



ICAR - CSWRI

भा.कृ.अनु.प.-केन्द्रीय भेड़ एवं ऊन अनुसंधान संस्थान, अविकानगर

ICAR - CENTRAL SHEEP AND WOOL RESEARCH INSTITUTE, AVIKANAGAR

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From the Director's Desk

Greetings to all

Amidst the COVID-19 pandemic, agriculture and allied sectors have contributed immensely in maintaining the livelihood and food security of the country. The entrepreneurs and progressive farmers have started to usher into small ruminant farming, considering the increase in demand for meat on account of favourable socio-economic factors such as changing eating habits, higher purchasing power, urbanization, increasing health consciousness towards protein rich diet, preferred meat due to religious preferences. The enterprises based on sheep husbandry and product processing have gained importance in terms of contribution to income, employment and foreign exchange earnings.



ICAR- CSWRI has taken several initiatives to bring out sustainable technologies through multidisciplinary research and extension activities to strengthen small ruminant husbandry. To meet the demand of mutton and to improve the utilization of coarse wool mainly produced in the country, institute has been giving emphasis on prolificacy by introgression of *FecB* gene through development and propagation of Avishaan sheep. The other areas of research in focus includes genetic improvement of sheep and rabbit, new estrus synchronization protocol for sheep, indexing of climate stress, improvement of feed conversion efficiency and meat yield, development of herbal anthelmintic product, diversified use of coarse wool in composites, organic manure, handicrafts, quilts etc and value addition of meat and milk.

To make the extension workers aware of the institute technologies, institute organized a workshop for KVK heads and animal specialists from Rajasthan, Haryana and Delhi. In continuation of Azadi ka Amrit Mahotsav programs, the institute also organized several capacity building programmes through both online and offline interactive meets for the stakeholders. Animal health camps were organized at the nearby villages under MSSP and Farmers FIRST project. An animal judging competition to select best elite breed rams and bucks was organized for raising awareness about importance of elite breeds and for genetic improvement in sheep and goats of farmers. Quality animal and seed distribution programmes were organized under Tribal Sub Plan and Schedule Cast Sub Plan and Farmer FIRST project. Institute celebrated important occasions like Independence Day, World Zoonoses Day, Hindi Pakhwada, Parthenium Eradication Awareness Week and Poshan Vatika Mega-campaign. During the last six months, 09 incubatees were registered and 07 MOUs were signed with Agri Business Incubation Center (ABIC) of the institute for technical support to establish sheep and goat-based enterprises including sheep, goat farms and product manufacturing. I am sure that the information included in newsletter would be useful to farmers and stakeholders. I wish to congratulate all the scientists and staff of publication unit for bringing out the newsletter in time.

(Arun Kumar Tomar)
Director

Research Highlights

Population structure of Marwari flock reared at arid region of Rajasthan

H. K. Narula, Ashish Chopra and Jayesh Vyas



Marwari sheep is known for its adaptability to harsh environment condition and it walks long distances for grazing. It is distributed in arid and semi-arid region of Rajasthan, India. Pedigree records of 11659 animals at CSWRI-ARC, Beechwal, Bikaner during the period from 1981 to 2020 were utilized to calculate genealogical parameters like generation interval, pedigree completeness, inbreeding level, average relatedness among the animals and genetic conservation index were estimated based on gene origin probabilities. Lambs born during 2017 and 2020 were considered as reference population. For pedigree analysis and calculation of population parameters, the program ENDOG (v4.8) was used. The mean maximum generation, mean complete generation and mean equivalent complete generation was 9.12, 2.75 and 5.35, respectively. The mean generation interval for whole population was 3.55 years with a longer interval from dam-son pathways relative to sire-son ones. Average inbreeding coefficients for animals in the whole population was 1.49. The realized effective population size, estimated from regression of the average inbreeding coefficient on number of equivalent complete generations was approximately 87.17. Probabilities of gene origin estimated by calculating effective numbers of founders (f_e), ancestors (f_a) and founder genome (f_g) was 80, 46 and 16.76, respectively for reference population. The f_e/f_a ratio in the reference population was 1.74, indicating that bottlenecks had occurred. The genetic contribution of the 16 most influent ancestors' explained 50% of the genetic variability in reference population. The results revealed that although there was evidence of bottleneck and genetic drift, considerable genetic variability remained in the population. Small portion of genetic diversity was lost due to a disproportionate contribution of founders and bottlenecks mainly because of unbalanced contribution of breeding animals to gene pool of population.

Shikakai (*Acacia concinna*) pod extracts having excellent anthelmintic property

F. A. Khan, C.P. Swarnkar and S. R. Sharma

In search of herbal anthelmintics parts of many plants are being evaluated at the Institute. Mature pods of shikakai (*Acacia cocinna*) were collected from herbal garden of the Institute. Crude aqueous, methanol, ethanol, acetone and hydro-alcohol extracts have been

found to have excellent anthelmintic properties against *Haemonchus contortus*. A poor to mild embryocidal effect was observed on *H. contortus* eggs by both aqueous and methanolic extracts (@ 10.0 mg/ml), while moderate embryocidal activities by both ethanolic and acetonic extracts (@ 10.0 mg/ml). However, hydroalcoholic extract exerted moderate embryocidal effect at the concentration between 0.15 to 0.63 mg/ml.



All the extracts of shikakai pod exerted excellent inhibition of egg hatching and excellent (>90%) larvicidal activity with minimum concentration of 0.15 mg/ml. Based on IC_{50} and LC_{50} acetone extract possessed the highest embryocidal, ethanol extract highest ovicidal and hydroalcohol extract had highest larvicidal activity.

Indexing climate stress in sheep

Vijay Kumar



With an ultimate goal to develop climate resilient shelter system for commercial sheep farming in semi-arid and arid climate, research on indexing the climatic stress in prevailing sheep breeds has been initiated. For sheep the majority of climatic stress occurs during the summer season in the semi-arid region. The native Malpura and newly developed synthetic prolific Avishaan ($FecB^{BB}$) rams have shown similar physiological responses and blood biochemical stress indices, which indicates that winter was well tolerated by both breeds. The project now envisages comparative evaluation of sheep during summer and controlled conditions with specific increments and indexing with respect to the various physiological and blood biomarkers. In preliminary evaluation, indigenous housing system made of mud and thatched roofs with wooden supports were found to be effective in maintaining the comfortable microclimate for sheep with microclimate temperatures at least 5°C higher during winter and lower during summer, respectively as compared to the ambient temperatures. Further evaluation on several such houses in the areas will lead us to identify their thermal insulation characteristics. Provision of windows, thickness of walls and choice of roof materials determine the efficiency of climate resilience of such shelter systems. These combinations need to be researched to develop local-availability based cost effective yet farmer-friendly model for enhanced sheep productivity.

