 10 rectums collected from recently slaughtered adult pigs. The rectum of pig was tubular in shape, caudally opened into the anal canal and extended in a straight line in the pelvic cavity. The average length was 17.85± 0.39 cm, diameter 2.92± 0.10 cm at cranial, 3.23 ± 0.11 cm at middle and 2.92 ± 0.09 cm at caudal part and volume was 129.50 ± 10.31 ml. It had two surfaces: inner and outer surface. The outer surface was whitish in colour whereas, inner surface was light pink in colour and longitudinal mucosal folds were seen on the inner surface of rectum. Histologically, rectal wall was composed of four layers: tunica mucosa, tunica submucosa, tunica muscularis and tunica serosa and adventitia. Tunica mucosa consisted of three layers: the lining epithelium, lamina propria and muscularis mucosae (lamina muscularis). The simple columnar epithelium gradually changed into non-keratinized stratified squamous epithelium at the ano-rectal junction. Lamina propria of tunica mucosa contained collagen, reticular and few elastic fibers and lymphoid tissue were present. Lamina muscularis was thin. Tunica submucosa layer made up of loose connective tissue with numerous small and large blood vessels. In the tunica submucosa, loose connective tissue was consisted of abundantly dispersedadipose tissue, loosely arranged collagen and reticular connective fibers. Tunica muscularis composed of inner circular muscle layer and outer longitudinal muscle layer and the outer longitudinal muscular layer contained more elastic fibres than the inner circular muscular layer. Tunica serosa or tunica adventitia was outermost layer of rectal wall consisted of loose connective tissue with many blood vessels. The peritoneal portion of rectum was covered by tunica serosa and retroperitoneal portion of rectum covered by tunica adventitia. Tunica mucosa, tunica submucosa, tunica muscularis and tunica serosa or tunica adventitia contained collagen fibers and reticular fibers but elastic fibers were seen around the blood vessels in the layer of the rectum of pig. The lining epithelium and tunica submucosa showed negative reaction while the lamina muscularis and tunica muscularis showed positive reaction for glycogen in McManus PAS stain. All layers of rectum showed PAS negative reaction for glycogen and mucopolysaccharide for McManus after treatment with saliva. The lining epithelium showed strong positive reaction for sulphated mucosubstance in PAS-Alcian blue pH2.5 stain while moderate for PAS-Alcian blue pH-1.0 stain and negative for PASAlcian blue pH-0.4 stain. The keratinized stratified squamous epithelium showed positive reaction for prekeratin and keratin but simple columnar epithelium showed negative reaction for prekeratin and keratin in Dane's stain.



2. Gross, histological and histochemical studies on the rectum of goat (*Capra hircus*)

The present investigation was carried out on 10 rectums from recently slaughter adult goat. The rectum of the goat was tubular shape and situated in pelvic cavity. The average length was 12.75±0.42 cm, diameter 2.42± 0.08 cm at cranial, 2.97± 0.07 cm at middle and 2.49± 0.09 cm at caudal part and volume was 105.20 ± 3.32 ml. It had two surfaces: inner and outer surface. The outer surface of rectum was darker than inner surface and inner surface showed longitudinal mucosal folds. Rectum of goat was composed of four layers viz. tunica mucosa, tunica submucosa, tunica muscularis and tunica serosa or adventitia. The Lining epithelium, lamina propria and lamina muscularis (muscularis mucosae) were three main components of tunica mucosa. Lamina propria of mucosa contained collagen and reticular fibers and lamina muscularis was thin. The lining epithelium of rectum was simple columnar epithelium. The tunica submucosa was composed of loose connective tissue and blood vessels were found in tunica sub mucosa in scattered manner. The tunica muscularis was composed of two muscle layers i.e., an inner circular and an outer longitudinal smooth muscle. Tunica serosa (pertoneal portion) was the outermost layer of the rectum at the starting end and it was lined by mesothelium. Collagen fibers and reticular fibers were also found in the tunica serosa or tunica adventitia of the rectum. Elastic fibers were found around the blood vessels of tunica serosa. The retroperitoneal portion of the rectum known as tunica adventitia which was outer most layer at the caudal end of the rectum. The lining epithelium and lamina propria of rectum showed positive reaction for carbohydrates and Tunica serosa showed negative reaction for glycogen. Tunica muscularis showed positive reaction for mucopolysaccharide and negative reaction for glycogen. The lining epithelium, lamina propria, lamina muscularis,

tunica submucosa, tunica muscularis and tunica serosa showed negative reaction for glycogen and muco polysaccharide after treatment of saliva. The lining epithelium showed negative reaction for PAS Alcian blue reaction at pH 0.4 and pH 2.5 but it showed positive reaction for sulphated mucosubatances at pH 1.0. All layers of rectum showed negative reaction for dane's method for prekeratin, keratin and mucin.



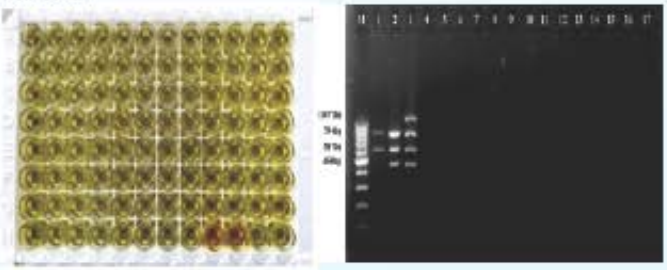
3. Assessment of Raw Milk in terms of Microbial Load and Adulterants in Bikaner

The present study was conducted to assess microbial quality, isolation and identification of *S. aureus* and *E. coli* and to detection of adulterants and antibiotic residues in raw milk samples of Bikaner. A total of 100 milk samples were analyzed from dairy farms, pooled milk sources and local vendors. The mean viable count and psychrophilic count was recorded $8.94x10^6$ cfu/ml and $7.05x10^5$ cfu/ml, respectively. Out of 100 raw milk samples, 42 (42%) samples were positive for *E. coli* and 65 (65%) samples were positive for *S. aureus*. Coagulase production was recorded in 59 (90.77%) *S. aureus* isolates whereas, 6 isolate (9.23%) were Coagulase negative. All 42 isolates of *E. coli* and 65 isolates of *S. aureus* were genotypically confirmed by species specific primers targeting *16S rRNA* and *23S rRNA* gene, respectively. Out of 100 raw milk samples examined none of the sample was positive for the presence of maltodextrine and urea and out of 100 samples analysed 1 (1%), 9 (9%), 4 (4%) and 11 (11%) raw milk samples were positive for glucose, sucrose, hydrogen peroxide and neutralizers, respectively. Out of 100 raw milk analyzed 2 (2%), 5 (5%) and 10 (10%) samples were found positive for beta-lactam, tetracycline and sulfonamide residues.

4. Seroprevalence and molecular detection of brucellosis and its public health significance in camel and humans in and around Bikaner

Blood samples from 177 camels (108 males and 69 females) aged 0.2 to 20 years from Bikaner and villages Gadwala, Gadola and Naurangdesar and 188 humans (109 males and 79 females) aged 1 to 75 years and in contact with camels, from Bikaner, Gadwala, Gadola and Naurangdesar were analyzed for Brucellosis by Rose Bengal Plate Test (RBPT). Fifteen camels [7 (46.66%) males and 8 (53.33%) females] aged 3 to 18 years were positive. Prevalence in camels by RBPT was 8.47%. Sex-wise prevalence was 6.48% in males and 11.59% in females. Age-wise prevalence by RBPT was 6.25% in camels of <5 years age, 8.06% in those between 5 – 8 years, 5.55% in those aged 8 – 12 years and 13.33% in camels of more than 12 years age. Prevalence was 12.90% in Bikaner, 8.33% in Gadwala, 3.33% in Gadola and 6.12% in Naurangdesar, respectively. Out of 166 camel sera analyzed by ELISA, four were positive. The prevalence through ELISA was 2.25%. Sex – wiseprevalence by ELISA was 0.92% in males and 4.34% in females, respectively. Age-wise prevalence by ELISA was 1.20% in camels between 5 – 8 years of age and 0.60% each in camels aged between 8 – 12 years, and those above 12 years of age, respectively. Location-wise prevalence was 1.61% in Bikaner and 6.12% in Naurangdesar, respectively. Out of 15 RBPT positive sera, 4 (26.66%) were also positive by ELISA. Combined prevalence (both RBPT and ELISA) in camels was 1.61% in Bikaner and 6.12% in Naurangdesar, respectively. Sex-wise combined prevalence was 0.92% in males and 4.34% in females. Age-wise prevalence by both, 1.20% in 5 – 8 years and 0.60%% each in 8 – 12 years, and above 12 years of age, respectively. Out of 188 human sera, 17 (4 females and 13 males) were positive by RBPT (two were veterinarians). Prevalence in humans by RBPT was 9.04% (11.92% in males and 5.06% in females). Location – wise prevalence in humans by RBPT was 11.90%, 3.44% and 16.66% in Bikaner, Gadwala and Gadola, respectively. Age-wise prevalence in humans by RBPT was 8.0% in humans of age less than 20 years and 11.40% in those between 20 - 40 years, respectively. Out of the 188 human sera analyzed by ELISA, 11 (2 females and 9 males) were positive (three were veterinarians). Prevalence by ELISA was 2.25% (males 0.92% and females 4.34%). Location – wise prevalence by ELISA was 3.57% in Bikaner, 10.34% in Gadwala and 13.88% in Gadola, respectively. Age– wise prevalence by ELISA was 4.0% in humans less than 20 years of age and 7.89% in those between 20 – 40 years of age. Six human sera were positive by both ELISA and RBPT, 11 samples positive

for RBPT were negative by ELISA and 5 samples negative by RBPT were positive by ELISA. Seroprevalence was 3.19 % by ELISA and RBPT combined. Location-wise combined prevalence was 2.38% in Bikaner, 3.44% in Gadwala and 8.33% in Gadola respectively. Sex-wise combined prevalence was 4.58% in males and 1.26% in females, respectively. Age-wise prevalence was 4.0% in humans less than 20 years of age and 3.50% in those aged 20-40 years, respectively. None of the 25 camel and 26 human samples (RBPT positive or negative) was *Brucella* positive by PCR. The serological results indicate that Brucellosis is prevalent in camels and in contact humans and is of public health significance in Bikaner and nearby villages in Rajasthan state of India.



5. Development and quality evaluation of ginger and garlic incorporated indigenous cattle milk paneer spread

The present study was aimed to develop and evaluate the quality of ginger and garlic incorporated indigenous cow milk paneer spread in which the physicochemical properties and storage study of the developed ginger and garlic incorporated indigenous cow milk paneer spread was determined. Formulation of paneer spread was done by using coagulum with various percentages (1%, 2%, 3%) of ginger and garlic in single or in combination. On the basis of sensory scores, the paneer spread prepared with 2% level of ginger and garlic incorporation in single or in combination, scored maximum for all the sensory attributes such as appearance and color, flavor, body and texture and overall acceptability compared to control and other levels of spices (1% and 3%) and these were selected for pursuing the storage studies at refrigerated storage (4 ± 1°C) and quality characteristics were evaluated at every 3 days interval upto a period of 12 days. In all the paneer spread samples, the values of pH, ABTS % radical scavenging activity and DPPH % activity showed a highly significant (P<0.01) decrease with an increase in the storage period from day 0 to day 12, while the values of 2-thiobarbituric acid reactive substance and titratable acidity were also found to be increased significantly (P<0.01) with an increase in storage period. The ABTS % activity and DPPH % activity of all the treatment groups were higher than control. The proximate analysis for moisture, crude protein, ether extract and total ash showed a significant (P<0.05) difference among all the paneer spread samples under study. The microbial load of standard plate count, increased significantly high (P<0.01) in the control and all treatment paneer spread during the refrigerated storage period whereas the initial yeast and mould count was nil up to 6th day of storage than increased significantly high (P<0.01). No coliform counts were observed during storage. The cost of production was found to be Rs. 342.12, 337.26, 338.06, 337.66/kg for control paneer spread, ginger based paneer spread, garlic based paneer spread and ginger + garlic based paneer spread, respectively. Based on the above findings, it is concluded that 2% level of spices incorporated cow milk paneer spread with very good acceptability was acceptable up to 9 days of refrigerated (4±1°C) storage without significant deterioration of quality characteristics. Hence consumption of spices as an adjunct or confectionary in milk based products will positively benefit the consumers.

6. Quality evaluation of Fruits enriched Paneer Spread developed from Indigenous Cow milk

The present study was carried out to quality evaluation of fruits enriched Paneer Spread developed from Indigenous Cow milkwith objectives to estimate the physico-chemical properties of indigenous cow milk to formulate indigenous cow milk paneer spread, to determine the physico-chemical properties and storage study of cow milk paneer spread. The overall compositions of cow milk showed that the milk had higher concentrations of protein, fat, SNF and lactose. Formulation of paneer spread was done by using different percentage (5 per cent, 10 per cent, 15 per cent) of fruits papaya and kiwi in single or in combination. On the basis of sensory scores and physico-chemical properties, 10 per cent level of papaya and kiwi incorporation in single or in combination, scored maximum for almost all sensory quality parameters such as appearance and color,Body and texture, flavour, and overall acceptability compared to control and other levels of fruits (5 per cent and 15 per cent) and these were selected for pursuing the storage studies at refrigerated storage (4 ± 1°C). The selected cow milk paneer spread were subjected to refrigerated (4 ± 1°C) storage temperature and quality characteristics were evaluated at every 3 days interval upto a period of 12 days. The mean ± SE values of pH showed highly significant (P<0.01) decrease with increase in refrigerated storage. The mean ± SE values of 2-thiobarbituric acid reactive substance and Titratable acidity were also found to be increased highly significant (P<0.01)

with increase in storage period. The statistical analysis of data revealed that there was a highly significant (P<0.01) decrease on storage in the ABTS % radical scavenging activity of all the samples of paneer spread. The ABTS % activity of all treatment groups was higher than control and The DPPH activity of all samples was highly significant (P<0.01) decreased with increase storage period of paneer spread. The proximate analysis of different treatments revealed that percent ether extract, crude protein and total ash were found significant (P<0.05) for control sample, whereas per cent moisture was observed to be significant (P<0.05) for 10 per cent papaya incorporated cow milk paneer spread (T_1) among all the treatments. The microbial load of standard plate count, and yeast and mould count increased significantly higher (P<0.01) in the control and all treatment paneer spread during the refrigerated (4 ± 1°C) storage period and no coliform count were observed during storage.

The cost of production of without fruit incorporated paneer spread (T_0) was worked out as 358.72/ kg whereas papaya incorporated cow milk paneer spread (T_1) was worked out 329.42/kg, kiwi incorporated cow milk paneer spread (T_2) was worked out as 336.42/kg and papaya + kiwi incorporated cow milk paneer spread (T_3) was worked out as 332.92/kg. Based on the above findings, it may be concluded that 10 per cent level of papaya, kiwi and papaya +kiwi enriched indigenous cow milk paneer spread 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 cow milk paneer spread and other milk based products will positively benefit the consumers.

7. Development and studies of beetroot and muskmelon based whey beverages prepared from camel and goat milk

The present study was carried out with objectives to estimate the physicochemical properties of camel and goat milk to formulate camel and goat milk based muskmelon and beetroot whey beverages, to determine the physicochemical properties and storage study of camel and goat milk whey beverages. The overall compositions of camel and goat milk showed that the goat milk had higher concentrations of protein, fat, SNF and lactose than camel milk. Formulation of whey beverages was done by using different ratio (90:10, 80:20, 70:30 and 60:40) of camel and goat milk composition to select best composition. Best result obtained on the basis of sensory analysis of whey beverages by combination of 70% camel milk and 30% goat milk. on the basis of sensory evaluation such as appearance, colour, flavour, taste and overall acceptability the preparation of 82% whey and 15% muskmelon juice (T_1) & 82% whey and 15% beetroot juice (T_2) were further selected as naturally flavoured whey beverages for storage study whereas plain whey was considered as control (T_0) and these were selected for pursuing the storage studies at refrigerated storage (4 ± 1°C). The statistical analysis of data related to physico-chemical and microbiological changes of naturally flavoured whey beverages revealed that the pH continuously decreased of all the three treatments from day 1st to 12th day of storage. The pH of all the three treatments i.e., T_0, T_1 and T_2 was decreased from day 1st to 12th day whereas titratable acidity of all the whey beverages were significantly (p< 0.01) higher on the 3rd, 6th, 9th and 12th day of refrigerated storage.

The DPPH activity was significantly (p< 0.01) lower on the 3rd, 6th, 9th and 12th day of refrigerated storage. There was a highly significant (P<0.01) decrease in the ABTS activity of all three whey based beverages. TBA values of whey beverages were found significantly (p< 0.01) higher on the 3rd, 6th, 9th and 12th day of refrigerated storage. The statistical analysis of data revealed that there was a highly significant (P<0.01) increase of standard plate count. coliform count was found on 9th and 12th day and yeast mould count find on 12th day of all three samples T_0, T_1 and T_2.The proximate analysis for dry matter, crude protein, ether extract, crude fibre and total ash showed a significant difference among all the three beverages under study. The cost of production was found to be Rs 46.85, 84, 75.9/Liter for control whey beverage, muskmelon based whey beverage and beetroot based whey beverage respectively. The findings of present study in respect of all parameters included in the study indicated that the whey can be successfully utilized for the development of naturally flavoured whey beverages with optimum sensory characteristics and excellent health-promoting nutritional qualities and antioxidant property within affordable range of price.

8. Development and Quality Evaluation of Aloevera and Coconut water based Whey Beverages prepared from Camel and Goat milk

The purpose of the present research was to estimate the physicochemical properties of camel and goat milk in order to formulate whey drinks, to determine the physicochemical properties and study the storage of prepared whey drinks. The general composition of camel and goat milk revealed that goat milk had higher concentrations of protein, fat, SNF, and lactose concentrations than camel milk. Formulation of whey beverages was done by using different ratio (30:70, 70:30 and 50:50) of camel and goat milk. Best result obtained on the basis of whey quality and nutritional, properties of

camel milk found the combination of 70% camel milk and 30% goat milk. The formation of whey beverages blended in various combinations of whey, aloevera juice and coconut water was done under study. On the basis of sensory evaluation such as appearance/color, flavour, taste and overall acceptability the preparation of 79% whey and 15% aloevera juice (T_1) & 79% whey and 15% coconut water (T_2) were further selected as whey beverages for storage study whereas plain whey was considered as control (T_0).

The selected whey beverages were subjected to refrigerated (4±1°C) storage temperature and quality characteristics were evaluated at every 3 days' interval upto a period of 12 days. The mean ± SE values of pH showed highly significant ($P<0.01$) decrease with increase in refrigerated storage. Titratable acidity were also found to be increased significantly ($P<0.01$) with increase in storage period.

TBA values of whey beverages were found significantly ($p < 0.01$) higher on the 3rd, 6th, 9th and 12th day of refrigerated storage. The statistical analysis of data revealed that there was a highly significant ($P<0.01$) decrease on storage in the ABTS % radical scavenging activity of all samples or the antioxidant value of whey beverages. The DPPH activity was significantly ($p < 0.01$) lower on the 3rd, 6th, 9th and 12th day of refrigerated storage. ABTS and DPPH activity of T_1 is higher than T_2 and T_0 at 0 day.

The proximate analysis for moisture, dry matter, crude protein, ether extract, crude fibre and total ash showed a significant difference among all the three beverages under study.

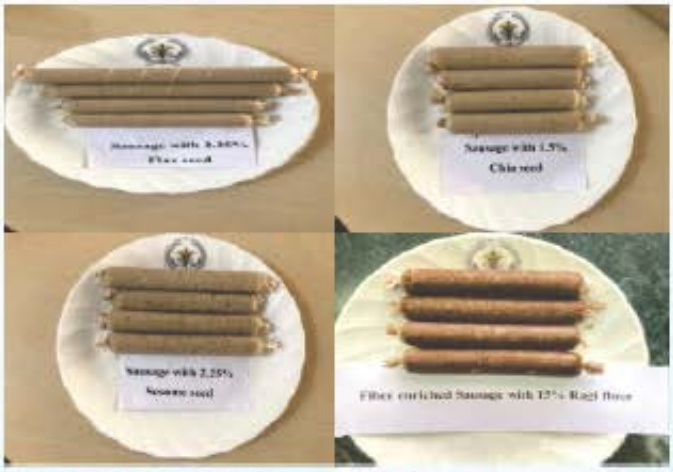
The statistical analysis of data revealed that there was a highly significant ($P<0.01$) increase of standard plate count. Whereas coliform count is found at 9th and 12th day and yeast mould count only found at 12th day of storage. The cost of production was found to be Rs 25, 36.2, 54.2/Liter for control whey beverage, aloevera based whey beverage and coconut water-based whey beverage respectively.

