एन.डी.आर.आई.

N.D.R.I. News

राष्ट्र के डेरी स्वप्नों को समर्पित
Fulfilling Nation's Dairy Dreams

भा.कृ.अनु.प.-राष्ट्रीय डेरी अनुसंधान संस्थान, करनाल
ICAR-National Dairy Research Institute, Karnal

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From the Director's Desk

India is the leading milk-producing country in the world and produced 209.96 million tonnes of milk in 2020-21, showing a 5.82% annual growth rate (*Annual report 2021-22*, Department of Animal Husbandry and Dairying (DAHD), Govt. of India), whereas the total milk production of the world is 906 million tonnes in 2020 with the annual growth rate of 1.2 % (FAO *Dairy Market Review April 2021*). The National Action Plan aims to achieve milk production to 254.5 MT by 2021-22 and up to 300 MT by 2023-24 by enhancing the average productivity of dairy animals. Rashtriya Gokul Mission aimed for a total number of 97.43 million bovines (35.81 million indigenous cattle, 18.01 million crossbred cattle, and 43.61 million buffalo) through artificial breeding by 2020-21; which required 201 million frozen semen doses (83 million for indigenous cattle, 56 million for crossbred cattle and 62 million for buffalo) in comparison to the present production of 122 million frozen semen doses. Indian government has already initiated several developmental programs, i.e., National Programme for Dairy Development, Rashtriya Gokul Mission and National Livestock Mission in recent times to increase the milk production of the country and productivity of dairy animals. Rashtriya Gokul Mission was expected to cover 70 % of the breedable population through AI. To reach the targeted 70 % AI coverage, the required number of AIs per year has been estimated as 191.9 million, whereas the number of AIs conducted in 2021 was 78.5 million.

In this issue	From Director's Desk	Research	ITMU	Academic Affairs	Events	राज भाषा एकक	Awards	Personalia	Southern Campus, Bengaluru	Eastern Campus, Kalyani
	1 - 2	2-3	3-6	7-8	8-11	11-13	14	14-16	16-19	19-22

Artificial Insemination with frozen semen has been proven to be the best tool worldwide for genetic improvement by disseminating superior germplasm. The country has registered 50 cattle breeds and 19 buffalo breeds, of which 53% of cattle breeds and 47% of buffalo breeds have frozen semen doses available in the country. The contribution of the ICAR-National Dairy Research Institute towards genetic improvement is immense. From 1980 to 2021, Animal Breeding Research Complex (ABRC), ICAR-NDRI disseminated 11.00 lakh frozen semen doses of Karan Fries, 9.84 lakh doses of Murrah, 4.82 lakh doses of Sahiwal, 0.56 lakh doses of Tharparkar and 1.42 lakh doses of Karan Swiss. During this period, ICAR-NDRI also disseminated 7.65 lakh doses of liquid semen (ml) of Karan Fries, 4.36 lakh of Murrah, 2.32 lakh of Sahiwal, 0.03 lakh of Tharparkar and 0.42 lakh of Karan Swiss. A total of 27.64 lakh frozen semen doses and 14.78 lakh ml liquid semen were disseminated from 1980 to 2021. These bulls are elite animals as the present production levels of the dam are quite higher than the national average productivity of the above breeds. ABRC, ICAR-NDRI has 131 breeding bulls at present. In 2021, ABRC produced 134053 frozen semen doses, disseminated 95675 frozen semen doses, and 121595 ml liquid semen of elite male germplasm. ABRC has 10.17 lakh frozen semen doses (Murrah-2.97 lakh, Sahiwal-2.65 lakh, KF-3.19 lakh, KS-0.80 lakh, TP-0.53 lakh, Gir-0.03 lakh) of elite bulls.

It is satisfying to note that ICAR-NDRI has made immense contributions to the genetic improvement of dairy animals under field conditions and has been continuing with its efforts to enhance milk production per lactation over and above the average productivity of these animals in the country.

(Dr Dheer Singh)
Director, ICAR-NDRI

RESEARCH

Method Standardized for Detection of Sorbitol in Cow and Buffalo Milk.
(Dr. Vivek Sharma, Dr. Priyanka Singh Rao, Dr. Sumit Arora and Dr. Richa Singh)

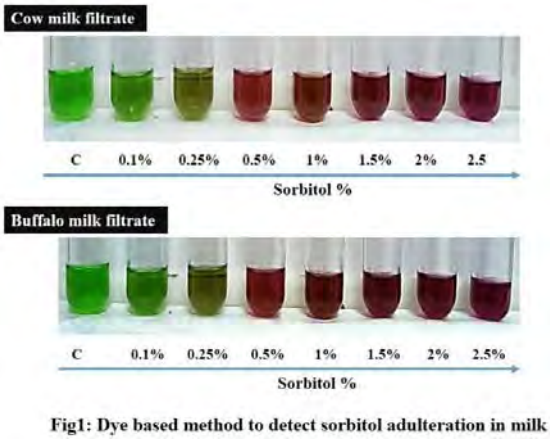
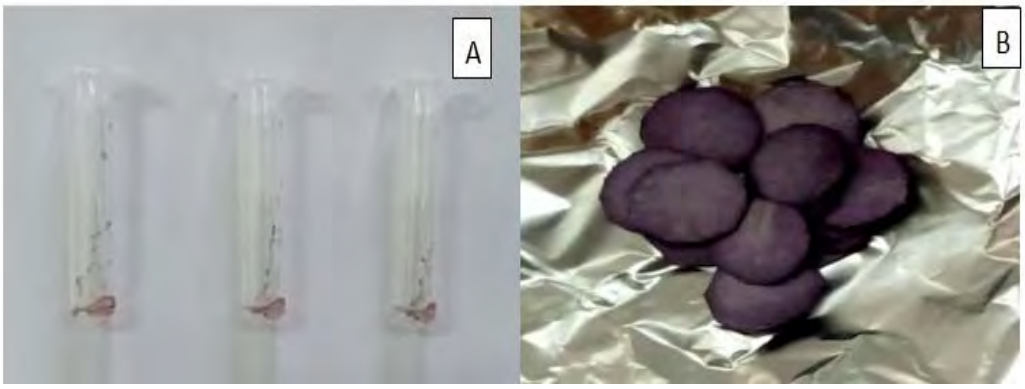


Fig1: Dye based method to detect sorbitol adulteration in milk

A method for the qualitative detection of sorbitol in both cow and buffalo milk was standardized. In the presence of sorbitol, a violet colour was observed on the addition of mixed indicator and boric acid (Fig 1). Using this method, the minimum amount of sorbitol added to milk i.e. 0.5% could be detected. Carbohydrates, urea and ammonium sulphate spiking did not affect the colour change in sorbitol spiked samples and the results were same as in case of control and sorbitol spiked samples.