Cloning and Sequence analysis of Interferon-Epsilon (ϵ) gene of Avishaan Sheep

Govindasamy Nagarajan, Amar Singh Meena and Rajiv Kumar



An attempt was made to amplify and analyse the nucleotide and amino acid sequences pertaining to type I interferon *viz.*, Interferon- Epsilon (ϵ) of sheep. In this connection, the complementary DNA (cDNA) of Interferon- ϵ from the liver of Avishaan sheep was amplified by PCR using published sheep sequences and subsequently cloned for sequence analysis. The Avishaan sheep IFN ϵ cDNA contained a 582bp open reading frame encoding a protein of 193 amino acids with an estimated molecular weight of 22.680 kDa. Sequence analysis revealed that Avishaan sheep shared 100 % both at nucleotide and amino acid levels with that of Rambouillet sheep. With other artiodactyls, the range of identity of Avishaan sheep was 85- 95 % and 78- 98 %, at nucleotide and amino acid levels, respectively. The perissodactyls shared 84-85 % and 77- 78 % identity at nucleotide and amino acid levels, respectively with that of Avishaan sheep from India. Phylogenetic analysis based on amino acid sequences indicated the close relationship in Interferon- ϵ gene between sheep and other artiodactyls.

Effect of Curry leaves (*Murray koenigii*) on methane emission and meat quality of lambs

Srobona Sarkar, R.S. Bhatt and Arvind Soni



Murray koenigii tree is a small aromatic perennial shrub commonly found in forests as undergrowth. Its aromatic leaves retain flavor and bioactive compounds even after drying and are considered as anthelmintic, analgesic, digestive stimulant and appetizer. These leaves are widely used in Indian cookery as flavoring agents. Its leaves, roots and bark are the richest source of carbazole alkaloids which have anti-tumor, anti-oxidative, anti-mutagenic and anti-inflammatory activities. Leaves are rich in phytochemicals like carotenoids, flavonoids, oleoresins which have strong antioxidant activity. Succulent curry leaves has therapeutic and culinary values in human beings, however, mature leaves remains unutilized by humans and can be incorporated in the diet of small ruminants to assess their functional value as rumen modifier. Supplementation of 10% mature curry leaves in complete feed blocks fed to lambs reduced enteric methane emissions by 12.6% as a result the conserved energy increased daily gain by 9.9 %. Meat of these lambs had higher proportion of oleic acid, conjugated linoleic acid and lower proportion

of stearic acid. Hence, feeding bioactive endowed mature curry leaves can form an integral part of sustainable and precision animal feeding as it improves functional attribute of mutton and mitigate enteric methane emission.

Population structure and genetic diversity of german angora rabbit through pedigree analyses

Abdul Rahim and Om Hari Chaturvedi



German Angora mainly reared for high quality fine fiber yield. Monitoring of population structure, inbreeding and other related parameters has great potential to prevent major losses of genetic diversity within populations. Therefore, the present investigation was carried to study the population structure of German Angora Rabbit through pedigree analysis. Pedigree information was collected from the pedigree records of 6145 animals born between 1996 and 2020 at NTRS, ICAR-CSWRI, Garsa, Kullu (H.P). Out of total population, 99.09 percent of the individuals had known parents. The pedigree completeness levels for the whole pedigree were 99.12%, 97.12%, 90.66%, 82.49% and 74.11% for the first, second, third, fourth and fifth generations, respectively. The maximum inbreeding, mean inbreeding coefficients and average relatedness for the whole analyzed pedigree were, 36.96, 8.07 and 15.82% respectively. The mean maximum generations, mean equivalent generations and mean complete generations were 10.28, 7.91 and 5.51 with rate of increase in inbreeding of 0.85%, 1.19% and 1.85%, respectively. The respective effective population sizes were 58.50, 27.05 and 42.08. About 1.51% of total matings were highly inbred, in which mating between full sibs (0.10%) were very low in comparison to parent-offspring (0.63%) and half sibs (0.78%) mating. The effective numbers of founders and ancestors were 18 and 16, respectively, with a ratio of 1.12 which indicates the absence of strict genetic bottleneck effect. Six most influent ancestors explained 50% of genes (fa50) to the gene pool, which might have led to reduction in genetic variability and increased the level of inbreeding in the reference population. The effective population size computed via the individual increase in inbreeding was 42.83. The average generation interval was 1.51 years and was longer for the sire-son pathway. Present finding provides important and practical insights into how to manage and maintain the genetic variability within the individual flock and the entire population. The German angora breed was found to be losing genetic diversity over time, and therefore a strategy to reduce inbreeding rate and increase effective population size is recommended.

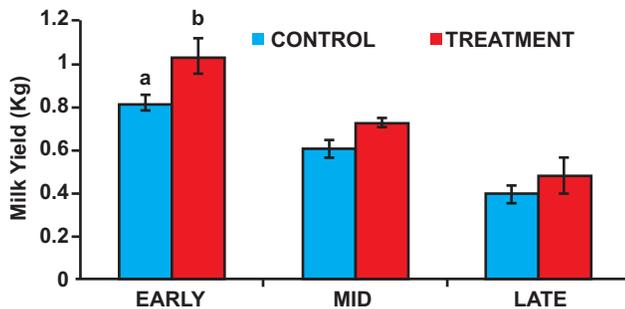
Autocrine modification to augment milk yield of Patanwadi ewes

Arpita Mohaptra and P. K. Mallick



The completeness of milk removal and udder stimulation before milking has a strong relationship with milk yield. The local stimulus activates the central control of lactation and complete milking results in inhibition of Feedback Inhibitors of Lactation (FIL).

Eighteen 2nd to 3rd parity ewes with similar lactational yield history were randomly grouped into control and treatment groups with 9 animals in each. In the control group, lamb suckling was practiced whereas, in the treatment group teat washing, and teat massage for 1 minute was done before lamb suckling and hand milking was done after lamb suckling. The results show in early lactation, the milk yield of the treated group was significantly ($P \leq 0.05$) higher than the control group. This augmented milk yield is due to autocrine (local) modification i.e. teat washing, teat massaging and hand milking followed by lamb suckling.



