



**Volume 24:3
(July-September, 2024)**



ICAR-CIPHET NEWS



**ICAR-Central Institute of Post-Harvest Engineering and Technology
P.O. Post Office, Ludhiana -141004, Punjab
(An ISO 9001:2015 Certified Institute)**

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ICAR-CIPHET News 24:3, July-Sept 2024



भाकअनुप-सीफेट
ICAR-CIPHET

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From the Director's Desk

Dear stakeholder,

It is with great pleasure that I share the third quarterly newsletter of 2024, highlighting the vibrant activities and achievements of our institute over the past few months.

On the technological front, our institute continues to make significant strides. One patents was granted to ICAR-CIPHET technologies. Our AICRP centres have developed several innovative technologies aimed at enhancing post-harvest processing and sustainability. These advancements reflect our ongoing commitment to research and development in agricultural engineering. Our dedicated team has worked tirelessly to bring these technologies from the conceptual stage to practical applications, ensuring they meet the needs of our stakeholders and contribute to the broader goals of agricultural development.



A number of extension activities- awareness programmes, trainings, exposure visits of farmers/ students were also undertaken during this period. The dedication and hard work of our scientists, staff, and collaborators are the driving forces behind these achievements. I extend my heartfelt gratitude to everyone for their unwavering commitment and contributions.

As we move forward, let us continue to innovate, collaborate, and excel in our endeavours. Together, we can make 2024 a year of remarkable progress and success for our institute and the agricultural community.

A handwritten signature in blue ink that reads "Nachiket". The signature is written in a cursive style and is underlined.

(Nachiket Kotwaliwale)
Director, ICAR-CIPHET

Ludhiana, 2024

RESEARCH HIGHLIGHTS**ICAR-CIPHET****Characterization of groundnut milk cream**

Groundnut milk cream is a by-product obtained during processing of groundnut milk into tofu. Different treatments (Ultrasonication and Microwave) were given to the groundnut milk before cream separation to determine the yield and quality characteristics of the cream. After separating the cream, they were characterized for their physico-chemical, textural and rheological properties.



(a) Untreated (Control)

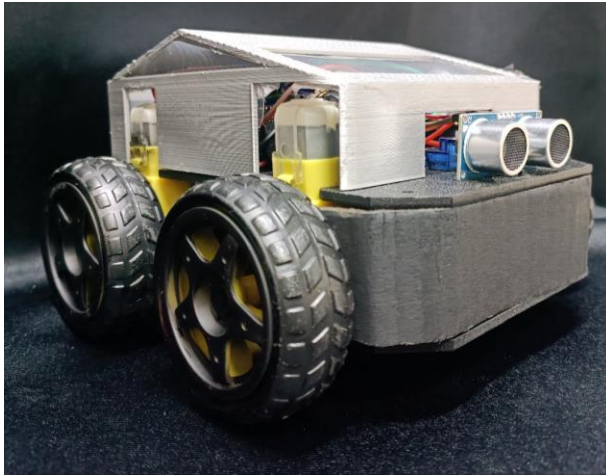
(b) Microwave treatment

(c) Ultrasonic treatment

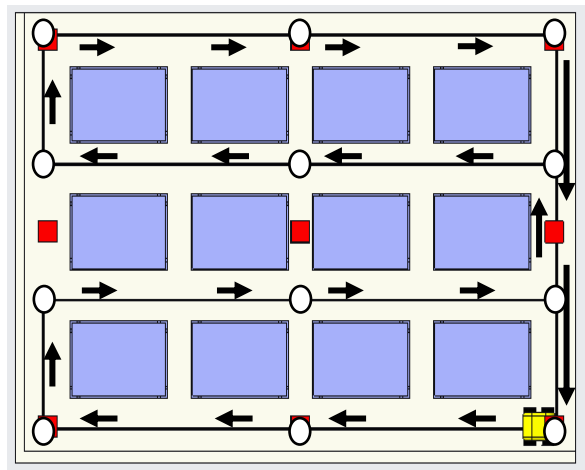
For the differently treated cream, yield ranged from 17.4 to 19.04 percent, and pH varied from 6.82 to 6.96. Moisture content was inversely proportional to the fat content with the least fat percent (53.6) in the cream obtained from ultrasonicated groundnut milk. It was observed that the apparent viscosity reduced with increased shearing and was the highest in the ultrasonicated sample. Ultrasonicated sample had the highest firmness and thickest consistency compared to other cream samples.

Robot for monitoring temperature and humidity in cold room

A 4-wheel Line Follower robot has been developed at ICAR-CIPHET, Ludhiana for monitoring cold room conditions. It is equipped with advanced components and includes an Arduino Uno Board paired with an L293D Motor Driver IC, which controls four DC motors with gear assemblies for precise movement. The robot features a 6-line array IR sensor that enables accurate path detection, ensuring it can follow lines efficiently. For obstacle detection, it is equipped with an ultrasonic distance sensor mounted on a servo motor, providing a wide-angle view to navigate around obstacles. The robot is powered by rechargeable Li-ion batteries and has compact dimensions of 180×180×130 mm, making it versatile for various environments. The robot records the temperature and humidity inside the cold room and store the data in an SD card. Further, the data generated can be retrieved through Wi-Fi in real time in an app. The robot will be crucial for cold rooms in automating tasks like monitoring temperature and humidity conditions thereby reducing human exposure to cold. Reduced human traffic in and out of the cold room can also minimize temperature fluctuations, leading to more efficient cooling. Its precise navigation and obstacle avoidance will ensure efficient operation in confined spaces, enhancing safety and maintaining consistent environmental conditions, which is vital for preserving product quality.