Paper-based disc sensors and tube sensors to detect vegetable oils addition in cow ghee.
(Mr. Yugal Kisho Naik and Dr. Vivek Sharma)



A- Tube based sensor ***B- Paper based sensor***

Field level/ large scale trial of 'Technology of Haldi Ghee from Cow Milk' and 'Technology of Haldi Lassi'
(Kaushik Khamrui and Writdhama Prasad)
Haldi (Turmeric) is a famous Indian spice that possesses numerous functional/biological attributes such as immunostimulatory, antiviral, anti-inflammatory, anti-Alzheimeric, antioxidant, antidiabetic, antibacterial, hypotensive, hypocholesteremic, etc. The technology developed at lab scale for incorporation of turmeric and curcumin (the principal biologically active compound present in turmeric) in ghee and lassi was conducted at the large scale to ascertain the efficacy of developed technologies at the large scale in the dairy industries. Creamery butter method was found to be the most suitable method for the preparation of turmeric fortified cow ghee. For haldi lassi preparation, a blend of curcumin and haldi powder added to the curd along with sugar syrup. The product developed may possess higher anti-oxidant activity in terms of free radical scavenging ability as compared to the conventionally prepared products. Diet containing turmeric fortified products may also have hypocholesterolemic effect in terms of reduced total serum cholesterol, serum triglyceride, LDL, VLDL-cholesterol and atherogenic index and increase in HDL- cholesterol level. Thus, the developed product (haldi ghee and haldi lassi) may possess great potential as a 'functional products' with anti-oxidative and hypo-cholesterolemic activity because of the addition of natural functional ingredients from haldi.

Institute Technology Management Unit (ITMU)

Patents Filed:

Sl. No.	Title of Patent	Inventors	Date of Filling	Application Number
1)	BullTraMin-Formulation of a bull-specific trace mineral mixture and method of its preparation	Goutam Mondal, Rashika Srivastava, Mukesh Bhakat and Veena Mani	April 20, 2022	202211023368

Patents Granted:

Sl. No.	Title of Patent	Inventors	Date of Filling	Application Grant Number & Grant Date
1)	Aptamers Specific for Cefquinome	Rajan Sharma, Amit Kumar Barui, Y.S. Rajput and Bimlesh Mann	June 15, 2015	App. Number: 395869 Grant Date: April 29, 2022

Technologies Commercialised:

Sl. No.	Name of the Technology	Name of the Inventors	Date of Purchase (Th. Agrinnovate)	License Fee (Rs. in Lakhs)	Technology Purchaser
1)	PCR based method for differentiating A1 and A2 milk	Sachinandan De and Kailash Jaishwal	May 6, 2022	2.00	Manorama Agrobiotech, Gujarat
2)	Paper strip assay for rapid detection of pesticide residues	Naresh Kumar, N. Tehri, R. Gopaul, P.K. Sharma, Morab S. and Raghu H.V.	May 9, 2022	7.50	Delmos Research Pvt. Ltd.
3)	Protein rich cheese squeeze	Devaraja, HC., K. Jayaraj Rao, Sathish Kumar M.H, Monika Sharma and Manoj Kumar C.T.	May 21, 2022	2.50	KMF, Karnataka
4)	Cow ghee enriched with natural polyphenols for enhanced shelf-life	Laxmana Naik, Shivli Jha, Priyanka Singh Rao, K. Jayaraj Rao, Sathish Kumar M. H., Menon Rekha Ravindra and F. Magdaline Eljeeva Emerald and Omkar	May 21, 2022	3.00	KMF, Karnataka
5)	Milk millet-based protein rich dairy dip	Devaraja, HC., K. Jayaraj Rao, Monika Sharma, F. Magdaline Eljeeva Emerald and Omkar	May 21, 2022	3.00	KMF, Karnataka
6)	Ghee residue incorporated energy bar	Monika Sharma, Amanchi A Sangma, K. Jayaraj Rao, Menon Rekha Ravindra and Laxmana Naik	May 21, 2022	4.00	KMF, Karnataka
7)	Functional butter with hypocholesterolemic attributes	Devaraja H.C., Kaushik Khamrui, Satish Kumar, Suman Kapila and Rajan Sharma	May 21, 2022	2.00	KMF, Karnataka
8)	Dry crystalized kheer mix	Menon Rekha Ravindra, Monika Sharma and Devaraja, HC	May 21, 2022	4.00	KMF, Karnataka
9)	Flavored milk and curd fortified with plant source of omega 3 fatty acid	Monika Sharma, Devaraja H.C., Pramod Bhivasen Tambade, B.C. Ghosh and Laxmana Naik N	May 21, 2022	1.50	KMF, Karnataka
10)	Shelf stable, nutritionally rich smoothies using dairy	Sathish Kumar M.H., Latha Sabikhi, D.K.	May 21, 2022	2.00	KMF, Karnataka

	& non-dairy ingredients	Thompkinson, Devarja H.C. and Sumit Arora			
11)	Spray dried milk malted millet beverage mix	P. Heartwin Amaladhas, F. Magdaline Eljeeva Emerald, B. Surendra Nath, H.V. Vikram Simha and P. Arun Kumar	May 21, 2022	2.00	KMF, Karnataka
12)	Spreadable butter fortified with vegetarian source of omega-3-fatty acid	Monika Sharma, Devaraja H.C. and Pandule Vishal Shrirang	May 21, 2022	2.00	KMF, Karnataka
13)	Protein rich cheese squeeze	Devaraja, HC., K. Jayaraj Rao, Sathish Kumar M.H, Monika Sharma and Manoj Kumar C.T.	May 21, 2022	2.50	2S Dairy Deli Products (OPC)

Transfer of technology of "PCR based method for differentiating A1 and A2 milk" to M/s Manorama Agrobiotech Pvt. Ltd, Gujarat on May 6, 2022

Transfer of technology of "Paper strip assay for rapid detection of pesticide residues" to M/s Delmos Research Pvt. Ltd, Gurgaon on May 9, 2022.

