

Minutes of the 3rd meeting of Research Council

The third meeting of the Research Council of RAJUVAS, Bikaner was held on 6th February, 2017 at 11.00 AM in the Conference Hall of Vice-Chancellor's Secretariat, RAJUVAS, Bikaner under the Chairmanship of Hon'ble Vice-Chancellor. List of participants is provided in Annexure – I.

Professor (Dr.) Rakesh Rao, Director Research, Member Secretary of the Research Council welcomed Hon'ble Vice-Chancellor and Chairman Research Council, official members of Government of Rajasthan, university officials and nominated members/livestock breeders/farmers, HOD, OIs and PIs of the projects running at RAJUVAS who participated in the 3rd Research Council meeting of RAJUVAS, Bikaner. The Director Research requested Hon'ble Vice-Chancellor to initiate proceedings of the meeting.

Hon'ble Vice-Chancellor in his opening speech thanked all the participants including Shri Srigopal Upadhyay, Shri Agya Ram Singh, Progressive Farmers, Dr. Govind Singh, Director Research, S.K.R.A.U and representatives of other officials from Government of Rajasthan. Hon'ble Vice-Chancellor suggested PIs of all research projects that they shall submit one page/two of outcomes of their project in 15 days time. Head of the Departments should submit their post graduate research outcome also. He also expressed his pleasure to informing about CT Scan machine which have been installed in the Department of Veterinary Surgery and Radiology probably, the only CT Scan machine installed in the Veterinary and Animal Science University first time in the country. It is informed by the Chairman that two more projects related to Zoonosis and Antibiotic sensitivity are sanctioned and initiated at PGIVER, Jaipur. As far as RKVY projects are concerned, it is suggested to all PIs to give

their suggestions for continuation of the projects which are going to be closed by financial year 2017. These projects may continue in the University with the University funding by the time being. PIs may add/suggest some new research projects. The Chairman suggested that Officer Incharges of Livestock Research Station be made one of the PG/Ph.D. students research member in committee so that Directorate can utilize the data of research for further improvement of LRSs.

AI-01/RC-03/RAJUVAS/2015-16 : To confirm the minutes of the 2nd Research Council Meeting.

The minutes of the 2nd Research Council meeting were confirmed and Annual Report for the year 2015-16 was approved by the house.

AI-02/RC-03/RAJUVAS/2015-16 : To review the progress of on-going research projects

Hon`ble Vice-Chancellor asked Principal Investigators to start their presentation one by one.

“Establishment of Microbiological and Biotechnological Information System Network (Bioinformatics and Chemo informatics) Centre for exploring interconnections for molecular Biological Applications in the field of Veterinary and Animal Sciences : Prof.

S.K. Kashyap presented objectives and work done in this project in brief. Which includes : **Acquaintance and collection of bioinformatics tools** - Sequence retrieval tools: Different amino acid sequences were retrieved from UniProtKB/Swiss-Prot (<http://web.expasy.org>) web based prog, the cattle genome sequences were searched using program BLASTP- Compare protein sequence against ‘BLAST Cow sequences’ resource, MEGA 5.0 prog. Was used for phylogenetic analysis, protein localization was studied using WoLF PSORT (http://www.genscript.com/psort/wolf_psort.html) program, sequence Manipulating Suite

(<http://www.bioinformatics.org/sms2/>) was used for predictive molecular weight and isoelectric point of protein sequences, clustalW2 program (<http://www.ebi.ac.uk/Tools/msa/clustalw2/>) was used for Protein sequences alignment, MEME suite (version 4.9.1) (meme.nber.net/meme/cgi-bin/meme.cgi) was used to identify conserved amino acid motifs, Scan Prosite (<http://expasy.org>) was used for domain analysis, PyMOL: Protein visualization tool, MBDG (<http://mbgd.genome.ad.jp>) was used to download complete genome sequences of different microbes, GenAIEx 6.5 was used for Allele frequency, Observed number of alleles (Na), Effective number of alleles (Ne), Private alleles, Observed heterozygosity (Ho) and Expected heterozygosity (He), POPGENE-1.32 version was used for F-stat (Fis/Fit/Fst) (Hartl and Clark, 1989), Nei's (1972) Genetic distance and genetic distance based dendrogram, GENEPOP 1.2 version was used for Hardy-Weinberg equilibrium (HWE), Structure software was used for structure analysis in population. **Collection of Data** - DEAD box helicases protein sequences from cattle, pig, goat, human and sheep were downloaded used NCBI database, whole genome sequences of following microbes were downloaded from MBDG (<http://mbgd.genome.ad.jp>) - *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Streptococcus agalactiae*, *Streptococcus uberis*, *Brucella melitensis*, *Corynebacterium bovis*, *Escherichia coli* (*E. coli*, *Klebsiella spp.*, *Enterobacter aerogenes*, *Pasteurella spp.* **Data Analysis** - De-nova designing of primers for single step identification of cattle mastitis disease. Hypothetical protein sequence along with non genic part of genome from different microbial genomes was exploited to design these primers. Using these primers a range of mastitis causing bacteria can be identified in single step. This is the first experiment from bioinformatics lab (RAJUVAS) which has direct application in disease diagnosis, development of multiplex PCR for mastitis, DNA sequencing of *Pseudomonas aeruginosa* showing differential biochemical properties,