Based on the above findings, it is concluded that whey beverages have very good acceptability. Incorporation of aloevera juice and coconut water showed a significant increase in nutritional and antioxidant properties because these are natural source of antioxidant and acts as anti-inflammatory, anticancer, antiaging agent. Hence the whey can be successfully utilized for the development of these whey beverages.

9. Effect of natural antioxidants on quality characteristic and shelf life of functional chicken sausage

The present study was carried out to evaluate the effect of natural antioxidants on quality characteristics and shelf life of functional chicken sausages. First experiment was conducted to explore the efficacy of different fat replacers i.e. chia seeds, flaxseeds and sesame seeds on quality characteristics of chicken sausages replacing 50% fat at 0.75, 1.50 and 2.25% level. The formulation of emulsion was maintained by addition of water accordingly. Emulsion stability, product fat and emulsion fat content decreased with increased level of fat replacers in chicken sausages. Cooking yield, moisture content, fat retention and moisture retention values of treatments were higher than control, whereas, a decrease was observed among the treatments with increased level of fat replacer seeds. Fat replacers showed significant effect on various textural and colour parameters in chicken sausages. Chicken sausage incorporated with 1.5% chia seeds, 0.75% flaxseeds and 1.5% sesame seeds were found optimum and these variants were further compared with control to select the best variant. Low fat chicken sausage added with 1.5% chia seeds were adjudged best and used as control in further studies. Second experiment was conducted to optimize the level of dietary fibre sources viz. finger millet (ragi), pearl millet (bajra) and Indian millet (sorghum) separately at 5.0, 10.0 and 15.0% level in formulation of chicken sausages. For all three fiber sources, emulsion pH, emulsion stability, product pH, cooking yield, moisture, ash content, fat retention and moisture retention values increased whereas protein, emulsion fat and product fat content decreased with increased level of flour. There was no significant difference in water activity values between control and treatments. Addition of ragi, bajra and sorghum had significant effect on textural and colour parameters. Chicken sausage incorporated with 5.0% finger millet flour, 10.0% pearl millet flour and 10.0% Indian millet flour were found optimum on the basis of sensory evaluation, however, chicken sausage incorporated with 10.0% Indian millet was finally selected as the best treatment on overall comparison and used as control in next experiment. Third experiment was

conducted to evaluate antimicrobial and antioxidants effect of rosemary, moringa and mint on physico- chemical and sensory properties. Leaves extracts of rosemary, moringa and mint were evaluated for their antimicrobial activity at different concentrations using agar well diffusion method against four pathogenic organisms in which rosemary leaves extract revealed higher antimicrobial activity against microorganisms. Antioxidant activity of rosemary leaves extract was also higher than other treatments in terms of total phenolic content and DPPH scavenging activity. Powder of these leaves was incorporated separately at 0.5, 0.75 and 1.0% level in functional chicken sausage. Only few physico-chemical properties including moisture, ash content and moisture retention values increased with increasing level of leaves powder in treatments. Again some textural and colour parameters showed significant effect in functional chicken sausage on incorporation of different leaves powder. Functional chicken sausage incorporated with leaves powder of 0.75% rosemary, 0.75% moringa and 0.50% mint were found optimum on the basis of sensory evaluation. In fourth experiment, these three selected functional chicken sausages along with control (without any functional ingredient) were stored at 4±10C and evaluated for physico-chemical, microbiological and sensory properties at every 4 days interval till incipient spoilage. Overall highest treatment mean for pH was observed in PT1 followed by MT2, C and OT2, however overall highest treatment mean for TBARS, FFA values and total plate count were observed in C followed by PT1, MT2 and OT2. Psychrophilic count as well as yeast and mould count showed overall highest treatment mean in PT1 followed by C, MT2 and OT2. There were no Coliforms and Salmonella count throughout the storage period in control and treatments. The values of pH, TBARS, FFA and microbial count of functional chicken sausages were significantly lower than control during storage. The values of physico-chemical properties and microbiological count of control as well as treatments increased whereas sensory scores decreased with progression of storage period. The control was not evaluated after 12th day due to microbiological spoilage and rejection by sensory panelists, whereas treatments could be evaluated upto 24th day. Thereafter, the products were spoiled with presence of slime on the surface and foul smell of product. Among the treatments, functional chicken sausages treated with 0.75% rosemary leaves powder had higher overall acceptability scores till the end of storage. It was concluded from study in text that well acceptable low fat chicken sausages were prepared by incorporation of 1.5% chia seeds powder to replace 50% added vegetable fat, 10% Indian millet (sorghum) flour as fiber source and 0.75% rosemary leaves powder as natural antioxidant and antimicrobial. These functional chicken sausages were well acceptable upto 24th day of storage under refrigeration on the basis of microbiological and sensory evaluation.



10. Study on different statistical models of lactation curve in Kankrej cattle

5982 first lactation weekly test day milk yield (WTDMY) records of 183 Kankrej cattle and 26,876 overall WTDMY records of 240 Kankrej cattle maintained at Livestock Research Station, Kodamdesar, Bikaner, calving between the years 2012 to 2019, were analyzed in the present investigation. Five statistical models viz. Inverse polynomial model, Wood's incomplete gamma function, quadratic function, Wilmink's exponential function and mixed log function were evaluated to determine the model best fitting to WTDMY data on the basis of coefficient of determination (R2) and root mean squareerror (RMSE) values. Wood's incomplete gamma function was found to be the best fit for prediction of both first parity and overall WTDMYs, owing to higher R2 values of 97.26% and 99.49%, respectively and lowest RMSE values of 0.0422 kg and 0.0235 kg, respectively.

The production performance of Kankrej cattle was assessed in terms of production and reproduction traits, and simultaneously the effect of non-genetic or environmental factors was also determined on the traits understudy. The least-squares means estimated for lactation length (LL), dry period (DP),lactation milk yield (LMY), 305 days milk yield (305DMY) and milk yield per day of lactation length (MYPD) were 219.73±2.51 days, 175.30±4.47 days, 1333.07±22.002 kg, 1331.65±21.80 kg and 6.04±0.06 kg/ day respectively. For reproduction traits, the least-squares means were 128.71±4.26 days for service period (SP) and 402.62±4.21days for calving interval (CI). Effect of parity was found to be non-significant on all the production traits except DP and MYPD whereas it significantly affected the reproduction traits. Period of calving significantly affected all the production traits except MYPD, but did not affect SP and CI. Also, season of calving had a highly significant effect (P≤0.01) on all the production traits except DP, and did not affect any of the reproduction traits. The production performance was observed to be better during the summer season and first period of the study.

11. Genetic evaluation of wool yield and wool quality attributes of Chokla sheep using Animal models

The objectives of the present study were to estimate the mean performance of wool yield and wool quality traits along with the effect of genetic and non-genetic factors affecting them, estimation of genetic parameters by animal models in Chokla sheep. Data for the present investigation were collected from the farm of Chokla sheep, maintained at the arid region campus, Central Sheep and Wool Research Institute (ICAR-CSWRI), Bikaner, Rajasthan.

The overall least-squares means were observed as 935.88 ± 6.00, 851.05 ± 6.10 and 707.61 ± 6.60 grams for greasy fleece yield at first, second and third clip, respectively. The overall least-squares means were observed as 1009.84±5.63, 1018.42 ± 5.07, 819.70 ± 5.28 and 2120.34 ± 8.29 grams for spring, autumn, winter and annual fleece yield, respectively. The overall least-squares mean for staple length, fiber diameter, pure, hetero, hairy and medullated fibers were estimated as 5.74 ± 0.05 cm, 31.01 ± 0.15 μ, 78.42 ±0.59 %, 11.40 ± 0.29 %, 9.57 ± 0.45 % and 28.38 ± 0.80 %, respectively. The effect of sire was observed to be highly significant (P≤ 0.01) on all the wool yield traits of lambs and sheep; and wool quality traits of sheep under study. The effect of period of birth was found highly significant (P≤ 0.01) for all the wool yield of lambs and wool quality traits of sheep. The effect of period of shearing was found highly significant (P≤ 0.01) for all the wool yield traits of sheep. The effect of sex was found highly significant (P≤ 0.01) on all the wool yield traits of lambs and sheep; and wool quality traits of sheep except for hetero fibers. The effect of season of birth was found highly significant (P≤0.01) for all the wool yield traits of lambs and sheep; and wool quality traits except for staple length, fiber diameter, pure and hetero fibers percentage. The age at shearing had highly significant (P≤ 0.01) effect on greasy fleece yield at first clip, second clip, spring and autumn fleece yield.

Model 3 was chosen as the best model for all the wool yield traits; and Model 1 was found as the best model for all the wool quality traits understudy, except staple length, as per lowest AIC (Akaike information criterion) value. Heritability estimates for greasy fleece yield at first, second and thirdclip were estimated as 0.45 ± 0.05, 0.52 ± 0.05 and 0.67 ± 0.14, respectively. Heritability estimate for spring, autumn, winter and annual fleece yield as 0.16± 0.05, 0.41 ± 0.05, 0.123 ± 0.081 and 0.19 ± 0.05, respectively. The estimates of heritability for staple length, fibre diameter, pure, hetero, hairy and medullated fibers were estimated as 0.30 ± 0.09, 0.03 ± 0.03, 0.08 ± 0.05, 0.06± 0.04, 0.07 ± 0.04 and 0.04 ± 0.04, respectively. Fitting six different animal models with various combinations of direct and maternal effects showed that there was evidence of the maternal effects for all the wool yield traits of lambs and sheep; and no or very low evidence of the maternal genetic and maternal permanent effect for all the wool quality traits of sheep under study except staple length.

Genetic correlations among different wool yield traits of lambs and sheep ranged from -0.22 to 0.73 and that of wool quality traits of sheep ranged from -0.82 to 0.86; and phenotypic correlations ranged from -0.12 to 0.36 and-0.86 to 0.63, respectively for wool yield traits of lambs and sheep; and wool quality traits of sheep, respectively. The positive and high genetic correlations between greasy fleece yield at first clip and second clip indicate that lambs with heavier fleece at first clip might have heavier fleece at second clips also. Desirable genetic correlation was found between staple length and fiber diameter which indicates that if selection is practiced to improve staple length, it might improve fiber diameter also.

12. Evaluation of wool yield and wool quality traits in Marwari sheep

The objectives of the present study were to estimate the mean performance of wool traits along with the effect of genetic and non-genetic factors affecting them, estimation of genetic and phenotypic parameters by animal models in Marwari sheep. The overall least squares means were observed to be 567.02±5.405 and 570.17±3.790 g for greasy fleece yield at first and second clip, respectively. The overall least squares means were observed to be 659.5±2.288 g, 614.09±1.812 g and 1289.32±3.698 g for spring fleece yield, autumn fleece yield and annual fleece yield, respectively. The overall least squares means were observed to be 5.11±0.022 cm, 0.64±0.010 per cm and 36.01±0.107 μ for staple length, crimp frequency and fiber diameter, respectively. The overall least squares means were observed to be 47.15± 0.303, 34.14±0.233, 16.23±0.172 and 52.85±0.303% for pure, hetro, hairy and medullated fibers, respectively. The estimated values of wool quality traits clearly indicate the suitability of Marwari wool for carpet wool production. The effect of sire was observed to be highly significant (P≤0.01) on all the wool traits under study. The effect of period of shearing was found highly significant (P≤0.01) for the wool yield traits of adult sheep. The effect of period of birth was found highly significant (P≤0.01) for all the wool quality traits and wool yield traits in lambs. The effect of sex of lamb was found highly significant (P≤0.01) on greasy fleece yield at second clip, fiber diameter, crimp frequency, percentage of hetro and hairy fibers, spring fleece yield, autumn fleece yield and annual fleece yield. No significant variation among males and females was observed with respect to on greasy fleece yield at first clip, staple length, and percentage of pure and medullated fibers in Marwari sheep population under study. The effect of season of shearing was found highly significant (P≤0.01) for all the wool traits and significant (P≤0.05) for staple length. Direct her it ability estimates from the best model for greasy fleece weight at first and second clip were estimated as 0.21±0.023 and 0.20±0.028,

respectively. Direct her it ability estimates for staple length, crimp frequency, fiber diameter, percentage of pure fibers, hetro fibers, hairy fibers, medullated fibers, spring fleece yield, autumn fleece yield and annual fleece yield were estimated as 0.18±0.034, 0.04± 0.021, 0.33±0.039, 0.19±0.033, 0.15±0.029, 0.14±0.031, 0.19±0.033, 0.26±0.024, 0.24±0.022 and 0.16±0.025, respectively. There was either no or very low evidence of the maternal genetic and maternal permanent environmental effect for all the wool traits under study. Using animal model, genetic correlations among different wool production traits ranged from -0.27 to 0.68 and that of wool quality traits ranged from -0.1 to 0.86. Phenotypic correlations ranged from 0.03 to 0.74 and -0.1 to 0.79, respectively for wool production and wool quality traits, respectively. GFY I was found moderately positively genetically correlated with GFY II. Spring fleece yield was moderately negatively genetically correlated with autumn fleece yield and highly positively genetically correlated with annual fleece yield. Highly positive genetic correlation was observed between fiber diameter and medullated fibers. Pure fibers were highly negatively genetically correlated with medullatedfibers. GFY I was found moderately positively phenotypically correlated with GFY II. Spring fleece yield was found moderately positively phenotypically correlated with autumn fleece yield and highly positive phenotypic correlated with annual fleece yield. High positive phenotypic correlation was found between fiber diameter and medullated fibers. Pure fiberswas observed highly negatively phenotypically correlated with medullatedfibers.

13. Comparative study of multiple linear regression and artificial neural network for prediction of first lactation 305 days milk yield in Tharparkar cattle

The present study was undertaken on first lactation production (FL305DMY, FLL and FDP), reproduction (AFC) and weekly test day milk yields of 83 Tharparkar cows sired by eight bulls spread over a period of eight years (2012-2020) maintained at Livestock Research Station, Beechwal, Bikaner. Data were analyzed to investigate least-squares means, various genetic and non-genetic factors affecting to various first lactation production, reproduction traits and weekly test day milk yield records. The weekly test day milk yield records (3266) were obtained from daily milk recording registers during the same period to develop best multiple linear regression and artificial neural network model for prediction of first lactation 305-days milk yield. Further, the comparison was made between MLR and ANN model based on coefficient of determination (R^2) and root mean square error (RMSE) in Tharparkar cattle.

The overall least-squares means of FL305DMY, FLL, FDP and AFC were 2003.52 ± 71.83 kg, 296.76 ± 7.25 days, 119.51 ± 7.44 days and 1417.88 ± 20.59 days, respectively. The season had no significant effect for all the production traits and AFC. The effect of period was highly significant ($P\leq0.01$) on AFC while non-significant on FL305DMY, FLL and FDP. The effect of sire was highly significant ($P\leq0.01$) on AFC while non-significant on FL305DMY, FLL and FDP. The regression of age at first calving was found non-significant on all the first lactation traits. The overall least-squares means for 43 individual weekly test day milk yield record varied from 3.58 ± 0.12 kg (WTD1) to 7.47 ± 0.29 kg (WTD9). The season of calving had highly significant ($P\leq0.01$) effect on WTD6. However, significant ($P\leq0.05$) effect was found on WTD5, WTD18, WTD19, WTD25, and WTD41. The period of calving had highly significant ($P\leq0.01$) effect on WTD34. However, significant ($P\leq0.05$) effect was found on WTD19, WTD31, WTD32, WTD36, and WTD43. Non-significant effect was observed on all remaining weekly test days. The sire had highly significant ($P\leq0.01$) effect on WTD32, WTD33 and WTD34. However, significant ($P\leq0.05$) effect was found on WTD1, WTD2, WTD30, WTD31, and WTD35. The regression of age at first calving was found highly significant ($P\leq0.01$) on WTD24 and WTD35. However, significant ($P\leq0.05$) effect was found on WTD6, WTD20, WTDY25-WTD29, WTD31-WTD34, and WTD41.

The weekly test day milk yields were used to predict FL305DMY in Tharparkar cattle using multiple linear regressions and artificial neural network model. The optimum equation was developed considering R^2 and RMSE value. The optimum equation had total three test days viz. TD3, TD14 and TD24. This equation gave an accuracy of prediction (R^2- value) 70.10% and 243.79 RMSE value. Therefore, it is concluded that first lactation 305-days milk yield could be predicted as early as 24th week of lactation with 70.10% accuracy. The FL305DMY was also predicted using above mentioned three weekly test day milk yield records by artificial neural network (ANN). The back propagation algorithm i.e., scaled conjugate gradient(SCG) was used. The neural network models wereable to predict FL305DMY with 76.70% accuracy and RMSE value 217.66 at an early stage i.e., by 24th week oflactation with a smaller number of test days using data set as training-test data (90-10%). Further, the comparison wasmade between MLR and ANN on the basis of R^2 and RMSE value and it was found that ANN wasbetter that MLR for prediction of FL305DMY in Tharparkar cattle.

14. Genetic characterization of MHC class II DQA gene in Indian camel (Camelus dromedarius)

The present study was undertaken on 34 camels of each Bikaneri and Kachchhi breed were selected to identify the nucleotide variation in MHC class II DQA gene and randomly three to four animals were selected as representative animals for characterization of five desired regions of DQA gene. Reference sequence of Camel usdromedarius (Acc. No GCA_000803125.1) was used for primer design to amplify the desired gene region. Five

genomic regions were characterized viz., promoter 1, exon-1and partial intron 1 (464 bp), partial intron exon-2 and partial intron 2 (418 bp), partial intron 2, exon 3-4 and partial 3'UTR (807 bp) and partial 3'UTR region (701bp) of DQA gene in Bikaneri and Kachchhi camel. The sequencing of the amplifiedregions was carried out for characterization of all exons and detection of nucleotide variation in exon-2 region of MHC class II DQA gene. PCR-SBT method was used for amplification and sequencing of desired fragments in the proposed study. Generated sequences were BLAST with different species to study nucleotide change and percentage identity. Study of exon-2 region revealed 11 polymorphic sites in this region. This nucleotide variation in exon-2 region was resulted in 7 haplotypes in Kachchhi camel and 5 in Bikaneri camel. MHC class II DQA gene exon-1, exon-2, exon-3, exon-4 regions were successfully amplified and characterized for the first time in Indian dromedary camel. Bikaneri and Kachchhi camel showed similar sequence pattern for the different amplified MHC DQA gene regions. Analysis of generated sequence of all five studied regions of MHC class II DQA gene of Bikaneri and Kachchhi camel showed highest similarity with that sequence of Camelus ferus

15. Estimation of genetic parameters and maternal effects of growth traits in Chokla sheep by Animal model and Bayesian approach

The present study on the growth performance of Chokla sheep was based on growth data pertaining to Chokla animals born at the Central Sheep and wool Research institute, Arid Region Campus Beechwal, Bikaner. Growth data of 6785 animals belonging 459 sires over a period of 47 years recorded from 1974 to 2020 were collected from records maintained at this institute from available pedigree information. The objectives of the present study were to study the performance and effect of genetic and non-genetic factors on growth traits in Chokla sheep; to estimate genetic parameters and maternal effect of growth traits in Chokla sheep by different Animal model and Bayesian approach and comparison of reliability of different Animal model and Bayesian method.

The overall least-squares means were estimated to be 2.89±0.008, 13.64±.051, 19.32±.083, 21.30±.092 and 24.36±.099 kg for body weight at birth, 3, 6, 9 and 12 months of age, respectively. Average daily gains from birth to weaning (ADG1), weaning to 6 months (ADG2) and 6 months to 12 months (ADG3) were estimated, 126.52 ± 0.65 g/day, 72.90 ± 0.72 g/day and 32.70 ± 0.72 g/day, respectively. Corresponding Kleiber ratio KR1, KR2 and KR3 were 16.8 ± 0.04, 7.1 ± 0.06 and 2.7 ± 0.06, respectively. The highly significant effect (P≤ 0.01) of period of lambing, season of lambing and sex of lamb was observed on all studied growth traits except effect of season of lambing on 9 months body weight. The effect of dam's weight at lambing as a covariate had highly significant (P≤0.01) effect on all the growth traits except on ADG2 and ADG3. The sire had highly significant (P≤ 0.01) effect on all the traits under study. (Co) variance components and genetic parameters for various growth traits were estimated by AIREML, fitting six animal models.Direct heritability estimates (from the best model as per AIC) for various growth traits ranged from 0.2 to 0.5 except for birth weight (0.17).Highly inflated values of additive heritability were obtained due to negative and high estimate of correlation between additive and maternal effect. The maternal influence diminished as age increases and maternal genetic effect (m^2) was found to be important and sizeable at weaning stage. Maternal permanent environmental effect (c^2) was found effective for the early body weight traits of BW (0.121) and WW (0.028). Total heritability was estimated for body weight at birth, weaning, 6, 9 and 12 months of age; average daily gain during birth to 0-3,3-6 and 6-12 months of age intervals and kleiber ratio during 0-3,3-6 and 6-12 months of age intervals as 0.071, 0.118, 0.193, 0.213, 0.188, 0.134, 0.171, 0.107, 0.184, 0.158 and 0.114, respectively.