Mini robot



Robot path in cold storage

Imaging system to detect internal anomalies of mango

X-ray imaging systems installed at ICAR-CIPHET, Ludhiana has been effectively tested for mangoes to detect internal anomalies such as spongy tissue and overripening, which are otherwise not visible from outside. The technology has also been applied to develop protocols for estimating pulp, detecting jelly seed, and identifying seed weevil infestations in mangoes. Beyond mangoes, the X-ray system have been used for detecting internal defects in pomegranates, such as poor aril development, and in walnuts, to identify issues like insect damage or mold.



X-ray Imaging system



Alphonso mango



Spongy tissue detection

An X-ray imaging system has the following specifications: X-ray tube voltage & current: 80 kV_p & 3 mA_p; Focal spot & Pixel resolution: 0.8x0.8 mm & 85 μ; Dynamic x-ray detector with area 130x130 mm; Typical capacity: 1 t/h for mango fruit; Tunnel size: 130 mm x 120 mm; Pushout type rejection mechanism

Process for preparation of ‘Makhana puffs’

The mechanized system of makhana processing produces fully popped makhana along with some by-products such as flattened makhana, over-popped makhana, semi-popped and unpopped makhana. These fetch lower market value as it is considered to be lower grade and size but have equivalent nutritional value to popped makhana. Therefore, it can be used in preparation of various value-added products like composite expanded snacks. Unpopped/ Semi-popped/flattened popped makhana, maize, potato flour, dehulled black gram dhal and rice were taken for development of “Makhana Puffs”. In the very first step, Unpopped/semi-popped/flattened makhana ground to get flour using a pulverizer (20-30 mesh size sieve). Maize, dehulled black gram dhal and rice coarsely ground before extrusion (18-20 mesh size).



Potato flakes ground to 30- mesh size and this formulation was properly blended. Moisture content of feed was set to 15-16% and fed to extruder for puffing. The extruder parameters were 10.5 kg/h feed rate, 325 rpm screw speed, 60-80 °C barrel temperature and 110 ± 2 °C die head temperature, the cutter speed was about 15 rpm. The puffs were dried to 3-4% moisture content (w.b.). Makhana puffs are highly nutritious and prepared using semi-popped/ flattened/ unpopped (thurri) makhana with fruit and cereal flour. This makhana based product is protein, minerals, antioxidants and dietary fiber rich ready to eat snack. This product is generally consumed by children group who require nutritious and healthy foods for their growth and development.



Continuous pilot plant for production of protein isolates and concentrates from de-oiled plant meals and cakes

ICAR-CIPHET, Ludhiana, has developed advanced process technologies for producing protein isolates and concentrates from plant-based de-oiled meals and cakes. This includes rice bran protein concentrate, as well as groundnut and soy protein isolates. To facilitate scaling up of these technologies, a continuous plant (Capacity: 100 kg raw material/day) has been established for production of protein isolates and concentrates from de-oiled plant meals and oilseed cakes, such as rice bran, soybean meal, and groundnut cake. The facility comprises of following major components viz. 1) Extraction tank 2) Decanter 3) Centrifuge, 4) Precipitation tank, 5) Spray dryer, along with control panel for automatic operation. The entire facility is well connected enabling seamless and efficient continuous processing. The continuous plant has a raw material handling capacity of 100 kg/day, with product yields varying based on the feedstock. For example, processing 100 kg of de-oiled rice bran yields approximately 10 kg of rice bran protein concentrate, 100 kg of de-oiled groundnut cake yields about 28 kg of groundnut protein isolate, and 100 kg of de-oiled soybean meal produces approximately 35 kg of soy protein isolate. This facility also functions as an incubation centre, offering entrepreneurs a platform to explore and develop plant protein production, thereby fostering the growth of small and medium-sized enterprises. By enabling the conversion of agricultural by-products into high-value protein ingredients, such as protein isolates and concentrates, the plant plays a pivotal role in advancing the development of affordable, protein-enriched health foods.



Protein Isolate Pilot Plant

AICRP on PEASEM

Floating raft for aquaponic

ICAR-CIFA, Bhubaneswar developed the FRP floating raft for aquaponic for Freshwater ponds. The idea is to use a floating raft to grow plants in nutrient-rich water from a fishpond. Ammonia from fish excreta is converted to nitrate by bacteria, which plants then use. This system enhances water circulation, filtration, and integrates fish and plant production efficiently. The raft having dimensions of 1.83 x 1.22 m and thickness 3.5-4 mm for installation in pond. The airtight PVC pipe (4") frame of 2.13 x 0.91 m is fixed with FRP raft for providing buoyancy to the raft. Theoretically, the buoyancy of the developed raft is calculated to be 57.9 kg. Excluding the raft weight, it can hold a load of 34.125 kg (tested in field condition) for plantation purpose.



Plastic-based multi-purpose animal shelter

ICAR-CIRG, Makhdoom Centre has fabricated the plastic-based multi-purpose animal shelter for housing goats and poultry. The space constraint is one of the major problems faced by the farmers/ in peri-urban and urban areas. The animal shelter aid in housing doubles the number of animals in the available unit area compared to traditional farming. The structure helps remove faecal material so that both the first and ground floor areas can be used to house the goats and doubles the number of goats housed in the same land area as chickens, resulting in 100% land savings.

The project is under trial up to 2025, and a trial was carried out in which nine female Kids of 3-6 months age of Barbari breed, along with 50-layer birds of Chabbro strain, are also kept in a Multi-purpose Two Tier Animal Structure for performance evaluation. The performance is evaluated with a comparison of traditional animal shelter. The body weight of the kids was recorded fortnightly. The initial average body weight of kids kept in a Multi-purpose Two-Tier Animal Shelter was 10.30 kg, which increased to 14.400 kg after 75 days of rearing. The initial average body weight of kids kept in a Traditional Animal Shelter was 10.31kg, which increased to 14.200 kg after 75 days in a normal shed.