Autocrine modification to augment milk yield of Patanwadi ewes

Name of Incubates	Date
Udyamita Sambal Lodo Ka, Flat No. 924, B-6, Jagatpura Jaipur	20.07.2021
Namita Banka C/o Banka Biolo Ltd., Hyderabad	24.08.2021
Satyendra Singh, L 924/B9, Urinda Gardan, Kho Nagorian, Jaipur	27.08.2021
Punyashloka Ahilyadevi Maharashtra Sheep and Goat Development Corporation, Mendhi Farm, Pune	26.10.2021
M/S Biyani Institute of Livestock Development, Jaipur	08.12.2021
M/S Jaipur Rural Institute of Livestock Development, Jaipur	08.12.2021
M/S Dr. Sujata Biyani, Jaipur	08.12.2021
M/S Saroj Devi, Jaipur	08.12.2021
M/S Priyanka Biyani, Jaipur	08.12.2021



MOUs under ABIC Project

In last six months, 09 Incubates did registrations and 07 MOUs have been signed with ABIC, indicated in the following table:



Intellectual Property Right (IPR)

Patent filed

A complete application on Nano-particle based sperm membrane stabilizer for ram semen preservation.

Inventors: R. K.Paul, Raghvendar Singh, Davendra Kumar and Arun Kumar Tomar (Application number: 202111026011)

Provisional application on sound transmission loss tester

Inventors: Vinod Vishnu Kadam, Deepak Bharti, Sushma Rani, Nehru Lal Meena, Ajay Kumar and N. Shanmugam (Application number: 202111023060)

Glimpses of Celebrations

World Zoonoses day at Avikanagar

Institute organized a workshop cum awareness programme on “Importance of Zoonotic aspect of communicable diseases from



animals to human or visa-versa” on the occasion of World Zoonoses day on 6th July. The Guest of Honour Dr. Sanjiv Choudhry, Block Chief Medical Officer, Malpura, detailed about the current zoonotic covid-19 pandemic and gave comprehensive strategies including vaccination for protection from this deadly disease. The detailed presentations on important aspect of two sheep zoonotic diseases i.e. Brucellosis and Johne's disease both in animals and human beings were delivered by Dr. C. P. Swarnkar and Dr. G.G. Sonawane. Dr. S.R Sharma, Head, Division of Animal Health and Coordinator of the workshop, emphasized on the concept of “One Health”.

Institute celebrates 75th Independence Day of the nation



ICAR-CSWRI, Avikanagar celebrated the 75th Independence Day of the nation with full fervor. Dr. Arun Kumar Tomar, Director hoisted the tricolor and remembered the freedom fighters for their supreme sacrifices. On the occasion, 75 trees were planted in the institute under “Aazadi ka Amrit Mahotsava” series on completing 75 years of the freedom.

Congress Grass Awareness Week at Avikanagar

Central Sheep and Wool Research Institute, Avikanagar celebrated the Congress Grass Awareness Week from 16 to 22 August, 2021. Various activities like removing the Congress grass, making its compost fertilizer, fixing banners and posters, awareness lectures in the schools and field exhibitions etc. were undertaken through this awareness campaign. Congress grass was also removed and destroyed with collaborative efforts of farmers from the Rindliya village adopted by the Institute and the villagers were made aware of harms and losses caused by this weed. During the week, director of the institute Dr. A.



K. Tomar told that this weed spreads very rapidly which causes many health related problems like skin diseases, asthma etc. whose prevention and control is our responsibility. The program was coordinated by Dr. S.C. Sharma, Incharge, Farm Section.

Krishak Vaigyanik Samvad at ARC, Bikaner



Kirshak Vaigyanik Samvad was organized at ARC, Bikaner under SCSP components of Magra and Marwari Network projects on 05th September, in presence of Sh. Sumit Godara, MLA, Lunkaransar, Bikaner and Dr. A. K. Tomar, Director, ICAR-CSWRI, Avikanagar. A total of 28 SC sheep farmers from Kotda and Goleri area participated in the program and were distributed seed bins and feeding troughs. Mr Godara interacted with sheep farmers and told the farmers that present pandemic scenario may be useful to sheep farmers. Dr. A. K. Tomar designated all ICAR institutes as Knowledge Temples for farmers and invited sheep farmers to take maximum advantage out of these institutes. Dr. H. K. Narula briefed about different activities being undertaken at centre for the welfare of farmers.

Poshan Vatika Mega-Campaign and Tree Plantation Program

In context of International Nutrient Cereals Year-2023, institute organized the Poshan Vatika mega-campaign and tree plantation program on 17 September, 2021 at Avikanagar campus. On this



occasion, the chief guest Shri Gopal Gurjar told that our ancestors used to work very hard just with the support of coarse cereals/grains. Presiding the program, Dr. A. K. Tomar, Director introduced about the physical and mental hazards caused due to changing food habits/culture nowadays and further he threw light on importance of coarse cereals/grains for good nutrition. During the program, the subject matter specialists of the institute explained the importance of coarse millet cereals in the nutrition. On the occasion, tree plantation was also done at Avikanagar farm by 125 school girls from Malpura and KV schools. Bajra khichdi as a breakfast was offered to all participants for good nutrition. Dr S.C. Sharma coordinated the program.

Institute celebrates Hindi Fortnight



The Hindi Fortnight was celebrated at Avikanagar from 14-28 September, 2021, wherein various competitions were organized. In inauguration ceremony, Shri R. K. Verma, SDM, Malpura and Shri Rakesh Kumar, Additional SP, Malpura attended the program as a chief guest and special guest, respectively. Dr. A.K. Tomar, Director appealed to all scientist colleagues to deliver the maximum scientific literature to the livestock owners by publishing in Hindi. A total 10 contests were organized during the Hindi fortnight. The Hindi Fortnight Award distribution and concluding event was organized on 28.09.2021 in the institute. The Shri C. R. Choudhary, Former Central State Minister, GoI graced the event as a chief guest.



Shri Choudhary emphasized on use of simple ingenious Hindi language and said that Hindi can progress only when we accept the words in vogue from other languages too. Shri Girdhar Singh, Principal, Govt. Sr. Sec. School, Malpura and Dr. D. D. Ojha, Rtd. Principal Scientist and author attended the program as speakers. On the occasion, a Scientist-Farmer Interaction Meet was also organized wherein more than hundred progressive farmers participated. The interaction program of Prime Minister Shri Narendra Modi with farmers was also telecasted. Shri Naveen Kumar Yadav, Assistant Director (Rajbhasha) coordinated the program.



Simultaneously, the Hindi Week was also organized at Arid Regional Campus, CSWRI, Bikaner during 14-20 September, 2021, which was inaugurated in the presiding of Dr. A. Sahoo, Director, NRC on Camel, Bikaner. On this occasion, self-made Hindi poetry contest was organized wherein the staff of ARC showed exciting participation. The contest was judged by Dr. R.K. Sawal, Principal Scientist, NRC on Camel, Bikaner. The whole event was coordinated by Hindi officer Dr. Chandan Prakash.