Genetic and phenotypic correlations among body weights at different ages were positive and ranged from medium to high except genetic correlations between BW-6W, BW-9W and BW-YW. Highly significant Permanent environmental correlation was observed between BW and WW. Pre weaning growth efficiency traits (ADG1 and KR1) were highly significantly genetically and phenotypic correlated with weaning weight and six months body weight. High, positive and statistically significant genetic correlation was found between growth efficiency traits. The phenotypic correlations of ADGs with different KR were negative and low to medium in magnitude except the correlation for ADG1-KR1, ADG2-KR2 and ADG3-KR3.As per DIC best model was found as model 3 for BW, 6W, ADG2, KR2 and KR3; model 5 for WW; model 6 for 9W, YW, ADG1, ADG3 and KR1 by Bayesian method. The posterior mean of h^2 values by BLUPF90 for all the body weight traits except BW (0.151) and WW (0.134) were moderate (0.381-0.408). The maternal genetic effect (m^2) by BLUPF90 was found to be highest at birth weight (0.286). Maternal permanent environmental variance was found to be effective for weaning weight and pre weaning average daily gain (ADG1) in this method. Genetic correlations among body weights at different ages were positive and ranged from medium to high except correlations between BW-WW and BW-9W by BLUPF90 software. High, positive and highly significant (P≤ 0.01) genetic correlation was found between ADG1-KR1, ADG2-KR2, ADG3-KR3 and KR1-KR2. Maternal genetic correlations among mostly ADGs and KRs were found positive, high and highly significant (P≤0.01).

Bayesian approach was found best compared to WOMBAT for all traits to study (co)variance components and genetic parameters on the basis of values of coefficient of determination and coefficient of variation. For study of BW,

WW and 6W traits WOMBAT software was found more reliable than Bayesian approach on based on coefficient of variation values. Relative efficiency of models used by WOMBAT was higher than Bayesian methods for early expressed traits and afterwards Bayesian method show more.

16. Black cumin seed powder (*Nigella sativa l.*) as feed additives on the performance of broiler chicks

The aim of this study was to explore the utilization of rosemary leaf powder and black cumin seed powder either alone or their various combinations as feed additive in broiler ration to the growth performance and efficiency of nutrient utilization. A feeding trial of six weeks followed by a metabolic trial was conducted, using 360 one day old broiler chicks (Cobb-400) randomly distributed in completely randomized design. The broiler chicks were equally and randomly divided into ten dietary treatments groups (T_1-T_{10}) and each dietary group was replicated to three sub-groups (R_1-R_3) for uniform distribution. The feeding of broilers chicks in both starter and finisher phase was done as per BIS standards. The proximate composition of different experimental mixture was almost similar for all the treatment groups. The T_1 i.e. control group was fed on basal diet, while T_2, T_3 and T_4 treatment groups were supplemented with 0.5%, 1.0% and 1.5%, of rosemary leaf powder in the basal broiler starter and finisher ration, respectively. The T_5, T_6 and T_7 groups were supplemented with 0.5%, 1.0% and 1.5% of black cumin seed powder in the basal broiler starter and finisher ration. The T_8, T_9 and T_{10} treatment groups were supplemented with 0.25%, 0.50% and 0.75% in combination with rosemary and black cumin in the basal broiler starter and finisher ration, respectively. No environment stress was observed during feeding trial and THI were recorded on normal side than the threshold level in whole experimental period. The broiler chicks of both phase were within normothermia zone. In vitro antibacterial activity of the various crude extracts of rosemary leaf powder and black cumin seed powder were qualitatively assessed based on the zone of inhibition and had a marked antibacterial activity. In addition to this, the methanol extract of rosemary and black cumin stem was subjected to GCMS full scan analysis for the presence of various phytochemicals. The results indicated the presence of various phytocompounds such as α-pinene, 11-octadecenoic acid, hexadecanoic acid, camphor, estragole, linalool, in extracts of rosemary leaf powder and thymoquinon, 7-trimethylsilyloxy-7-methyloctanoic acid, trimethylsilyl ester, 2-furanmethanol, bis (2 (dimethylamino) ethyl) ether in extract of black cumin seed powder, which have antioxidant, antimicrobial, antiviral, anti-inflammatory, hepatoprotective, antidiabitic, analgesic, surfactants activity, lipid peroxidation inhibition activity, antiviral and flavouring properties. Highly significant effect of rosemary leaf powder and black cumin seed powder at different levels alone and in combinations was observed on overall feed intake, live body weight, body weight gain, average daily gain, feed conversion ratio performance index and protein efficiency ratio. Metabolizability of dry matter was found to be highly significant due to supplementation of rosemary and black cumin alone or in combination. Significant effect of rosemary and black cumin supplementation was observed on organic matter metabolizability. The crude protein metabolizability showed highly significant effect of supplementation of rosemary and black cumin alone and in combination. The ether extract and NDF showed non-significant effect due to supplementation of rosemary and black cumin alone and in combination. Balance of nitrogen, calcium and phosphorus revealed no-significant effect of inclusion of herbs rosemary leaf powder and black cumin seed powder alone and in combination under different treatment groups. Highly significant effect was observed on dressing weight per cent, eviscerated weight per cent, while non- significant effect was observed on abdominal fat per cent, liver weight per cent, heart weight per cent, gizzard weight per cent, giblet per cent, blood loss per cent and feather loss per cent due to supplementation of rosemary and black cumin in diet of broilers. The relative weight of immune organs showed non-significant effect due to the supplementation of both herbs. Various parts of intestinal tract measurement showed non-significant effect due to various treatment groups except on caecum, which were significant due to supplementation of rosemary and black cumin seed powder. No significant effect of rosemary leaf powder and black cumin seed powder alone and their various combinations was observed on pH of digesta in various parts of intestine, liver, thigh muscle, breast muscle, proximate composition of breast muscle, moisture and total ash of thigh muscle, tibia weight and measurements, feed passage rate, Hb, PCV, TEC, H/L ratio, serum protein profile, A/G ratio, creatinine, AST and ALT. Crude protein and ether extract of thigh muscle was found to be highly significant due to supplementation of both herbs. Water holding capacity showed highly significant effect due to the supplementation of rosemary and black cumin in various treatments groups of broilers. Highly significant effect was observed due to rosemary or black cumin alone as well as their combinations on triglyceride, cholesterol. The findings of comparative economics indicated that addition of rosemary and black cumin alone or in combinations reduce the overall cost of feed per kg gain as compare to control but maximum reduction in overall cost of feed per kg gain was obtained in T_6 treatment group containing 1.0 % of black cumin seed powder i.e. 7.36% reduction. At the end, on the basis of the performance of broilers and nutrient utilization efficiency recorded in the present study, it could be concluded that supplementation of black cumin 1.0% alone and in combination 0.75% of both herbs is quite effective and could be viable proposition for lucrative broiler farming for meat production.

17. Effect of supplementation of arjuna bark powder (*Terminal iaarjuna*) as herbal feed additive on performance of broiler chicks

The goal of this study was to investigate the use of Arjuna Bark Powder *(Terminal iaarjuna)* in broiler rations as a feed additive 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-430), randomly distributed in completely randomized design. The broiler chicks were divided into five dietary treatments groups (T1-T5) with 3 replicates (R1-R3) of 10 chicks each to make sure uniformity in various treatment groups. The feeding of broilers chicks in both starter and finisher phase was done as per BIS standards (1992). The T_1 group was fed on basal diet without feed additive and kept as control. Whereas treatment groups (T2-T5) weresupplemented with graded levels of Arjuna Bark Powder *(Terminal iaarjuna)*in the basal broiler starter and finisher ration, respectively. The T2, T3, T4 and T5group were supplemented with Arjuna Bark Powder *(Terminal iaarjuna)*@ 0.50%, 0.75%, 1% and 1.25% in the basal broiler starter and finisher ration, respectively. Ultimately, from the perusal of the results it was concluded that the supplementation of Arjuna Bark Powder *(Terminaliaarjuna)* at 1 percent level is very beneficial and could be a viable proposition for lucrative broiler farming for meat production, based on the performance of broilers and feed utilization efficiency in the present research.

Significant effect of supplementation of Arjuna Bark Powder *(Terminal iaarjuna)* was observed on overall feed intake, live body weight, body weight gain, feed conversion ratio, performance index and protein efficiency ratio, T_4 being highest among all. The dry matter metabolizability(%) and N balance showed non-significant effect due to Arjuna Bark Powder *(Terminaliaarjuna)* supplementation. Mean values of dressing and eviscerated yield did not vary significantly among various treatment groups. Also, heart, liver, gizzard and giblet weight% (% of live body weight) did not vary significantly among various treatment groups. Supplementation of Arjuna Bark Powder *(Terminal iaarjuna)* at graded levels reduce the overall cost of feed per kg gain as compare to control but maximum reduction in overall cost of feed per kg gain was obtained in T4*i.e.*, 9.26% reduction.

18. Replacement of roughage with neem (*Azadirachta indica*) leaves in the diet of camel

The aim of this study was to investigate the effect of replacement of conventional roughage ration fed to camel with Neem (*Azadirachta indica*) leaves on dry matter intake, crude protein intake, nutrients utilization, blood parameters and rumen parameters of camel. Twelve male camels of similar age and body weight were selected for the study were divided randomly into 3 treatments (T_1, T_2 and T_3), each having four animals. T_1control group was fed with groundnut straw and guar straw in 1:1. T_2 group was fed with 90% basal diet along with 10% replacement with Neem leaves on dry matter basis. T3 group was fed with 80% basal diet along with 20% replacement with Neem leaves. At the end of 84thday feeding trial; a digestibility trial of 7 days duration was conducted for estimation of digestibility of the dry matter, organic matter and gross nutrients. In this study, no significant effect was observed due to the replacement of roughage with Neem leaves on intake of dry matter, nutrients and water intake, digestibility of the dry matter, organic matter and gross nutrients, DCP, TDN, digestible nutrients and various blood-biochemical indices. Whereas, a significant effect was observed due to Neem leaves incorporation on crude protein intake and EPG in treatment groups. Digestibility of EE and ADF were significantly ($P \leq 0.05$) higher in the control group. NR of T_1 was significantly ($P<0.05$) higher than T_2 and T_3. Based on the results, it could be concluded that replacement of conventional crop residue based diet with Neem leaves at the level of 10% could be good source as replacement of conventional roughages for maintenance, supplementation of dietary protein and as a source of an anti-parasitic feed supplement in camel; however, DMI, digestibility of ADF and ether extract decreased significantly at a higher level of inclusion reflecting decrease in fermentation ability of diet.

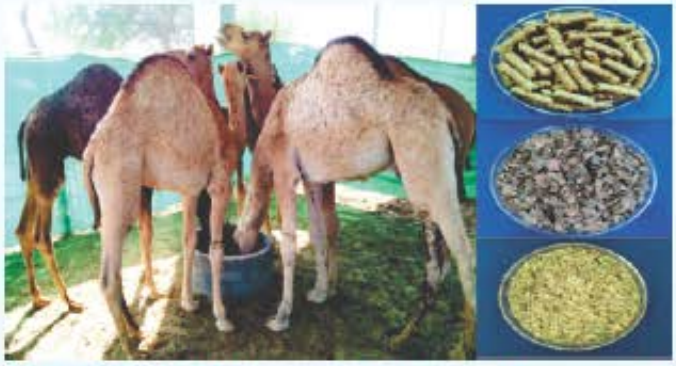
19. Effect of feeding cactus (*Opuntiaficus indica*) in fresh form as roughage source in the diet of camel

The present study was carried out to study the effect of supplementation of cactus (*Opuntiaficus indica*) on dry matter, crude protein intake; nutrientutilization, growth performance, blood parameters and rumen parameters of camels. Twelve camels 4-5 years of age were selected for study divided randomly into three groups of four animals in (T_1, $T_2$and T_3). T_1 group was fed with basalroughage diet containing (1:1) groundnut straw and guar straw. T_2 group was fedbasal roughage along with 10% Opuntiaficusindica in fresh form (on DM basis)and in T_3 group basal roughage was fed along with 20% Opuntia on DM basis (infresh form).Intake in form of (kg/d) and (g/kg0.75) of DMI, CPI,OMI was significantly ($P \leq 0.01$) higher in T_2 group. The digestibility coefficient of nutrientsand nutritive value were however not affected non-significant. Body weight gain and Blood biochemical profile were similar among treatment groups. Rumen fermentation parameters viz., total protozoa count reflected significant ($P \leq 0.05$)decrease in population, lowest were found in T_3, then T_2 whereas others rumenparameters were observed to similar. There was decrease significant ($p \leq 0.05$)decrease in water intake and faecal egg count inT_2 and T_3 treatment groups, lowest was obsrved in T_3 group. Opuntiaficusindica in the diet of camel helped to improve dry matter intake and live body weight, water consumption and faecal egg count decrease effectively; nutrients utilization, and rumen environment was not affected despite decrease in protozoal numbers. Observations reveal that, *Opuntiaficus indica* can be used as a cheap fodder resource at a level of 10% of the diet to provide energy and as source of water as it could efficiently maintain feed intake, rumen fermentation pattern and digestibility of nutrients for maintenance of adult / nonproductive stock during scarcity period at a cheaper cost.

20. Effect of phytochemical rich diet on growth performance and nutrient utilization efficiency in camel calves

The present study was carried out to assess the effect of incorporating phytochemical-rich tree leaves with low quality roughages in pelleted feeds to camel calves to study the effect on growth performance and nutrient utilization efficiency in camel calves. An iso-nitrogenous experimental feed was prepared with concentrate to roughage ratio 60:40. The roughage moiety constituted 20% *Prosopis cineraria* (Khejri) and *Ziziphusnummularia*(Pala) leaves. Khejri leaves had high total tannin polyphenols (TTP, 8.63%), non-tannin polyphenols (NTP, 1.71%), condensed tannin (CT, 4.28%) and hydrolysable tannins (HT, 4.34%), while the Pala leaves was rich in saponin (8.06%). The feeding trial was continued for 98 days on fifteen camel calves divided into three treatment groups of five animals each. The camel calves in T1 group were fed pelleted feeds without tree leaves, while treatment T2 and T3 were fed with pelleted feeds contained Khejri and Pala leaves, respectively. Feed consumption, nutrients intake, body weight, ADG, FCR, body measurements, haemato-biochemical parameters and rumen fermentation pattern were recorded. At the end of feeding trial; a digestibility trial of 6 days duration was conducted to assess digestibility of nutrients. The dry matter intake (kg/100 kg BW) in T3 was 3.2% lower than T2 but the difference was non-significant. DMI (kg/100 kg BW) averaged 1.559, 1.606 and 1.555 kg in T1, T2 and T3 treatments respectively. Digestibility of nutrients revealed significantly ($P<0.05$) lower values for DM, OM, CP, EE, NFE and NDF in T3compared to T1 and T2. Accordingly, average daily gain (ADG) of camel calves differed significantly ($P<0.001$) in all the three dietary groups showing a lower value in T3. Ruminal fluid pH was similar, but calves in T2 showed higher TCA-ppt-N with a reduced rumen NH3-N levels. Ruminal enzyme activity of extracellular xylanase and intracellular carboxymethyl cellulase reduced significantly in T3 as compared to T1 and T2 group. No significant effect of treatment was observed on haemato-biochemical parameters. Amongst the three dietary

groups, calves in group T2 fed on TMR with Khejri leaves showed improved performance as evidenced with an improved ADG and FCR, but at a reduced cost. It could be concluded that feeding of Khejri leaves at 20% level in pelleted complete feed to camel calves improved growth performance and nutrient utilization.



21. Effect of bedding materials on performance of broiler chicks

The aim of present experiment was to establish the suitability of best bedding material with optimum performance of broilers. 35 days trial was conducted during which 210, day old broiler chicks (cobb-400) were taken and randomly distributed into 7 treatment groups of 30 chicks. Each group of 30 chicks was further subdivided into 3 replicates having 10 chicks in each replicate. The seven treatments were designated as T1 i.e. control group had wheat straw, T2 had combination of 50% wheat straw + 50% saw dust, T3 had combination of 25% wheat straw + 75% saw dust, T4 had 50% wheat straw + 50% groundnut hulls, T5 had 25% wheat straw+ 75% groundnut hulls, T6 had 50% wheat straw + 50% wood shavings and T7 had 25% wheat straw + 75% wood shavings. All treatment groups were further subdivided into 3 replicates namely R1, R2 and R3 having 10 birds in each replicate. The moisture percent, body weight, body weight gain, average daily gain, feed consumption, feed conversion ratio, performance index, protein efficiency ratio, percent mortality, blood parameters and carcass traits were recorded for all 7 treatment groups. Significant effect of bedding materials alone or in combination in moisture%, body weight, body weight gain, average daily gain, feed consumption, feed conversion ratio, performance index and protein efficiency ratio was observed. Whereas on dressing percentage, eviscerated percentage, gizzard%, heart%, liver%, giblet%, and blood parameters the effect was observed to be non-significant. Litter cost/kg body weight gain was least in the group T4 having mixture of 50% wheat straw + 50% groundnut hulls.

The findings of present study in respect with all parameters included in the study indicated that wheat straw saw dust, wood shavings and groundnut hulls can be used effectively. It could be concluded that combination of 50% wheat straw + 50% groundnut hulls can be used as suitable bedding material for rearing of broiler chicks.

22. Effect of Lemon and Orange Peel Essential Oils on Performance of Broilers reared under treated Bedding Material with Dry Neem Leaves during Summer Season

The aim of this study was to evaluate the effect of supplementation of Lemon and Orange peel essential oil in alone and in combination ration as feed supplement along with effect of saw dust and saw dust with dry neem leaves as bedding materials on performance of broilers. 240, day old broiler chicks (Vencobb) were randomly distributed in CRBD for a feeding trial of five weeks. The eight treatment groups were designated as T_1 and T_5i.e. control group reared on basal diet, T_2 and T6supplemented with @ 200mg/kg Lemon peel essential oil in the experimental broiler starter and finisher ration, respectively. T3and T_7 were supplemented with @ 200mg/kg Orange peel essential oil in the experimental broiler starter and finisher ration, respectively. T4and T8were supplemented with @ 200mg/kg each Lemon and Orange peel essential oil both in combination, respectively. All the treatment groups were further divided in two replicates namely $R_1$and $R_2$with 15 birds in each. T_1, T_2, T_3, T_4 and T_5, T_6, T_7, T_8 were reared on saw dust and saw dust with dry neem leaves, respectively. The body weight, body weight gain, feed consumption, FCR, PI, mortality% and livability and carcass traits were recorded for all treatment groups. Significant effect was observed for effect of dietary supplementation on body weight, average body weight gain, FCR and PI, where asnon significant effect on feed consumption and carcass characteristics. Significant effect was observed for effect of different bedding materials on PI where as non-significant effect on body weight, average body weight gain, feed consumption, FCR and carcass characteristics. Non significant effect was observed at effect of interaction of dietary supplementation and different bedding materials on body weight, average

body weight gain, feed consumption, FCR, PI, and carcass characteristics.

Therefore, the present study revealed that supplementation of Lemon and Orange peel essential oil in combination enhances the overall performance of broilers in terms of production parameters. In the case of incorporation of oils alone, the more potent effect was observed in the groups supplemented with Lemon peel essential oil. No any effect bedding material was observed except performance index. No any interaction effect between supplements and bedding material was observed.