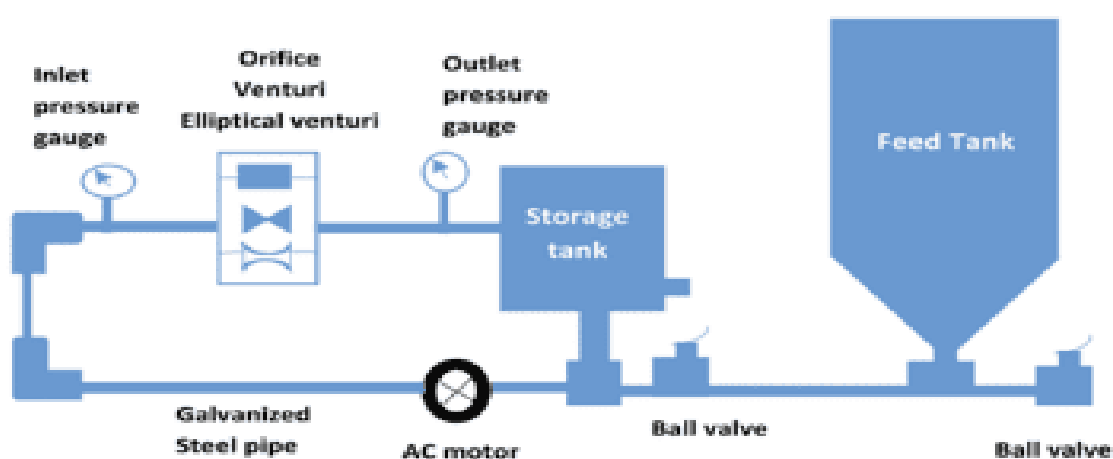


AICRP on PHET

Accelerated aging of cocoa mucilage wine through hydrodynamic cavitation

Cocoa pulp, the white mucilage surrounding the cocoa bean is a major by-product of primary cocoa processing, which is rich in nutrients. If mucilage is collected hygienically, it can be utilized for production of nutrient rich wine. Wine aging is a time-consuming process in the wine production, which determines the final quality of the product. Hydrodynamic cavitation is an emerging technique which can be employed for the accelerated aging of the wine. Hydrodynamic cavitation (HC) is a process in which high energy is released in a flowing liquid upon bubble implosion due to decrease and subsequent increase in local pressure. Based on previous research and preliminary analysis, various experiments were designed. The independent and dependent parameters of the experiments were selected and shown below. Cocoa wine was prepared based on the protocol developed under AICRP on PHET, Tavanur centre. Based on the reviews a conceptual diagram of an HC reactor consisting of venturi, Elliptical venturi and Orifice was prepared and the fabrication of the machine has been completed.

Independent Parameters		Dependent Parameters	
Type of system	Venturi type, Orifice type	Machine parameters	Volume flow rate Energy released
Pressure	P1, P2, P3	Product parameters	Total phenolic content, Anthocyanin content, Colour