The Following 10 technologies were commercialized to Karnataka Milk Federation, Bengaluru on May 21, 2022 and NDRI earned revenue of Rs. 26 Lakhs+Service Tax by commercializing these technologies:

1) Protein rich cheese squeeze.
2) Cow ghee enriched with natural polyphenols for enhanced shelf-life.
3) Milk millet based protein rich dairy dip.
4) Ghee residue incorporated energy bar.
5) Functional butter with hypocholesterolemic attributes.
6) Dry crystalized kheer mix.
7) Flavored milk and curd fortified with plant source of omega 3 fatty acid.
8) Shelf stable, nutritionally rich smoothies using dairy and non-dairy ingredients.
9) Spray dried milk malted millet beverage mix.
10) Spreadable butter fortified with vegetarian source of omega-3-fatty acid.

Transfer of ten numbers of technologies to Karnataka Milk Federation, Bengaluru on May 21, 2022

Capacity Building in IP Management

Sl. No.	Name of Program (Training/ workshop/ Seminar etc.) organized	Organized By (Name of the Institute)	Date of Program	Number of Participants
1)	One-Day Awareness Program on Protection of Plant Varieties and Farmer's Rights (PPV&FR) Act, 2001,	ICAR-NDRI	May 24, 2022 at Village Kamalpur Rodana of District Karnal	100-130

Interactions with the participants during one-day awareness program

ACADEMIC AFFAIRS

- Dr. Ashish Ranjan (Guide: Dr. Archana Verma- Animal Genetics & Breeding Division) completed his Ph.D. degree on the research topic "Sire Evaluation using Test Day Random Regression Models in Murrah Buffaloes".
- **International training under IDP-NAHEP project of NDRI:** In Batch III, a total of 28 B.Tech. students and 18 faculty members have got the approval for international training under IDP-NAHEP Project of NDRI in the financial year 2022-23. Till now twenty seven students have been preceded for this training wherein they visited 9 different universities in three different countries. Whereas faculty members will be going to visit 15 different universities in 6 different countries.


Mr. Jashanpreet Singh {B. Tech. (DT) III Year}		
Training Period	:	1.5 months (May 5 to June 20, 2022)
Visiting Institute	:	Oklahoma State University, USA
Project Title	:	Developing a food safety plan for Ground Black Pepper
Overseas Mentor	:	Dr. Ravi Jadeja (Associate Professor and Food Safety Specialist, Oklahoma State University, USA)

- The Educational Tour was organized by the Division of Dairy Economics, Statistics and Management, ICAR-NDRI during June 14-19, 2022 to give practical and hands-on experience to the students offering the course on Natural Resource and Environmental Economics.

- All of the students, guided by the faculty visited the orchards and agricultural land maintained by KVK, Bajaura. The station was located at a place where the ascend towards snow-capped mountains starts, thus, making it suitable for the cultivation of temperate crops.

The Educational Tour around the station helped the team in understanding the landscape and conservation practices followed in the hills. The team also visited the Northern Temperate Research Station (NTRS) of the ICAR-Central Sheep and Wool Research Institute, Garsa, Kullu (HP). The station specializes in improving sheep reared for wool purposes. The team had a discussion on the valuation of ecosystem services.

- The students along with the faculty visited IARI Regional Research Station, Katrain. The scientist in the station explained the outstanding work on research and development of temperate vegetables for the country and also in seed production. The scientist also explained the marketing of seeds and released varieties and also the issues in marketing faced by them.
- Five video lectures were recorded and uploaded on online platform by Dairy Technology Divisional faculty:

Title	Online link
1) *Khoa*: A brief overview	https://youtu.be/xcUjnwJemtM
2) *Chhana* and *Chhana* based products preparation	https://youtu.be/bTU8pvuF5Hs
3) Preparation of fermented dairy products (*Dahi*)	https://youtu.be/36rdeXKRfQc
4) Preparation of Fat Rich Dairy Products (*Ghee*)	https://youtu.be/fso8LHGpRx8
5) Khoa based products preparation	https://youtu.be/_I22cOmIFpA

EVENTS

Virtual Training Program on Personality Devlopment and Neuro Linguistic Program

A 45 days Virtual Training Program on the Topic entitled "Personality Development and English Language Writing Skills" from March 16 to April 29, 2022 and a 60 days Virtual Training Program on the Topic entitled "Neuro linguistic programming" from March 16 to May 15, 2022 was conducted under activity ‘e’ objective 2 (To leverage alumni network and industrial linkages for enhancing education and employment opportunities and fostering start up culture among students) of IDP, NAHEP project. The lecture was delivered by Dr. Radhashankar Narayanan, CEO, SMART Series Trustee, SRK Foundation, Bangalore.

Mentor-Mentee Program

A Mentor-Mentee Program in collaboration with NDRI Alumni was conducted at ICAR-NDRI Karnal on April 15, 2022 for all the students of B.Tech. (Dairy Technology). Dr. Ashish Kumar Singh, Acting Head, Dairy Technlogy Division, ICAR-NDRI was the coordinator. The major objective of the program is to promote self-awareness amongst students and provide need-based

mentoring to make the best use of their potential and resources. Two alumni of NDRI viz. Mr. Prashant Kumar Singh (APAC Services Portfolio Manager- Tetra Pak, Gurgaon) and Dr. Deepak Maun (Assistant Professor, O.P. Jindal Global University, Sonipat, Haryana) interacted and mentored our students on various facets of quality improvement targeting enhancement in technical skills, communication, writing, problem-solving skill, promotion of innovations, inculcating leadership and other management virtues.

Entrepreneurship Development Program on Starter Cultures and Production of Fermented Milk Products

A 6 days hands-on Entrepreneurship Development Program on the topic "Starter Cultures and Production of Fermented Milk Products" was organized during May 23-28, 2022. Dr. Pradip Vishnu Behare, Scientist, DM Division, ICAR-NDRI was the organizer of this training program. The objective of this training is to provide basic knowledge and hands-on training on starter culture production, handling and manufacture of fermented milk products to the entrepreneurs and people related to the dairy industry. A total of 20 participants have attended the training program.

