



ICAR - CSWRI

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NEWS LETTER



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From the Director's Desk

Greetings to all

Sheep and goats play an important role in the livelihood and economic sustenance of large segments of peoples in the country. In COVID – 19 pandemic, not only the lives of human being are disrupted nationwide but also of livestock. Sheep and lamb prices have dwindled during the period. The meat sector has also faced multiple coronavirus-linked challenge and consumption has “dramatically decreased” due to food service closures, such as hotels, restaurants and catering. Many farmers have faced acute cash flow difficulties because of the lockdown and not able to sell their stock. Most of the farmers could not move on short and long distance migration and faced the problem of fodder scarcity in local grazing areas /community lands. The procurement of lambs, transportation and marketing of lambs in big cities adversely affected the sale of lamb, price and cash flow to farmers.



During the COVID-19 pandemic, several initiatives have been taken by the government for long term reform in agriculture and animal husbandry so as to make the farmers Atmanirbhar (self- reliant) in crisis. Advisory addressed to sheep farmers on rearing and health aspects have been issued and widely circulated by the institute. The institute also offered its facilities to be used as quarantine units. The COVID awareness poster displayed at the main entrance of campus, restricted movement with provision of thermal screening and hand sanitization made effective. Campus /premises, office and residences sanitized regularly. Mask and Sanitizers distributed to residents of campus. Mask prepared in the institute and also trained the rural women in mask making and distributed to farmers of neighbouring villages.

Various activities like foundation day, training programme, SAPICON 2020, IRC meeting, International Yoga Day (at home) etc. organised in the institute. I take this opportunity to congratulate the scientists and the staff of premier institute for their commitment, hard work and dedication. I also wish to express my thanks to each and every one of you, specially to those who are carrying out critical tasks to manage our sheep, goat and rabbit farm operation and day to day work during lockdown period due to pandemic COVID-19.

(Raghvendar Singh)
Director (Acting)

Research Highlights

Shrink resist finish using enzymes for improving dimensional stability of wool

Vinod Kadam

Felting shrinkage is an inherent drawback of woollen textiles that limits its serviceability. Conventional shrink resistance treatment (chlorine-Hercosett) is not eco-friendly and favourable to fabric properties. Wool fabric treated with transglutaminase (2%), lipase (1%), laccase (2%) and protease (1%) enzymes have 7.9, 4.9, 4.3 and 3.0% less shrinkage, respectively compared to 13.3% in untreated fabric. The low concentrations of protease enzyme partially hydrolyse the peptide bonds of wool at the cuticle scale and reduce the inter-fibre friction which avoids the interlocking of scales. This enzyme action provides dimensional stability to wool fabric. The alkaline pH during the protease and lipase enzyme treatment further favours in achieving dimensional stability. Transglutaminase and laccase enzymes assist in cross-linking of protein molecules, which results in better dimensional stability of the wool fabric. Tensile properties of enzyme treated fabrics found comparable with the blank fabric. Handle and frictional properties significantly changed in favour of enzyme treatment. The enzyme treatment neither affects the whiteness index nor yellowness of fabric. Protease at 1.0% concentration has maximum shrink resistance without significant change in mechanical and handle associated properties. It has promising potential for industrial application.



Rabbit Husbandry – A promising farm enterprise in Southern India

Pachaiyappan K

The Southern Regional Research Centre (SRRC) of ICAR-CSWRI, Mannavanur, maintaining six breeds of rabbits, serves as technical and technological consultant for more than 250 avid new age entrepreneurs and farmers across the six southern states viz., Tamil Nadu, Kerala, Puducherry, Karnataka, Telangana and Andhra Pradesh.



The efforts are being made to improve the feeding management utilizing locally available grasses/ fodders, health care routine and trainings on cuniculture to promising entrepreneurs with necessary input and farm visits. SRRC supports queries for farm establishment, attending personnel visits, telephone calls, SMSs, WhatsApp like messenger communications, emails and postal letters etc. SRRC support has augmented employment generation for needy agripreneurs and livelihood farming communities.