Conceptual diagram of HC Reactor



Front View of the HC reactor



Top view of the reactor



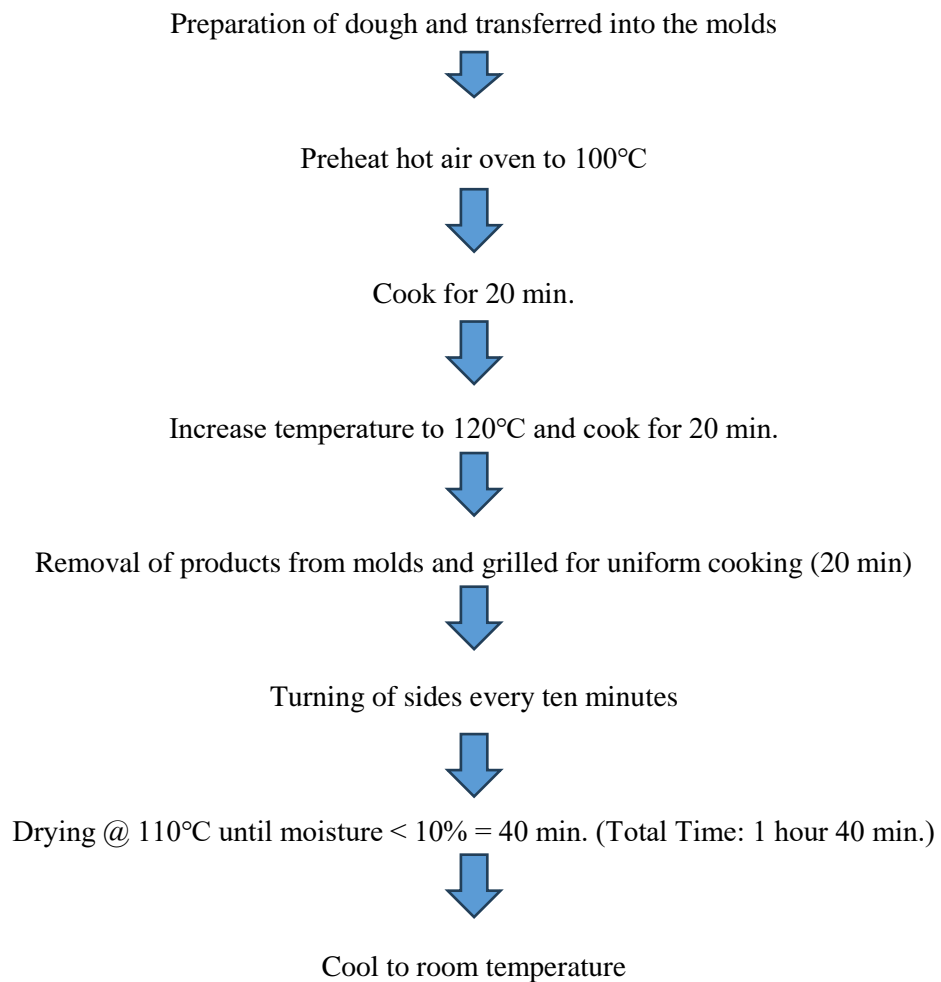
Developed HC reactor

Preparation of Pet Food from Slaughter House Waste and Spent Hen Meat

The standardized process protocol for preparation of pet food products from buffalo meat powder was developed. To prepare the dough, begin by mixing the ingredients thoroughly and transferring the mixture into molds. Preheat a hot air oven to 100°C and cook the dough for 20 minutes. After this initial cooking period, increase the oven temperature to 120°C and continue cooking for an additional 20 minutes. Once this is done, remove the products from the molds and place them on a grilled tray lined with butter paper to ensure even cooking. Turn the products every 10 minutes for a total of 20 minutes to ensure uniformity. Following this, dry the products at 110°C until the moisture content is reduced to below 10%, which typically takes around 40 minutes. Finally, allow the products to cool to room temperature before handling or further processing.

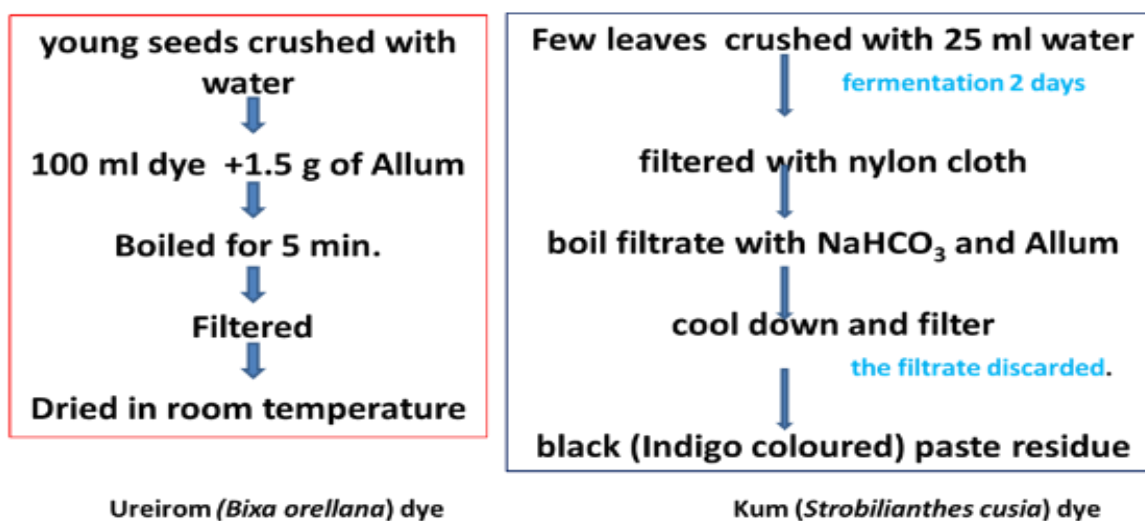


Pet products prepared from buffalo meat powder



Extraction of natural dyes from selected medicinal plants in Manipur

To prepare the Ureirom (*Bixa orellana*) dye, start by crushing young seeds and mixing them with water. Add 100 ml of dye and 1.5 g of alum to the mixture. Boil this combination for 5 minutes, then filter the solution to remove any solid particles. After filtering, allow the remaining material to dry at room temperature, completing the dye preparation process. To prepare the Kum (*Strobilanthes cusia*) dye, begin by crushing a few leaves and mixing them with 25 ml of water. Allow this mixture to ferment for two days. After fermentation, filter the mixture using a nylon cloth. The filtered liquid is then boiled with NaHCO₃ (sodium bicarbonate) and alum. Once boiled, the solution is cooled down and filtered again, with the filtrate being discarded. The process results in a black, indigo-colored paste residue, which serves as the dye.



Preparation of natural dye

Design and development of a combine Roselle (*Hibiscus sabdariffa*, L.) deseeding and Chili stem removing machine

In post-harvest chilli processing, stem removal from *King* chilli is a major operation. The traditional practice of separating the stems from the chillies involves human power and requires large workforces and longer time. Due to the high SHU value of King Chilli, removing the stem from the body of the chilli raises the possibility of a major burning sensation if it comes in contact with our skin. Moreover, the operation of removing stems in the case of a bulk amount of chilli is tedious, inefficient, and labor-intensive. A proper gadget is thought of to reduce human drudgery and safety risks with less time consumption in removing the stem from king chilli. The prototype is designed and fabricated, consists of rotating perforated drum with a spring-loaded cutting blade positioned around its outer edge. A hopper is provided to feed the chillies into the machine. The main concept is to separate the stems from the chillies by allowing them to fall onto a perforated surface. As the surface rotates at a predetermined speed, due to the centrifugal force generated inside the drum, the chilli stems are pushed through the perforated holes, where the spring-loaded blade efficiently cuts them. The capacity of the chilli stem cutting machine 25-30 kg per hour with cutting efficiency up to 80 % with three steps. The revolution of the drum is maintained at 40 rpm.



Development of process technology for preparation of texturized mushroom protein from oyster mushroom

The process of Mushroom-fortified texturized vegetable protein (TVP) was standardized. The optimized machine parameters were 300 rpm screw speed and 70 to 90 °C barrel temperature. The 10% oyster mushroom powder with soy protein isolate and 35% feed moisture content of feed found optimal. Nutritional analysis revealed that developed products have fiber and ascorbic acid content around 8.2% and 8.11 mg/100 g, respectively which were higher than the control sample. Mushroom fortified TVP also showed higher calorific value (19.32 MJ/kg) than control sample (11.45 MJ/kg).