Mannavanur centre celebrates 57th Foundation Day

Southern Regional Research Centre (SRRC) of ICAR-CSWRI, Mannavanur organized a webinar on "Profitable rabbit rearing" on the occasion of its 57th Foundation Day on 16 November under the programme of Azad ka Amrit Mahotsav commemorating 75th year



of India's Independence. In his presidential address, Dr. A. K. Tomar, Hon'ble Director, ICAR-CSWRI appreciated the works on Sheep and Rabbit farming community welfare, being carried out by the staff of SRRC. Dr. A. Kowsigan, IAS, Director, Dept. of Animal Husbandry, Govt. of Kerala, briefed about the opportunities and challenges of Rabbitry in Kerala state. A total number of 104 Rabbit clients, entrepreneurs and 21 officials from various parts of Tamil Nadu, Pondicherry and Kerala actively participated in this webinar. Dr. A. Sahoo, the Director, ICAR-NRC on Camel, Bikaner, Dr. R. Thirupathy Venkatachalapathy, Professor and Head, Goat and Sheep Farm, KVASU, Mannuthy, Kerala, Dr. C. Soundararajan, Director, CAHS, TANUVAS, Chennai and Dr. Rajeev Gulyani, Ex-Principal Scientist and the pioneer of Rabbit research in ICAR-CSWRI, Avikanagar also addressed the participants.

over by Dr. A. K. Tomar, Director, CSWRI, Avikanagar. Shri Ajay Mehta, President, Vidhya Bhawan Society, Dr Sanjana, Director, Basic Health Services, Udaipur and Dr Deepak Jain, In-Charge KVK graced the programme and interacted with the tribal farmers to motivate them to improve their livelihood. In his speech, Dr. Tomar insistend upon the adoption of scientific methods in sheep and rabbit farming. Dr. H.K. Narula delivered a lecture on the overall scientific management of sheep and goat. Dr Ashok Kumar, Scientist coordinated the training. A total of 40 interested tribal farmers from Gogunda block of Udaipur district attended the training, wherein 19 Sirohi bucks were also distributed.

Three days training program on “Sheep and Rabbit Farming” at Garsa



A 3-days training on Sheep and Rabbit farming was inaugurated at NTRC, ICAR-CSWRI, Garsa on 24th July. The rural youth can generate self-employment by getting proper training in this field, says Smt. Seeta Mahant, Head of Hurla Gram Panchayat and the chief guest of inaugural function. Welcoming the entire guest, Dr. Om Hari Chaturvedi, Principal Scientist of the center provided information regarding newly developed techniques and different valuable schemes for farmers. The training program was concluded on in the graceful presence of chief guest Dr. A. K. Tomar, Director, ICAR-CSWRI, Avikanagar, Rajasthan. Total 11 female and 11 male trainees from Bhalan-1, Parli, Jeshtha, Hurla, Thatibeed etc. panchayats of Kullu district participated in this training program. The training was coordinated by Dr. Abdul Rahim.

Training programme at Salumbar, Udaipur

One day training programme with aim “To strength decision support system in sheep management for achieving optimum production” was organized under TSP Head of Network Projects on 15th July, 2021 at Salumbar, Udaipur in collaboration with KVK, Badgaon. A total 50 interested tribal farmers from Salumbar block of Udaipur district attended the training

Training Programmes

Tribal Sub-Plan Programme at KVK, Badgaon, Udaipur



In a gesture to extend helping hand to tribal farmers, CSWRI organized a one-day training programme on “Advisories on scientific sheep farming for improving livelihood and nutritional security of tribal farmers” under TSP Head of Network Projects on 14th July at KVK, Badgaon, Udaipur. The programme was presided



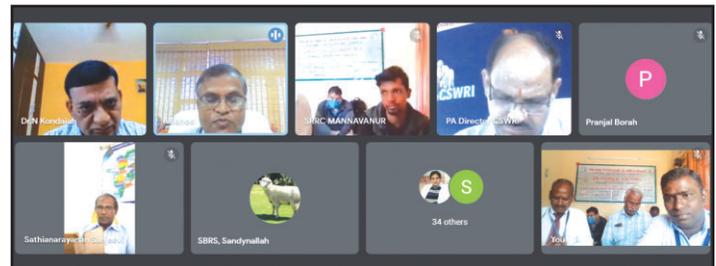
programmes. The programme was chaired by Dr. A.K. Tomar, Director, while Dr. Bhupendra Bhardwaj, Additional Director, Animal Husbandry, Udaipur, Dr. Deepak Jain, In-Charge KVK and Dr. P. Bhatnagar, SMS, KVK graced the programme and interacted with the tribal farmers to increase their livelihood and nutritional security. Dr. Tomar emphasized the importance to develop a decision support system for tribal farmers for scientific sheep and rabbit farming to enhance livelihood and nutritional security of tribal farmers. Participants were benefited with animal shed materials. Ten units of Chokla sheep, comprising two females and one male in each were also distributed for genetic improvement of their sheep flock of tribal farmers. The training programme was managed and coordinated by ARC, Bikaner.

Training cum exposure visit at ARC, Bikaner



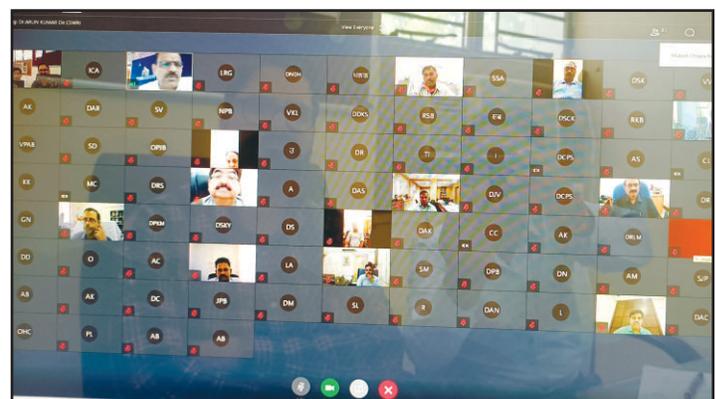
Three days training cum exposure visit was organized at ARC, Bikaner on 29-31 July, 2021. A total 12 animal health worker and farmer participants of training under RKVY program at EPC, NRCE, Bikaner were trained at ARC, Bikaner during the above period. Dr. H.K. Narula, Dr. Nirmala Saini, Dr. Ashish Chopra, Dr. Chandan Prakash and Dr. Ashok Kumar of ARC, Bikaner delivered the expert lectures on scientific techniques in the field of sheep breeding, nutrition, health and reproduction to achieve optimum production potential.