International Webinar on Impact of Climate change and heat stress on Dairy Cattle and Mitigation strategies

An International Webinar on the topic: "Impact of Climate change and heat stress on Dairy Cattle and Mitigation strategies" was organized by Animal Physiology Division, ICAR-NDRI under activity ‘e’ objective 2 (To leverage alumni network and industrial linkages for enhancing education and employment opportunities and fostering start up culture among students) of IDP, NAHEP project on June 20, 2022. Dr. Surinder Singh Chauhan (DVM, PhD, Postdoc) Senior Lecturer, School of Agriculture and Food, Faculty of veterinary and Agricultural Sciences, Dookie Campus, Dookie College, The University of Melbourne, Australia delivered a valuable talk. Dr. S.V. Singh, Principal Scientist, AP Division, ICAR-NDRI was the convenor of this webinar.

International Yoga Day

International Day of Yoga was celebrated on June 21, 2022 at NDRI Campus under IDP-NAHEP project. As Yoga Day highlights the importance of Yoga and the benefits it has on our mind and soul. So, if practiced often by students and faculty members, yoga can boost up their energy level, help them maintain a healthy weight and improve their body posture. Participating in Yoga Day activities and meditation will help them in enhancing their mental health as well.

International Webinar on Extraction of bioactive compounds from food and application of *in vitro* digestion models

An International Webinar on the topic: "Extraction of bioactive compounds from food and application of *in vitro* digestion models" was organized by ICAR-NDRI under activity ‘e’ objective 2 (To leverage alumni network and industrial linkages for enhancing education and employment opportunities and fostering start up culture among students) of IDP, NAHEP project on June 22, 2022. This webinar includes a series of lecture. Dr. Parthasarathi Subramanian delivered a lecture on the topic "Design and fabrication of *in vitro* digestion models whereas Dr. Ali Rashidinejad delivered a lecture on the topic "Delivery of bioactive compounds *via* functional foods and their release in simulated gastrointestinal tract. Dr. Kamal Gandhi, Scientist (SS), Dairy Chemistry Division, ICAR-NDRI was the organizing secretary of this webinar.

Launch Workshop of Gender Advancement for Transforming Institutions (GATI)

A launch workshop of Gender Advancement for Transforming Institutions (GATI) was coordinated by GATI Self Assessment Team (GSAT) on April 30, 2022 at NDRI, Karnal. Dr. Trilochan Mohapatra, Secretary DARE and DG, ICAR was the chief guest of the workshop.

Dr. B.N. Tripathi, DDG (AS) expressed his view regarding the need of gender advancement for transformations of institutions. Dr. Trilochan Mohapatra delivered the presidential address on this occasion and emphasized upon the advancement of the women scientists by involving them in decision making process of the Institute. He further said that there is a need to create safe environment at work places for overall growth of women and the institute. The Directors, scientists and staff of ICAR-NDRI and sister institutes located at Karnal were present in this program. The program was attended by more than 500 scientists, students, technician and administrative staff.

राज भाषा एकक

"दुग्ध गंगा" एवं "कर्णोदय" पत्रिकाओं का विमोचन

डा. त्रिलोचन महापात्र, सचिव, डेयर एवं महानिदेशक, भारतीय कृषि अनुसंधान परिषद, नई दिल्ली ने संस्थान के भ्रमण कार्यक्रम के दौरान संस्थान की राजभाषा गृह पत्रिका "दुग्ध गंगा (2021)" एवं एन.डी.आर.आई. के अध्यक्षीय समन्वय में नगर राजभाषा कार्यान्वयन समिति, करनाल की पत्रिका "कर्णोदय (2021-22)" का विमोचन किया। इस अवसर पर संस्थान के निदेशक डा. मनमोहन सिंह चौहान, परिषद के उप महानिदेशक (पशु विज्ञान) डा. बी. एन. त्रिपाठी, पद्मश्री डा. एम.एल. मदान एवं संयुक्त निदेशक (अनुसंधान) डा. धीर सिंह उपस्थित थे ।

"दुग्ध गंगा" पत्रिका का विमोचन

हिन्दी टाइपिंग प्रशिक्षण कार्यक्रम का आयोजन

संस्थान के ए.बी.टी.सी. कंप्यूटर लैब में संस्थान के 08 मंत्रालयिक कर्मचारियों के लिए हिंदी में टाइपिंग का प्रारंभिक/ पुनश्चर्या प्रशिक्षण कार्यक्रम दिनांक 25.05.2022 से 27.05.2022 तक आयोजित किया गया। इस प्रशिक्षण के दौरान प्रशिक्षार्थियों को हिन्दी टाइपिंग के मंगल इंनस्क्रिप्ट कीबोर्ड की जानकारी देते हुए कंप्यूटर में विभिन्न प्रकार के कीबोर्ड के सॉफ्टवेयर को अपलोड करने, कीबोर्ड पर हिन्दी टाइपिंग का अभ्यास करने तथा टाइपिंग के दौरान आने वाली विभिन्न प्रकार की समस्याओं का निराकरण करना सिखाया गया।

हिन्दी कार्यशाला/ टाइपिंग संगोष्ठी के प्रशिक्षणार्थी

पांच दिवसीय कार्यशाला का आयोजन

डा. मनमोहन सिंह चौहान, निदेशक, भा.कृ.अनु.सं.-राष्ट्रीय डेरी अनुसंधान संस्थान के मार्गदर्शन में "कार्यालयों में राजभाषा कार्यान्वयन, प्रशासनिक एवं वित्तीय नियम" विषय पर पांच दिवसीय कार्यशाला का आयोजन 30.05.2022 से 3.06.2022 तक किया गया।