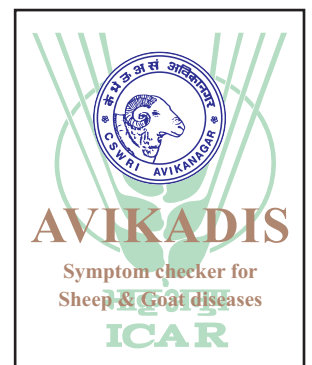
Avikadis - Android application for sheep and goat disease diagnosis

S. Jegaveera Pandian, Jyoti Kumar, S.R. Sharma and Raj Kumar



Diagnosis of diseases in small ruminants should be carried out as soon as possible once the disease occurs in a flock. Perhaps undue delay in diagnosing the disease may be devastating. As they remain flocked, contagious diseases of sheep rapidly spread and cause havoc to farm economy. In developing countries, laboratory-based diagnosis is still a distant dream in interior parts of the country.

On many occasions, practicing veterinarians have to depend upon the clinical signs to arrive at a diagnosis. In order to help the veterinary professionals who mainly deal with sheep and goats, Avikadis app has been developed by ICAR-CSWRI, Avikanagar.



This android- based offline app is currently available on Google play store for free use. It has numerous and multitude of clinical signs, necropsy findings and their combinations and they appear on the suggestion menu. User can scroll up and choose them according to the observed clinical signs. As output, this symptom-checker app gives a list of diseases with their salient epidemiological information, associated signs, diagnostic work up and therapeutic options. What's more, veterinary students, teachers, and researchers can effectively use Avikadis as a ready reckoner. This can also be used as a tool for continuing education by practicing field veterinarians.

Quality evaluation of sheep milk peda

Arvind Soni, Y.P. Gadekar and A.K. Shinde

Peda is a heat desiccated Indian traditional milk product relished throughout the country. A study was conducted to access the quality attributes of sheep milk peda during refrigerated ($4\pm 1^\circ\text{C}$) storage up to 7 days at alternate day interval in different packaging system i.e. aerobic and vacuum packaging. During storage of peda, lightness (L) increased significantly while redness (a), yellowness (b) and chroma values decreased. Water activity, TBARS values, total plate and yeast and mold counts were lower (0.79 ± 0.01 , 1.51 ± 0.03 , 4.08 ± 0.02 and 1.47 ± 0.04 respectively) in vacuum packaged peda on 7th day of storage. Psychrophilic and coliform were not detected throughout the storage period. Sensory attributes of peda decreased with progress of storage period while



vacuum packaged peda received higher scores than aerobically packaged peda. The study revealed that vacuum packaging of sheep milk peda is better than aerobic packaging at refrigeration storage.

Patent Awarded

ICAR-CSWRI Awarded Patent on identification of Pashmina from Processed Textile Products

ICAR – CSWRI, Avikanagar awarded patent on Identification of cashmere (Pashmina) fibre from processed textile products by PCR - based technique (Inventors: Rajiv Kumar, D.B. Shakyawar, P. K. Pareek, L.L.L. Prince, Amar S. Meena, Satish Kumar, A.S.M. Raja, S.A. Karim (CSWRI Avikanagar) and Sarfaraz A Wani (SKUAST-K, Kashmir). This protocol is used by Bureau of Indian Standards (BIS) and published a New Indian Standard ISI 17269: 2019 - Identification, labelling and Marking of Pashmina Products.



Glimpse of Celebration

संस्थान का 59वां स्थापना दिवस

संस्थान, अविकानगर का 59वां स्थापना दिवस 4 जनवरी 2020 को समारोहपूर्वक मनाया गया। इस दौरान किसान-संगोष्ठी का आयोजन किया गया। इस अवसर पर मुख्य अतिथि प्रो. (डा.) अरविंद कुमार, कुलपति रानीलक्ष्मी बाई केन्द्रीय कृषि विश्वविद्यालय, झांसी रहे। डा. गोपाल लाल कार्यकारी निदेशक, राष्ट्रीय बीजीय मसाला अनुसंधान केन्द्र, अजमेर एवं डा. पी.के. राय, कार्यकारी निदेशक, केन्द्रीय सरसों अनुसंधान केन्द्र, भरतपुर विशिष्ट अतिथि के रूप में उपस्थित रहे।