SSR marker based studies were conducted to analyze cattle breed (Gir, Tharparkar, Kankrej etc.) population structure. Hon'ble Chairman appreciated the work done in the project.

Apex Centre for Animal Disease Investigation, Monitoring and Surveillance: Prof. A.K. Kataria, Officer Incharge of the centre explained in brief about the objectives of the centre and explained the work done during year 2015-16. During the reporting period the total 1141 samples of blood, urine, faeces, smears, pus, utrine discharge, aspiratory fluids, nasal swab and prepucial discharge were received for haematological parameters, blood protozoa, bacteriological examination, complete microscopic bio-chemical examination, culture and antibiotic sensivity, brucellosis, bio-chemical parameters, bacterial culture and antibiotic sensivity

Centre for Excellence for Use of Space Based Technology in Animal Science : Prof. A.K. Kataria Principal Investigator, of the project mentioned mapping of disease, outbreaks of different species of animals attended by Centre for Excellence for Use of Space Based Technology in Animal Science. He informed that disease outbreaks with magnitude of the disease were mapped with in different districts for peste des pititis ruminants, enterotoxaeimia and pox in sheep and goat, Botulism, equine influenza, FMD, H.S., B.Q. etc. The PI also appraised about the spatial data base of LRS, Beechwal, Kodamdesar and Murli Manohar Gaushala which have been generated through server based mapping by the centre. Hon'ble Vice-Chancellor informed the house that the RAJUVAS is the first to have GPRS based mapping of land. Hon'ble Vice-Chancellor also suggested the PI that periodical observations should be included in mapping of disease prevalence. **(Action PI)**

Centre for Studies on Wildlife Management and Health : The Principal Investigator, Prof. A.K. Kataria explained in short about the mandate of the centre and informed the house about detailed work done in the Jorbeer area of Bikaner. He informed that Desert Bird Fair has been started by forest department in collaboration of RAJUVAS at Jorbeer area of

Bikaner. He also informed that native birds are migrating to Jorbeer, Bikaner since January, 2015. Above area is dumping ground for dead animals probably, only of its kind in the world where large number of wild birds are aggregating for feeding of carcass. Hon'ble Vice-Chancellor suggested that CVAS, Navania is developing a Bird Watching Point therefore, PI should contact CVAS, Navania for developing such sites at Jorbeer area of Bikaner in collaboration with forest department.

(Action: PI)

Establishment of Rathi Cattle Breeding Farm : Prof. Rajeev Joshi, PI of the project presented his report, herd strength, milk production, lactation length in brief of LRS, Bikaner and LRS, Nohar. The Chairman enquired about the production of milk, lactation period and expressed his concern on the performance of the herd. He suggested to make efforts to increase lactation period up to 300 days.

(Action: PI)

Centre for Organic Animal Product Technology : Dr. Rajkumar Berwal PI presented the project in brief. He informed the House about establishment of organic fodder grass museum, Azolla Unit as sustainable organic feed and production of Vermi Compost which is important component of organic animal farming. He further informed about the training of 496 farmers for organic animal production to enhance organic animal husbandry and distributed the literature as booklet, folder and leaflets.

Establishment of Live Demonstration Models of Diversified Livestock Production Systems for Motivating Adaption to Enhance Agricultural Income : Dr. Sanjay Singh, Project Associate presented the report. He informed that a live animal biodiversity museum for live demonstration of different livestock species models of diversified animal production

system viz Diversified Poultry species like different breeds of chicken ,broilers, ducks, guinea fowl, turkey ,Quail ,emu and large domestic livestock species like cattle and buffaloes , small ruminant species like sheep and goat, as well as different breeds of rabbit etc. are being reared as component of diversification along with fish and Azzola culture with the aim to promote livestock owners through live demonstration to adopt this model to increase farm income for better livelihood and efficient use of available natural resources in addition to these live demonstration of Marwari goat and Magra sheep at LRS, Kodamdesar and LRS, Beechwal and cattle breeds available at various LRSs of RAJUVAS. He displayed various pictures of the above species and also informed about the completion of fish pond work and a farmers' training hall has been developed.