निदेशक, डा. चौहान ने 30 मई, 2022 को कार्यक्रम का उद्घाटन करते हुए अपने अध्यक्षीय संबोधन में कहा कि मानव संसाधन विकास एक सतत् प्रक्रिया है और सरकारी कार्यालयों में ऐसी कार्यशालाओं की अधिकारियों एवं कर्मचारियों की कार्यक्षमता को बढ़ाने के लिए समय-समय पर आयोजित करने की नितांत आवश्यक है। उन्होंने रेखांकित किया कि इससे प्रशासनिक कार्यशालाओं में प्रशिक्षित अधिकारियों एवं कर्मचारियों के ज्ञानार्जन से उनके आत्मविश्वास में वृद्धि होने के साथ-साथ संपूर्ण कार्यालय की कार्यकुशलता एवं दक्षता भी बढ़ती है। उन्होंने आगे बताया कि प्रशासन में कार्य करने वाले अधिकारियों एवं कर्मचारियों में परस्पर वार्तालाप होने से नियमों के दायरे में सकारात्मकता बढ़ती है। उन्होंने अधिकारियों से यह आह्वान किया कि वे अपने अधीनस्थ स्टाफ को प्रोत्साहित करते हुए सीमित संसाधनों से अधिकतम परिणाम अर्जित करने का प्रयास करें। उद्घाटन समारोह के अवसर पर कार्यक्रम के विशेष अतिथि एवं आईसीएआर दिल्ली के संयुक्त सचिव, श्री एम. के. जैन ने अपने उद्गार में कहा कि सभी प्रशिक्षणार्थी इस कार्यशाला के व्याख्यानों से लाभान्वित हों और अपने-अपने कार्यालयों में इसका उपयोग एवं प्रयोग करेंगे|

पांच दिवसीय हिन्दी कार्यशाला की झलक

इस कार्यशाला में करनाल स्थित भारतीय कृषि अनुसंधान परिषद के संस्थानों के सहायक प्रशासनिक अधिकारी स्तर तक के अधिकारियों एवं कर्मचारियों को सरकारी कामकाज के दौरान कार्यालय में राजभाषा प्रबंधन, विभिन्न प्रकार की खरीद जेम के माध्यम से ई-क्रय, कार्यालयीन प्रक्रिया एवं सेवा मामलें निवारक सतर्कता, तनाव प्रबंधन, सामान्य वित्तीय नियमों की जानकारी, पेंशन मामलों का निष्पादन, भर्ती, पदोन्नति, वरिष्ठता आदि, लक्ष्य निर्धारण के द्वारा मनोबल अभिवृद्धि आदि जैसे अति महत्वपूर्ण विषयों पर देश के अनेक हिस्सों से आमंत्रित अनुभवी विषय-विशेषज्ञों के द्वारा प्रशिक्षित किया गया। कार्यशाला के प्रत्येक सत्र के अंत में सहभागिता करने वाले अधिकारियों एवं कर्मचारियों की शंकाओं का समाधान किया गया।

कार्यशाला के समापन सत्र में भारतीय कृषि अनुसंधान परिषद, कृषि भवन, नई दिल्ली से मुख्य अतिथि के रूप में शामिल हुए श्री जी.पी. शर्मा, निदेशक (वित्त) ने अपने संबोधन में परिषद की विस्तृत जानकारी देने के साथ-साथ सभी प्रतिभागियों को कार्यशाला के दौरान अर्जित ज्ञान का अधिकाधिक प्रयोग करने तथा अन्य साथियों को प्राप्त हुए ज्ञान को साझा करने का आह्वान किया। समापन सत्र में सभी प्रतिभागियों को प्रमाणपत्र से सम्मानित भी किया गया।

राडेअनुसं, करनाल के अध्यक्षीय समन्वय में नगर स्तरीय नराकास बैठक का आयोजन

संस्थान के डा. एन.एन.दस्तूर सभागार में दिनांक 7.06.2022 को नराकास, करनाल की 75वीं छमाही समीक्षा बैठक एवं वार्षिक पुरस्कार वितरण समारोह का आयोजन संस्थान के निदेशक, डा. मनमोहन सिंह चौहान की अध्यक्षता में कोविड निर्देशों के पालन के साथ किया गया। छमाही समीक्षा बैठक में केंद्र सरकार के 44 सदस्य कार्यालयों के प्रशासनिक प्रधान, राजभाषा अधिकारी एवं अन्य अधिकारी उपस्थित रहे। इस बैठक में समिति के तत्वावधान में 1 अक्तूबर, 2021 से 31 मार्च, 2022 तक की छमाही के दौरान सदस्य कार्यालयों के द्वारा राजभाषा हिन्दी के प्रचार, प्रसार एवं कार्यान्वयन के क्षेत्र में किए गए कार्यों की समीक्षा की गई।

नराकास की 75वीं बैठक में अध्यक्षीय संबोधन

डा. एम.एस. चौहान, निदेशक, भाकृअनुप-राडेअनुसं, करनाल व अध्यक्ष, न.रा.का.स., करनाल ने अपने अध्यक्षीय संबोधन में सभी सदस्य कार्यालयों के प्रशासनिक प्रधानों, पदाधिकारियों, राजभाषा अधिकारियों आदि का अभिनंदन करते हुए पुरस्कृत विजेताओं को बधाई सम्प्रेषित की तथा पुरस्कार प्राप्त करने से वंचित रहे कार्यालयों को भविष्य में अधिक प्रयास करने की सलाह दी।

AWARDS

- Oshin Togla received Young Scientist Award (Guide–Dr. Anupama Mukherjee) during 4th International Conference on Innovative and Current advances in Agriculture and Allied Sciences, June 12-14, 2022 organized by Society for Scientific Development in Agriculture and Technology, Meerut (UP).
- Oshin Togla, Sagar Kadyan, Shivam Bhardwaj, Yaser Mushtaq Wani, Anupama Mukherjee and Sabyasachi Mukherjee (2022) received Best Oral Presentation on 'A genome-wide detection of copy number variations using HD-SNP genotyping arrays Sahiwal cattle' in Technical Session 10 during 4th International Conference on Innovative and Current advances in Agriculture and Allied Sciences, June 12-14, 2022 organized by Society for Scientific Development in Agriculture & Technology, Meerut (UP).