कार्यक्रम की अध्यक्षता संस्थान के कार्यकारी निदेशक डा. राघवेंद्र सिंह ने की। प्रो. (डा.) अरविंद कुमार ने अपने संबोधन में संस्थान द्वारा किये जा रहे अनुसंधान कार्यों की प्रशंसा की तथा उपस्थित कृषकों एवं पशुपालकों से संस्थान द्वारा दी गई जानकारी का लाभ उठाने का आह्वान किया।



71वें गणतंत्र दिवस समारोह का गरिमामय आयोजन

संस्थान, अविकानगर में 26.01.2020 को 71वें गणतंत्र दिवस समारोह का गरिमामय आयोजन किया गया। संस्थान के कार्यकारी निदेशक डा. राघवेंद्र सिंह ने ध्वजारोहण किया एवं सभी को गणतंत्र दिवस की शुभकामनाएं दी।



गणतंत्र दिवस की पूर्व संध्या पर समाज सदन अविकानगर द्वारा केन्द्रीय विद्यालय, राजकीय माध्यमिक विद्यालय एवं महिला क्लब के सौजन्य से सांस्कृतिक कार्यक्रमों का आयोजन किया गया।



उत्तरी शीतोष्ण क्षेत्रीय केंद्र, गड़सा का 58वां स्थापना दिवस

उत्तरी शीतोष्ण क्षेत्रीय केंद्र, गड़सा में दिनांक 09-02-2020 को केंद्र के 58वें स्थापना दिवस का शुभारंभ द्वीप प्रज्वलित कर किया गया। इस अवसर पर नवनिर्मित मंच का उदघाटन मुख्य अतिथि डॉ. राघवेंद्र सिंह, कार्यकारी निदेशक द्वारा किया गया।



इस अवसर पर विशिष्ट अतिथि डॉ. संजीव नड्डा उप-निदेशक, पशु पालन विभाग, इंजि. आर. के. सिंह, अध्यक्ष, गोबिन्द बल्लभ पंत राष्ट्रीय हिमालयी पर्यावरण संस्थान, डॉ. कुमार चंद्र शर्मा, कृषि विज्ञान केंद्र, बजौरा, सुश्री सोनिका चंद्रा, नेहरू युवा केंद्र, जिला कुल्लू उपस्थित रहे। इस अवसर पर किसान-वैज्ञानिक संगोष्ठी आयोजित की गई जिसमें 68 किसानों ने भाग लिया।

International Sheep News

Genetic basis of fat tail trait in sheep

Vijay Kumar Saxena

There was very limited information on genes responsible for heritable fat deposition in the sheep. But recently, a study by Zhang et.al, (2019) has successfully identified a few genes responsible for tail fat deposition in Hulun Buir sheep by

Annual Conference and National Symposium of SAPICON 2020

Annual Conference and National Symposium of the Society of Animal Physiologists of India (SAPICON 2020) on physiological approaches to address environmental challenges for increasing animal productivity and farmer's income organised at ICAR-CSWRI, Avikanagar from 18-19 February, 2020. Dr Bhuvnesh Kumar, Director, DRDO-Defence Institute of Physiology and Allied Sciences, Delhi, Dr H. Rahman, Regional Representative for South Asia, ILRI, Dr M.L. Madan, Patron, SAPI and former DDG (AS), ICAR, New Delhi, Dr V.H. Rao, Dr Raghvendar Singh, Director (Acting), ICAR-CSWRI, Avikanagar graced the occasion. The conference was attended by 200 delegates. Dr M.S. Chauhan, Director ICAR-NDRI, Karnal was the chief guest in the valedictory function.



performing genome wide association studies. They identified four important SNPs significantly associated with fat tail deposition and they were located in the proximity of genes involved in regulation of fatty acid metabolism and lipid storage (*CREB 1*, *STEAP 4*, *CTBP 1* and *RIP 140*). They also found a



haplotype block (861kb) containing many closely related and strongly associated SNPs in the X-chromosome, which could be a strong candidate genomic region for fat deposition in the tails of sheep. Thus, the genetic basis of fat tailed deposition is elucidated in this wonderful study.

Source: Zhang T, Gao H, Sahana G, Zan, Y., Fan, H, Liu, J., Shi, L. Wang, H., Du, L. Wang, L. and Zhao, F. 2019. Genome-wide association studies revealed candidate genes for tail fat deposition and body size in the Hulun Buir sheep. J. Anim. Breed Genet. 136: 362-370.