Assessment of occurrence of various diseases in camel (*Camelus dromedaries*) prevailing in arid and semi-arid region of Rajasthan state using pathological diagnostic tools and development of field based diagnostic/sampling techniques for identification of camel diseases : Prof. Hemant Dadhich, Principal Investigator presented progress of the project. Dr. Dadhich appraised the House that latest equipments such as Haematology Analyzer, Biochemistry Analyzer, Tissue Processing Machine were procured. During the reporting period 423 samples were collected and preserved for histopathological and histochemical examinations. Along with this, blood samples were also collected for investigation. The disease observed during gross and histopathological examination were pneumonia, camel pox, dermatomycoses, tuberculosis, ruminitis, raticulitis, entritis, nephritis, mange and endocarditis.

Area Specific Mineral Mixture Supplementation for Enhancing the Production, Reproduction and Health Status of Cattle and Buffalo of the Semi-Arid Eastern Plain of

Rajasthan : Prof. (Dr.) Sheela Chaudhary, PI informed the house about the objective and budget outlay of the project. Dr. Chaudhary informed that during this period four villages in two tehsils of Tonk district were selected for project. She also informed the House about the effect of mineral mixture supplementations in production and reproduction traits which were encouraging one.

RKVY Project Establishment of Goat Breeding Farm for Demonstration of Remunerative Goat Farming System at Aangai, Dholpur.

Dr. D.S. Meena, PI of the project presented the objectives and progress of civil work and informed that Rs.2 crores received under project allocation were transferred to Director (Works) for this purpose. Outlay of allotted land has been completed. Civil work of boundary wall is under progress at Aangai. Animals will be purchased after development of infrastructure.

Capacity Building for Animal Feed Technology, Quality & Productivity Enhancement :

Dr. Vishnu Sharma, Principal Investigator presented the work done in the project. Dr. Sharma reported the house that under the project 142 farmers, 15 Goshala Incharges, 71 LSA and 12 VUTRC Assistant Professors were benefited by organizing training programmes. Farmers learned about proximate principles, which included different methods for estimation of crude protein, ether extract, crude fibre and ash. Practical training included making of urea molasses, mineral block, urea treatment of straw, silage making, laboratory estimation and documentation of feeding practices. Technical publication and booklets were also published and distributed among farmers.

Establishment of Specialized Human Resource Development Centre of Veterinary and Animal Sciences at Jaipur (PGIVER) : Dr. Vishnu Sharma showed the facilities.

buildings and other infrastructure completed so far. Dr. Sharma has also mentioned the total number of faculty staff, students and educational programmes being run and including subjects and including subjects being run at PGIVER, Jaipur. Dr. Sharma also briefed about the centralized disease diagnostics, clinical facilities available for the treatment of animals at the institute. PGIVER has adopted a village Kanarwas under Smart Village and under Swachh Bharat Mission.

Capacity Building for Detection of Newer Synthetic Ingredients, Highly Pathogenic Microbial Presence, Drugs, Pesticides Residues and Pollutants etc. by Establishing High End Milk Quality Testing Research Laboratory at Jaipur: Dr. Vishnu Sharma, Prof. and Dean, PGIVER, Jaipur presented the progress of the project. Dr. Sharma informed the house that 2701 samples of milk were analyzed for Urea, Soda, Starch, Detergent and Salt. Moreover, 60 samples were studied for pesticide contamination, out of which 25 were found positive. Each milk sample in microbiology unit was processed for identification of different bacterial pathogens naming *staphylococcus aureus*, *klebsiella pneumonia*, *E. coli*, *enterococcus faecium*, *enterococcus faecalis*, *E.cloaca*, *E. coli* O157; H7, *Salmonella typhi*. The standardization of *salmonella* and other isolated species primers are in progress.

Mega Sheep Seed Project : Dr. P.C. Sharma, Principal Investigator presented the progress of the project including budget and other technical aspects. The population statistics of sheep, in farm is 373 male and 556 female. 70 elite rams are available in the field for breeding of 1639 breedable Sonadi ewes. Total 23 farmers were registered from TSP area having 450 breedable Sonadi sheep. The revenue generation during the period is Rs.3.10 lacs.