23. Study on performance and welfare of cattle in gaushala in arid region of Rajasthan

This study was carried out with the objectives to assess productive and reproductive performance of Gaushala, to assess dairy cattle welfare and to find out relationship between productive and reproductive performance and dairy cattle welfare in Gaushala in Rajasthan. A total of Twenty four Gaushalas in four district were selected and grouped into three categories based on total number of animals as small (100-500 animals), medium (501-1000 animals) and large (>1000 animals).Using a tested interview schedule data were collected and analyzed on production and reproduction performance of cattle, whereas cattle welfare was assessed using Dairy Cattle Welfare Scale (DCWS). The welfare of dairy animals was assessed based on welfare indicators using Calamari and Bertoni (2009) scale as modified by Kumar(2014). The collected data was analyzed and presented using frequency, percentage, mean, standard error and ANOVA. Average herd-size of small, medium and large Gaushalas was 281, 573 and 1149, respectively. Average daily milk yield (kg) was 3.84, 4.5 and 4.6 in small, medium and large Gaushala, respectively with an overall average of 4.3. It was significantly (P<0.05) higher for large and medium Gaushala than small Gaushala. Average lactation length (months) was 8.3, 9.5 and 9.6 in small, medium and large Gaushala respectively with an overall average of 9.2. It was significantly (P<0.05) higher at large and medium Gaushala than small Gaushala. Average lactation yields (kg) in small, medium and large Gaushala were 813.6, 819.06 and 904.6, respectively with an overall average of 865.4. It was significantly (P<0.05) higher for large Gaushala. Age at first calving (months) was 50.27, 47.50and 44.81 in small, medium and large Gaushala respectively with an overall average of 46.51. It was significantly (P<0.05) lowest for large Gaushala. Average service period (months) was 4.88, 4.26 and 3.89 in small, medium and large Gaushal are spectively with an overall average of 4.17. It was significantly (P<0.05) lower forlarge Gaushala. Average calving interval (months) was 14.56, 14.05 and 13.49 insmall, medium and large Gaushala respectively with an overall average of 14.18. Itwas lower in large Gaushala. Overall mean welfare score at small, medium and large Gaushala was 31.89, 42.01 and 56.5, respectively with an overall mean of 43.46.Total mean welfare score of large Gaushala was significantly (P<0.05) higher than medium and small Gaushala. Out of the total Gaushala, 8.33% were in good welfare category, 41.66% were in average welfare category and 50% in poor welfare category, overall 8.33% of the totals Gaushala were having acceptable animal welfare. Average per day milk yield and lactation yield was positively correlated(P<0.05) with overall welfare score while reproductive parameters like age at first calving, service period and calving interval were negatively correlated with overall welfare score. So, it can be concluded that the productive and reproductive performance were better in dairy animals of large compared to small and medium category of Gaushala and welfare status was average to poor in this region.

24. Effect of different litter treatments on performance of Japanese quails (*Coturnixcoturnix japonica*)

This study was aimed to evaluate the effect on the performance of quails, ammonia emission and litter characteristics by adding different litter amendments into bedding material. A trial was carried out for 35 days by using 180-day old quail chicks and these chicks were randomly distributed in 4 treatment groups. All the treatment groups were further divided into three replicates, namely R_1, R_2 and R_3 with 15 birds in each replicate. The four treatment groups were as follows - T_1 control group (without any litter treatments), T_2 groups treated with aluminium sulfate, T_3 group treated with sodium bisulfate and T_4 group treated with aluminum chloride. Wood sawdust was used as bedding material for all treatment groups and all three litter chemical treatments were mixed into this bedding material. The feed

consumption, body weight, weight gain, feed conversion ratio, performance index, protein efficiency ratio, percent mortality, carcass traits and litter characteristics (pH, moisture and ammonia) were recorded for all four treatment groups. The statistical analysis of data revealed the significant effect of different litter amendments on average body weight, average body weight gain, average daily body weight gain, feed conversion ratio, performance index, protein efficiency ratio, dressing weight percent, eviscerated weight percent and litter characteristics that was pH, moisture % and ammonia emission. In contrast, feed consumption was observed to be a non-significant effect.

The present study's findings regarding all parameters included in the study indicated that incorporating different litter treatments such as aluminiumsulfate, sodium bisulfate and aluminum chloride in bedding material enhanced the overall performance of quail chicks. All three litter treatments significantly reduced ammonia emission. Litter pH and moisture percent were also significantly reduced by these litter amendments. Aluminumsulfates had the best effect on the growth performance of quails compared to other litter treatments and control group, but also had good effects on litter characteristics. In contrast, aluminum chloride had the best effect on litter characteristics compared to other litter treatments and control group along with that also had good effect on growth performance of quails. Sodium bisulfate had good effects on both quails' growth performances and litter characteristics compared to the control group. It could be concluded that all three litter treatments had sound effects on growth performance and litter characteristics compared to control group.

25. Study on Effect of Various Stocking Densities along with the Dietary Supplementation of Giloy (*Tinospora Cordifolia*) and Moringa (*Moringa Oleifera*) on the Performance of Broilers

The aim of the study was to evaluate the effect of incorporation of Giloy (*Tinospora cordifolia*) and Moringa (*Moringa oleifera*) at 0.75% levels in treatment groups to assess the effect of different stocking densities and the interaction effect between dietary treatment and stocking densities on performance of broilers. An experiment of 35 days was conducted, utilising 270 day-old VenCobb-400 broiler chicks, and were distributed equally, to rear on 3 different stocking densities as SD_1 (11birds/m^2), SD_2 (15 birds/m^2) and SD_3 (19birds/m^2). Chicks reared on each stocking density were further divided in to one control and two dietary treatment groups equally, so in the present experiment the total number of groups were 9.

The analysis of variance with 3×3 factorial interaction design was utilized in present study in which effect of dietary supplements; stocking densities and interaction between these on broiler performance were evaluated. The data were recorded replicates wise on weekly basis such as body weight, body weight gain, average daily gain, feed consumption, feed conversion ratio, performance index, protein efficiency ratio, mortality (%), livability (%) and carcass characteristics of entire experiment was estimated. At the end of 5th week, 2 broilers per replicate (total 36 birds) were sacrificed to determine the carcass characteristics.

Significant ($P \leq 0.05$) effect of dietary treatments i.e., incorporation of Giloy (*Tinospora cordifolia*) and Moringa (*Moringa oleifera*) on mean body weight, body weight gain, daily body weight gain, feed conversion ratio, performance index and protein efficiency ratio of broilers were observed whereas, non-significant effect on cumulative feed consumption and carcass characteristics was observed. Regarding different stocking densities significant ($P \leq 0.05$) effects were observed on body weight, body weight gain, daily body weight gain, average feed consumption, feed conversion ratio, performance index and protein efficiency ratio while non significant effect was observed on carcass characteristics. During entire experiment no interaction effect between dietary supplements and different stocking densities, subjected to various treatment groups was observed on average feed consumption, feed conversion ratio, protein efficiency ratio and carcass characteristics whereas observed significant ($P \leq 0.05$) on body weight, body weight gain, daily body weight gain and performance index. Therefore, the present study infrared that supplementation of 0.75% Giloy stem powder showed best result in relation to body weight followed by 0.75% Moringa leaves powder. Body weight gain shows an increasing effect with lowering stocking density. Best feed conversion ratio and Performance Index were observed in group fed with 0.75% Giloy stem powder and having stocking density 11chicks/m2. Highest Protein Efficiency Ratio was observed in control group. The findings evolved a package of practices to the poultry owners for supplementing Giloy in feed that could improve the growth performance. Effect of colored LED light on Broiler Performance in Rajasthan.

26. Epidemiological Studies on Gastrointestinal Helminths of Horses of Udaipur (Rajasthan)

A study to know the epidemiological status of GI helminthes of horseswas conducted from May 2021 to November 2021 in and around Udaipur district and the various clinical manifestations were observed in horses. A total of 175 horses were examined, in which 139 (79.42%) horses showed various clinical sign and 54 (30.85%) horses were found truly positive for gastrointestinal helminthes infection. The various clinical manifestation observed in horses were as colic like /abdominal pain, lameness, diarrhea, emaciation, rough hair coat and hair loss, poor body weight/poor growth, pale mucus membrane or anemia, sub cutaneous edema, high body temperature (fever), lacrimation and salivation, and death. Poor body weight/poor growth (18.51%) and emaciation (18.51%) was more manifested in GI helminthes affected horse. The overall prevalence of GI parasites in horses in the present study was recorded to be 30.85%. Among various GI helminthes infections reported in the present study, StrongylesStrongyles spp. (48.14%) were the most prevalent gastrointestinal helminthes followed by Parascaris equorum (16.66%), Mixed (14.81%), Trichuris (9.25%), Amphistome (7.4%) and Oxyuris equi (3.7%).

In horses month wise analysis revealed significant difference (p< 0.05) and was found that highest prevalence rate was observed in the month of July (57.89 %) and lowest in the month of October (11.53 %). There was significant difference (p< 0.05) in the prevalence of gastrointestinal helminthes in particular season. The highest seasonal prevalence was (42.46 %) in Monsoon followed by (32.39%) in Summer and lowest (12%) in winter season. The age wise prevalence of gastrointestinal helminthes was with no significant difference (p> 0.05) however prevalence was 33.33% in 5-8 years, 31.25% in >8 years and 25.53% in 1-4 years.

The sex wise prevalence of gastrointestinal helminthes was again which no significant difference (p> 0.05) and highest prevalence (37.77%) infemale and lowest (23.52%) in male was observed. In the Farming system wise prevalence of gastrointestinal helminthes there was no significant difference (p> 0.05) and highest prevalence (34.44%) was in loose farming and lowest (23.52%) in conventional farming i.e. well managed farms (27.05%). In the breed wise prevalence There was no significant difference (p> 0.05) regarding the of gastrointestinal helminthes and it highest in (41.42%) in Marwari followed by Kathiawari (27.5%) and lowest (21.53%) in nondescript (Sindhi, Thoroughbreed, etc.). Coproculture examination of StrongyleStrongyles positive faecal samples for identification of infective larvae revealed the highest proportion of Cyathostomes (46.15%), was there followed by S. edantatus (26.92%), S.vulgaris (15.38%) and lowest S. equines (11.53%) in horses on micrometry. So the present study accounts to hold a detailed future study should be carried out along with control measures so that the GI helminthic infection could be controlled in equine in this area.

27. In-Vitro Study on Acaricidal Efficacy of *Dhatura Stramonium* and *Calotropis gigantea* Extracts against Rhipicephalus (Boophilus) microplus with Refference to Deltamethrin Udaipur (Rajasthan)

Tick and tick-borne pathogens affect 80% of the world's cattle population and are widely distributed throughout the world, particularly in the arid and semi-arid area, majorly affecting livestock production and productivity. The present research was designed to evaluate acaricidal efficacy of *Datura Stramonium* and *Calotropis gigantea* in various phytochemical (methanol, acetone and aqueous) extracts with reference to deltamethrin against cattle tick Boophilus microplus in Udaipur (Rajasthan) along with various morphological details of cattle ticks. Four concentrations of the each extract (12.5%, 25%, 50%, and 100%) and one control group with thrice replications for each concentration were used in the bioassay. The Highest efficacy in both in-vitro test (LPT and AIT) was recorded in Acetonic extract of *Datura Stramonium*. The *Datura Stramonium* in Acetonic extract has highest efficacy at 100% concentration which was 65.67% respectively followed by methanolic extracts (64%) and in aqueous extracts (42.67%).. The efficacy of *Calotropis gigantea* acetonic extracts efficacy at 100% concentration was 61%, respectively followed by methanolic extracts reporting (57%) and in aqueous extracts (37.67%) by LPT after 24 hrs of treatment. In LPT, increasing mortality of larvae with increasing concentrations of plant extracts was observed. In AIT acetonic extract of *Datura Stramonium* IO% at 100% concentration was (69.67%) and lowed reproductive index (0.15) whereas methanolic extracts of *D. stramonium* showing inhibition of oviposition (67.46%) and reproductive index (0.16) and in aquqs extract of D.stramonium showing inhibition of oviposition (48.33%) and reproductive index (0.26) respectively. In acetonic extracts of C. gigantea extract showed highest inhibition of oviposition (64.77%) and lowed reproductive index (0.177) whereas methanolic extracts of C. gigantea showing inhibition of oviposition (64.57%), and reproductive index (0.178) and in aquqs extract of C. gigantea showing inhibition of oviposition (45.35%) and reproductive index (0.275) respectively. Comparable acaricide efficacy against B. microplus treated with acetonic extracts of both plant of acetonic extracts, methanolic extracts and aqueous extracts was noted. Among the three extracts of both the plant, acetonic extracts of *D. stramonium* was highly effective. The 100% concentrations of acetonic extracts of *D. Stramonium* showed minimum reproductive index (0.15) whereas methanolic extracts showed reproductive index (0.16) and Aqueous extracts showed (0.26) respectively. In Calotrpis

gigantea acetonic extracts reproductive index (0.177), in methanolic extracts (0.178) and in aqueous extracts (0.275) were observed at 100 mg/ml concentration among the nine extracts of Calotrpis gigantea evaluated. In AIT the decrease in reproductive index and increase in the percent inhibition of oviposition, was evident during the study. In deltamethrin 12.5% concentration 100% mortality in LPT and complete cessation of oviposition in AIT.

28. Impact of Space Allowance on Performance of Sirohi Kids under Intensive Management System

The present study entitled, "Impact of space allowance on performance of sirohi kids under intensive management system" was carried out from 3 to 6 months age of Sirohi kids at Sirohi goat breeding farm, Livestock Research station Bojunda, Chittorgarh,(Rajasthan University of Veterinary and Animal Sciences, Bikaner). The present work was intended to study the daily feed and fodder intake, body weights, average daily gain, feed conversion ratio, morphometric traits, physiological parameters (pulse rate, respiration rate and rectal temperature), behavioral observations and parasitic examination of Sirohi kids. Twenty four Sirohi kids of either sex about 3 month of age were selected. These kids were randomly divided into four treatment groups [T1 (control), T2, T3 and T4] containing six kids in each group. The feeding and management practices were same for kids in all four treatment groups and floor space was different in each group. The floor space for T1, T2, T3 and T4 was 0.8 m2, 0.9 m2. 0.7 m2 and 0.6 m2 in covered area and 1.6 m2, 1.8, 1.4 m2 and 1.2 m2 in open area respectively.

The feed intake, body weights were highly significant ($P \leq 0.01$) among all the four space allowance. The mean of daily dry matter intake of kids was highest for group T2 (435.67g) followed by control group T1 (425.57g), T3 (407.30 g) and T4 (382.66g) respectively. The average initial fortnightly body weights of kids were 9.44, 9.53, 9.49 and 9.49 kg for treatment group T1, T2, T3 and T4 respectively. The highest body weight at 90th day of experiment were recorded for treatment group T2 (14.58 Kg) followed control group T1 (14.58 kg), T3 (13.76 kg) and T4 (13.50 kg) respectively. Highly Significant ($P \leq 0.01$) influence of space allowance on fortnightly body weight was recorded. Significant ($P \leq 0.05$) influence of space allowance on average daily gain was recorded. The mean for average daily gain was observed highest for T2 (68.51) followed by T1 (57.02),T3(51.36) and T4(47.39).The fortnightly feed conversion ratio was highly significantly ($P \leq 0.01$) affected by space allowance. Highest overall fortnightly feed conversion ratio was observed for T4 group (8.89) followed by group T3 (8.29), control group T1 (7.63) and lowest for T2 (6.43) treatment group. The morphometric traits with respect to heart girth, height at withers and body length were observed highly significant ($P \leq 0.01$) which was higher in T2 followed by T1, T3 and T4 treatment groups, respectively. There was no significant influence of space allowance on physiological parameters (pulse rate, respiration rate and rectal temperature).The mean frequency of behavioral traits viz, eating in morning T1 (48.33), T2(45.66), T3(52.33)and T4 (59.83) and in evening T1 (44.16), T2(41.16), T3(48.33) and T4 (54.16). Standing in morning T1(5.15), T2 (4.78), T3 (7.36) and T4 (8.21) and in evening T1(6.01), T2(5.68), T3 (9.28) and T4 (10.08). Drinking in morning T1 (6.18), T2(5.43), T3 (6.86), T4 (7.98), and evening T1 (6.11),T2 (5.03), T3(6.70) and T4 (6.95).Negative social interaction in morning T1(1.05), T2 (1.02), T3 (1.24) and T4 (1.45) and evening T1 (1.25), T2 (1.0), T3 (1.30) and T4 (1.57), respectively was observed highly significant ($P \leq 0.01$), highest in lower space allowance T4, followed by T3, control group T1 and T2 with large space allowance. Similarly the mean frequency likewise moving in morning T1(5.00), T2(11.83), T3(5.33)and T4 (4.33) and in evening T1 (8.16), T2(14.83), T3(5.33) and T4 (5.33).Grooming in morning T1 (7.88),T2(8.66), T3(6.05) and T4 (5.35)and in evening T1 (7.40),T2(8.33), T3(5.08) and T4 (4.71) were highly significant and highest in large space allowance T2 treatment group. However non-significant effect of space allowance was observed on stereotype and eliminative behavior.

Significant ($P \leq 0.05$) influence of space allowance on coccidial load was recorded. Highest coccidian count during the first month was recorded in the T4 treatment group with smaller space allowance, followed by T3, as compared to larger space allowance control group T1 and T2 respectively.

29. Pathomorphological Studies of Lung Lesions in Buffalo (*Bubalus Bubalis*) in Southern Region of Rajasthan

Pathomorphological study was carried out from January 2021 to November 2021 on the lungs of buffalo. During this period a total number of 98 samples of buffaloes, irrespective of their sex, age groups, and breeds were examined. A total of 27 swab samples were taken from different pneumonic lungs for the isolation of bacterial agents. Out of 27, 20 samples were positive for the presence of variety of bacteria viz. E. coli (40%), Proteus spp.(30%), Klebsiellaspp. (20%), Pasteurella spp. (10), Staphylococcus spp. (5%) and Pseudomonas spp. (5%). The 8 samples of isolated E. coli were sent to the CRI, Kasauli, H.P. for serotyping. These 8 isolates of E. coli were typed for 'O' antigen. The8 isolates which could be typed were distributed into 3 different sero groups. The most frequent sero type found were O11 (62.5%), O26 (25%) and O121 (12.5%).

30. Occurrence and Pathology of Various Conditions of Lower Respiratory Tract In Cattle (*Bos Indicus*) in Southern Region of Rajasthan

The present study was undertaken with the objective to find out the etiology, occurrence, type and pattern of different

pathological conditions of lower respiratory tract of cattle in southern Rajasthan. The present investigation was carried out from January 2021 to October 2021. During this period a total number of 72 samples of cattle irrespective of sex, agegroups and breeds were examined. An overall occurrence of various pathological conditions was observed as 70.83 per cent. The occurrence of various pathological conditions individually in Udaipur, Chittorgarh, Rajsamand and Dungarpur was observed as (10/15) 66.67%, (12/16) 75%, (13/20) 65% and (16/21) 76.19% respectively. The various conditions of lower respiratory tract were identified as: congestion and edema 17.65 per cent, emphysema 13.73 per cent, atelectasis 11.76 per cent, interstitial pneumonia 17.65 per cent, suppurative pneumonia 5.88 per cent, bronchopneumonia 13.73 per cent, fibrinous pneumonia 5.88 per cent, haemorrhagic pneumonia 7.84 per cent, pleuropneumonia 1.96 per cent and pulmonary hydatidosis 3.92 per cent. Bacteria isolated from various lung lesions were E.coli (18 samples) 45%, Pseudomonas aeruginosa (7 samples) 17.5%, Klebsiella pneumoniae (4 samples) 10% and S.aureus (11 samples) 27.5%. Serotype were identified from the E.coli confirmed isolates isolated from samples of lung lesion were O11(20%), O26(40%), O83(10%), O121(20%) and O(untypable)10% of cases. In the present investigation, antibiogram patterns of different bacterial organisms isolated from various sample of Lung lesion showed varying degree of sensitivity to the chemo-therapeutic agents. Gross and histopathological studies will be helpful in revealing the pathogenesis and diagnosis of various condition in lower respiratory tract in cattle caused by various etiological agents. Antibiogram patterns observed for various bacteria will be useful in prevention and treatment of respiratory affections.