Mechanical method for the enrichment of dietary fibre from pea pods

Peas (*Pisum sativum* L.) is the second most widely grown legume globally. While the peas are processed into forms like frozen, dried, and canned, the outer pods, which make up 30-55% of the crop's weight, are often discarded. These pods, though rich in fibre, carbohydrates, proteins, and bioactive compounds are typically treated as waste, contributing to environmental pollution, but could be used for potential food applications. Considering the vast amount of scientific evidence that confirms the numerous and diverse health benefits of dietary fibre, as well as the risks linked to a fiber-deficient diet, optimizing fibre intake in our diets is a crucial public health strategy to enhance both metabolic and overall well-being.

The pin milled sample was processed using sieves with mesh sizes 60, 85, and 100 and overflow and underflow were collected. The TDF was highest in the overflow obtained from the 60-mesh size (58%), followed by 85 (47%) and 100 (42%). However, the highest yield (68-70%) was obtained from the 85-mesh size, while the lowest yield (15-17%) was from the 60-mesh size, leading to the selection of the 85-mesh size for sieving. Further, the effect of the speed (2000 to 18,000 rpm) of the pin mill was analyzed on the TDF content. The content of TDF of the sample pin milled at 10,000 rpm was found in the range of 60-62% with yield of 93% and 64% and at 18000 rpm was in the range of 65-68% with less yield of 56.7% and 21.8% on the basis of overflow/coarse fraction and PPP after

pin milling, respectively. On the basis of results obtained, the fine fraction (C1) obtained after air classification showed protein content of 19-22% with increment of 42%, while the TDF content (C3) was increased by 62% as compared to original sample. The standardized method includes steam conditioning, drying, pin milling, sieving, and air classification. Therefore, both C1 and C3 fractions obtained could find applications for health foods/nutraceutical purposes.



PUBLICATIONS**Research Publications**

- Aslam R, Alam, MS, Vishwakarma RK, and Maqsood S (2024) Ohmic heating assisted vacuum evaporation chamber: Finite element analysis and evaluation of parameters for processing of amla juice. *Computers and Electronics in Agriculture*, 224, 109249.
- Bala M, Shivani, Awasthi A, Kalsi BS, Goswami D, Mridula D, Vishwakarma RK, Kumar A (2024) An innovative approach to biomass utilization through concurrent hesperidin and pectin extraction from immature dropped kinnow (*Citrus reticulata*) fruits. *Journal of Food Measurement and Characterization* 29:1-4.
- Garg S, Sharma N, Kumari A, Bala M, Kaur R (2024) Impact of parboiling on nutritionally important starch fractions, pasting properties, and in vitro starch digestibility of rice genotypes. *Cereal Research Communications*. 20:1-1.
- Joshi T, Kapoor S, Rana S, Bala M, Singh A, Mahajan BV (2024) Valorization of guava seed oil as a functional ingredient in salad dressing: implications on quality characteristics, rheological behaviour, morphology, oxidative stability and shelf life. *Journal of Food Measurement and Characterization*. 19:1-3.
- Kaur P, Singh MC and Sharda R (2024) Impact of greenhouse gas climate on performance of strawberry cultivated in soilless media under time-differential supplemental lighting. *J of Plant Nutrition* (Accepted)
- Padala VK, Ramya N, Sagar D, Kumar H, Sharma M, and Subramanian S (2024) Host nutrition vis-a-vis fatty acid profile and reproductive biology of fall armyworm, *Spodoptera frugiperda* (JE Smith). *National Academy Science Letters*, pp.1-5.
- Samota MK, Yadav D, Koli P, Kaur M, Rani H, Selvan SS, Mahala P, Tripathi KP (2024) Exploring natural chalcones: Innovative extraction techniques, bioactivities, and health potentials. *Sustainable Food Technology*. (Accepted)
- Singh R, Mohapatra S, Urhe SB, Saha D, (2024) India Oilseed Production, Processing and Trade Landscape: Facts and Figures, *Agricultural Engineering Today*, 48, pp-67-69.

Training manuals including all kinds of manuals

- Balakrishnan R, Bembem K, Kumar V and Sharma R (2024) *Post-Harvest Technologies for Promoting Agro-Processing* (For KVK's in ATARI Zone - VII & X). Training organized during 24-28 June 2024 at ICAR-CIPHET. ICAR-Central Institute of Post-Harvest and Technology, Ludhiana, Punjab. pp 220.

Popular Articles

- Choudhary P, and Mann S (2024) Food Quality and Safety. In: Training manual on Capacity building of agricultural extension professionals of ATARI Zone-VII and X to promote agro-processing (Balakrishnan R., Bembem, K. Kumar V. and Sharma R; *Eds*) ICAR-Central Institute of Post-Harvest Engineering and Technology, Ludhiana.
- Dubey A (2024) Innovative solar-powered air-inflated grain dryer for on-farm drying. *The Agriculture Magazine* 2(10), 209-211.
- Dubey A, and Mani I (2024) Advanced polypropylene-reinforced active jute bags for safe pulse storage. *The Agriculture Magazine* 3(11), 105-107.

- चन्दन सोलंकी, रणजीत सिंह एवं पंकज कुमार. (2024). श्री अन्न का कटाई उपरांत प्रसंस्करण: तकनीकें एवं मशीनरी. कृषक सन्देश, मई 2024, अंक 44: 01-06.

E- articles

- Samota MK, Selvan SS, Chaudhary P, Nath A, and Ahlawat AK (2024) Changes associated with onion sprouting and mitigation strategies, *Food Info Tech*, 1, 34-36.
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- Urhe SB and Patil R (2024) Ageing: As Miracle for Rice to Improve Quality. *Agri Articles*, 4(4):586-589.