Training Programme

Training Programme at ARC Bikaner



Two days training programme on sheep rearing organised for 30 farmers at ARC, ICAR-CSWRI, Bikaner in collaboration with ATMA project (Govt. of Rajasthan) from 28-29 January 2020. Shri Ramesh Tambia, DDM, NABARD, Bikaner while addressing the farmers informed about NABARD schemes for sheep and goat farming.

Training Programme on Machine Shearing at Rishikesh, Uttarakhand



A seven days training on modern techniques of machine shearing in sheep under ATMA scheme was organised by the ICAR-CSWRI, ARC, Bikaner at Rishikesh Farm, Uttarakhand from 27 Jan to 02 Feb, 2020. Thirty sheep farmers from Bikaner participated in the training to sensitize them about machine shearing in sheep.

Field Experience Training (FET) for New Scientists



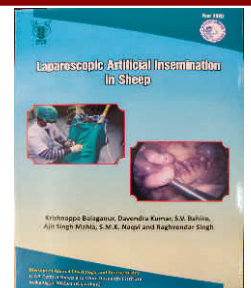
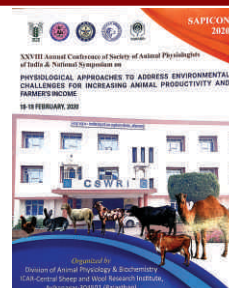
Institute organized 21 days field experience training (FET) for ARS scientist probationer (110th FOCARS) from 25 February to 16 March, 2020. Six scientists of different disciplines participated in the training programme. They have visited the village -Chosla adopted under Farmer FIRST project for field experience training.

भेड़, बकरी व खरगोश पालन पर प्रशिक्षण



संस्थान में अनुसूचित जाति परियोजना के तहत गत वर्ष 200 किसानों को भेड़, बकरी व खरगोश पालन पर 10 दिवसीय प्रशिक्षण दिया गया। इन किसानों को प्रशिक्षण के दौरान पानी चारा खिलाने के टब, छाता, टार्च आदि उपलब्ध कराये गये। इन किसानों में सुरजपुरा-देशमी, बीड़-गनवर, बीपुर गाँव के अति गरीब व विकलांग 30 अभ्यर्थियों को विशेष लाभार्थी के रूप में चिन्हित किया गया। इन 30 किसानों को 20-26 मई, 2020 के दौरान पाँच- पाँच किसानों के समूहों में प्रत्येक किसान को 3 भेड़े (2 मादा व 1 नर), आवास के लिये 14 फीट के स्टील की चद्दर व लोहे के खम्भे को संस्थान द्वारा वितरित किये गये। इस अवसर पर संस्थान के कार्यकारी निदेशक ने किसानों को सम्बोधित करते हुये बताया कि परियोजना के अन्दर दी जा रही किसानों को सुविधाएं से इनकी आमदनी बढ़ेगी। इस दौरान किसानों को फेश मास्क भी वितरित किये गये।

New Publications



Meetings

संस्थान प्रबंधन समिति की बैठक का आयोजन



संस्थान प्रबंधन समिति की बैठक दिनांक 16 मार्च 2020 को अविकानगर में सम्पन्न हुई। बैठक की अध्यक्षता संस्थान के कार्यकारी निदेशक डा राघवेंद्र सिंह ने की। उन्होंने समिति को संस्थान में जारी अनुसंधान गतिविधियों की संक्षिप्त जानकारी दी। मुख्य प्रशासनिक अधिकारी एवं सदस्य सचिव संस्थान प्रबंधन समिति द्वारा पिछली बैठक में लिये गये निर्णयों के संबंध में कार्रवाई रिपोर्ट प्रस्तुत की गयी। पिछली बैठक में लिये गये निर्णयों संबंधी कार्रवाई रिपोर्ट की सर्वसम्मति से पुष्टि की गयी तथा साथ ही नई कार्यसूची मदों को समिति के समक्ष प्रस्तुत किया। सभी बिन्दुओं पर मदवार चर्चा की गयी एवं निर्णय लिये गये।

IRC Meeting held on 27-29 May 2020



The Institute Research Committee (IRC) Meeting of Institute held from May 27-29, 2020. The Director welcomes all the members of PMC and participants of IRC and informed that this year due to pandemic Covid-19 and situation of lock-down, the pattern of IRC meeting has been changed. In order to maintain social distancing, individual Division /Section scientists are invited to attend the respective sessions as per the schedule. The scientists from all the three regional stations are invited to join on Webinar.