Network Project on Buffalo Improvement : Dr. P.C. Sharma, Principal Investigator presented the progress report. Herd strength of buffalo is 130 and he described that the average total lactation yield was 1623.90 kg produced in 344 days. The average 305 days milk yield was 1477.38 kg with average peak yield of 8.78 kg. The average lactation yield and 305 days milk yield has increased from last year; however the peak yield is slightly less.

The herd strength of registered females under field unit was 4510 and total of 1986 buffalo were bred during the reporting period. Only 2 calves were died during the period. Farmers of the region are showing interest towards buffalo rearing for milk production as evident from positive growth rate of buffaloes in comparison to cattle. In addition, buffalo contributed more than 90% of total income from livestock, indicating importance of buffalo in socio-economy of farmers in the region.

LRS, Dug, Jhalawar : Dr. Vishnu Kumar presented the project report. Dr. Kumar informed that total fund allotted under State Plan and RKVY is Rs.200 lac and Rs.546 lac respectively. He also informed that an AHDP centre is also running wherein 21 students in Second Year and 49 students in First Year are studying at the station. Renovation of old building and construction of boundary wall is in progress. One tube well and electricity connection has been completed. Purchased all agricultural equipments and implements and land development is in progress. Total herd strength of Malvi cattle of the station is 102.

Establishment of Gir Cattle Breeding Farm : Dr. Vishnu Kumar presented the achievements of Gir cattle breeding farm and reported that the herd strength is 259. He presented the milk yield lactation length and parities of 20 elite cows. During reporting period herd average and wet average were found to be 3Kg and 7 Kg respectively. Construction of new feed and fodder store has been completed. Computer data recording for production and reproduction is being regularly done. 2 Gir bulls has been selected from male calves for future breeding. A total of 33512 doses of Gir, Tharparkar, Kankrej and Rathi

Breeds were also preserved. More than 3000 doses of Gir semen were distributed at near by AI Centres. 70 prospective bulls have been distributed for expanding of germplasm. An automatic mini feed plant and electronic weight bridge have been installed.

Experimental Learning Unit Pet (Pup) Production : Dr. Vishnu Kumar presented the progress report of the project. The main aim of this project is to provide hands on training about pet breeding, management, nutrition, vaccination. The objective of the project is to develop facilities and impart entrepreneurial skill among students as a part of VCI syllabus. All activities are carried out by students independently. Students are gaining experience and earning through canine breeding.

Demonstration and Dissemination of More Remunerative Sirohi Goat Farming System :

Dr. M.C. Sharma, Co-PI of the project presented the progress report. NMPS project has been started at LRS, Chittorgarh and 300 goats of Sirohi breed have been purchased for conservation and improvement of the breed. The present flock strength is 410. During the reporting period 166 kidding took place. 10 cases of twinning were also reported. Dr. Sharma mentioned the least square mean of body weight growth from birth to 12 month and also presented lactational performance of Sirohi goat from 30 days to 150 days of milk production and lactation yield was 58.32 litres. 50 breeding bucks were also distributed.

Pilot project on Alternate Energy Generation through Bio Gas Based Electricity

Production at CVAS, Navania : Dr. Deepak Sharma presented the objective of the project and informed the house that drawing bio gas plant has been finalized after thorough discussion with more than five private companies. Rs.32 lacs with details of drawing, specifications of electro-mechanical components have been submitted to Director (Works) to float tenders. 2 MT cattle dung procured and 10 vermi bed trenches have been started. 600 kg of earth worm also been procured. 200 Neem plants have been planted for Neem cake preparation which will be used as medicine to enhance quality of vermi compost. 200 Arandi

plants has been planted for natural shed and income generation also. Farmers training on this model of vermi compost have been initiated. 15 farmers are selected with the willing to start vermi compost venture at their field.

Engineering and Technology Centre : Ms Sumitra Goswami, Project Associate briefed about the activities and work done under the mandate and objective of the centre. She informed the work done so far. Project take initiative to establish mechanical workshop, planning of rain water harvesting system in the University was also performed by E&T project, centre also developed master plan, planning of various design of cattle shed. Bio diversity museum at Bikaner and Udaipur were also developed. New prototype centre also perform various test related to civil works.