SRRC, Mannavanur organizes online interactive meet for stakeholders



In lines with the ICAR's Azadi Ka Amrut Mahotsav celebrations, the Southern Regional Research Centre of ICAR-CSWRI, Mannavanur organized an online “Interactive meeting for multi-stakeholders of south Indian sheep breeds” on 11th August, 2021. The program was aimed at deliberation of the prevailing and evolving concepts and issues in contemporary sheep rearing practices and scientific approaches by the stakeholders. Around 60 members including personnels from ICAR, TANUVAS, Govt. of Tamil Nadu, Govt. of Karnataka and progressive sheep farmers participated in this meet. Dr. A. K. Tomar, Director, CSWRI, Avikanagar deliberated on the pioneering efforts of the institute in sheep husbandry researches and farmers' useful technologies. Dr. A. Sahoo, Director, NRC on Camel, Bikaner delivered special address highlighting the importance of integrated approaches in sheep farming. Dr. N. Kondaiah, Former Director, NRC on Meat, Hyderabad spoke about the scientific contemplations to be pondered upon mutton production aspects. Dr. R. Anil Kumar, Prof. & Head, Sheep Breeding Research Station, TANUVAS, Ooty, Dr. N.C. Seetharaman, Former Asst. Director, Dept. of AH, Karnataka and Dr. S. Sathia Narayanan, Chief Epidemiology Officer, Dept. of AH, Tamil Nadu spoke about the efforts taken by the respective state governments towards the livelihood improvement of sheep husbandry farmers. Dr. A. S. Rajendiran, Officer Incharge, SRRC provided an orientation to the meet.

Workshop for entrepreneurs under Agri-Business Incubation



To commemorate the 75th Independence year of India (Azadi Ka Amrut Mahotsav) an online workshop on “Sheep Production and entrepreneurship” was organized at ICAR-CSWRI, Avikanagar under Agri-Business Incubation Centre (ABIC) on 17.08.2021. The workshop was attended by 43 participants representing India from the following states Rajasthan, Maharashtra, Gujarat, U.P., Uttarakhand, M.P., Andhra Pradesh, Delhi, and West Bengal.

Five-days farmer training program on scientific sheep, goat and rabbit farming



A five-day farmers' training program on scientific sheep, goat and rabbit farming was organized during 20-24 September, 2021 at ICAR-CSWRI, Avikanagar, wherein 30 farmers from Bhilwara district participated. The prime objective of this training program was to upgrade the farmers' knowledge and skills for elite sheep-goat and rabbit farming through providing information on advanced technologies developed by the institute related to reproduction, health, animal nutrition, artificial insemination for more production, and novel technologies on wool and wool products. This training program was sponsored by Directorate, ATMA, which was coordinated by Dr. L. R. Gurjar and Dr. R. L. Meena.

Seven-days training program at Arid Regional Campus, Bikaner



A seven days training program on “Efficiency of small ruminants for entrepreneurship development in Arid region” under NAHEP was

conducted by Swami Keshwanand Rajasthan Agriculture University, Bikaner during 24-30 September, 2021 at ARC, ICAR-CSWRI, Bikaner. Around 55 farmers, Livestock Assistants and other students participated in this training. The training was inaugurated by Dr. A. Sahoo, Director, NRC Camel, Bikaner as a chief guest. Prof. R.P. Singh, Vice Chancellor, SKRU, Bikaner, Dr. A. K. Tomar, Director, CSWRI, Avikanagar, Dr. N. K. Sharma, Incharge NAHEP and Additional Director (Seed) and Dr. H.K. Narula addressed the trainees on the occasion of training completion. On this occasion, both the institutes, CSWRI and SKRU signed the MOU so that students from agricultural entrepreneurship and home science can work with the scientists of CSWRI to promote the sheep-based research and also to get the advantage of grazing land research projects running in the agriculture university. The training was conducted by Dr. N. K. Sharma and coordinated by Dr. H.K. Narula, Head, ARC, Bikaner, Dr. Upendra and Dr. Shankar Lal.

Interactive meeting and training program on Sirohi goat genetic improvement



ICAR-CSWRI, Avikanagar organized an interactive meeting and training program on Sirohi goat genetic improvement under National Livestock Mission dated on 29 September, 2021, wherein 20 veterinary officers from eight districts of Rajasthan participated. The prime objective of this program was to render the maximum economic benefits to the landless, marginal and backward farmers through gen genetic improvement in Sirohi goat under NLM. Dr. A. K. Tomar, Director while interacting with participants emphasized that goat acts as an accessible source of livelihood under the circumstances of Rajasthan, hence, maximum benefits can be obtained through genetic improvement in the goat. Dr. P.C. Jain, Joint Director (Small Animal) Animal Husbandry Department, Rajasthan briefed the operation of centrally funded schemes on ground level for farmers. The program was conducted by Dr. S.C. Sharma, In-charge HRD and coordinated by Dr. S.S. Mishra, PI, AICRP on Goat.



Five-days farmers training program on “Advanced sheep-goat and rabbit farming”



A 5-days farmers' training program on “Advanced sheep-goat and rabbit farming” was organized in the institute during 25 to 29 October, 2021. Thirty farmers from Faagi and Madhorajpura talukas participated in this training. Elaborated information about different extension programs by the institute and novel techniques developed by the institute regarding reproduction, health, animal nutrition, AI for more production, wool and woollen products for elite farming of sheep-goat and rabbit was given to the farmers through lecture and practicals. On the concluding event, Dr. A. K. Tomar, Director of the institute briefed the farmers about importance of scientific ways of sheep-goat farming and the benefits of having elite breed rams and bucks in their flocks. The training program was sponsored by Deputy Director, Agriculture and Project Director, ATMA, Jaipur and conducted in the supervision of Dr. L.R. Gurjar.

A one-day workshop for KVK officials organized at Avikanagar

As per the recommendations of 26th Regional Committee Meeting, a workshop on "present status, challenges and scope for small ruminant farmers" was organized for KVK heads and animal specialists from Rajasthan, Haryana and Delhi on 20th Novemebr, 2021 at



Avikanagar. The prime objective of this workshop was to deliver the techniques in the field of sheep-goat and rabbit farming developed by the institute to the livestock owners, farmers, small and big entrepreneurs through Krishi Vigyan Kendras. The chief guest of the program, Dr. S.K. Garg, Vice-Chancellor of RAJUVAS motivated the livestock owners to work in organized way and include scientific systems and technologies in livestock farming. Dr. S. K. Singh, Director, ICAR-Agricultural Technology Application Research Institute, Jodhpur appealed to the KVKs to work considering the farmers' need and their current status. Dr. A. K. Tomar, Director solved the queries of the participants by presenting the details of the institutional technologies and activities. An exhibition was held during the workshop wherein, excellent animals of the institute (sheep, goat, rabbit) and advanced technologies and products developed by different divisions of the institute were exhibited. About 120 KVK heads, scientists, subject matter specialists and farmers participated in this program. Dr. S.R. Sharma was the coordinator of the workshop while Dr. L.R. Gurjar acted as organizing secretary.