संस्थान, अविकानगर में समीक्षा बैठक का आयोजन

दिनांक 3 जून 2020 को संस्थान, अविकानगर में कोविड-19 के संदर्भ में संस्थान द्वारा आयोजित गतिविधियों की समीक्षा बैठक की गई। उपरोक्त बैठक श्री सुखबीर सिंह जौनापुरिया, माननीय सांसद टोंक-सवाईमाधोपुर के दिशा-निर्देश में आयोजित की गई। इस बैठक में श्री कन्हैयालाल चौधरी, माननीय विधायक

मालपुरा-टोड़ारायसिंह भी उपस्थित रहे। संस्थान कार्यकारी निदेशक डा. राघवेंद्र सिंह ने बैठक में कोविड-19 के दौरान संस्थान द्वारा आयोजित गतिविधियां जैसे कि संस्थान द्वारा मास्क निर्माण एवं वितरण, किसानों को कोविड-19 के फैलाव को रोकने हेतु जारी आवश्यक जानकारी उपलब्ध करवाने आदि के बारे में विस्तार से अवगत कराया।



Institute Activities

Live Webcast Address of Hon'ble Prime Minister



Hon'ble Prime Minister Shri Narendra Modi address on the occasion of Global Potato Conclave 2020 was live webcast at 10:30 am on 28 January 2020 in the institute. Addresses of Hon'ble Minister of Agriculture & Farmers Welfare, Secretary, DARE & DG, ICAR and other dignitaries were also webcast during the event. Around 150 staff members attended the live webcast.

उत्तरी शीतोष्ण क्षेत्रीय केंद्र, गड़सा में राजभाषा कार्यशाला



उत्तरी शीतोष्ण क्षेत्रीय केंद्र, गड़सा में दिनांक 10.02.2020 को राजभाषा कार्यशाला का शुभारम्भ मुख्य अतिथि डॉ राघवेंद्र सिंह कार्यकारी निदेशक, द्वारा

किया गया। मुख्य अतिथि ने राजभाषा के निर्धारित वार्षिक कार्यक्रम के अनुसार शत प्रतिशत कार्य हिन्दी में करने पर बल दिया। इस अवसर पर कार्यक्रम में विशिष्ट अतिथि श्री नीरज श्रीवास्तव, विमानपत्तन निदेशक, श्री सुधीर कुमार, वरिष्ठ अधीक्षक (राजभाषा), कुल्लू-मनाली हवाई अड्डा, श्री नरेश कमल, सहायक प्रबन्धक (राजभाषा) एवं सदस्य सचिव, नराकास, कुल्लू-मनाली उपस्थित रहे।

अम्बेडकर जयन्ती का आयोजन

दिनांक 14 अप्रैल 2020 को डॉ भीमराव अम्बेडकर की जयन्ती के अवसर पर संस्थान में अधिकारियों एवं कर्मचारियों द्वारा भारत के संविधान की प्रस्तावना तथा मूल कर्तव्यों का पठन किया गया। इस दौरान सोशल डिस्टेंसिंग एवं अन्य निर्धारित प्रोटोकॉल का पालन किया गया।



Scientists Attended Sheep Flocks during Covid-19 lock-down



Scientists of institute visited the sheep flocks of Bassi village under Farmer FIRST project on 10 May 2020 and prescribed medicines

for sick animals. Farmers were given health advice for protection of their sheep flock from summer heat stress.

विश्व पर्यावरण दिवस के अवसर पर वृक्षारोपण



दिनांक 5 जून 2020 को विश्व पर्यावरण दिवस के अवसर पर भेड़ एवं बकरी सेक्टरों पर वृक्षारोपण का कार्य संस्थान के कार्यकारी निदेशक के निर्देशन में आयोजित किया गया इस अवसर पर एम एस एस पी-एस सी एस पी परियोजना के तहत भेड़ पालकों को मेंढा एवं फीडिंग ट्रफ का वितरण किया गया।

International Day of Yoga (IDY) - 2020



International Day of Yoga (IDY) 2020 celebrated on 21 June 2020. This year due to current pandemic of COVID 19 in the country, staff members joined the yoga day from their homes by performing the yoga between 7:00 to 8:00 am.