Genetic Improvement of Sirohi Goats in Farmers' Flocks : Dr. C.S. Saraswat presented progress report of the project. Dr. Saraswat informed that they have achieved improvement in growth parameters, standard set up by CSWRI. The total female strength in the project is 1535. The genetic parameters for growth, lactation and reproductive traits were estimated. The overall lactation yield and lactation length was 102.33 litres and 150.26 days respectively. The overall population growth was 79.56 per cent. During reporting period 35 breeding bucks were distributed to the registered farmers for genetic improvement in the field. 81.04 per cent breeding efficiency were observed. 338 animals were sold during the reportings period out of which 270 animals were also sold for breeding purpose.

Establishment of State Level Feed and Fodder Analysis Laboratory for Quality Assurance in Feeding of Animals for Sustainable Animal Production in Rajasthan :

Dr. Rajesh Nehra presented the report of the project. He informed that advance animal nutrition laboratory under development will support quality nutrition to the animals of state by analysis of feed & fodder for quality assurance including anti nutritional and toxic factors. The work of addition/alteration and fabrication of laboratory has been completed. New

equipments viz. microwave digestion system, infra red analyser, induce inductively couple photometer have been added. 74 samples of different government agencies and farmers were analysed. 112 samples from agriculture and other sectors were also analysed for nutrition attributes.

Centre for conservation of Animal Biodiversity : Dr. Mohanlal Choudhary presented the report of the project. Trainings and workshops were arranged for farmers to increase interaction and transfer of technology. Regarding animal biodiversity of indigenous cattle in Rajasthan. Five one day off campus trainings were also conducted in different villages of Dungargarh and Loonkaransar tehsil of Bikaner. Three two days on campus training were also organized for 750 farmers. Web Portal have been developed. SMS Advisory System has been developed and will function very soon. Genetic improvement of local breeds can be done by molecular genetics profiling is under progress. Also maintaining digitized data related to floral and faunal resources of the State of Rajasthan.

Animal Bio-Medical Waste Disposal Technology Centre : Dr. (Mrs.) Rajani Joshi, Co-PI presented the report of the project. To isolate and identify the aerobic bacteria present in the bio-medical waste 60 samples were collected from clinical complex of RAJUVAS. Mean total viable count of 60 bio-medical waste sample examined was found 2.64×10^5 CFU per gm. Aerobic bacteria isolated and identified from these bio-medical waste sample were *E.Coli*, *S. Aureus*, *Klebsiella species* and *Pseudomonas species*. Autoclave at (operated at 15 lbs pressure for 15, 30 and 45 minutes) was found effective for sterilization of bio-medical waste. Though autoclave did not sterilize bio-medical waste when operated at 15 minutes. Incinerator is also effective tool for bio-medical waste disposal treatment. She also informed that a short film on bio-medical waste and health hazards was directed and released for public awareness.

Establishment of Tharparkar Cattle Breeding Farm : Dr. M.S. Meel, Assistant Professor presented the achievement of the project. The herd strength was 416 on 31.03.2016. Among the reproductive parameters, average age at first calving were 1386 days (lowest 855 days) noted during reporting period. Dry period and calving interval were 113.65 and 360.73 days respectively. In production parameters, the wet average and herd average were 6.01 Kg and 3.46 Kg respectively. Peak yield was 18.0 Kg in 11 cows with maximum peak yield of 24Kg. Most of the cows attend peak yield between 6 to 87 days after calving. Average total milk production of the herd was 1731 Kg. Whereas average milk production at 305 days was 2267 Kg during the reporting year.

Livestock Research Station, Beechwal : Prof. R.K. Singh presented the progress report of Livestock Research Station, Beechwal. Dr. Singh informed the house that during the period 56 animals were distributed to different organizations. Revenue received during the period was Rs.7492096/-. The herd strength of Tharparkar cattle was 130 during 2015-16. The average age at first calving was 3.2 years whereas the lowest age at first calving was 2 years, 5 months and 27 days (cow Number 70). The average calving interval was 388 days (lowest 329 days in cow No.20). The average lactation length 304.2 days, average lactation yield was 2883.6 Kg of milk, average lactation yield (305 days) was 2752.6 Kg and average peak yield was 15.08 Kg of milk. The highest milk yield was observed 5922.41 Kg in cow number 14, highest 305 days milk yield was 5059.8 Kg and peak yield 26 Kg milk was observed in the same cow. The various crop production activities such as wheat 257.5 Qt., gram 26.5 Qt., Methi 6.0 Qt., groundnut 211.4 Qt., guar 43.60 Qt., Moth 5.5 Qt and moong 11.16 Qt were produced.