PERSONALIA

Permission granted to the following scientific/ administrative staff for attending workshop/ seminar/ symposia/ conference/ training during the period from April to June, 2022

Name & Designation	Title of the Programme	Period
Dr. Biswajit Sen, Scientist	Training on Computable General Equilibrium (CGE) modeling at IFPRI, New Delhi	April 4-13, 2022
Dr. Mukesh Bhakat, Principal Scientist	National Symposium on Advancement in Veterinary Medical Research Contributing to "One Health" for Betterment of Animal and Public Health and their welfare at Udaipur	April 8-9, 2022
Dr. Nishant Kumar, Senior Scientist	National Symposium on Advancement in Veterinary Medical Research Contributing to "One Health" for Betterment of Animal and Public Health and their welfare at Udaipur	April 8-9, 2022
Dr. T. K. Mohanty, Principal Scientist	Guest Speaker in the National Livestock Conference "UTKARSHA" at Visakhapatnam.	April 11-13, 2022
Mr. N.S. Rohila, Senior Technical Officer	Presented the paper during the International Conference of Agricultural Librarians and Users Community on "Indian Journal of Animal Science: A Scientometric Assessment and Application of Lotka's Law (2015-2020) at Assam Agricultural University, Jorhat, Assam	April 28-29, 2022
Mr. N.S. Rohila, Senior Technical Officer	Acted as Co-Chairman in Technical Session (Theme: Emerging Technologies in the field of Library & Information Science) in the International Conference of Agricultural Librarians and Users Community 2022 at Assam Agricultural University, Jorhat, Assam.	April 28-29, 2022
Dr. K. Punnusamy, Principal Scientist	National Conference at CSK Himachal Pradesh Agricultural University, Palampur Distt Kangra (HP)	May 6-8, 2022
Dr. Biswajit Sen, Scientist	Training on Computable General Equilibrium (CGE) modeling at IFPRI, New Delhi	May 10-18, 2022
Dr. Sachin Kumar, Scientist	National Symposium on Self-Reliant Coastal Agriculture at ICAR- CCARI, Ela, Old Goa.	May 11-13, 2022
Dr. Pankaj Saraswat Principal Scientist	National Conference of KVKs 2022 at YSPH&F, Solan	June 1-2, 2022

Dr. Magan Singh, Senior Scientist	Seminar/ National Group Meeting Kharif 2022 at SKUAST-Kashmir, Srinagar	June 13-14, 2022
Dr. Sanjeev Kumar, Scientist	Seminar/ National Group Meeting Kharif 2022 at SKUAST-Kashmir, Srinagar	June 13-14, 2022
Dr. Rajan Sharma, Principal Scientist	The training programme titled MDP on Leadership Development (a Pre-RMP Programme) at ICAR-NAARM, Hyderabad	June 14-25, 2022
Dr. Sachin Kumar, Scientist	XX NAVS (I) convocation-cum-scientific convention on "Restructuring veterinary education, research and extension for enhancing livestock and poultry production to boost the GDP at MAFSU, Nagpur	June 20-21, 2022

Promotion/ Joining

- Dr. Indu Devi, Scientist joined at NDRI, Karnal w.e.f. April 4, 2022 (FN) vide council order No.11-1/2021/pers-II(IV) dated March 16, 2022.
- Ms Sonika Yadav, Assistant promoted to the Post of AAO vide office order No. F.6-33/20/LDCE/E-I(S)/276-80 dated April 21, 2022.
- Sh. Dharamendra Singh, Assistant promoted to the Post of AAO vide office order No. F.6-33/20 /LDCE/E-I(S)/281-85 dated April 21, 2022.
- Sh. Abhishek Rana, Senior Administrative Officer relieved from NDRI as on April 22, 2022 with the instruction to the join for the post of CAO at CSSRI, Karnal.
- Sh. Mukesh Kumar Dua, AAO promoted to the Post of AO vide office order No. F.6-33/20/LDCE/E-I(S)/Vol-I/328-348 dated April 25, 2022.
- Sh. Sukhdev Singh, AAO promoted to the Post of AO vide office order No. F.6-33/20/LDCE/E-I(S)/685-96 dated June 8, 2022.
- Dr. Vivek Sharma was nominated as Member of Institute Management Committee of NRC-Equine, Hisar w.e.f. 25.02.2021 to 24.02.2024.
- Dr. Vivek Sharma was nominated as Principal Member of Dairy Products and Equipment Sectional committee, FAD- 19 of Bureau of Indian Standards (BIS).
- Sh. Sonu, K.S. joined as Senior Technical Officer at Dairy Chemistry & Bacteriology Section, SRS of ICAR-NDRI, Bengaluru, on June 14, 2022.
- As per vide Council Office Order F.No. Pers./6-6/2015-AU dated May 5, 2022 and endorsed by NDRI vide F.No.6-35/2017/DPCS/E-I(S)/Vol.XV /419-425 dated May 10, 2022, the following scientists were promoted:

From RGP of Rs. 6,000/- to RGP of Rs. 7,000/-

Name of Scientist	Discipline	Period of Assessment
Dr. Rajesh Kumar Meena, Scientist, ICAR-NDRI, Karnal.	Agronomy	01.07.2015 to 30.06.2019
Dr. Heena Sharma, Scientist, ICAR-NDRI, Karnal	Livestock Products Technology	01.01.2016 to 31.12.2019
Dr. Rajalaxmi Behera, Scientist, ERS, Kalyani	Animal Genetics & Breeding	01.07.2015 to 30.06.2019

From RGP of Rs. 7,000/- to RGP of Rs. 8,000/-

Name of Scientist	Discipline	Period of Assessment
Dr. Sunita Meena, Scientist, NDRI	Animal Biochemistry	07.08.2015 to 06.08.2020
Dr. Sadeesh E M., Scientist, NDRI	Animal Biochemistry	01.05.2015 to 05.05.2020
Dr. Hardev Ram, Scientist, NDRI	Agronomy	15.09.2015 to 14.09.2020
Dr. Sanchita Garai, Scientist, NDRI	Vety. Ext. Education	01.09.2014 to 31.08.2019

From RGP of Rs. 8,000/- to RGP of Rs. 9,000/-

Name of Scientist	Discipline	Period of Assessment
Dr. Manoj Kumar Singh, Senior Scientist, NDRI	Animal Biotechnology	10.02.2018 to 09.02.2021
Dr. Nishant Kumar, Senior Scientist, NDRI	Animal Reproduction & Gynecology	20.07.2017 to 19.07.2020