31. Clinico-pathological and microbio-logical studies on diarrhoeic goats in Southern Rajasthan

The present investigation was conducted to study the diarrhoeic condition of goat in Southern region of Rajasthan. Out of total 80 cases examined, 35 cases were of diarrhoeic condition and maximum cases were reported from Dungarpur (28.57%) followed by Rajsamand (20%), Udaipur (20%), Bhilwara (17.14%) and Chittorgrah (14.28%). The results of haemato-biochemical examination indicated anaemia, lymphocytosis, neutrophilia and basophilia and monocytosis. Hypoproteinaemia and hypoalbuminemia along with significant increase in alanine amino transferase and gammaglutamyl transferase, was observed. Bacteria isolated were E.coli (40%), Pseudomonas aeruginosa (16.66%), Proteus vulgaris (23.33%) and Citrobacterkoseri (20%). The different serotypes of E.coli identified were O26, O98, O7 and O17. Antibiotic sensitivity pattern of various bacteria isolates revealed that Amikacin followed by Streptomycin and Cefixime are most sensitive drugs against various bacterial isolates. However Rifampicin, Azithromycin and Tetracycline were showing resistance to two or more bacteria isolated in this study. The usp A and O prl gene of genes of E.coli and Pseudomonas aeruginosa, respectively were successfully amplified using species specific primer. Major pathological lesions included enteritis followed by abomasitis and liver lesions. Characteristic lesions of enteritis were presence of congestion and haemorrhage of intestine. In abomasum, congestion and haemorrhage was observed in the mucosal epithelium. In the liver presence of mildfibrinous layer and necrotic foci on liver. In the histopathological investigation various lesions recorded were congestion, haemorrhage, oedema, necrosis, degeneration and infiltration of cells. Faecal examination of diarrhoeic goats revealed presence of Strongyles (35.29%) followed by Trichuris (17.64%), Coccidia (14.70%), mixed infection (11.76%) and Moniezia (5.88%).

32. Molecular characterization of methicillin resistant *Staphylococcus aureus* isolated from bovine subclinical mastitic milk

In the present study, modified California mastitis test (MCMT) and somatic cell count (SCC), was done to evaluate the prevalence of bovine subclinical mastitis. The bovine subclinical mastitic milk samples were processed for the isolation, identification, antibiogram and molecular characterization of the methicillin resistant Staphylococcus aureus in Udaipur district (Rajasthan). In total, 400 quarter milk samples were collected from 10 organized dairy farms of Udaipur district, Rajasthan (40 quarter milk samples from each dairy farm) for evaluation of subclinical mastitis in apparently healthy lactating bovines. All these milk samples were collected from June 2021 to October 2021. These samples were screened for subclinical mastitis through MCMT and SCC. The prevalence based on MCMT was observed as 37% (148/400) among the quarter milk samples. By employing conventional cut off criteria of SCC (≥ 2,00,000 cells /ml), 133 samples were found positive for SCM, out of 400 quarter milk samples analyzed revealing the prevalence as 33.25%. The prevalence of S. aureus among the quarter milk samples (n=133) was observed as 63.9% (n=85/133). While, the animal-wise prevalence of S. aureus isolated from bovine subclinical mastitic milk was observed as 66.66%. All the 85 isolates were inoculated on the sheep blood agar plates to record the haemolytic reactions. Out of the 85 isolates, 26 (30.5%) isolates produced complete (alpha) haemolysis, 44 (51.7%) isolates produced partial (beta) haemolysis and 15 (17.6%) did not produced any hemolysis. Out of the 85 isolates of S. aureus recovered from milk samples, the analysis of antimicrobial susceptibility revealed that the most effective antibiotic was gentamicin (97.65%), followed by methicillin (94.11%), chloramphenicol and clindamycin (83.53% each). Ampicillin and penicillin G showed high resistance as

72.95% and 65.89%, respectively, followed by oxytetracycline and trimethoprim (24.71% each).. In our study, 5 isolates were considered as MRSA out of 85 S. aureus confirmed on the basis of phenotypic antibiotic susceptibility pattern giving a prevalence rate of 5.89%. All the 5 MRSA isolates were further subjected to molecular characterization by PCR. All the MRSA isolates were found to be positive for 16S rRNA, species specific 23S rRNA, coa and thermonuclease gene nuc. Occurrence of antibiotic resistance gene (mecA) was revealed in 80% of (4/5) MRSA isolates. Prevalence of virulence genes viz., clfA, fnbA, spa-X region and hlb in MRSA isolates was 60% (3/5), 80% (4/5), 60% (3/5) and 40% (2/5), respectively.

33. Studies on clinico-therapeutic aspects and oxidative stress indices in parvoviral enteritis in dogs

Present study was conducted on parvoviral enteritis in dogs in Udaipur. A total of 52 dogs, showing signs of diarrhoea and vomiting were presented in VCC, CVAS, Navania, Udaipur and Veterinary Polyclinic Udaipur. A total of 52 dogs were screened and out of which 23 dogs (44.23%) were found positive for parvoviral enteritis by PetX CPV Ag rapid test Kit. The prevalence of parvoviral enteritis was found higher in male dogs (60.87%) of less than 3 months of age. It was more common in Labrador breed (56.25%) and highest in non-vaccinated dogs (62.50%). Dogs suffering from parvoviral enteritis exhibit clinical signs such as anorexia (82.60%), haemorrhagic diarrhoea (78.26%) and non-haemorrhagic diarrhoea (21.73%), hyperthermia (47.82%), hypothermia (21.73%), vomiting (100%), dehydration mild (47.82%), dehydration moderate (34.78%) and dehydration severe (17.39%), pale mucous membrane (30.43%%) and pink mucous membrane (69.56%).The dogs affected with parvoviral enteritis had significant lower mean of haemoglobin, packed cell volume, total erythrocyte count and total leukocyte count with significant neutrophilia and lymphocytopenia. Serum biochemical examination of affected dogs revealed that the mean value of serum ALT and AST was significantly increased while mean of glucose was significantly decreased in affected dogs. The mean of total protein, albumin and globulin were significantly decreased whereas the mean of serum creatinine non-significantly differed in parvoviral enteritis affected than healthy control dogs. Oxidative stress indices revealed significant increase in malondialdehyde and NOx mean values and significant decreased in glutathione s-transferase activity (GST activity) and catalase mean values in parvoviral enteritis affected dogs. The therapeutic evaluation was assessed in both groups based on the change in haemato-biochemical and oxidative stress indices values and duration of recovery. In both groups, all the dogs were found recovered by day 5. While comparing the restoration of clinical symptoms in both the groups, it was revealed that seventy per cent of dogs of group II were subsided the vomiting and diarrhoea on 3rd day of treatment whereas only 50 per cent of dogs were improved symptoms of vomiting and diarrhoea on the 3rd day in group I. The haemato-biochemical parameters showed significant increase in haemoglobin, packed cell volume, total erythrocyte count and total leucocyte count in dogs of group II after treatment with significant neutropenia and lymphopenia in both groups after treatment. The mean value of serum ALT was significantly improved in group II after treatment than group I. Oxidative stress indices revealed significant improvement in MDA, NOx, GST activity and catalase values in group II after treatment. Group I had comparatively less improvement in oxidative stress parameters after treatment and there was non-significant difference in the values of oxidative stress indices between dog of group II after treatment and healthy control dogs. The fast recovery and significant improvement in haemato-biochemical and oxidative stress indices in group II could be attributed to the inclusion of N-acetylcysteine and vitamin-C in supportive treatment.

34. Studies on clinico-therapeutic approaches and biomarkers of oxidative stress in babesia infected cattle

The present study was conducted on babesia infected cattle in Udaipur. A total of 187 cattle (irrespective of age, sex and breed) showing clinical symptoms of pyrexia, haemoglobinuria, tick infestation and icteric mucous membrane were included to determine the prevalence using microscopy and polymerase chain reaction (PCR). Out of 187 blood samples screened, 12 (6.42%) were found positive on blood smear examination by Giemsa staining and 18 (9.62%) by polymerase chain reaction for babesia. In the present study cattle having symptoms of pyrexia and tick infestation were 12(100%), Icteric mucous membrane (41.66%), emaciation (33.33%) and hemoglobinurea (58.33%). The mean values of haemoglobin, packed cell volume and total erythrocyte counts were significantly decreased and the mean values of total leucocyte count were significantly increased in cattle infected with babesia as compared to healthy cattle. Babesia infected cattle showed significant neutrophilia with significant lymphocytopenia. Among, biochemical parameters there was significant increase in serum total protein and globulin and significant decrease albumin in babesia infected cattle. The mean values of serum ALT, AST, total bilirubin and serum creatinine were significantly higher while the value of serum glucose was significantly decreased in babesia infected cattle. On the examination of biomarkers of oxidative stress, there was a significant increase in malondialdehyde (MDA) and total nitric oxide (NO), whereas significant decrease in glutathione s-transferase activity (GST activity), catalase and SOD in babesia infected cattle. The therapeutic evaluation was assessed in both groups based on the change in haemato-biochemical and biomarkers of oxidative stress

values and duration of recovery. In both groups, all the cattle were found recovered by day 5. While comparing the restoration of clinical symptoms in both the groups, it was revealed that 83.33 per cent of cattle of group II were subsided the clinical symptom on 3rd day of treatment whereas only 66.67 per cent of cattle were improved symptoms on the 3rd day in group I. On haematological analysis, there were significant (P<0.01) increased in lymphocyte and significant (P<0.01) decreased in neutrophils noticed after treatment in both groups. On biochemical analysis, there was significant improvement in serum ALT, serum albumin and serum globulin in cattle of group II after treatment as compare to group I. On analysis of biomarkers of oxidative stress, there was significant improvement of MDA, NO, GST activity, catalase and SOD noticed in cattle of group II after treatment and all value attain the value of normal healthy cattle. Group I had comparatively less improvement in oxidative stress parameters after treatment The fast recovery and significant improvement in biomarkers of oxidative stress in group II could be attributed to the inclusion of selenium and vitamin-E in supportive treatment.

35. Effect of Herbal Feed Additives Fenugreek (*Trigonella foenum-graecum*) Seed Powder and Onion (Allium cepa) Powder on Growth Performance and Nutrient Utilization in Broilers

The aim of this study was to determine the optimum level of incorporation of Fenugreek (*Trigonella foenum-graecum*) Seed Powder and Onion (*Allium cepa*) Powder alone and in combination in the ration of broilers as feed additive on growth performance and nutrient utilization of broilers. A feeding trials of six weeks followed by metabolism trial was conducted, using two hundred ten, day-old chicks. The chicks were randomly distributed in completely randomized block design in seven treatment groups viz., as T_1group, i.e., control group fed on a basal diet, T_2group, i.e., supplemented with @ 1% fenugreek seed powder, T_3 group, i.e., supplemented with @ 2% fenugreek seed powder, T_4 group supplemented with @ 1% onion powder, T_5 group, i.e., supplemented with @ 2% onion powder, T_6 group i.e., supplemented with @ 0.5% fenugreek seed powder + @ 0.5% onion powder and T_7 group, i.e., supplemented with @ 1% fenugreek seed powder + @ 1% onion powder. All the treatment groups were further divided in three replicates viz., R_1, R_2 and R_3. Each replicate had 10 birds. The results of the present study showed that feed intake was highly significant (p<0.01) in T_1group as compare to other group. The final body weight and weight gain were significantly higher (p<0.01) in T_7 group as compared to other treatment groups, while, FCR was significantly higher (p<0.01) in T_1 group as compared to other treatment groups. Performance index was significantly higher (p<0.01) in T_5 group. There was non-significant difference in retention of nutrients such as CP, NFE whereas significant (p<0.05) difference was observed in DM, EE. There was highly significant (p<0.01) difference in retention of nutrients such as CF, OM and Ash while non-significant in intestinal pH in different treatment groups. The nitrogen retention (%) was found non-significant. Calcium and Posphorus retention (%) was significantly higher (P<0.01) in T_6 group as compared to other treatment groups. In respect of carcass parameters non-significant effect on the treatments was observed on dressing percentage and significant (p<0.05) effect was observed on eviscerated weight percentage. The gizzard (p<0.01), heart (p<0.01) and giblet weight (p<0.01) were found statistically higher in T_5 and liver weight (p<0.01) was statistically higher in T_7group. Mortality (p<0.01) were found significantly higher in control group as compared to other groups. The haemoglobin, PCV, TEC and TLC levels were significantly (P<0.01) higher in T_6 groupwhile there was non-significant difference in blood glucose. Total serum protein and creatinine levels were significantly (P<0.01) higher in T_6 group whereas serum cholestrol level was significantly (P<0.01) higher in T1group as compared to other groups.The net return per bird profit was found higher in T_6 group followed by T_5, T_7, T_3, T_4, T_2 and T_1 groups, respectively.It is concluded that Fenugreek seed powder and Onion powder alone and in combination improved the growth performance, carcass characteristics and health status of broilers as compared to control group.

36. Title- Effect of Ajwain (*Trachyspermum ammi*) Supplementation on Growth Performance and Carcass Characteristics of Broiler Chickens

The present study was planned and carried out to ascertain the efficiency of Ajwain seeds as feed additive on growth performance of broiler chicks.A six-week feeding trial of was conducted using day-old,150 broiler chicks (Cobb-400) in which the chicks were randomly assigned in a completely randomized designinto 5 treatment groups with three replicates, each consisting 10 chicks.The T_1*i.e.* Control group was fed on basal diet, while T_2, T_3, T_4 and T_5 treatment groups were supplemented with 0.5, 1.0, 1.5 and 2.0% of Ajwain in the basal broiler pre-starter, starter and finisher ration, respectively. During the experimental period, all standard management practices were followed as per recommendation. The feed intake and bodyweight of chicks was recorded weekly for further analysis. Blood samples were collected from wing vein at the end of experimental period. Significant (P<0.05) effect of Ajwain was observed on overall live body weight, body weight gain, average daily gain, feed conversion ratio, performance index, balance of nitrogen, calcium, phosphorus and metabolizability of DM, CP, EE, CF and TA While feed intake and protein efficiency ratio was not affected. The overall mortality in broilers during experimental period was 2.66%, which was within

normal range. The supplementation of Ajwain had highly significant (P<0.01) effect on dressing per cent, eviscerated weight per cent, liver, heart, gizzard and giblet weight. In respect to haemato-biochemical parameters highly significant effect was observed on Hb, PCV, TEC, TLC, globulin, total protein, A / G ratio, glucose, triglyceride, cholesterol and creatinine of broilers due to Ajwain supplementation in the ration. However, dietary supplementation of Ajwain had significant (P<0.05) effect on albumin. The findings of comparative economics indicated that addition of Ajwain reduced the overall cost of feed per kg weight gain as compared to control but maximum reduction (6.19%) was obtained in T_4 treatment group containing 1.5% Ajwain.

Thus, looking to the performance of broilers in terms of growth and feed utilization it could be concluded that supplementation of Ajwain at 1.5% level is quite effective and can be a viable proposition to gain profit from broiler farming.

37. A Study on Performance of Production and Reproduction Traits of Surti Buffaloes under Farm condition

The present investigation was undertaken to estimate the genetic and nongenetic factors affecting the production and reproduction traits with their genetic parameters. Data for the present study comprising of 363 lactation records, extended over a period of calving of 15 years (from 2006 to 2020) were generated at Network Project on Buffalo Improvement (Surti), Livestock Research Station, Vallabhnagar, Udaipur (Rajasthan). The overall least-squares means along with standard errors of production traits *viz*., peak yield, days to attend peak yield, lactation milk yield, lactation length and dry period was 9.39±0.17 kg, 49.20±1.39 days, 1431.00±33.03 kg,285.73±5.38days and 204.64±7.87 days, respectively and the overall least-squares means along with standard errors of reproduction traits *viz.,* age at first conception, ageat first calving, post-partum estrus, service period and calving interval was1278.19±50.32 days, 1581.18±50.13 days, 117.15±9.76 days, 198.64±9.71 days and501.06±10.90 days, respectively. The effect of sire had highly significant for peak yield and post-partum estrus while significant for lactation milk yield, age at first calving and age at first conception and non-significant for days to attend peak yield, lactation length, dry period, service period and calving interval. The effect of period of calving had non-significant for all production traits except highly significant for lactation milk yield. the effect of period of calving had highly significant for all reproduction traits. The effect of season ofcalving had highly significant for all production and reproduction traits except nonsignificant for peak yield, days to attend peak yield, age at first calving and age at first conception. The effect of parity had non-significant for all production and reproduction traits except highly significant for peak yield and lactation milk yield. Heritability of peak yield, days to attain peak yield, lactation milk yield, lactation length, age at first calving, age at first conception, service period and calving interval found to be 0.437±0.23, 0.174±0.18, 0.293±0.21, 0.174±0.18, >1.00, >1.00, 0.156±0.16 and 0.162±0.16, respectively. The heritability estimates for production and reproduction traits were low to high. Genetic correlation of production and reproduction traits ranged from -0.037±0.42 (AFCon. with CI) to 1.00 (DPY with LL). Phenotypic correlation of production and reproduction traits ranged from -0.035 (AFCon. with CI) to 0.997(AFCon. with AFC and SP with CI). Most of the genetic correlations among production and reproduction traits were less reliable due to high standard error, whereas the phenotypic correlation was mostly significant and in desired direction. These significant and desired correlations can be used to elect correlated traits.

38. Genetic Study of Pre-and Post weaning Growth Rate Traits in Sonadi Sheep

The present study was undertaken to evaluate pre and post-weaning growth rate traits in Sonadi sheep. For current research work, data of growth of 743 Sonadi sheep (382 males and 361 emales) at Mega Sheep Seed Project, Sonadi unit, C.V.A.S. Navania born during 2015-2020 were used. The growth rate traits studied were average daily gain, Kleiber ratio, growth efficiency and relative growth rate traits for age stage of pre-weaning (0-3M) and post-weaning (3-12M) period. The least-squares analysis of variance was performed by fitting general linear model through software IBM SPSS 26.Variance and genetic parameters were estimated through derivatives free restricted maximum likelihood techniques (DFREML) through WOMBAT software using an animal model. The overall least-squares means along with standard error of average daily gain were estimated as 103.13±3.81 g/day and 43.58±2.45 g/day for ADG1 (pre-weaning, 0-3M) and ADG2 (postweaning,0-12M), respectively. Period of birth and sex of lamb had highly significant effect (P≤0.01) on all ADGs whereas season of birth and type of lambing had highly significant effect (P≤0.01) on ADG1 but non-significant effect on ADG2. The overall least-squares means along with standard error of Kleiber ratio were estimated as 15.25±0.27 and 3.84±0.18 for KR1 (pre weaning)and KR2 (post-weaning)

respectively. Period of birth and sex of lamb had highly significant effect (P≤0.01) on all KRs whereas season of birth and type of lambing had highly significant effect (P≤0.01) on KR1 but nonsignificant effect on KR2. The overall least-squares means along with standard error of Growth efficiency were estimated as 3.23±0.118 and1.01±0.089 for GE1 (pre-weaning) and GE2 (post-weaning), respectively. Period of birth and sex of lamb had highly significant effect (P≤0.01) on all GEs whereas season of birth had highly significant effect on GE1 but nonsignificant on GE2. Type of lambing had non- significant effect on all GEs. The overall least-squares means along with standard error of relative growth rate were estimated as 1.54±0.03 percent per day and 0.25±0.02 percent per day for RGR1 (pre-weaning) and RGR2 (post-weaning), respectively. Period of birth had highly significant effect (P≤0.01) on all RGRs whereas season of birth highly significant effect on RGR1 but non-significant on RGR2. Sex of lamb had significant effect (P≤0.05) on RGR1 where as highly significant effect (P≤0.01) on RGR2. Type of lambing had non-significant effect on all RGRs. The heritability of ADG1, ADG2, KR1, KR2, GE1, GE2, RGR1, andRGR2 were 0.311±0.104, 0.365±0.176, 0.250±0.096, 0.562±0.177,0.246±0.098, 0.445±0.172, 0.226±0.094 and 0.563±0.175, respectively.

Genetic and Phenotypic correlation was found as high and positive among same age group growth rate traits and negative for different age group growth rate traits. From the study, it could be concluded that the breeding programme in Sonadi sheep must be such designed that maximum lambing could occur insummer season with more twinning to improve the growth performance.

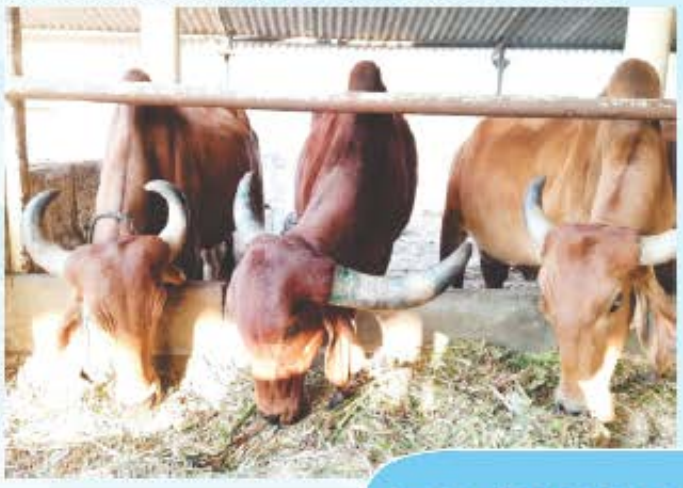
39. Non-Genetic Factors Affecting Production and Reproduction Traits and Comparative Study of Lactation Curve Model in Gir Cattle

The present investigation was undertaken to estimate the non-genetic factors affecting production and reproduction traits and comparative study of lactation curve models in Gir cattle. The detailed information on all the animals of Gir cattle regarding production and reproduction traits was collected from the database, maintained at Gir cattle project at CVAS, Navania, Vallabhnagar, Udaipur district of Rajasthan over a period of January 2012 to December 2020. The overall least-squares means along with their standard error of productive traits were estimated as 1546.82±36.06 kg, 273.83±5.01 days, 1839.34±39.53 kg, 10.26±0.14 kg and 32.29±1.11 days for LMY, LL, 305DMY, PY and DPY, respectively. The overall least-squares means along with their standard error of reproductive traits were estimated as 174.77±7.15 days, 220.96±12.59 days and 466.25±12.09 days for SP, DP and CI, respectively.