Livestock Research Station, Kodamdesar: Conservation, evaluation and improvement of Kankrej cattle through breeding : Dr. Sitaram Gupta presented the achievement of the project. He presented the herd strength of Kankrej cattle which was 420 females and 199

males total with 619 animals. He also presented the production and reproduction performance. Milk production per lactation was observed to be 1790Kg (3376.8 best performance). Lactation length per cow was 268 days (305). Age at first calving was reported as 1172 days. The wet average and herd average were 4.4 and 2.1 Kg respectively. The income generated in the project was Rs.3733216/- during 2015-16.

Conservation, evaluation and improvement of Sahiwal cattle through breeding : Dr.

Sitaram Gupta presented the achievement of the project. The herd strength of Sahiwal cattle was female 234 and male 130 with total of 464 animals. Milk production per lactation was 2045 Kg. and calving interval of 383 days was observed. The wet average and herd average were 4.5 Kg and 2.2 Kg respectively. During this period 6 Sahiwal bull calves were distributed. The amount of revenue generation was Rs.3561630/- from various sources of income. Hon'ble Chairman suggested all PIs/Incharges should observe reproductive efficiency of the herd regularly and pregnancy diagnosis should be done on regular basis. Genetic proliferation of germplasm should be taken care of, with one calf a year programme. This will lead to increase in herd performance. Extra ration should be given at the tail end of lactation to increase the milk production and constraints should also be taken care of. Over crowding should be avoided. Culling of animals with reproductive disorder should be carried out at regular interval.

(Action PI)

Sewan grass development and green fodder production with fodder conservation for sustainable livestock production in arid region of Rajasthan : Dr. Sitaram Gupta presented the achievement of the project. LRS, Kodamdesar have large area of cultivation for fodder and grasses having about 3000 ha of farm land. During this year 150 hac land was used for cultivation of Sewan grass. Construction of DH minor B head through 20 Div.IGNP

was also done. Sewan grass seeds were purchased. Civil work for fencing is also completed. Dr. Gupta informed that Sewan grass seeds were germinated in the hydroponic system thereafter planted in the field. Under extension activities, 500 farmers visited the station.

Nutritional and Physiological Approaches for Enhancing Reproduction Performance in

Cattle and Buffaloes : Prof. J.S. Mehta presented the progress report. Under the project, 1836 animals were screened moderately delayed puberty in heifers from different area of Rajasthan and reproductive and productive status were summarized. Some delayed puberty heifers were identified and response were observed after giving treatment. Cattle and buffalo heifers with delayed maturity, delayed post partum cyclicity, repeat breeding, silent estrous animals were subjected to induction and/or synchronization of ovulation through various synchronization protocols, as repeat breeder. The Chairman suggested to compare data with other centres of AICRP also. (Action PI)

Centre for disaster management technology for animals : Dr. S.K. Jhirwal presented the achievement of the project. Dr. Jhirwal informed that on campus and off campus trainings were organized. By intervening, Hon'ble Chairman has suggested that this centre should be developed as centre for recommendation. At this stage policy papers for animal disaster management should be prepared for Rajasthan State.

(Action PI)

Centre for Ethno-Veterinary Practices and Alternative Medicine : Dr. Ashok Gaur, Astit.Professor, Veterinary Pharmacology presented the progress report. Dr. Gaur informed that centre have received 42 formulations in the format which they developed. Medicinal plants were identified and herbarium were prepared for students. Hon'ble Vice-Chancellor and Chairman enquired about the patent applied by the centre. Chairman instructed the PI to move proposal for Co-PI in the project.

All India Network Programme on diagnostic imaging and management of surgical conditions in animals : Dr. Sakar Palecha presented the achievements of the project and informed about procurement and installation of CT scan machine in the centre which was appreciated by the Hon'ble Vice-Chancellor.

AI-03/RC-03/RAJUVAS/2015-16 : To revise the book value of animals

Demand of Indigenous cattle breeds is increasing day by day from all over the country. Animals not required for research mandate are sold on book value. Previous book values were revised in the year 2007. Now due to increased maintenance/ labour cost, feed and fodder expenses book value of animals should be revised to meet the increased maintenance cost.

It was resolved that a committee will be constituted by Director Research for revision of book value.

(Action: Director Research)

AI-04/RC-03/RAJUVAS/2015-16 : Tree plantation at all Livestock Research Station(s)

At each LRS, there is ample area of land, 30 % of area should be under tree cover. This will make the area eco-friendly and productive.

It was resolved by the House, to undertake tree plantation in phased manner at each Livestock Research Station. Proposals regarding number and types of trees to be procured for plantation may be sought from OIs of all the LRSs.