Retirement

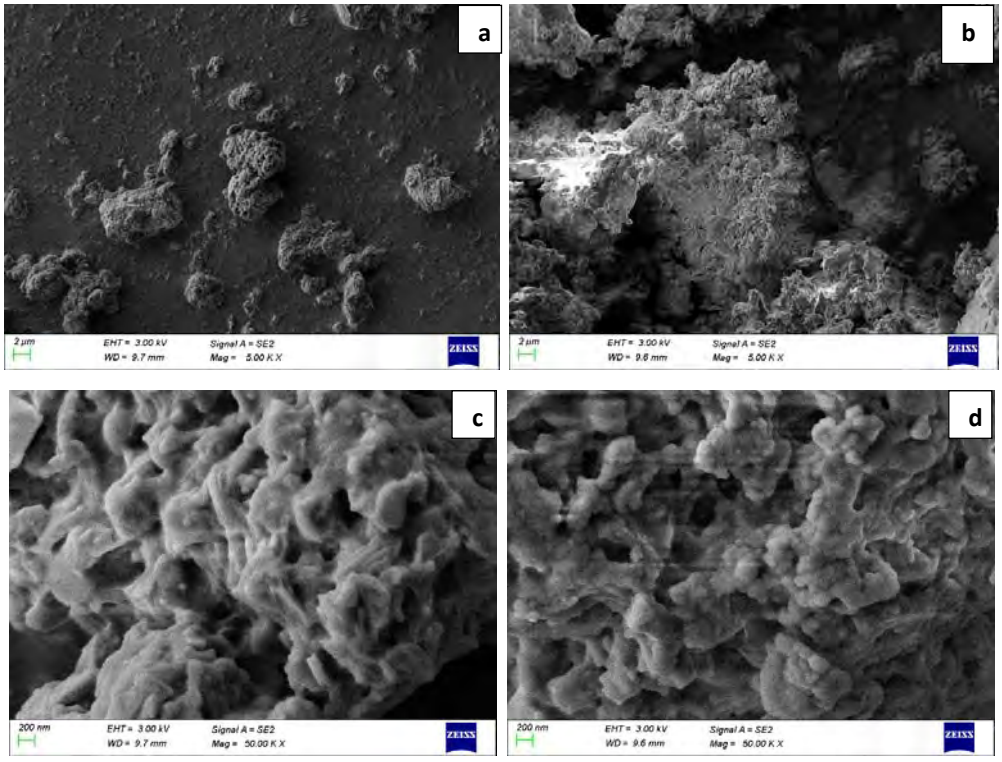
- Dr. Latha Sabikhi, Principal Scientist, Dairy Technology Division, NDRI, Karnal retired on superannuation from Council's service in the afternoon of May 31, 2022.

SOUTHERN CAMPUS, BENGALURU

Research Highlights

Phospholipids extraction from ghee residue

(*Rajesh Gowda, Monika Sharma, Menon Rekha Ravindra*)



Optimization of ultrasonication process parameters was carried out for extraction of phospholipids from ghee residue. Taguchi orthogonal array design was followed for

optimization of ultrasound power, treatment temperature, time and solvent: solid (S: S) ratio with phospholipid content and antioxidant activity as the response variables. The phospholipid content and antioxidant activity of the extracted samples varied from 18.54 to 23.89 % and 47.01 to 50.64%, respectively. The power level of 80%, 80^{o}C temperature, solvent to solid ratio of 15 and 4 minutes of sonication resulted in maximum extraction of phospholipids (24.12%). The structural differences were observed in the ghee residue micrographs obtained before and after ultrasonication.

Scanning Electronic Microscopy (SEM) images of ghee residue: (a) prior to ultrasound treatment at 5 kX magnification (b) Ultrasound treatment at 5 kX magnification (c) prior to ultrasound treated ghee residue at 50 kX magnification (d) Ultrasound treated ghee residue at 50 kX magnification.

Technology Transfer Meet

The technology transfer meet was organized on May 21, 2022 and an MoU was signed between ICAR-NDRI, Karnal and Karnataka Milk Federation, Bengaluru for transfer of 10 technologies. The occasion was graced by Dr. M.S. Chauhan, Director & Vice Chancellor, ICAR-NDRI, Karnal, Dr. Dheer Singh, Joint Director (Research), ICAR-NDRI, Karnal, Dr. Sudha Mysore, CEO, Agrinnovate India Ltd., Sh. B.C. Sateesh, MD, KMF, Bengaluru, Sh. Munireddy N., Director (QA), KMF, Bengaluru and Dr. K.P. Ramesha, Head, SRS, ICAR-NDRI, Bengaluru. Ten technologies were transferred to KMF, Bengaluru on the occasion.

SERB funded training program "VRITIKA" (Training and Skill Internship)

The Science and Engineering Research Board (SERB) sponsored VRITIKA (Training and Skill Internship) program on "Nano-immobilization of enzymes for production of lactose free milk and synthesis of functional ingredients" conducted for two PG students for the period of two months under the scheme "ABHYAAS". Ms. Navya Shree Sangam from University College of Technology, Osmania University, Hyderabad and Ms. Korlapu Kousalya from Oil Technological and Pharmaceutical Research Institute, Ananthapuramu, Andhra Pradesh attended the training program from May 1 to June 30, 2022.

Education Visit

Educational visit of M.Tech (Dairy Technology) students to CIPET and CFTRI, Mysore

First year M.Tech (Dairy Technology) students from SRS, ICAR-NDRI, Bengaluru visited Central Institute of Petrochemicals Engineering & Technology (CIPET), Mysore on June 27, 2022 to see the injection molding, polyfilm extrusion and compression moulding demonstration. Students also visited CSIR-Central Food Technological Research Institute, Mysore to learn the analytical methods for total migration, oxygen-transmission rate and water vapour transmission rate determination. This visit was organized as part of their on-going DT-622 (Advances in Dairy and Food Packaging) course. Dr. Sathish Kumar, M.H. and Dr. Manoj Kumar C.T. coordinated the visit.

Awards

Dr. A. Kumaresan, Principal Scientist was conferred with VASVIK Industrial Research Award for Agriculture Science and Technology for the year 2021. The award was given by Vividhlaxi Audyogik Samshodhan Vikas Kendra during the award function held on May 21, 2022 at Mumbai.