Books chapter

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- Guru PN, Sharma M, Zalpouri R, Urhe SB, Dubey A, Balakrishnan R, Saraswat AM (2024) Smart Detection and Scientific Disinfestation Technologies for Food Grain Protection. In- Anjani Kumar, Rameswar Prasad Sah, Basana Gowda et al. (Eds) *Enhancing Crop Resilience: Advances in Climate Smart Crop Production Technologies*. Biotic publications. Pp: 33-68. ISBN: 978-81-947739-1-7
- Sulakhe N, Selvan SS, Urhe S, Jose N, Mathangi R, Dubey A, Nishani S, Shelake P, Naik R, Mohapatra D, Murthy GRR, Rao NS, and Kumar VVS (2024). *Emerging technologies for food processing (pp-519-564)* (In Eds Srinivasa Rao, Ch., Dhandapani, A. and Sanjiv Kumar. *Research and Technology Advancements in Agriculture*. Published by ICAR National Academy of Agricultural Research Management, Hyderabad, India. pp 748.)
- Urhe SB, Dubey A, Guru PN, and Nishani S (2024) Modern approaches for extracting plant bioactive compounds to enhance food security. In- Anjani Kumar, Rameswar Prasad Sah, Basana Gowda et al. (Eds) *Enhancing Crop Resilience: Advances in Climate Smart Crop Production Technologies*. Biotic publications. pp: 80-98. ISBN: 978-81-947739-1-7

PATENTS AND TECHNOLOGIES

Patents

S.No.	Title	Application no	Inventors	Date of grant/ filing	Patent no
1.	A pail for cooling milk simultaneous to milking	202011033807	Ravi Prakash, Menon Rekha Ravindra	15.07.2024	545011

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S.No.	Title	Details	Authors
1.	Makhana processing technologies by ICAR-CIPHET	D.O.R: 20.08.24 Diary number: 26129/2024-CO/CF	1. Deep Narayan Yadav 2. Guru P.N. 3. Indu shekhar singh 4. Khwairakpam Bembem 5. Mridula Devi 6. Nachiket Kotwaliwale 7. RK Vishwakarma 8. Ranjeet singh 9. Renu Balakrishnan 10. Shyam Narayan Jha

Design registration

S.No.	Title	Details	Authors
1.	Insect trap	D.O.R: 08.08.24 Design no: 411678-001	1. Guru P.N. 2. D. Saha, 3. Yogesh Kalnar, 4. Virinder Kumar, 5. Manju Bala, 6. N Kotwaliwale

Transfer of Technology

S.No.	Title	Licensee/ Firm	Licensing fee	Date
1.	Process technology for the extraction of hesperidin from immature dropped kinnow fruits.	M/s BNK Agri Foods Private Limited, Omaxe Riveria, Flat No-Congo-B-104, Omaxe Riviera, Pant Nagar Nainital Highway, Omaxe Riviera, Rudrapur, Udham Singh Nagar, Uttarakhand	300000/-	23.08.24
2.	Process for preparation of makhana puffs	M/s Arihant International, Block-A, 35, Industrial Area, Hambran, Ludhiana (Pb.)	50000/-	31.08.24

EXTENSION ACTIVITIES*Technology demonstrations/ FLDs/ OFTs*

S. No.	Technologies	Demonstrated at	Date
1.	Consortium application on Maize	Nihal khera	11.07.24
2.	Sowing Maize with Pneumatic planter	Khippa Wali	08.07.24
3.	Freeze drying of Nano emulsion	ICAR-CIPHET	18.07.24
4.	Pickles demonstration	KVK, Fazilka	19.07.24
5.	Drone Demonstration	Gobindgarh	07.08.24
6.	Cotton Awareness Program	Raipura	21.08.24

7.	One day Animal feed Management camp	Pir Baksh, Jalalabad	29.08.24
8.	Alternate drying/wetting method in Rice	Roohreya wali	08.09.24
9.	Buyers farmers Interaction	Roohreya wali	08.09.24
10.	Visit to collection of Milk sample	Abohar	18.07.24
11.	Visit to farmers field for mustard baseline survey	Kullar	22.07.24
12.	Visit to farmers field for mustard baseline survey	Dutara Wali	23.07.24
13.	Visit to collection of Milk sample	Dhab Wala Kalan, Arniwala	24.07.24
14.	Visit to farmers field for mustard baseline survey	Kaller Khera & Tutta Wali	25.07.24
15.	Visit to farmers field for Guava Baseline survey	Kathera	30.07.24
16.	Visit to farmers field for inspection of Maize CFLD	Kathera, Bazidpura	30.07.24
17.	Visit for drone demonstration	Gobingarh	31.07.24
18.	Visit to farmers field for mustard baseline survey	Sardarpura & Bhagsar	01.08.24
19.	Visit to Survey maize farmers	Nihal Khera & Khippa wali	08.08.24
20.	Visit to SCSP Farmers villages	Fazilka	10.08.24
21.	Visit to Cooperative societies for CHC Survey	Kaller Khera, Khuian Sarvar	13.08.24

Stakeholder/ officer/ farmer/ exposure visits

S. No.	Address of visitors	Number of visitors	Date
1.	Green Brigade Pvt Ltd, Jalandhar	2	20.06.24
2.	Mr. Debasish Mahalik, Scientist C, Food and Agri Deptt, Bureau of Indian Standards, New Delhi	1	21.06.24
3.	Exposure visit of DAV College Students to KVK, Fazilka (Abohar)	48	29.08.24
4.	Exposure Visit of Chief Agriculture Officer, Fazilka at KVK Fazilka	02	30.08.24
5.	Exposure visit of famers to Sampuran Agriventures, Fazilka	30	03.09.24
6.	Exposure visit of famers to Sampuran Agriventures, Fazilka	30	06.09.24
7.	Visit of Punjab Agro, State Manager at KVK, Fazilka (Abohar)	02	10.09.24
8.	Exposure visit of famers to Punjab Agro Processing plant	25	13.09.24