(Action Director Research and all Incharge, LRSs)

AI-05/RC-03/RAJUVAS/2015-16 : Automatic weather stations (AWS) at all LRSs

Climatic change is an important area of concern with regards to productivity of the animals. Recording of metrological data and correlating it with physiological parameters on continuous basis can help in generating valuable information in relation to the productivity of animals.

After discussion the House resolved that automatic weather equipments for LRSs may be purchased with parameters having option of storage of data, wind velocity, weather forecast, etc. In this connection, Prof. Anil Kumar Kataria, and Prof. Nalini Kataria may be consulted

(Action Director Research and O/I of LRS(s))

AI-06/RC-03/RAJUVAS/2015-16: OI of LRSs should be made one of the member of advisory committee for post graduate research.

O/I of the LRS on which the student proposes to work should be made member of the advisory committee such that the O/I may utilize the data generated for further improvement of the breed and managerial practices.

It was resolved that Officer Incharge of the LRS may be involved as one of the committee member in the PG/Ph.D research work of the student, further OIs will not allow PG/Ph.D research work without prior permission of Director Research. The major advisor of student will ascertain submission of a copy of thesis to Director Research. It was also resolved that a compiled retrospective research report on the particular breed of the research station should be submitted by Officer incharge of all LRSs with specific recommendation on the basis of research carried out at their station.

(Action: All OIs of LRS)

AI-07/RC-03/RAJUVAS/2015-16: Funds for replacement of farm animals.

There should be a separate fund allocation at each Farm for replacement of animals. Funds generated from sale of animals should be recycled for purchase of new stock.

It was unanimously resolved by the House that all the Officer Incharges of LRSs should submit the details of fund received from sale of animals at their station to the Comptroller of the University so that University can take further action in this regard.

(Officer Incharge, LRSs and Comptroller)

AI-08 RC-03/RAJUVAS/2015-16: Minimum performance parameters

Minimum performance parameter for livestock farm may be developed by the expert committee which may periodically be reviewed and revised.

It was resolved by the House that a expert committee may be constituted by the Director Research which will periodically review performance of LRSs.

(Action: Director Research)

AI-09/RC-03/RAJUVAS/2015-16: Any other item with the permission of the Chair.

The Chairman invited the scientists and members if they have any specific comments/suggestion for betterment of research work being undertaken as well as any future plan. No agenda came up pertaining to this agenda.

The meeting ended with vote of thanks to the Chair.