- Dr. A. Kumaresan, Principal Scientist was conferred with Fellowship award of National Academy of Agricultural Sciences for the year 2022. The award was presented to him by the president of the Academy, Dr. T. Mohapatra, the Secretary DARE and DG, ICAR during the Foundation Day program of the Academy on June 4, 2022 in A.P. Shinde Symposium Hall, New Delhi.
- Dr. Laxmana Naik N. got Young Researcher Award-2022, from InSc Institute of Scholars, for his publication "Rapid screening test for detection of oxytetracycline residues in milk using lateral flow assay" published in Food Chemistry Journal 219, (2017): 85-92.

EASTERN CAMPUS, KALYANI

Research

Utilization of Himalayan forest tree leaves as herbal feed additives to manipulate rumen fermentation for reducing ruminal methanogenesis

A. Santra, S. Lonkare, S. Tripura, P. Jamadar, D.K. Mondal, S.K. Das and T.K. Dutta

Manipulation of rumen microbial ecosystem for reducing ruminal methane production and ciliate protozoal population and improving TVFA and propionate production for efficient utilization of dietary energy and protein is the useful strategy to improve production efficiency of ruminant animals. North-eastern Himalayan forest having wide variety of tree leaves which were not yet tested for using as a herbal feed additive in ruminants diet to reduce ruminal methanogenesis and ciliate protozoal population. Three multipurpose Himalayan forest tree leaves viz. Nevaro (*Ficus roxburghii*), Lute khanew (*Ficus clavata*) and Thotne (*Aconogonium molle*) were collected from Gangtok, Sikkim for studying their effect as natural feed additives on ruminal methanogenesis *in vitro* using *in vitro* gas production technique. 200±10 mg of substrate

comprising of air dried milled (<1.0 mm) paddy straw and concentrate mixture in 60:40 ratio was used as control for *in vitro* gas production test. In experimental syringes, parts of the control substrate were replaced by 00, 25, 50 and 100 mg of each tested tree leaves. 30 ml incubation media (cattle rumen liquor and buffer in 1:2 ratios) inoculated in each 100 ml calibrated glass syringe by auto-dispenser under anaerobic condition and were incubated for 24 h at 39^0C.

Off-campus training on 'Scientific goat farming' cum input distribution among SC and ST farmers

One training program cum input distribution was organized at *Damodarpara* village of East Bardhaman district, West Bengal during June 24-26, 2022. In the training program on 'Scientific goat farming', 20 farmers from tribal community and 20 farmers from Scheduled Caste community participated. Several topics pertaining to scientific management, feeding, health Care aspect of goat husbandry was discussed the training program. At the end of the training program, certificates were also distributed. Several inputs like goats, animal husbandry utensils, animal feed and veterinary medicines were distributed among the farmers. Apart from that, animal health camp and scientists-farmers interaction sessions were also organised during the occasion.



Animal health camps organized under TSP projects


One animal health camp and scientists farmers' interaction session was organized at *Banamalipara* village of Nadia district in West Bengal state on May 19, 2022. In the scientists-farmers' interaction session importance and methods of natural farming was discussed. Apart from that, awareness was created for water conservation and judicious use of water. In the session, scientific cultivation of fodder crops and management of animal health scientifically was also discussed. In the animal health camp, a total of 241 goats, 17 cows and 87 poultry birds were attended and medicines as well as vaccines were administered according to the requirement. Vitamins and mineral mixture etc. were also distributed among the farming community during the occasion. A total of 62 farmers got benefit from the animal health camp and 71 farmers got benefit from the interaction session. Farmers actively interacted with the

visiting scientist and Technical Officers and the visiting team tried to solve their problems at farmers' doorstep.

On June 28, 2022, one animal health cum vaccination camp was organized at Bir-Sidhu Nagar of Kalyani in West Bengal. In the camp a total of 428 goats, 15 cows, 18 poultry birds and 9 pigs were vaccinated and treated for different ailments. Different inputs like mineral mixture, veterinary medicines etc. were distributed among the farming community. Through the program a total of 92 tribal farmers got benefited.

Training program on 'scientific cultivation techniques of Tropical fruits'

A training program was organized on scientific cultivation techniques of Tropical fruits at Sutra villages, Banamalipara GP of Nadia district on April 18, 2022. The program was conducted by SMS-Horticulture of KVK- Addl. Nadia. He delivered several lectures on scientific management of many tropical fruits like mangoes, banana, guava, sapota, papaya, lime & lemons and dargon fruits. A total of 35 farmers participated in the training program and a field visit was made to get first hand information about the commercial plantation of bananas, mangoes etc. in farmers' field.

One training program was organised on scientific techniques of Protective cultivation of cut flower, at Nakashipara of Nadia district of West Bengal on May 2, 2022. In the off-campus training program, several lectures on scientific management of many types of flowers were discussed. A total of 35 farmers participated in this training program. During the occasion one field visit was organised to get first hand information about commercial plantation of various flowers. Farmers actively interacted with the officials and cleared their doubts about protective cultivation of cut flowers.

Another training program on 'Production Technology of tropical mushroom' was organised during June 23-24, 2022 at KVK-Additional Nadia under the administrative control of ERS of ICAR-NDRI. In the training program 30 tribal farmers actively participated and acquired the skillsets for production of mushroom at their household level.

Celebration of International Yoga day cum awareness on Balanced Use of fertilizers and region specific agro forestry

Scientific training Program was organized on June 21, 2022 in South Chandamari village of Nadia district. The program was organized jointly by KVK (Additional) Nadia and Eastern Regional Station of ICAR-National Dairy Research Institute. Technical officers and SMS of the station actively participated in this program. The event was initiated on the theme of World yoga day and awareness about importance of yoga in relieving stress and physical ailments were discussed. The benefits of regular practicing of yoga were also explained to the farmers and farm women. In the program one interaction session was organised pertaining to balanced use of fertilizers and region specific agro forestry. A total of 62 farmers and farm women participated in this program. Through the program farmers increased their knowledge through scientific interactions on minimizing predation on crops and livestock and competition within and between species. Ways to reduce stress of plants and animals, enhancing yields, maintaining soil health and water harvesting were also discussed.

Editorial Board

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