Period of calving had non-significant effect on lactation milk yield, 305day milk yield and lactation length while highly significant (P≤0.01) effect on peak yield, days to attain peak yield and service period in Gir cattle. Period of calving had a significant effect (P≤0.05) on the dry period and calving interval. Season of calving had non-significant effect on lactation milk yield, 305day milk yield, lactation length, calving interval, service period and dry period while highly significant (P≤0.01) on peak yield and significant effect (P≤0.05) on days to attain peak yield in Gir cattle. Parity of animals had non-significant effect on lactation milk yield, 305day milk yield, lactation length, calving interval and dry period while highly significant (P≤0.1) on days to attain peak yield and peak yield. Parity of animals had a significant effect (P≤0.05) on service period.

A total of 21 fortnightly test days milk yield records (7th, 21th, 35th, 49th, ...305th day) were taken at an interval of 14 days. The mean fortnightly test day milk yields (FTDMY) increase from 4.67 kg on TD1 (7th day of lactation) to peak yield 9.29 kg on TD4 (49th day of lactation) and subsequently declined to 3.77 kg on TD21 (305 day of lactation). The coefficient of variation ranged from 61.2% to 94.5% on different test day milk yields.

Maximum R2 value and lowest RMSE and MAD value was observed for Inverse quadratic polynomial function (94.50%, 0.0949 kg and 0.0090 kg), followed by Exponential function (82.80%, 0.1672 kg and 0.0279 kg), Wood gamma function (81.30%, 0.1743 kg and 0.0304 kg), Mixed log function (80.40%, 0.1785 kg and 0.0318 kg) and Exponential decline function (61.20%, 0.2506 kg and 0.0628 kg). Among all five lactation curve models, it was observed that Inverse quadratic polynomial function is an excellent model for prediction of fortnightly test day milk yield in Gir cattle.



40. Molecular Detection and Virulence Gene Profiling in *Brucella melitensis*

Present study has been designed with the objectives of sero-prevelance of Brucellosis in sheep around the CVAS, Navania, Udaipur, and detection of Brucella melitensis and its virulence gene. Total 924 blood samples from different sheep flocks in Mavali and Vallabhnagar tehsil of Udaipur district of Southern Rajasthan, were tested for the presence of antibodies against Brucella, using Rose Bengal Plate Test (RBPT) and Standard Tube Agglutination Test (STAT). Further, aborted tissue samples i.e. retained fetal membrane and fetal abomasal contents, liver, lung of aborted foetuses from recently aborted sheep were collected for detection of the organism by PCR. The B. melitensis positive samples were further tested for presence of virulence genes (znuA, omp31, manB and virB). The sero-prevalence of brucellosis in sheep was recorded 3.35% (31 out of 924). Whereas out of 7 aborted material samples tested, 4 (57.41%) were found positive for Brucella melitensis. Virulence gene viz. manB and virB were detected in all four the B. melitensis positive samples while omp31 and znuA were could not be detected in all positive samples tested. It was concluded that B. melitensis is the pre-dominant Brucella spp. prevalent in Udaipur region.

41. Biochemical Characterization and Antibiotic Drug Resistance Profiling of *Salmonella Spp.* Associated with Calf Diarrhoea

In the present study 100 calf diarrhoeal samples were collected aseptically from in and around College of Veterinary and Animal Science, Navania, Vallabhnagar, Udaipur (Rajasthan). Basic information about the dairy farms and management was taken. All the samples were transported immediately to the laboratory under a cold chain and were processed for isolation and biochemical characterization of Salmonella spp. using standard microbiological techniques. Out of 100 samples total 03 samples were found positive and further confirmed by molecular characterization by carrying out PCR, for the presence of invA gene for genus specification of Salmonella strain. Then three isolated strains were sent to the National Salmonella and Escherichia Centre, Central Research Institute, Kasauli (H.P.) for serological characterization. Out of three strains, serologically three strains belonged to Salmonella Weltevreden. Antibiotic susceptibility testing of isolates demonstrated a high level of resistance to the most often used antimicrobial in human and veterinary treatment. Results of the current study indicate high levels of multidrug antibiotic resistance among Salmonella, particularly to Azithromycin (100%), Streptomycin (100%), Tetracycline (100%) and Ampicillin (66.67%). However, the highest sensitivity was conferred to Chloramphenicol (100%), Co-trimoxazole (100%) and Ampicillin (33.33%). These three Salmonella strains were tested for the presence of antimicrobial resistance genes i.e.(tetA(A), tetA(B), aadB, aadA1, aadA2 and blaTEM gene. tetA(A) and blaTEM gene were present in all three isolates (100%) and 2 isolates (66.67%) respectively. tetA(B) was not detected in any isolates strain. Gene aadB, aadA1 and aadA2 were present in (66.67%), (33.33%) and (66.67%) respectively. Increased treatment resistance in Salmonella Weltevreden is a new issue that could wreak havoc on efforts to prevent and treat calf diarrhoea

42. Glutathione as a semen additive to improve Surti buffalo (*Bubalus bubalis*) bull semen cryopreservation

The present study evaluated the beneficial effects of incorporation of glutathione as an additive in Tris fructose egg yolk citrate extender in Surti buffalo bull semen. Clinically sound and apparently healthy bulls were selected for the experiment. All the experimental buffalo bulls were reared under uniform condition of feeding and management. Total twenty four ejaculates (from six Surti buffalo bulls) were collected for examination of fresh, pre-freezing and post thawing (0 hr) seminal attributes, viz., individual sperm progressive motility, live sperm percentage, sperm abnormalities percentage and HOS responsive sperm percentage. Extended semen was divided in 4 equal parts and glutathione was added at 0.5 mM (Treatment-1), 2.0 mM (Treatment-2), and 5.0 mM (Treatment-3) with one control group having no additives at all. During fresh semen evaluation, semen was creamy white to milky white in colour and consistency varied from thick to thin. Total semen volume and fresh semen pH in Surti buffalo bull were found to be 2.67±0.23 ml (range 1.0-5.0 ml) and 6.78±0.03 ml (range 6.5-7.0) respectively. Pre-freeze semen parameters viz. individual progressive motility, live sperm percentage and HOS responsive spermatozoa were found to be significantly higher ($P<0.05$) (except individual progressive motility which was non-significantly higher in Treatment-3); whereas sperm abnormalities were significantly lower ($P<0.05$) in semen samples treated with glutathione (Treatment-1, Treatment-2 and Treatment-3) in comparison to control. Similarly, effects of glutathione as an additive in semen were also recorded in semen thawed after 0 hr of cryopreservation. The post thaw (0 hr) individual sperm progressive motility percentage, live sperm percentage, and HOS responsive sperm percentage were significantly higher ($P<0.05$) whereas sperm abnormalities were significantly lower ($P<0.05$) in Treatment-1, Treatment-2 and Treatment-3 compared to control. The Treatment-2 (2.0 mM glutathione), had the highest pre-freeze and post thaw (0 hr) individual progressive motility percentage, live sperm percentage, HOS response sperm percentage and reduced sperm abnormalities percentage compared to other three groups. It was concluded that glutathione at 2.0 mM of concentration showed significant ($P<0.05$) improvement in pre-freeze and post thaw semen quality in comparison to control and glutathione concentrations of 0.5 mM and 5.0 mM.

43. Characterization of some most important Bacterial Pathogens and their Genes for Virulence Associated with Bovine Subclinical Mastitis in Sirohi (Rajasthan)

In the present study200 pooled milk samples were collected aseptically from apparently healthy domesticated dairy Cattle and buffaloes (5–8-year age group) from organized and unorganized dairy farms of four different tehsil of Sirohi district and examined for status of subclinical mastitis by Modified California mastitis test and somatic cell count. Positive samples were further investigated for isolation and identification of most important major mastitis pathogens viz: *S. aureus*, predominant Streptococcal species, and *E. coli* to evaluate the antimicrobial resistance patterns, their Virulence associated gene and to optimize multiplex PCR for rapid and simultaneous detection of these pathogens in the milk samples in Sirohi district of southern Rajasthan. The total prevalence of SCM was 45% and 37% based on California Mastitis Test (CMT) and Somatic Cell Count (SCC), respectively. The most frequent bacterial isolates were *Staphylococcus aureus* (27%), *Streptococcus agalactiae* (10.5%), Other Streptococcus spp. (4.5%) and*E. coli* (6.5%). Antimicrobial susceptibility testing of isolates revealed a high degree of resistance to the most commonly used antimicrobial compound in human and veterinary medicine. Results of the current study indicates high levels of multidrug antibiotic resistance among bacteria that commonly causes mastitis, particularly to ampicillin, penicillin, tetracycline, erythromycin and methicillin. However, the highest sensitivity was conferred to ceftriaxone, gentamicin and co-trimoxazole, suggestive of judicious use of these antibiotics in treatment of bovine mastitis. Implementation of PCR revealed the presence of *mecA* and *blaZ* genes in51.9% and 81.4% of *S. aureus* isolates respectively. Meanwhile 56.6% of streptococci isolates harboured *tetM* gene conferring resistance totetracycline, and none of Streptococcus was carrying the *ermB* gene. The 92.3% *E. coli* isolates harboured *tetA* and *tetB* gene conferring resistance to tetracycline. To genotypically characterize S. aureus isolates, genes encoding virulence determinants (*spa*-IgG-binding and *Coa*), Staphylococcal enterotoxins (*bac* and *bca*) and *E. coli* Shiga toxins (*stx1* and *stx2*) were investigated using a PCR technique. A single tube m-PCR was standardized to simultaneously detect the major mastitis pathogens directly from milk samples. *Staphylococcus aureus* was the predominant pathogen detected, followed by Streptococcus and *E. coli*. The m-PCR assay developed in the present study was an easy and rapid method to simultaneously detect the major mastitis pathogens in bovine milk and regular analysis of milk by m-PCR developed in the study may become a useful tool for determining the herd status in the detection of contagious and environmental mastitis pathogens. The presence of a high prevalence of SCM in dairy animal's impacts milk production and milk quality and the coexistence of pathogenic bacteria in milk is alarming which may threatens human health and has a public health significance.

44. Expression of Innate Immune Response Genes in Milk Somatic Cells during Sub Clinical Mastitis of Cattle

A total of 769 quarter milk samples of 200 apparently healthy cattle from different farms in and around the Udaipur district were screened for subclinical mastitis. Following IDF criteria, the prevalence of subclinical mastitis was 34.50 % animal wise and 14.95 % quarter wise. Milk microbiome revealed that out of 120 bacteria isolated, 59.17% Staphylococci, 32.50% Streptococci and 8.33% E. coli which were characterized phenotypically and confirmed by PCR assay using 16S rDNA specific primer, tuf gene primer and usp A gene for the Staphylococcus spp., Streptococcus spp. and E. coli respectively. The antimicrobial sensitivity of isolates varied in different farms which depend on the use of antimicrobials and strains prevalent at that farm. The majority of strains of Staphylococci, Streptococci and E. coli were found sensitive to Amikacin, Chloramphenicol, and Gentamicin. In the present study, relative upregulated expression found in TLR-2, IL-1β, IL-10, Hp and down regulation was found in TLR-4, TNF-α, IFN-γ and IL-6 in the milk of cattle with subclinical mastitis as compared to healthy ones. IL-2 and IL-4 were not detected in healthy as well as infected animals. An increase in the concentration of fat, SCS values and a decrease in the concentration of lactose, protein and SNF values were observed in milk of cattle having subclinical mastitis as compared to healthy ones. Fat was non significantly positively correlated with the TLR-2 and TLR-4 genes however negatively correlated with TNF-α, IL-β, IFN-γ, IL-6, IL-10 and Hp. Protein, lactose and SNF were non significantly positively correlated with the TNF-α, IL-β, IFN-γ, IL-6, IL-10 and Hp however negatively correlated with TLR-2 and TLR-4. The SCS was positively correlated with the TLR-2 and TLR-4 (highly correlated) and IL-6 gene however negatively correlated with TNF-α, IL-β, IFN-γ, IL10 and Hp but this correlation was non-significant.

45. Effect of colored LED light on Broiler Performance in Rajasthan

The present study evaluated the broiler chick's performance under coloured light-emitting diodes (LED). The study consisted of four light treatments; rearing of broilers in pens under incandescent light bulbs (60 watts) as control group T_1 and rearing of broiler in pens under white (3 watts with 650nm wavelength) as T_2, Green (3 watts with 650nm wavelength) asT_3 and blue (3 watts with 650nm wavelength) as T_4 LED light bulbs respectively. A total of 160 chabro commercial broiler chicks were allocated under different treatment groups from day old to 6th week of age in side open broiler house with appropriate arrangements so that light of

one pen couldn't affect the birds of other pens.The performance of broiler chickens was evaluated based on growth performance, carcasscharacteristics, and hematological parameters of rearing broiler chickens under different treatment groups. The experimental starter and finisher rations contained 22.60 percent and 20.80 percent C.P, respectively. The temperature-humidity index (THI), body weight, weight gain, average daily weight gain, feed consumption, feed conversion ratio, performance index, protein efficiency ratio, mortality and livability, haematological parameter, and carcass characteristics were recorded in all the treatment groups. Environment stress was noticed as ambient temperature, and THI were recorded as higher than the threshold. Highly significant ($p<0.01$) effect of colored light emitting diode (LED) on average body weight, body weight gain, average daily weight gain, feed conversion ratio, performance index, heterophils and lymphocyte ratio, and dressing percentage were observed whereas, on protein efficiency ratio significant ($p<0.05$) effect was observed and carcass traits and eviscerated weight were revealed to be non-significant ($p>0.05$) effect. The use of colored LED lights reduces the overall cost by Rs. Per kg body weight gain as compare to control group but a maximum reduction in overall cost in Rs. Per kg body weight gain was obtained in white LED light T_2.

The findings of the present study in respect to all parameters included in the study indicate that LED lights are more energy-efficient and longer life should be used to replace incandescent lighting without affecting the broiler performance and carcass traits.






Students NET-ICAR

A. Students selected for ICAR's All India Entrance Examination AIEEA(PG and Ph.D.)

Students selected for ICAR's All India Entrance Examination AIEEA(Ph.D.),CVAS,Bikaner

Sr. No.	Name	Subject & University	SRF (If any)
1.	Dr. Deepak Kumar Pankaj (2021-22)	Veterinary Pathology IVRI IzzatnagarBarelli	Non SRF
2.	Khushboo Panwar	Veterinary microbiology (Immunology)-ICAR-IVRI Deemed University	No

Students selected for ICAR's All India Entrance Examination AIEEA (PG), PGIVER

S. No.	Name	Rank	Subject &University	JRF (if any)
1.	MeenuTodwal	105	LPM (G.B.P.U.A.T., Pant Nagar)	---
2.	YogeshDokwal	122	AGB (NDRI, Karnal)	---
3.	ArjunGahlot	152	AGB (LUVAS, Hisar)	---
4.	Shweta Sharma	184	Vety. Physiology (IVRI, Izzatnagar)	---
5.	MrigankaKarwa	213	AGB (Kamdhenu University, Gandhinagar)	---
6.	Nikki Choudhary	217	LPM (GADVASU, Ludhiana)	---
7.	Nikita	228	LPM (Kamdhenu University, Gandhinagar)	---
8.	WarshaChaudhary	248	Vety. Extension(GADVASU, Ludhiana)	---
9.	PreetiGodara	260	AGB (NDVSU, Jabalpur)	---
10.	Saurabh Sharma	263	Vety. Extension(NDVSU, Jabalpur)	---
11.	Ankit Sharma	291	AGB (NDUAT, Ayodhya)	---
12.	Gajendra Singh	358	LPM (SKNAU, Jobner)	---
13.	Sunil Kumar	442	LPM(NDUAT, Ayodhya)	---
14.	PushpendraChawlaKhatik	442	LPM (MAFSU, Nagpur)	---
15.	Praveen Ratnu	490	Vety. Physiology (DSVCKV, Chhattisgarh)	---
16.	Hemant Kumar Fagana	500	Vety. Extension (KVASU, Kerala)	---

Students selected for ICAR's All India Entrance Examination AIEEA(PG), Navania

Sr. No.	Name	Rank	Subject & University	JRF (If any)
1.	SunitaDidel	LPM (Rank-38)	NDRI, Karnal	-
2.	AnimeshBhiraniya	AGB (Rank-42)	IVRI, Izzatnagar	-
3.	NeerajSoni	AGB (Rank-50)	IVRI, Izzatnagar	-
4.	YaminiKhatri	Animal Nutrition(Rank-86)	NDRI, Karnal	-
5.	ManishaChoudhary	Veterinary Physiology (Rank-115)	LUVAS, Hisar	-
6.	Pinky Kumari	LPM (Rank-158)	LUVAS, Hisar	-
7.	SachinChowdhary	Veterinary Pharmacology (Rank-160)	LUVAS, Hisar	-
8.	KarishmaChoudhary	LPM (Rank-200)	GADVASU, Ludhiana	-
9.	SheetalChoudhary	LPT (Rank-204)	LUVAS, Hisar	-
10.	Sandeep Kumar Extension	Extension (Rank-223)	GB Pantnagar University	-
11.	AmitaKumari	Economics (Rank-257)	IVRI, Izzatnagar	-
12.	RohitSolanki	AGB (Rank-288)	LUVAS, Hisar	-
13.	Ramesh Verma	AGB (Rank-288)	Assam Agricultural University, Jorhat	-

B. Students selected for ICAR-ASRB NET

Students selected for ICAR-ASRB NETs,CVAS,Bikaner

S. No.	Name	Department
1.	JayeshVyas	Animal Genetics and Breeding
2.	Ram Kumar Saran	Animal Genetics and Breeding
3.	Luna Ram	Animal Nutrition
4.	MahaveerSuthar	Animal Nutrition
5.	ArunaPanwar	Veterinary Anatomy
6.	Sanwarmal	Veterinary Anatomy
7.	Vijay Kumar Yogi	Veterinary Anatomy
8.	RichaChourasia	Veterinary Surgery and Radiology
9.	Anil Kumar	Veterinary Surgery and Radiology
10.	RajKumar	Veterinary Surgery and Radiology
11.	Kuldip	Veterinary Surgery and Radiology
12.	Ramveer Singh	Veterinary Surgery and Radiology
13.	Anita Kumari	Veterinary Surgery and Radiology
14.	Shivendra Kumar Bhalothia	Veterinary Gynaecology and Obstetrics
15.	Tapendra Kumar	Veterinary Gynaecology and Obstetrics
16.	TriokGocher	Veterinary Gynaecology and Obstetrics
17.	Tipu Sultan	Veterinary Gynaecology and Obstetrics
18.	AanandBurdak	Veterinary Gynaecology and Obstetrics
19.	DiwakarJhuria	Veterinary Microbiology
20.	VeenuSinghal	Veterinary Microbiology
21.	JyotiChaudhary	Veterinary Microbiology
22.	PankajDhakerwal	Veterinary Microbiology
23.	Sudesh Sharma	Veterinary Microbiology
24.	Ram Kumar (ARS mains)	Veterinary Microbiology
25.	BabitaKumari	Veterinary Physiology
26.	AbhishekKain	Veterinary Physiology
27.	PyareLal	Veterinary Biochemistry
28.	Mayank Kumar Aggarwal	Veterinary Biochemistry
29.	Lakshmikant	Veterinary Pharmacology and Toxicology
30.	Hukma Ram Parihar	Veterinary Pharmacology and Toxicology
31.	PriyankaKumari	LPM
32.	Anamika Sharma	LPM
33.	JitendraJaipal	LPM
34.	Jorawar Singh	Livestock Products Technology
35.	Ashok Prajapat	Livestock Products Technology
36.	Asman Singh Gurjar	Livestock Products Technology
37.	PradeepMakwana(2021-22)	Veterinary Pathology