Director Research & Member Secretary

List of participants

1. Prof. (Dr.) Col. A.K. Gahlot, Hon'ble Vice-Chancellor - **In the Chair**
2. Dr. Ashok Vij, Dy. Director, Represented Director, Deptt. of Animal Husbandry Department, GOR, Jaipur
3. Sh. Madan Singh, Fisheries Development Officer, Hanumangarh Represented Director of Fisheries, GOR, Jaipur
4. Dr. Bharti Opneja, Dy. Manager, Represted, Managing Director, RCDF, Jaipur
5. Sh. Agya Ram Singh, Progressive Livestock Breeder
6. Sh. Srigopal Upadhyay, Progressive Livestock Breeder
7. Dr. Govind Singh, Director Research, S.K.RAU, Bikaner
8. Sh. B.R. Meena, Registrar, RAJUVAS, Bikaner
9. Sh. Arvind Bishnoi, Comptroller, RAJUVAS, Bikaner
10. Prof. R.K. Dhuria, Director Extension Education and PI, VURTC
11. Prof. G.S. Manohar, Dean PGS & Head. Deptt. of Parasitology, CVAS, Bikaner
12. Er. M. Ram, Director Works, RAJUVAS, Bikaner
13. Prof. S.S. Soni, COE, RAJUVAS, Bikaner
14. Prof. J.S. Mehta, Director Clinics & Head, Deptt. of Gynaecology, CVAS, Bikaner
15. Prof. Vishnu Sharma, Dean & PI, Capacity Building (RKVY), PGIVER, Jaipur
16. Prof. S.K. Kashyap, Dean, PGS & Head. Deptt. of Microbiology, CVAS, Bikaner
17. Prof. S.C. Goswami, DSW & Head, Deptt. of LPM, CVAS, Bikaner
18. Prof. R.K. Singh, DPME & Officer Incharge, LRS, Beechwal, Bikaner
19. Prof. A.A. Gauri, Directorate of Research (VAS), Bikaner
20. Dr. U.K. Bissa, Retd. Sr. Scientist, Directorate of Research, Bikaner
21. Prof. Nalini Kataria, Head, Deptt. of Physiology, CVAS, Bikaner
22. Prof. Hemant Dadhich, Head, Deptt. of Pathology, CVAS, Bikaner
23. Prof. A.K. Kataria, Officer Incharge, Apex Centre, CVAS, Bikaner
24. Prof. R.K. Joshi, Officer Incharge, LRS, Bikaner, Nohar & PI, RKVY, Rathi Cattle
25. Prof. V.Kumar, PI, & OI, RKVY Kankrej Cattle, LRS, Kodamdesar
26. Prof. Sheela Chaudhary, PI, ASMMS, PGIVER, Jaipur
27. Prof. R.S. Pal, Officer Incharge, LRS, Chandan & PI, RKVY, Tharparkar Cattle
28. Dr. Praveen Bishnoi, Assoc. Prof., PI, CDMT, Deptt. of Surgery & Radiology, CVAS, Bikaner
29. Dr. D.S. Meena, Assoc. Prof., PGIVER, jaipur
30. Dr. R.K. Berwal, PI, COAPT, CVAS, Bikaner
31. Dr. P.C. Sharma, PI, MSSP/NPBI, CVAS, Navania, Vallabhnagar
31. Dr. M.C. Sharma, Asstt. Professor, Co-PI, NMPS, LRS, Bojunda
32. Dr. (Mrs.) Rajani Joshi, Asstt. Professor, Vet. Public Health, CVAS, Bikaner
33. Dr. Sita Ram Gupta, Asstt. Prof. LRS, Kodamdesar
34. Dr. Rajesh Nehra, Asstt. Professor, Deptt. of Animal Nutrition, CVAS, Bikaner
35. Dr. Ashok Gaur, Asstt. Professor, CEVPAM, RAJUVAS, Bikaner
36. Dr. M.S. Meel, Asstt. Prof., LRS, Chandan,
37. Dr. Ashok Dangi, Asstt. Prof., & Incharge, IUMS, RAJUVAS, Bikaner
38. Dr. Sakar Palecha, Asstt. Prof., Vet. Surgery & Radiology, CVAS, Bikaner
39. Dr. S.K. Jhirwal, Asstt. Prof., Vet. Surgery & Radiology, CVAS, Bikaner
40. Dr. Vishnu Kumar, Asstt. Prof., CVAS, Navania
41. Dr. Deepak Sharma, Asstt. Prof., CVAS, Navania
42. Dr. C.S. Saraswat, Asstt. Prof., CVAS, Navania
43. Sh. Dinesh Chandra Saxena, PRO, PRC, RAJUVAS
44. Dr. Sanjay Singh, Project Associate, Deptt. of LPT, CVAS, Bikaner
45. Dr. Prakash, Project Associate, Marwari Goat, Deptt. of ABG, CVAS, Bikaner
46. Dr. Pradeep Kumar, Project Associate, RKVY Rathi, CVAS, Bikaner
47. Prof. Rakesh Rao, Director Research, RAJUVAS, Bikaner - **Member Secretary**

No.F. ()/DR/Tech/2017/1471

Dated: 6-2-17

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1. P.S. to Vice-Chancellor, RAJUVAS for kind perusal of Hon'ble Vice-Chancellor
2. The Director, Directorate of Animal Husbandry, Jaipur ✕
3. The Director, Directorate of Fisheries, Jaipur ✕
4. The Managing Director, RCDF Ltd., Jaipur ✕
5. Director Research, S.K. Raj.Agricultural University, Bikaner
6. Directors/Deans/COE,RAJUVAS, Bikaner
7. Registrar, RAJUVAS, Bikaner
8. Comptroller, RAJUVAS, Bikaner
9. Sh. Agya Ram Singh, Progressive Livestock Breeder, Kirti Stambh, Near Municipal Corporation, Bikaner
10. Sh. Srigopal Upadhyay, Progressive Livestock Breeder, Inside Eidgah Bari, Dharmnagar, Bikaner.
11. OSD (VC), Jaipur ✕
12. Principal Investigator/HOD, OI, LRS(s)
13. Prof. B.N. Shringi, Deptt.of Microbiology & Biotechnology, CVAS, Bikaner
14. Meeting Section, RAJUVAS, Bikaner ✓
15. Technical Section, Directorate of Research, RAJUVAS, Bikaner ✓

Ramesh Rao
6/2/17

Director Research & Member Secretary