Awareness programmes

S. No.	Programme title	Venue	Duration
1.	Mera Gaon Mera Gaurav	Malakpur, Ludhiana	28.06.24
2.	CRM Awareness camp	Shahpur	06.08.24
3.	Awareness programme on the “Application of Plasticulture Techniques in Agriculture”	RS, ICAR-CIPHET, Abohar	06.08.24
4.	CRM Awareness camp	Noorpur	07.08.24
5.	Awareness program on fermented organic	Kathera	16.08.24

	manure, spray of potassium nitrate and water saving in rice		
6.	Awareness program on fermented organic & liquid manures	KVK, Fazilka	07.09.24

Mela/ exhibitions

S. No.	Programme title	Venue	Duration
1.	96 th ICAR Foundation Day Celebration	ICAR, New Delhi	15-16 th July 2024
2.	Kisan Mela	PAU, Ludhiana	13-14 September 2024

HUMAN RESOURCE DEVELOPMENT AND CAPACITY BUILDING*Human resource development*

S. No.	Title	Venue	Participants	Duration
1.	Post-Harvest Technologies for Promoting Agro-Processing (For KVK's in ATARI Zone - VII & X)	ICAR-CIPHET	13	24-28 June 2024
2.	In-plant student training, B.Tech	ICAR-CIPHET	23	01-30 June, 2024
3.	Vermi compost technology	Dhani Chirag	21	20.06.24
4.	Kharif crop Production technology	Amarpura	40	21.07.24
5.	Farm women training on Pickle making	Raipura	34	02.07.24
6.	Farm women training on value addition of milk	Dhrangwala	38	04.07.24
7.	Cultivation practices of maize and seed distribution	KVK Fazilka	15	05.07.24
8.	Awareness cum training on CRM	Shahpur	20	12.07.24
9.	Protected cultivation of horticultural crops	RS, ICAR-CIPHET, Abohar	25	26-28 June 2024
10.	In-plant student training, College of Community Science, CAU, Tura, Meghalaya	ICAR-CIPHET	5	01.08.24 - 01.01.25
11.	In-plant student training, Uttar Banga Krishi Viswavidyalaya, Pundibari, West Bengal	ICAR-CIPHET	8	01.08.24 - 31.08.24
12.	EDP on "Conventional and cryogenic grinding of spices"	ICAR-CIPHET	3	11-13 September 2024
13.	Value chain management of agricultural commodities for income enhancement of stakeholders	ICAR-CIPHET in collaboration with MANAGE	62	21-23 August, 2024
14.	In-plant student training, College of Agriculture Engineering & Technology, Parbhani	ICAR-CIPHET	3	21.08.24 - 20.12.24
15.	Entrepreneurship Development Program (EDP) on Millet Processing	ICAR-CIPHET	-	09-13 September

	and Value Addition			2024
16.	Importance of protected cultivation in agriculture.	RS, ICAR CIPHET, Abohar	24	28-30 August, 2024
17.	CRM Training	KVK, Fazilka	30	02-04 September 2024
18.	Training program by Punjab Energy Development agency	KVK, Fazilka	40	04 September 2024
19.	CRM Training	KVK, Fazilka	30	5-7 Sept 2024
20.	Training program by Punjab Energy Development agency	KVK, Fazilka	45	5 Sept 2024
21.	Vocational Training 'Entrepreneurship turning farming into Business'	Guru Nanak Khalsa College, Abohar	110	9-13 Sept. 2024
22.	SCSP Training 'Processing & Marketing Techniques of seasonal fruits/vegetables and input distribution under SCSP Scheme	KVK, Fazilka	25	9-13 Sept. 2024

Skill Development:

Staff name	Title of the programme	Venue	Duration (days)	Dates
Ms Anuradha	Training programme of the newly recruited AOs and FAOs	ISTM, New Delhi and AJNIFM, Faridabad	26	3-28 June 2024
Smt Jasvir Kaur Sh. Ashwani Kumar	e-HRMS regional workshop	CPRI, Shimla	1	24 June 2024
Dr. Renu Balakrishnan Dr. Ranjeet Singh	Capacity Building Programme on "Building Successful Incubation Ecosystem"	ICAR- NAARM, Hyderabad	3	3-5 July 2024
Ms. Soumya Mohapatra, Dr. Bidyalakshmi Er. Shaghaf Kaukab, Er. Ritu Kukde	Multivariate Data Analysis Using R	ICAR-NAARM, Hyderabad	5	22-26 July 2024
Er. Th. Sunita	'Advances in Mobile Application Development'	ICAR-NAARM, Hyderabad	5	05-09 August 2024

Awards/ Recognition

S. No.	Name of Awardee	Name of Award	Awarded by
1.	Dr. Guru P. N. Dr. Dhritiman Saha, Er. Yogesh Kalnar Dr. VirinderKumar Dr. Manju Bala Dr. N Kotwaliwale	Technology certification for visible light insect trap	ICAR

2.	Dr. Arvind Ahlawat	Life Time Achievement Award	HAWRS
3.	Shaghaf Kaukab	Young Scientist Award	International academic achievements and awards for contribution and Honorable Achievement in innovative Research.
4.	Our Technology on “Biothermocol: Mycelium based packaging material from crop residue” was released by Shri Shivraj Singh Chauhan, Hon'ble Minister of Agriculture and Farmers Welfare, Government of India on ICAR Foundation Day 16.07.2024		
5.	Soumya. C.M, Uaykumar N, Sharanagouda H, Mathad PF, Saroja Rao N, and Hosamani A (2024) Infrared heat treatment of minor millets for enhancing milling yield (Secured Best Oral Presentation Award)		