S. No.	Name	Department
38	ShobhaBurdak(2021-22)	Veterinary Pathology
39	PravinBano(2021-22)	Veterinary Pathology
40	Brajesh Kumar	Veterinary Pathology
41	ManishaSingodia	Veterinary and Animal Husbandry Extension Education
42	Nikhil Pal Bajia	Veterinary Gyneacology and Obstetrics
43	PrernaYadav	Veterinary Medicine
44	PriyankaMeena	Livestock Products Technology
45	Rakesh Kumar	Animal Genetics and Breeding
46	Sharwan Kumar Meel	Livestock Products Technology
47	ShashiChoudhary	Veterinary Medicine
48	Virendra Singh	Veterinary and Animal Husbandry Extension Education
49	SaritaKumari (Ph.D.)	Livestock Products Technology
50	Yogendra Kumar Meena (Ph.D.)	Veterinary Medicine

Students selected for ICAR-ASRB NET,PGIVER

S. No.	Name	Department
1.	Asman Singh Gurjar	Livestock Products Technology
2.	Brajesh Kumar	Veterinary Pathology
3.	ManishaSingodia	Veterinary and Animal Husbandry Extension Education
4.	Nikhil Pal Bajia	Veterinary Gyneacology and Obstetrics
5.	PrernaYadav	Veterinary Medicine
6.	PriyankaMeena	Livestock Products Technology
7.	Rakesh Kumar	Animal Genetics and Breeding
8.	Sharwan Kumar Meel	Livestock Products Technology
9.	ShashiChoudhary	Veterinary Medicine
10.	Virendra Singh	Veterinary and Animal Husbandry Extension Education
11.	SaritaKumari (Ph.D.)	Livestock Products Technology
12.	Yogendra Kumar Meena (Ph.D.)	Veterinary Medicine

Students selected for ICAR-ASRB NET from CVAS,Navania,Vallabhnagar

S.No.	Name	Department
1.	Dr. Rajkumar	Vety. Surgery and radiology
2.	Dr. DevendraChoudhary	Vety. Public Health
3.	Dr. RohitJuneja	Vety. Gynaecology
4.	Dr. VikramPoonia	Vety. Parasitology
5.	Dr. Ramesh Chand Jat	Livestock Products Technology
6.	Dr. Surendrayadav	Livestock Products Technology
7.	Dr. Lokendra Kumar	Livestock Products Technology
8.	Dr. Gaurav Kumar Bansal	Animal Genitics and Breeding
9.	Dr. Sudesh Sharma	Vety. Microbiology
10.	Dr. JitendraPrajapat	Vety. Parasitology
11.	Dr. RakeshGena	Vety. Anatomy

TVCC Activities

Veterinary Clinical Complex Activities: CVAS, Bikaner

Veterinary Medicine Outdoor/Indoor	9433
Veterinary Surgery & Radiology Outdoor	5364
Emergency cases	657
Total	**15454**

Veterinary Diagnostic Laboratory

S.No.	Type of Sample	No. of Samples
1.	Blood	1750
2.	Faecal	68
3.	Milk	284
4.	Urine	573
5.	Skin Scrapping	24
Total		2699

Dept. of Veterinary Medicine Outdoor/Indoor

Rajasthan University of Veterinary and Animal Sciences, Bikaner

Number of case attended report from 01/Apr/2021 to31/Mar/2022

	Bird	Buffalo	Camel	Cat	Cattle	Deer	Dog	Duck	Goat	Hen	Horse	Mice	Monkey	Parrot	Peacock	pig	Pigeon	Poultry	Rabbit	Sheep	Tortoise	Total
	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	
Apr	2	30	8	21	148	0	327	0	129	4	8	0	1	7	1	0	1	0	8	3	1	699
May	4	14	8	20	93	2	239	0	81	2	5	0	0	8	1	0	0	0	5	1	0	483
Jun	2	25	6	28	158	0	288	0	115	4	9	0	0	4	0	0	0	0	6	1	3	649
Jul	4	37	5	30	223	0	365	0	142	2	11	0	0	5	0	1	0	0	7	1	1	834
Aug	4	38	13	47	244	0	363	0	184	2	13	1	0	6	0	0	1	0	18	4	0	938
Sep	5	42	6	37	222	1	368	0	179	7	16	0	0	3	0	0	0	0	7	7	0	900
Oct	4	31	9	34	167	0	336	1	250	4	14	0	0	3	0	0	1	1	14	5	0	874
Nov	2	30	4	41	147	0	401	0	219	9	9	1	0	2	0	0	1	0	7	2	1	876
Dec	2	47	8	45	149	0	377	1	112	7	10	0	0	1	0	0	1	0	3	5	2	770
Jan	1	28	10	43	131	1	462	0	108	3	8	0	0	0	0	0	0	1	5	0	2	803
Feb	3	27	14	37	145	0	442	0	126	8	4	0	0	1	0	0	3	0	11	8	0	829
Mar	1	26	9	36	161	0	382	0	125	9	9	0	1	4	0	0	1	0	7	7	0	778
Total	34	375	100	419	1988	4	4350	2	1770	61	116	2	2	44	2	1	9	2	98	44	10	9433

Dept. of Veterinary Surgery & Radiology Outdoor

Rajasthan University of Veterinary and Animal Sciences, Bikaner

Number of case attended report from 01/Apr/2021 to 31/Mar/2022

	Bird	Buffa	Camel	Cat	Cattl	Deer	Dog	Donk	Goat	Hen	Horse	Mice	Parro	Peaco	Pigeo	Poultry	Rabbi	Sheep	Tortois	Total
	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	New	
Apr	2	9	7	18	89	5	126	0	79	3	8	0	5	2	11	0	10	5	1	380
May	2	8	7	9	66	4	107	0	48	1	3	1	2	0	8	0	3	3	0	272
Jun	2	13	10	23	108	4	120	0	66	4	7	0	8	1	8	0	5	1	1	381
Jul	5	18	9	35	115	1	127	0	91	1	12	0	1	1	9	0	8	1	0	434
Aug	3	16	14	34	116	5	143	0	125	1	13	0	4	1	7	0	12	2	1	497
Sep	4	23	6	20	148	2	151	0	102	6	5	0	5	0	7	1	5	5	0	490
Oct	4	28	14	19	106	5	140	0	101	3	17	0	0	0	7	0	8	4	0	456
Nov	4	22	9	14	101	8	185	1	117	3	14	0	1	0	4	0	10	5	0	498
Dec	1	23	20	22	110	5	203	0	81	1	15	1	1	0	5	0	6	6	0	500
Jan	2	18	11	19	107	4	173	0	81	1	5	0	0	0	4	2	7	3	1	438
Feb	1	20	16	19	104	5	173	0	68	5	11	2	5	2	7	0	4	5	1	448
Mar	1	25	22	25	133	3	197	0	125	1	18	0	2	0	7	1	6	4	0	570
Total	31	223	145	257	1303	51	1845	1	1084	30	128	4	34	7	84	4	84	44	5	5364

Rajasthan University of Veterinary And Animal Sciences, Bikaner

Number of case attended report from01/Apr/2021 to31/Mar/2022

(Emergency)

	Bird	Buffalo		Came	Cat	Cattle		Deer	Dog		Donkey	Goat		Hen	Horse		Parro	Pigeo	Rabbi	Sheep	Total
	New	New	Old	New	New	New	Old	New	New	Old	New	New	Old	New	New	Old	New	New	New	New	
Apr	0	6	18	0	1	8	5	0	15	0	1	5	0	0	1	0	0	0	0	0	60
May	3	0	0	2	0	9	0	2	7	0	0	3	0	0	0	0	0	1	0	0	27
Jun	0	13	5	1	2	8	0	0	5	0	0	1	0	0	5	3	0	0	0	0	43
Jul	1	11	12	1	4	6	5	0	10	0	0	7	0	0	2	1	0	0	1	0	61
Aug	0	19	5	0	2	5	4	0	8	1	0	9	2	0	3	1	1	0	0	1	61
Sep	1	10	14	0	0	3	7	0	4	0	0	3	0	0	2	0	0	0	1	0	45
Oct	0	10	6	0	0	10	3	0	8	0	0	4	0	0	5	1	0	0	1	0	48
Nov	1	4	0	1	1	4	0	0	29	0	0	8	1	0	3	0	0	2	1	0	55
Dec	0	2	0	2	3	12	0	0	49	0	0	5	0	0	5	0	0	0	2	0	80
Jan	0	0	0	0	5	8	1	1	30	0	0	4	0	0	3	3	0	0	0	0	55
Feb	0	2	0	0	8	8	1	0	36	0	0	7	0	0	2	0	0	0	0	0	64
Mar	0	2	1	1	2	10	0	0	21	0	0	16	0	1	0	0	2	0	1	1	58
Total	6	79	61	8	28	91	26	3	222	1	1	72	3	1	31	9	3	3	7	2	657

Veterinary Clinical Complex Activities: CVAS, Navania

Brief : About Clinic

A modern Veterinary Clinical Complex has been developed as per Minimum Standards of Veterinary Council of India (construction and equipments) with an initial total allocation of Rs. 327.53 lacs under RKVY. This Clinic has various facilities for diagnosis and treatment of animal diseases which includes clinical examination and treatment under outdoor, indoor wards for livestock and pet animals. Advanced diagnostic procedures like radiography, sonography etc., investigation of clinical samples of blood, serum, urine and faeces, medical/surgical/gynecological treatment of diseases including operation theaters for livestock and small animal patients are regularly being done in clinic.. There is also facility for stay of attendants of animal patients.

The faculty of the institute at outdoor clinics of Veterinary Clinical Complex (VCC) have been involved in providing treatment to sick animals and extending consultation to the livestock breeders/animal owners throughout the year.

Total cases (VCC):	**4366**
Total numbers of Indoor patients	**267**
Preventive and control measure taken against parasites	**1503** ecto-parasiticidal spray and **795** deworming
Total clinical samples investigated.	**151**
Total beneficiaries by clinics	**2722**
Animal health camps organized	**10**
Training programmes organized	**4**
Total students trained and educated in clinical practice	**205**
Total ambulatory cases (critically ill animals) transported	**80**

Veterinary Diagnostic Laboratory:2021-22

S.No.	Type of Sample	No. of Samples
1.	Blood	**86**
2.	Faecal	00
3.	Milk	**10**
4.	Urine	**1**
5.	Skin Scrapping	**2**
6.	Serum	00
	Total	**99**

TABLE 1: Number of case attended report (month wise):

Month	Cattle			Buffalo			Sheep			goat			others			total			G. total
	Med.	Sur.	Gyn.	Med.	Sur.	Gyn.	Med.	Sur.	Gyn.	Med.	Sur.	Gyn.	Med.	Sur.	Gyn.	MeD.	Sur.	Gyn.	
Apr. 2021	32	19	19	30	39	1	0	0	0	6	11	2	40	19	4	108	88	26	222
May.2021	152	19	4	28	8	5	0	0	0	9	3	2	25	13	3	214	43	14	271
Jun. 2021	52	24	8	38	60	15	0	0	0	19	6	1	54	20	16	163	110	40	313
Jul. 2021	44	96	14	58	66	16	0	0	0	39	11	2	38	29	21	179	202	53	434
Aug. 2021	41	74	11	61	50	24	1	0	0	77	11	15	48	28	14	228	163	64	455
Sept.2021	56	63	9	47	75	37	3	0	0	70	13	20	34	11	18	210	162	84	456
Oct. 2021	101	30	2	98	34	23	0	0	0	67	15	31	15	25	30	281	104	86	471
Nov. 2021	10	27	7	34	38	12	1	2	1	50	9	19	20	14	16	115	90	55	260
Dec. 2021	114	22	10	29	34	14	0	0	0	22	2	10	41	7	53	206	65	87	358
Jan. 2022	153	24	41	44	25	17	1	0	0	19	5	13	60	5	40	277	59	111	447
Feb. 2022	48	26	8	59	58	10	0	0	0	11	5	5	82	29	32	200	118	55	373
Mar.2022	18	40	13	26	45	8	0	1	0	12	6	12	61	10	54	117	102	87	306
Total	**821**	**464**	**146**	**552**	**532**	**182**	**6**	**3**	**1**	**401**	**97**	**132**	**518**	**210**	**301**	**2298**	**1306**	**762**	**4366**

Veterinary Clinical Complex Activities: PGIVER, Jaipur

Brief: About Clinic

The faculty of the institute at outdoor clinics of Veterinary Clinical Complex (VCC) have been involved in providing treatment to sick animals and extending consultation to the livestock breeders/animal owners throughout the year.

Total cases (VCC):	8048
Diagnostic Lab Tests (VCC):	1457
Vaccination Camp (Anti Rabies):	01(12 Cases)
Infertility Camp/Health Camp (No. of Camp along with Cases):	09 (590 Cases)
Artificial Insemination (Cattle/Buffalo):	16

Veterinary Diagnostic Laboratory:2020-21

S.No.	Type of Sample	No. of Samples
1	Blood	264
2	Faecal	04
3	Milk	01
4	Urine	00
5	Skin Scrapping	04
6	Serum	00
	Total	**273**

TABLE 1: Number of cases attended (report month-wise):

Month	Cattle			Buffalo			Camel			Horse			Dog			Goat			Sheep			Other			Total			G. Total
	Med	Sur	Gyn	Med	Sur	Gyn	Med	Sur	Gyn	Med	Sur	Gyn	Med	Sur	Gyn	Med	Sur	Gyn	Med	Sur	Gyn	Med	Sur	Gyn	Med	Sur	Gyn	
APR	10	8	2	14	-	-	-	-	-	3	-	-	191	64	3	43	14	-	1	2	6	2	2	-	264	90	11	365
MAY	6	1	2	2	7	-	-	2	-	1	-	5	65	17	3	17	11	2	-	1	1	-	1	-	91	40	13	144
JUN.	16	15	2	8	3	8	-	-	-	5	3	1	198	108	19	18	34	12	-	1	5	1	3	-	246	167	47	460
JUL.	20	22	4	19	2	12	-	1	-	8	5	-	175	196	26	107	32	7	-	2	-	3	10	-	332	270	49	651
AUG.	32	5	4	6	7	7	-	-	-	1	8	1	206	162	21	65	64	31	1	-	-	-	13	-	311	259	64	634
SEPT.	13	14	4	12	15	20	-	-	-	2	4	1	241	174	51	78	49	60	3	-	-	3	13	-	352	269	136	757
OCT.	12	8	6	17	7	8	-	3	-	3	3	1	264	152	35	68	81	82	8	-	3	10	12	-	382	266	135	783
NOV.	11	4	22	35	6	4	-	-	-	1	5	-	215	141	24	93	129	58	1	1	-	6	13	1	362	299	109	770
DEC.	12	13	21	6	6	8	-	-	-	3	3	1	269	143	39	183	81	45	3	4	4	9	16	5	485	266	123	874
JAN.	10	18	14	16	11	11	2	-	-	5	5	2	330	154	27	102	57	55	3	1	-	8	14	-	476	260	109	845
FEB.	22	14	18	13	4	12	2	-	-	3	11	-	457	110	32	56	43	46	5	15	-	5	10	1	563	260	109	879
MAR.	15	8	16	18	7	1	-	-	-	3	5	-	498	180	14	45	27	26	9	1	-	7	6	-	595	234	57	886
Total	**179**	**130**	**115**	**166**	**75**	**91**	**4**	**6**	**-**	**38**	**52**	**12**	**3109**	**1601**	**294**	**875**	**622**	**424**	**34**	**28**	**19**	**54**	**113**	**7**	**4459**	**2627**	**962**	**8048**

ILFC Activities

Livestock Farm Complex Activities: CVAS, Bikaner

- The Instructional Livestock Farm Complex (ILFC) was established as per the guidelines of Veterinary Council of India with mandate to provide practical training, in the Livestock and Poultry farm activities, to students of College of Veterinary and Animal Science,Bikaner enrolled in undergraduate degree program. Faculties of different departments are attached to ILFC on rotational basis. Also, it provides necessary facilities for research of M.V.Sc. and Ph.D. students, when requires.
- A Rathi cattle unit is being maintained at LRS,Bikaner,a Tharparkar unit at LRS,Beechwal, whereas Sahiwal and Kankrej cattle units are being maintained at LRS,Kodamdesar.
- Magra sheep unit and Marwarigoat units are maintained at LRS Kodamdesar.
- Buffalo Unit, Rabbit Unit and Poultry Unitsare being maintained at ILFC,Bikaner.
- Routine farm practices viz. de-worming and vaccination of livestock and poultry at LFC have been conducted whereas sick animals are served with the appropriate treatment.
- Demonstration sessions on different livestock and poultry units at LFC have been conducted for the various batches of B.V.Sc. and A.H. students and Internees.
- Ample staffis looking after the various activities of ILFC.

Poultry Unit (LFC) Strength

S,No.	Name of breeds (Adults Birds)	Strength
1.	White leghorn	168
2.	White leghorn	103
3.	Kadaknath	1384
4.	RIR	698
5.	Chabro	22
6.	White turkey	17
7.	Black turkey	02
8.	Lavender guinea fowl	11
9.	White pekin duck	13
10.	Khakhi Campbell duck	23
11.	Emu	04
12.	Japanese quail	292
13.	Rabbit Dutch	14
14.	Rabbit New Zealand white	21

BuffaloUnit : Buffalo- 02

Seven students have conducted their research work on poultry at LFC

Annual Income of ILFC during 2021-22

1. Income from Poultry unit- 1921779/- (Rs.)
2. Income from Buffalounit- 99315/-(Rs.)

Glimpses of ILFC,CVAS, Bikaner

2. Livestock Farm Complex Activities : CVAS, Navania

- Routine farm practices viz. de-worming and vaccination of livestock and poultry at LFC have been conducted whereas sick animals were served with the appropriate treatment.
- Demonstration sessions on different livestock units at LFC have been conducted for the various batches of trainee farmers and animal owners.
- Ample staff islooking after the various activities of LFC.
- There isBuffalo Unit, Sirohi Goat Unit, Rabbit Unit, Poultry Unit and Fishery Unit as component of LFC.

3. Livestock Farm Complex Activities : PGIVER, Jaipur

- Routine farm practices viz. de-worming and vaccination of livestock and poultry at LFC have been conducted whereas sick animals were served with the appropriate treatment.
- Demonstration sessions on different livestock units at LFC have been conducted for the various batches of trainee farmers and animal owners from the Rajasthan State Livestock Management and Training Institute, Jaipur, Department of Animal Husbandry, Govt. of Rajasthan.
- Cow and buffalo milk produced at LFC is being sold on daily basis.

Library

1. Library of CVAS, Bikaner

The Library remains open on all working days during working hours of the college. Efforts are made to acquire latest useful text books/reference books needed specifically for students, researchers and faculty.

The Library has built up a very good collection of books to provide the college community enough to meet their various information needs and purposes. Recent publications are procured for the use of library users. The library collection consists of textbooks, reference books, e-books, e-Journals, manuals, advances, encyclopedias, dictionaries and annual reports.

Library Collection as on 30.06.2021

Sr. No.	Documents	Total
1.	General Books	31737
2.	Book-Bank Books	9637
3.	Social-Welfare Books	4792
4.	Mrs. Kusum Rathor Trust Books	232
5.	Bound Journals	6163
6.	Thesis	1628
	Total =	54189

E-Books :

1.	E-BOOKS	304

CD-ROM Database :

1	Video-Cassettes	15
2	Books CD	100
3	VET/BEAST CD-ROM DATABASE	48
4	CAB-CD, CD-ROM DATABASE	36

Miscellaneous Documents (received exchange bases):

1.	Journals	3005
2.	Books	1268
3.	Annual Reports	1474
4.	Newsletters	2261
5.	Bulletins	127
	Total	8135

2. Library of CVAS, Navania

CVAS, Navania library strengthens the facility of foreign/Indian Journals through consortium for e-resources in agriculture (CeRA). The library collection is as below:

Sr. No.	Documents	Total
1.	General Books	6598
2.	Book-Bank Books	276
3.	Social-Welfare Books	98
4.	Mrs. Kusum Rathore Trust Books	-
5.	Bound Journals	12
6.	Thesis	149
7.	Reports	-
8.	E-BOOKS	93
9.	Video-Cassette	-
10.	Books CD	123
11.	VET/BEAST CD-ROM DATABASE	-
12.	CAB-CD, CD-ROM DATABASE	-
	Total	**7349**

3. Library of PGIVER, Jaipur

Well developed digitalized library with RFID and good number of books, journals, computer with internet facility and reading space.