Advisory to Farmers for Pandemic COVID-19

Coronavirus disease (COVID-19): Advice and guidance to sheep farmers

- Ajit Singh Mahla

The COVID-19 virus infection is widely distributing in human and increasing rapidly in the country. To date, preliminary findings from studies suggest that livestock are not susceptible to SARS-CoV-2 infection and there is no role of animals in spread of COVID-19. COVID-19 outbreak has threatened the whole world including 188 countries affecting more than 13 million people with approx 0.6 million deaths. Worldwide health authorities/institutions have issued guidelines in order to control COVID-19. To stop the spread of the virus, following guidelines may be followed.

Personal health and hygiene

- Measures of personal hygiene and social distancing should be followed strictly by sheep farmers and farming communities.
- Maintain distance of two meters between persons and use face mask.
- Clean your hands with soap and water at least for 20 seconds or sanitize with sanitizers.
- Restrict the movement of visitors to the livestock farms.
- Always remove the shoes outside the house and keep them at separate place and remove the clothes immediately after coming from outside and wash them.
- All the family members at livestock farms should install Arogya Setu App in their mobile phones.

Sheep husbandry practices

- Minimize the strength of farm attendants and engage only familiar persons to the extent possible.
- Maintain social distancing while performing farm operations viz., cleaning, chaffing and fodder distribution and other farm activities.
- Keep soap, water and hand sanitizer at the entrance of the animal farm.
- The animal farm equipment and implements should be cleaned and sanitized regularly.
- Trading of sheep should be managed through e-trading. The visit to livestock haats, sale yards and markets should be avoided

- In case of purchased animals, they should be quarantined for a period of three weeks before introduction in the existing flock
- Follow good management practices related to feeding, watering, housing and general hygiene to keep animal healthy and productive.
- Isolate the sick animals and in case of emergency, contact the nearest veterinary hospital. Try to avail veterinary services at home and minimize visit to veterinary hospitals. Veterinary services can also be taken over the phone or online.
- Vaccinate and deworm the animals in consultation with veterinarian to avoid diseases

कोविड-19 महामारी के दौरान मांस खुदरा विक्रेताओं एवं उपभोगकर्ताओं के लिए आवश्यक दिशा-निर्देश

- अरविन्द सोनी, वार्ड. पी. गाडेकर और ए.के. शिंदे

खुदरा विक्रेता

उपभोगकर्ता

	दुकान के बाहर भीड़ को नियंत्रित करें।		मांस एवं इसके उत्पाद खाने के लिए पौष्टिक एवं सुरक्षित है।
	उपभोक्ताओं को उचित दूरी बनाकर खड़ा करें।		मांस को खरीदने के लिए पृथक बैग का उपयोग करें।
	उपभोक्ताओं को दुकान में प्रवेश न दें।		अन्य खाद्य प्रदार्थों को कच्चे मांस से अलग रखें।
	दुकान के बाहर हाथ धोने की व्यवस्था करें।		कच्चे मांस को प्रशीतित तापमान पर भण्डारण करें।
	सुनिश्चित करें उपभोक्ताओं ने मास्क पहना हों।		मांस को पकाने से पहले पानी से अच्छी तरह धोएं।
	डिजिटल लेनदेन करें। स्वाइप मशीन को हर लेनदेन के बाद सैनिटाइजर से साफ करें।		मांस को उचित तापमान पर पकाएं। (आंतरिक तापमान 75°C)
	होम डिलीवरी को बढ़ावा दें।		बाहर जाते समय अल्कोहल आधारित हैंड सैनिटाइजर का उपयोग करें।
	समय-समय पर दुकान को 1% हाइपोक्लोराइट घोल या समकक्ष के साथ कीटाणुरहित करें।		घर लौटने पर कम से कम 20 सेकंड के लिए अपने हाथों को गर्म पानी और साबुन से धोएं।