Hands-on Training on Estrus Synchronization and Artificial Insemination in Sheep

Institute successfully organized Two 'Hands-on Training on Estrus Synchronization and Artificial Insemination in Sheep' for ten days duration each under sponsorship from Central Wool Development



Board from 09.11.2021 to 18.11.2021 and 22.11.2021 to 01.12.2021. The trainings were organized under the Chairmanship of Dr. A. K. Tomar, Director, ICAR-CSWRI Course Director, Dr. Raghvendar Singh, Course convenor, Dr. Ajay Kumar and course coordinators, Dr. Vijay Kumar, Dr. S.S. Dangi, Dr. A. S. Mahla and Dr. S.C. Sharma. The program was primarily organized for imparting specific practical skill on estrus synchronization and artificial insemination in sheep to the Livestock Assistants, Livestock Development Officers and Veterinary Officers. 14 Veterinary officers and 18 Livestock Assistants from Jammu and Kashmir, Rajasthan, Maharashtra and Himachal Pradesh successfully completed the course.



Institute Activities

Director visits NTRS, Garsa

Dr. A. K. Tomar, Director, ICAR-CSWRI, Avikanagar visited the Northern Temperate Regional Station, Garsa of CSWRI from 26th to 29th July. During his visit, Dr. Om Hari Chaturvedi and Dr. Abdul Rahim apprised the Director regarding the detailed research work being done at the station. Dr. Tomar emphasized on the improvement of breed of the German Angora Rabbit and Gaddi Synthetic Sheep available at the station and graced the closing ceremony of 3-days training on the “Sheep and rabbit rearing”



organized from 24-27 July, as a Chief Guest. He also listened to the problems and suggestions of the staff to make this station friendlier for the working of staff and contractual manpower. He also suggested to organize Kisan Goshti at the local villages and conduct Swachhta Abhiyan at nearby places, regularly.

Maharashtra Animal Husbandry Minister visits Avikanagar



Shri Sunil Kedar, Honourable Minister, Animal Husbandry and Dairy Development, Govt. of Maharashtra visited ICAR-CSWRI, Avikanagar on 11 November, 2021. Dr. A. K. Tomar, Director apprised the minister about institute activities and research progress in sheep and goat husbandry. Interacting with scientists, the minister highlighted the need of strong collaboration with ICAR-CSWRI for improving farmers' remuneration from the small animal sector. The minister took a keen interest in Avishan, a prolific breed developed in the institute, and artificial insemination technology. The minister presided over as a chief guest in the farmer interaction program where he interacted with around hundred farmers adopted under the farmer first project and trainees under the SCSP project. The minister was accompanied by a delegation including Dr. Shashank Kamble, Managing Director, Maharashtra Sheep and Goat Development Corporation, Dr. Mahesh Bansode, Consultant and Mr. Jayant Wani, OSD.

SRRC, Mannavanur organized Scientist-Farmer meet



On the occasion of foundation day of Southern Regional Research Centre, Mannavanur of ICAR-CSWRI, an online Scientist-Farmer Meet was organized on 16.07.2021, wherein around 75 rabbit farmers belonging to Tamil Nadu and Puducherry attended. The event was programmed with the backdrop of providing solutions for the abounding queries raised by the rabbit farmer. Dr. N. Ezhilan, MLA, Thousand Lights constituency, Chennai, in his address, appreciated the efforts of SRRC and CSWRI in organizing such farmer-oriented programs. Dr. A. S. Rajendiran, OIC, SRRC and Dr. Thirumurugan, Dr. Nagarajan and Mr. Murali of the centre delivered lectures on nutritional, general management, health and breeding aspects of rabbit farming pertinent to field level farming system.

Farmers-Scientists Meet and Animal Health Camp at Kerwalia village



Institute organized a Farmers-Scientists Meet and Animal Health Camp at Kerwalia village of the Malpura subdivision. During the camp, Director Dr. A.K.Tomar suggested the farmers and livestock owners to adapt scientific systems in livestock and agricultural farming to double their income. Approximately 600 animals of 55 farmers were clinically examined and treated during the camp.

Further, the knowledge about seasonal diseases of animals and their remedies were provided by Dr. S.R. Sharma, Head of Health Division. Dr. P. K. Mallick, PI of MSSP project coordinated the program. Dr. G.R. Gowane, Ex-PI of the project and Hanuman Patel, Sarpanch of the village also attended the program.

Scientist Farmer interaction for Magra sheep farmers



One day Scientist Farmer interaction was organized at Arid Region Campus, ICAR-CSWRI Bikaner on 01.10.2021 for adopted sheep farmers under Magra field unit of NWPSI. About 30 sheep farmers participated in the program. Dr. A. K. Tomar, Director, discussed in detail about present challenges and scope of sheep improvement in field conditions. Mr. Bhagirath Moond, eminent social worker, requested sheep farmer to take advantages scientific technologies for upliftment of their status. Dr R.Kumar, Sr. Scientist inspired the sheep farmers to come forward to get Geographical Indication for lustrous Magra wool. The program was coordinated by Dr. Ashish Chopra, PI, Magra field, under guidance of Dr. H.K. Narula. Twenty-five superior Magra breeding rams were distributed among sheep farmers as per mandate of the project.

Kisan goshti at Bikaner centre under Marwari Network Project



A Kisan goshti was organized on the occasion of golden jubilee year of Institute and Ajadi ka Amrit Mahotsva series in SCSP component of Marwari Network Project at Pallu, Hanumangarh on 11.10.2021. About 15 SC sheep and goat farmers participated in the programme. At the onset of program Dr Ashok Kumar, Scientist and Co-Nodal Officer, SCSP detailed about scheme, farmers friendly technology developed by the institute and scientific livestock rearing practices. A total nine Sirohi goats were distributed among the beneficiaries for genetic improvement of their flock.

Field day for adopted sheep farmers of Magra field unit



Field Day was organized at Kotda village adopted by Arid Region Campus, ICAR-CSWRI Bikaner under NWP-Magra Field Unit on 12.12.2021. About 60 adopted sheep farmers participated in the programme. Dr. A. K. Tomar, Chief guest of the programme discussed in detail the scope of sheep improvement. Dr A Sahoo, Director, ICAR-NRC on Camel, Bikaner, as a special guest, awared the farmers about advantages of mixed farming including camel, sheep and other animals. Dr. R. S. Bhatt and Dr. F. A. Khan from ICAR-CSWRI, Avikanagar and Dr. H.K. Narula, Dr Ashish Chopra, Dr Nirmala Saini and Dr Ashok Kumar from ARC, CSWRI, Bikaner also delivered lectures on their respective field.