S. No.	Documents	Total
1.	General Books	3417
2.	Book-Bank Books	3957
3.	Thesis	106
4.	Books CD	97
	Total	**7577**

Activities of the Constituent Colleges & Institutes

Extra curricular activities of CVAS, Bikaner

1. Virtual Classroom was inaugurated on 16th April, 2021 by Sh. Narendra Singh Tomar, Union Minister of Agriculture & Farmers Welfare, Rural Development and Panchayati Raj, GoI in the presence of Sh. ParshottamRupala, Minister of State for Agriculture & Farmer Welfare, Govt. of India, Dr. Trilochan Mahapatra, Secretary, DARE & Director General, ICAR and other dignitaries. This virtual classroom has been established at 18 universities of country by ICAR under NAHEP. Students will be benefitted by these and will connect themselves live with the subject teachers as well as recorded lectures will be available to them through Agri-Diksha Web Education Channel.

2. Corona vaccination camp was organized on 8th April, 2021 at CVAS, Bikaner in collaboration with Medical and Health Department. Total 107 eligible people were vaccinated including faculty members, non-teaching staff and their family members.

3. An International webinar was organized on 20th May 2021 to make the students aware about different job opportunities available in the field of veterinary at Abroad. Dr. Ravi Murarka, United States based Indian Veterinary Clinician as invitee expert, resolved the doubts of the students and aware them about different examinations required for veterinary education, employment and higher studies in America. More than 126 students from all the three constituent veterinary colleges of the RAJUVAS have participated in this webinar.
4. 11th Foundation Day of RAJUVAS was celebrated to commemorate the completion of eleven years of the establishment of the RAJUVAS.An online deliberation was organized on the topic New Education Policy, Veterinary Education: Scenario and Prospects on 18th May 2021. Prof. Inderjit Singh, Vice-Chancellor, GADVASU, Ludhiana as chief guest emphasized on multi-faculty education in the new education policy so we have to pay attention to various dimensions in veterinary and develop entrepreneurship, which will provide employment opportunities. Prof. K.M.L Pathak, Former Vice-Chancellor, DUVASU, Mathura; Dr. Umesh Chandra, President Veterinary Council of India and Prof. A.K. Gahlot, Former and Founder Vice-Chancellor, RAJUVAS; Industrialist Sh. Ashok Modi, Dr.Amit Nain, former Dean, CVAS, Bikaner Prof. B.K Beniwal and Prof. Rakesh Rao also expressed their views during webinar.. Poem and drawing, sketching, literary competitions were conducted at university level on this occasion. Winner students were given e-certificates.

5. World Veterinary Day 2021 was celebrated with great enthusiasm on 24th April, 2021 at all the campuses of RAJUVAS on online mode. An online essay writing competition, extempore competition, drawing competition and quiz competitions were conducted for students. Winner and participating students were provided e-certificates also. Main function was also held

in the form of National Webinar on the theme of WVD 2021 Veterinarian response to Covid-19 crisis for improving animal & human health. Chief Guest was Dr. Umesh Chandra Sharma, President VCI, New Delhi, guest of honour was Prof. A.K. Gahlot, former Vice Chancellor, RAJUVAS, Bikaner.

6. Three students of CVAS, Bikaner participated in a brainstorming workshop on mainstreaming of agriculture as a core subject in the school curriculum held virtually on 16th June 2021 conducted by ICAR-IASRI. Divya Choudhary, Asma Tanwar and Dipesh Kumar Dabi expressed their views on the inclusion of agriculture as a core subject in the school curriculum.
7. On the occasion of 75th Independence Day, Vice-Chancellor Prof. Satish K. Garg hoisted the national flag at Diwan-e-Aam. Vice-Chancellor expressed his gratitude to the country's freedom fighters, immortal martyrs and martyrs who sacrificed their lives for the country's freedom and called for unity, integrity and development of the country. Appreciated the faculty staff and officers of the University for continuing academic, research and extension activities even in the times of the COVID-19 global pandemic. Students, faculty and non-teaching staff were honoured for their excellent performance, remarkable services in teaching, research and extension.

8. On 15th August 2021, after Independence Day celebration programme, a plantation drive was held in CVAS, Bikaner. Intensive tree plantation was done by the faculty members and staff in the university campus as per the directives of Hon'ble Chancellor and Governor of Rajasthan Sh. Kalraj Mishra Ji. Vice-Chancellor Prof. Satish K. Garg along with first lady of RAJUVAS Smt. Manju Garg initiated the drive by planting a Neem tree.

9. A one-day training program on proper management and disposal of animal biomedical waste was organized by the Animal Biomedical Waste Disposal Technical Center of RAJUVAS on 28th September, 2021. Dr. Hukma Ram Additional Director, Department of Animal Husbandry, Bikaner was Chief Guest. A total of 30 livestock assistants working in different veterinary hospitals and animal sub-centres participated in this training.

10. The centre for Disaster Management Technology for Animals, RAJUVAS, Bikaner organized four online trainings in the month of July, August and September 2021. The training was attended by 44 livestock owners and farmers. Dr. Praveen Bishnoi, PI delivered the information about management of animals in emergency. Sh. Shailendra Singh and Dr. Sohel Mohammed delivered expert lectures.
11. The 38th Batch Meet of 1993 Bach of Veterinary College, Bikaner was organized on 25th December, 2021. The 25 alumni reached the college with their families and children and shared their old memories with each other. Addressing the inaugural session in the two-day Bach Meet, Vice Chancellor Prof. Satish K. Garg said that it is a pleasant and golden feeling to meet classmates after years and to feel the change in the college and the profession. The professional and social welfare work

done by the alumni in their field reflects the glimpse of their institution. The special guest, former Vice-Chancellor RAJUVAS Prof. A.K. Gahlot, President VCAA Dr. R.K. Tanwar, Dean CVAS, Bikaner Prof. R.K.Singh, Additional Director, Department of Animal Husbandry, Bikaner, Dr. Hukmaram also expressed their views.

12. Vijay Diwas was celebrated on 16th December, 2021 at RAJUVAS, Bikaner campus to commemorate its victory over Pakistan in the 1971 war and pay homage to the brave soldiers. Camel safari by BSF soldiers was welcomed and riders were garlanded on this occasion. Dean & Chairman Faculty Prof. R.K. Singh welcomed the guests from BSF on this occasion. Dean, Directors of RAJUVAS and faculty members were also present.

13. Dr. Rohish Koda, student of CVAS, Bikaner got a full funded Ph.D scholarship from the prestigious Life Sciences University of Estonia (Europe). Dr. Rohit did his B.V.Sc&A.H from Veterinary College, Bikaner and Master degree in Animal Genetics and Breeding from GADVASU, Ludhiana.
14. Three students of RAJUVAS, Bikaner got academic excellence awards during general body meeting of Indian Dairy Association, Rajasthan State Chapter and Dr. N.R. Bhasin Memorial Award Function held on 23th October, 2021 at Jaipur. Mr. Vishal Yadav got Gold Medal and Mr. Keshav Gaur and Ms. Garima Rathore got Silver medal for their respective first and second merits in university merit list of final year examinations 2019-20.
15. Akhil Tiwari, Final year and Dipesh Dabi, third year student of CVAS, Bikaner represented university in Zonal Student Elocution competition for XV Agricultural Science Congress, conducted by SKNAU, Jobner via online mode on 27th October, 2021. Theme of the elocution was Energy and Agriculture: Challenges in 21st Century. Dr. Ashok Dangi, ADSW coordinated this event.
16. Four member peer review team of ICAR included former Ex. Vice-Chancellor of Assam Agricultural University, Jorhat, Dr. K.M. Bajarbaruah, Dr. M.K. Narayanan, Director Entrepreneurship, University of Veterinary and Animal Sciences, Kerala, Dr. Mandeep Sharma, Dean

Veterinary College, Himachal Pradesh Agricultural University, Palampur, Dr. M.K. Agnihotri, Senior Scientist, Department of Education, ICAR inspected and review the different departments of CVAS, Bikaner from 3rd-5thDecember, 2021 for accreditation by ICAR. PRT members visited different departments and get detail information about equipments, veterinary diagnostic services, operation theaters of small and large animals and the treatment procedure of animals, library, state plan centers, hostels, livestock farms, etc.

17. A three-member team of VCI, New Delhi visited at CVAS Bikaner from 2nd-4th December, 2021 and inspected the facilities and resources available as per MSVE 2016. Dr. V.D. Ahir, Associate Dean, KNP, Veterinary College, Satara (Maharashtra) as chairperson with Dr. O.P. Malav, Assistant Professor, GADVASU, Ludhiana, Dr. R.K. Bhardwaj, Veterinary College, SKUAST, Jammu inspected all the departments, laboratories, equipments, staff rooms, lecture theater, VCC, LRS, library, auditorium. Dean Prof. R.K Singh provided detailed information to the team about the facilities available in the college.

18. A certificate course on Wildlife Care and Management was organized by the Center for Wildlife Management and Health Studies, RAJUVAS on hybrid mode for field vets and students. Vice-Chancellor Prof. Satish K. Garg released the practical manual of training and e-compendium of compilation of lectures and said that wildlife is an important part of biodiversity, so there is an urgent need for such skill training for their conservation. A total of 24 trainees from different states of the country were participated and a total of 40 lectures presented by

wildlife experts in 120-hour course from 27th July to 20 November, 2021.

19. Two days training of farmers under Agricultural Technology Management Agency (ATMA) project has been organized by CDMTA from 22nd-23rd December, 2021. Total 30 farmers and livestock owners participated in this training.
20. Campus Placement interview was conducted on 13th December, 2021 at CVAS, Bikaner by HR Manager of Sangwan Poultry Farm, Haryana. Total 13 students were interviewed and on the basis of performance and academic records four students were selected for different category of posts.
21. Five days training was conducted under the joint aegis of Centrer for Disaster Management Technology for Animal, Bikaner and Agricultural Technology Management Agency (ATMA), Agriculture Department, Nagaur from 3-7th January 2022 on the subject of milk production and animal management techniques.
22. A technical session was organized by Sushima Pharmaceutical Limited at CVAS Bikaner on 9th Feb., 2022. Internship and post graduate students were participated in this technical session. Dr. Manish Kwatra, General Manager, Sales and Technology, Sushima Pharmaceutical Limited, gave information about the company's activities and products, as well as informed the students about the new emerging employment opportunities and career possibilities in the field of Veterinary Science. A quiz was organized for the students in which Divya Chaudhary, Satveer Mukhriya, Pooja Meena, Yatendra Singh and Shailja were rewarded.

23. A blood donation camp was organized in collaboration of Rajasthan State Bharat Scout and Guide, local chapter, Bikaner on 29th November, 2021. Total 80 units of blood were collected in this camp. Students of CVAS, Bikaner donated blood in this camp along with other volunteers.
24. Three-day training for field veterinarians on "Use of Diagnostic Imaging, Radiography and Ultrasonography in the treatment of Animal Diseases" organized by the Department of Veterinary Surgery and Radiology, Bikaner from 21st-23rdMarch, 2022. Vice Chancellor Prof. Satish K. Garg said that like human beings, many diagnostic techniques are being used in the field of veterinary medicine for disease diagnosis, such training is needed for skill development in this field.
25. On the eve of the 73rd Republic Day, Vice Chancellor, Prof. Satish K. Garg hoisting the flag at Diwan-e-Aam. On this occasion Vice Chancellor Prof. Expressing his gratitude towards the freedom fighters, immortal martyrs and the framers of the constitution of the country, Prof. Garg said that our constitution makes us aware of our rights as well as our duties. We should discharge our duties keeping the great constitution of India as paramount. Vice Chancellor Prof. Garg congratulates students for academic excellence. The staff and students of the university presented patriotic songs. Saplings were planted in the campus by the Vice Chancellor and Dean, Directors of RAJUVAS.

26. In 44th Annual Conference of the Indian Society for Veterinary Surgery organized at G.B. Pant Agricultural and Technical University, Pantnagar from 24th-26thFeb., 2022 in which Dr. Praveen Bishnoi, Dr. Sakar Palecha and Dr. Satyaveer Singh received gold medal in the conference for research work on CT scan. Dr. Suresh Kumar Jhirwal's research paper on various eye disorders and treatment was selected for Gold Medal and Best Clinician Award. In this seminar, Dr. Praveen Bishnoi and Dr. Suresh Kumar Jhirwal presented lead paper. Dr. Anil Kumar Bishnoi was elected as the Zonal Secretary of the Surgical Society.

27. Animal Biomedical Waste Disposal Technology Centre, RAJUVAS, Bikaner organized one day training on "Proper Management and Disposal of Animal

Biomedical Waste" for veterinarians of Bikaner division on 11th Feb., 2022. lectures on the topic of proper management and disposal of animal biomedical waste.

28. A one-day training program on processing of organic products of cow dung and urine was organized in RAJUVAS on 26th Feb., 2022 under the joint aegis of RAJUVAS and Rajasthan Gau-SevaParishad. Officers-in-charge of PashuVigyan Kendra and Teaching Associates participated in the programme. Chief Guest of the training program, Divisional Commissioner Dr.Neeraj K. Pawan said that cow dung and urine processing training is an important programme. There is a need to prepare youth for organic processing of cow products at village level to develop Bikaner division as a model for this. The work of making pesticides from organic manure and cow urine will bring positive results on human life. Presiding over the program, the Vice Chancellor, Prof. Satish K. Garg said that farmers and livestock owners were inspired by establishing its demo units in KVK, PashuVigyan Kendra and other institutions located under RAJUVAS. Through such processing works, the income of the livestock owners can also be increased by making the livestock and gaushalas self-supporting. Former Vice Chancellor of RAJUVAS, Prof. A.K. Gahlot said that processing of cow dung and urine is a simple technique and livestock owners will be able to earn profit by setting up such units in their homes or farms. The Director of Extension Education, Prof. Rajesh Kumar Dhuria provided information about cow dung- urine training campaign and extension programs of the RAJUVAS. Agriculture and Horticulture expert Dr. Indra Mohan Verma trained the scientists in simple techniques of processing measures. Hem Sharma, President of the Council also addressed the program.

29. Three-day training on "Use of Anaesthesia in Animals in Field Conditions" was organized by the Department of Veterinary Surgery and Radiology Bikaner from 24-26th March, 2022. Dean Prof. R.K Singh said that animal surgery in field conditions requires a lot of skill and practical knowledge, therefore, through this training, the use of anaesthesia during surgery will be helpful in increasing the knowledge and skills. Training coordinator Dr. Praveen Bishnoi said that 21 veterinarians of Animal Husbandry Department participated in this training.

30. Five-day training program from 22nd-26th March, 2022 was organized by Apex Center of Veterinary College, Bikaner on the topic "Diagnosis in Animals and Chickens" In the concluding session the Chief Guest, Prof. R.K Singh said that it is very important to identify the disease during the epidemic in animals. Without which it is impossible to take steps to prevent epidemics. Director of HRD Prof. B.N Shringi highlighted the importance of disease detection in field conditions and laboratories. Officer-in-Charge of Apex Centre Dr. J.P. Kachhawa informed that 32 scheduled caste students of the constituent and affiliated colleges of the RAJUVAS participated in ICAR funded training programme.

Extra Curricular Activities of CVAS, Navania

1. An online virtual interaction meeting was organized for the students of first year B.V.Sc. & AH in the College of Veterinary and Animal Science, Navania, Vallabhnagar, Udaipur on 15th may 2021.

2. A literary competition was conducted at university level on the occasion of foundation day of University on 18th may 2021. In this competition Satynarayan student of 4th BVSc. Stood first in poem competition and Rachna Soan Student of 2nd BVSc stood at 3rd Position in essay competition.
3. National Webinar on the topic 'Ecosystem Restoration' was organized on World Environment Day (5th June 2021) at CVAS Navania.
4. The first webinar of Avasar webinar series on Alternate career opportunities for veterinary graduates was successfully organized by the LIKES, College of Veterinary and Animal Science, Navania, Udaipur on 08th June 2021. The main objective of this webinar was to motivate the Veterinary students to make a career in the alternate field. The keynote speaker of the webinar was Dr. Rakesh Beniwal, an alumni of RAJUVAS and Lead Sales and Business Head, North India. He gave detailed information to the students about the opportunities to make their career in various fields.

5. The second webinar Avasar series on alternate career Opportunities for veterinary graduates was organized on 14th June, 2021. The keynote speaker of the webinar was Dr. Himanshu Jain, RAJUVAS Alumni and currently working as Lead Sales and Business Head, North India. A total of 202 participants participated from various educational institutions across the country.
6. One-day online webinar on Animal Reproduction Management was organized on 16th June 2021. The keynote speaker of the program, Prof. (Dr.) Govind Narayan Purohit, explained the various aspects of animal breeding in detail to the animal owners. Dr. Sumit Yadav, Assistant Professor, Department of Animal Gynaecocology and Obstetrics, PGIVER, Jaipur informed the livestock owners about the management of problems during delivery.
7. The third webinar of the avsar webinar series was on 22nd June, 2021. The keynote speaker of the webinar was Ganga Singh Shekhawat, National Trade Marketing Manager (Retail & Modern Trade) Pedigree, Mars Pet Care. He threw light on the various career opportunities in the field and business of pet care to the students In this webinar, a total of 102 registered participant participated from various educational institutions across the country.
8. The 7th International Yoga Day was organized online on 21st June 2021. The theme of this year Yoga Day was "Yoga at Home and Yoga with Family On this occasion, students of the college, NCC cadets, NSS volunteers, faculty members and employees practiced yoga with their families at home. On this occasion online quiz competition and drawing competition were organized.
9. Prof. (Dr.) R.K. Joshi, Dean, CVAS, Navania has been nominated as Co-chairperson, local research advisory committee for considering and approving the research proposal under MRU at RNT Medical college, Udaipur.
10. On the occasion of world environment day tree plantation was done at college campus and LRS by Dean, Prof. (Dr.) Rajeev kumar Joshi and faculty members.

11. Rajasthan Pre Veterinary test (RPVT) was conducted at 08 centres in Udaipur on 19th September 2021. Test was conducted at the examination centres following the Corona Advisory completely. Flying squads and police Personnels were arranged to keep a close watch at all examination centres.
12. Two-days Educational tour of Post Graduate students for Entrepreneurship development Programme was

conducted from 24th-25th September 2021 at Banas Dairy, Under the Banner of LIKES Centre, CVAS, Navania. A total of 15 PG Students were involved in the tour.

13. 75th Independence Day' was celebrated with great enthusiasm at CVAS, Navania, Udaipur with keeping social distancing and corona guidelines. On this occasion of Independence day ceremony, 11-11 saplings were planted by the faculty members, officers and every employee in the college campus and a pledge was taken to protect them and maintain them. It is noteworthy that during this period about 500 saplings of different varieties were planted in the college campus under the intensive tree plantation programe).

14. On the Occasion of World Rabies Day-2021 a folder on 'रेबीज कारण, लक्षण और रोकथाम'' Prepared by Prof. (Dr) Rajeev Kumar Joshi, Dr. S. K. Sharma, Professor and Dr. Tarunpreet, Assistant Professor was released on 30th September 2021 in 19th Academic Council Meeting held at Committee room, RAJUVAS, Bikaner, Under the Chairmanship of Honb'le Vice Chancellor, Prof. (Dr.) Satish Kumar Garg, RAJUVAS, Bikaner.

15. A group of 34 farmers from Udaipur, Dungarpur and Pratapgarh Districts. visited the Gir cattle, Surti buffalo, Sonadi Sheep, Sirohi goat farm and poultry unit of the LRS and VCC of CVAS, Navania (Udaipur) on 29th September 2021 in collaboration with District Veterinary Hospital Udaipur, Department of Animal Husbandry Rajasthan. The visit was supervised by Dr. M. L. Gurjar.

16. Students were made aware about Citizen Vigil App which was under Systematic Voter Education and Electrol Participation (SVEEP) in the College of Veterinary and Animal Science, Navania, Vallabhnagar, Udaipur. Under the SVEEP, students contributed by making very creative Rangoli on the theme "Voting Awareness among common citizens".

17. World Antimicrobial Awareness Week was organized on 24th November 2021. Theme of the event was the 'Spread Awareness, Stop Resistance' calls upon One Health stakeholders, policy makers, health care providers and the general public to become conscious champions of antimicrobial resistance. It aims to raise awareness of antimicrobial resistance globally and encourage best policies among the general public, health workers and policy makers to avoid the emergence and spread of drug-resistant infections.
18. A Five-day workshop was organized on skill development in animal disease diagnosis from 17th to 21st December, 2021. Dr. Bhupendra Bhardwaj, Additional Director Animal Husbandry Department was the chief guest of the closing ceremony. The special guest of the program was Prof. (Dr.) R. K. Dhuria, Director of Extension and PI NAHEP, RAJUVAS, Bikaner.