Tribal farmer health camp and Ratri Choupal in Dungarpur District

An animal health camp was organised under TSP scheme at Raghunathpura panchayat of Dungarpur district's Dowara tehsil on 14th July, 2021. A total of 370 animals with different diseases were treated and medicines were distributed. In the evening, Ratri choupal was organised at Hathae panchayat for increasing awareness among tribal farmers for scientific animal rearing. A Tribal Farmer Sangosthi was also organised under TSP cell at on 15th July, 2021. A total of 20 Malpura ewes and 10 breeding rams

along with agricultural and animal husbandry inputs were distributed to selected BPL tribal beneficiaries of four panchayats of Dowara tehsil. Shri Harshwardhan Singh, Rajyasabha MP from Rajasthan, Dr. A. K. Tomar, Director, Dr. G. G. Sonawane, Nodal officer TSP, Dr. H. K. Narula, Head, ARC, CSWRI, Bikaner graced the occasion. Dr. A. S. Meena, Dr. D. K. Sharma, and R. L. Bairwa, S. L. Ahari of ICAR-CSWRI, Avikanagar supported in successfully organizing the programme.

Tribal Kishan-Sangosthi cum Exhibition function at Dausa district of Rajasthan



A Tribal Farmer Sangosthi cum Exhibition was conducted under TSP cell at Malwas panchayat in Nagal Rajawatan tehsil of Dausa district on dated 04 October, 2021. A total of 45 breeding Avishaan ram with agricultural and animal husbandry inputs, 15 quintal quality seed of Giraj mustard variety, papaya and moringa plant seedling were distributed to the 22 panchayat tribal beneficiaries. During the function, progressive tribal farmers were given appreciation award. In another program on 15 October, 2021, chickpea seeds were distributed in adopted tribal area of Dausa. In the both programs, total 811 tribal beneficiaries were benefitted with different inputs. The programme was graced by Smt. Jaskaur Mina, MP Dausa Loksabha, Dr. A. K. Tomar, Director and Dr G. G. Sonawane, Nodal officer TSP. Dr. A. S. Meena, Dr. D.K. Sharma, Ramkhilari Meena, Pillu Meena and R. L. Bairwa co-ordinated the programme.

Tribal Kishan-Sangosthi cum Exhibition function at Rajsamand district of Rajasthan

A Tribal Farmer Sangosthi cum Exhibition was conducted under TSP cell at Krishi Vigyan Kendra, Dhoinda of Rajsamand district on 14 October, 2021. A total of 80 Sirohi does for 40 widow tribal ladies and 20 Sirohi breeding bucks for 20 tribal ladies, quality seed of mustard and chickpea, various fruit plant seedling, napier grass root with agricultural and animal husbandry inputs were



distributed to the tribal beneficiaries of Kaliwas panchayat of Rajsmand district. In another program on 23 October, 2021, tribal farmers of Kunbhalgarh of Rajsmand district were distributed quality seeds and agricultural and animal husbandry inputs. The programme was graced by Smt. Diya Kumari, MP Rajsmand, Shri. S. S. Rathore, MLA Kunbhalgarh, Smt. Dipti Maheshwari, MLA Rajsmand, Smt. Ratni Devi Jaat, Jila Pramukh of Rajsmand, Dr. N. S. Rathore, Vice-Chancellor, MPUAT Udaipur, Dr. A. K. Tomar, Director and Dr G. G. Sonawane, Nodal officer TSP. In both the programs, total 185 tribal beneficiaries were benefitted with different inputs. Dr. P. C. Regar, In-charge KVK, Dr. A. S. Meena, Dr. R. L. Meena, Dr. M. L. Jaat, Ramkhilari Meena, Pillu Meena and R. L. Bairwa co-ordinated the programme.

Quality seed distribution program under Tribal Sub Plan in dausa district

ICAR-CSWRI, Avikanagar organized quality seed distribution program at Malwas, Nangal, Rajawtaan under tribal sub plan, wherein elite Avishan rams and Giriraj Mustard seeds were distributed to the poor tribal farmers. Smt. Jaskaur Meena, MP Dausa Loksabha, attended the farmer-scientists meet as a chief guest and the program was presided by Dr. A. K. Tomar, Director. On the occasion, an technology exhibition was also organized by the institute and director briefed the farmers about income raising through sheep-goat farming entrepreneurship.

Farmer-Scientist dialogue on sheep-goat rearing

A farmer-scientist dialogue on sheep-goat rearing was held at CSWRI, Avikanagar to discuss the problems and challenges in sheep-goat farming under current scenario. Dr. A. K. Tomar, Director motivated the farmers to rear elite animals and adopt the scientific techniques of management in view of decreasing grasslands. Further, Dr. Tomar urged the scientists to solve the problems faced by farmers in livestock management. Dr. Kamble, Assistant Commissioner, Animal Husbandry, Maharashtra also

thrown light on scope and possibilities of sheep-goat farming. A total 50 sheep-goat owners linked to the institute participated in this dialogue which was organized by Dr. L. R. Gurjar, In-charge, T.O.T. & S.S. department.

Elite breeding male competition at Avikanagar



An animal judging competition to select best elite breed rams and bucks was organized on 23rd December, 2021 for raising awareness about importance of elite breeds and for genetic improvement in sheep and goats of the farmers. Elite breed rams and bucks of Malpura, Patanwadi, Kheri and Sirohi breeds were selected from sheep-goat farmers of nearby areas and the sheep-goat owners of first and second winner animals from said breeds were awarded.

Meetings

Half yearly Institute Research Committee (IRC) Meeting

Half yearly IRC 2021 meeting was held on 25-26 August, 2021 under the Chairmanship of Dr A. K. Tomar, Director, ICAR-CSWRI, Avikanagar. The meeting was held in semi-physical mode. Director urged all the scientists to complete the targeted activities in time-frame with increased number of publications. Further he assured to extend the facilities at maximum to accomplish the research activities. He informed all the scientists that Council is regularly asking for documentation of success stories related to the Institute, thus all concerned should compile the success stories and submit regularly to PME Cell for further communication to Council. Dr C.P. Swarnkar, Scientist (SG), I/C PME Cell urged PIs to present progress of project in accordance with the activities targeted for the last six month along with status of action taken on recommendations of annual IRC-2020.

Quinquennial Review Team (QRT) Meeting



A meeting was held under the chairmanship of Prof. P.K. Uppal, Chairman, QRT (2016-21) at ICAR-CSWRI, Avikanagar on 11-12 Oct, 2021. QRT Chairman emphasized that everyone in the institute should be well aware about vision, mandate and objectives of institute, assess research outcome in both qualitative and quantitative forms, consider input – output ratio and cost economics of a technology at farmer's level. Dr. A. K.



Tomar, Director, ICAR-CSWRI, Avikanagar briefly introduced about the institute, its mandate, research programmes and achievements, infrastructure developed, human resource development, linkages and major initiative undertaken during 2016-21 at the institute. Dr. C.P. Swankar, Member Secretary, QRT presented Action Taken Report on the recommendations of previous QRT (2011-16). The QRT team visited the institute farm for on spot appraisal of sheep, goat and rabbit sectors, waste utilization and organic manure production unit, all the laboratories, wool processing plant, feed technology unit and agricultural farm. Further, the team also visited in field areas to assess the impact of extension activities undertaken by the institute in field flocks. During the visit, discussions were held with scientists about their research achievements and with farmers about sheep rearing practices, role of sheep rearing in their socioeconomic status and livelihood. Chairman, QRT

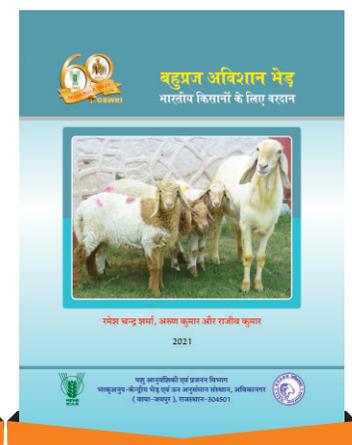
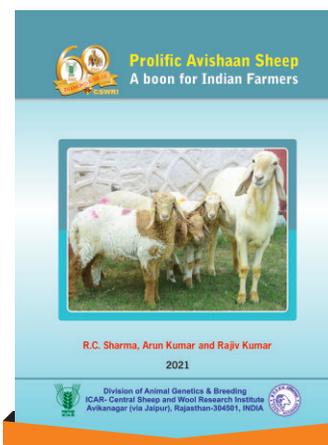
expressed that institute is continuously progressing and suggested that to maintain the pace of development, it is essential for staff to remain vigilant about what is required for tomorrow and to whom.

Institute Management Committee (IMC) Meeting



Institute Management Committee meetings were held 22nd October 2021 at NTRS (ICAR-CSWRI), Garsa under the chairmanship of Dr. A. K. Tomar, Director, ICAR-CSWRI, Avikanagar. He briefed the members about the ongoing research and developmental activities in the institute. The action taken report on recommendations of last IMC meeting was presented by Sh. Suresh Kumar, CAO and Member Secretary. ATR of previous meeting was approved and new agenda items like allocated budget for purchase of vehicle, repair/renovation of old buildings / sectors and roads, permission for medical treatment from recognized hospitals empaneled under CGHS, Jaipur, purchase of equipment, furniture / fixtures, repair and AMC of equipment and purchase of capital items under TSP and SCSP were discussed in the meeting.

New Publications



Obituary



ICAR-Central Sheep and Wool Research Institute deeply condoles the sad demise of Dr. Davendra Kumar Ror, an outstanding scientist and sportsman. In his illustrious career, he (1968-2021) made immense contributions in the field of assisted reproductive techniques like estrus synchronization, artificial insemination and embryo transfer technology in sheep, semen biology and adaptation physiology of the sheep. Born on July 08, 1968, Dr Davendra did his graduation in veterinary sciences from GBPUAT, Pantnagar and post-graduation and doctorate in Veterinary Gynaecology & Obstetrics from IVRI, Izatnagar. Dr Ror joined Agricultural Research Services in 1999 and presently, he had been serving as Principal Scientist, Animal Reproduction & Gynaecology since 2014. He also led the Animal Physiology and Biochemistry division of the institute as in charge head for five years. His research was documented by more than 100 research articles in national and international journals and number of training manuals, book chapters and lead papers. He was recipient of many awards including Young Scientist Awards and Best Research Paper Awards. Dr. Ror was also a very well-known face in whole ICAR as a sportsman, who begged a number of awards in various sports events of the ICAR. Dr. Davendra breathed his last and left for heavenly abode on September 10, 2021. In the demise of Dr. Ror, the ICAR and CSWRI has lost an acclaimed animal scientist, sportsman and a great human being. The entire institute prays to the Almighty to give peace to the departed soul, and solace and strength to the bereaved family to bear this great loss.

News and Media Coverage

विभिन्न परियोजनाओं का अवलोकन किया

महाराष्ट्र के पशु संवर्धन मंत्री ने किया अविकानगर का दौरा

पत्रिका न्यूस नेटवर्क
pntnnews.com

मालपुरा केन्द्रीय भेड़ एवं ऊन अनुसंधान संस्थान में गुरुवार को महाराष्ट्र सरकार के पशु संवर्धन मंत्री मुनील केदार ने धूमण कर अनुसंधानों का जायजा लिया तथा पशुपालकों से चर्चा की।

महाराष्ट्र सरकार के पशु संवर्धन दुग्ध विकास, क्रीडा व युवा कल्याण मंत्री मुनील केदार के



मालपुरा, अविकानगर में महाराष्ट्र

किसान भेड़ व बकरी पालन व्यवसाय जुड़कर आजीविका बढ़ाएं-जसकोर मंत्री

भेड़ पालकों को कृषि एवं आवश्यक सामान निःशुल्क वितरण



मालपुरा, अविकानगर में महाराष्ट्र



मालपुरा, अविकानगर में महाराष्ट्र

मालपुरा में भारतीय कृषि अनुसंधान परिषद दिल्ली का दल ने अविकानगर पहुंचा, भेड़ एवं ऊन अनुसंधान संस्थान में काम देखा

मालपुरा, केन्द्रीय भेड़ एवं ऊन अनुसंधान संस्थान में पंच वार्षिक योजना में किए जा रहे कामों का अवलोकन किया गया।



मालपुरा, केन्द्रीय भेड़ एवं ऊन अनुसंधान संस्थान में पंच वार्षिक

भेड़-बकरीपालन लघु किसानों के लिए लाभकारी

कृषि एवं आवश्यक सामान निःशुल्क वितरण



मालपुरा, केन्द्रीय भेड़ एवं ऊन अनुसंधान संस्थान में पंच वार्षिक

कृषक - वैज्ञानिक संगोष्ठी एवं प्रदर्शनी कार्यक्रम आयोजित

कृषि एवं आवश्यक सामान निःशुल्क वितरण



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