Lecture delivered

Name	Title of the lecture	Programme	Venue	Date
Dr. Sandeep Mann	Processing and value addition of sugarcane	Training	ICAR-CIPHET, Ludhiana	24.06.24
Dr. Chandan Solanki	Post-harvest engineering and machinery for processing and value addition of millets and live demonstrated the primary processing machines and extruder machine	Capacity building of Agricultural extension professionals of ATARI Zone-VII and X to promote agro-processing	ICAR-CIPHET, Ludhiana	25.06.24
Dr. Poonam Chaudhary	Food quality, safety, standards, and procedures	Capacity building of agricultural extension professionals of ATARI Zone-VII and X to promote agro-processing	ICAR-CIPHET, Ludhiana	25.06.24
Dr. Thingujam Bidyalakshmi	Processing and value addition of ginger and turmeric	Capacity building of agricultural extension professionals of ATARI Zone-VII and X to promote agro-processing	ICAR-CIPHET, Ludhiana	26.06.24
Dr. Sandeep Mann	Processing and value addition of pulses	Training	ICAR-CIPHET, Ludhiana	26.06.24
Dr. Sandeep Mann	Identification of equipment and designing a model APC for KVK	Training	ICAR-CIPHET, Ludhiana	28.06.24
Dr. Sandeep	Entrepreneurship	Resource person	Sher-e-	08.07.24

Mann	development through agricultural processing	(Instituted Lecture)	Kashmir University of Agricultural processing	
Dr. Sandeep Dawange	Processing and Value Addition of Groundnut	One District One Product (ODOP) Webinar on “Groundnut Processing and Value Addition”	NIFTEM-T	10.07.24
Dr. Prakash Chand Gurjar	Soil Health, Use of Soil testing kit & Nutrient Managaement	KVK activity	Army School, Abohar	29.07.24
Dr. Shrikrishna	Cold Chain Management	B,Tech Students training	ICAR-CIPHET, Ludhiana	12.08.24
Ms. Soumya Mohapatra	Implications of blockchain technology in agri-food supply chains	Online training programme on “ICT in Agricultural Marketing-Blockchain Technologies”	PAMETI, Ludhiana	21.08.24
Dr. Arvind Ahlawat	Mission Viksit Bharat Focus on Rural India & Safe food Cultivation	Farmers Meet	Chandigarh	31.08.24

Participation in conference/ seminar/ symposia/ workshop/ meetings, etc.

Name of the official	Title of the programme	Organized by	Date
Dr. Deepika Goswami	27th Meeting of Foodgrains, Allied Products & Other Agricultural Produce Sectional Committee, FAD 16	Online	27.06.24
Dr Sandeep P Dawange	Exhibition in National Conference on ‘Living with Nature: Water & Society in Ecosystem Conservation’	ICAR-IISWC, Dehradun	20-22 June 2024
Dr. Rakesh Sharda	Meeting regarding “Protected Cultivation”	Director Horticulture, Agriculture Bhawan, SAS Nagar, Mohali	08.07.24
Dr. Rakesh Sharda	Attended the National Convention of Vijnana Bharati at Pune	Vijnana Bharati New Delhi	21-23 June 2007
Dr Nachiket Kotwaliwale, Dr. Dhritiman Saha, Dr. Navanath Indore, Dr. Bidyalakshmi, Dr Abhinav Dubey, Ms, Shagaf Kaukab, Dr. Ravi Prakash, Ms. Ritu, Dr.Amith Nath Dr. Shilpa Selvan	First meeting of “Working Group on Post-Harvest Engineering and Technology for Horticulture”	ICAR, New Delhi	31.07.24

Dr. Ravi Prakash	Revision of IS 1825: Aluminium Mil Cans — Specification revisions Venue: Online	BIS, New Delhi	08.08.24
Dr. Manju Bala Dr. Swati Sethi Dr. Chandan Solanki	Meeting with Director IIMR, Hyderabad, to finalize the different activities to be carried out at ICAR-CIPHET, Ludhiana under project “Global Centre of Excellence on Millets (Shree Anna)”.	ICAR-IIMR, Hyderabad	01.08.24
Dr. Arvind Kumar Ahlawat	Management development Programme	NAARM, Hyderabad	24 June - 27 July 2024
Dr. Amit Nath Dr. Ramesh Kumar	BIS meeting of the Fruits and Vegetable and Allied Products Sectional Committee, FAD 10	ICAR- IIHR, Bengaluru	12.08.24
Dr. Amit Nath	Mandatory One-Day Workshop-cum- Brainstorming Session for Technical Committee Members	NITS, Noida	22.07.24
Dr. Soumya Mohapatra	32 nd International Conference of Agricultural Economists	International Association of Agricultural Economists (IAAE)	02-07 August 2024
Dr. Sandeep Mann, Dr. Renu Balakrishnan, Ms. Soumya Mohapatra Dr. Rajiv Sharma	Annual zonal workshop of FARMER FIRST project	ICAR-ATARI Zone-I, Ludhiana	13-14 August 2024
Dr. R K Vishwakarma Dr. Manju Bala Dr. Navnath Indore Dr. Sandeep Dawange Dr. Guru P N Dr. Shaghaf Kaukab Dr. Srikrishna Nishani	8 th meeting of Indian grain storage working group	NASC, New Delhi	21.08.24
Dr. Deepika Goswami	FAD 16 Sectional Committee Meeting	Online	20.08.24
Dr. K Bembem	International Conference on ‘Enabling Sustainable Food Systems through Natural Farming (ESFS- NF)	Dr YSPUHF, Nauni, Solan	13-14 Sept, 2024
Dr. Navnath Indore	Indian Grain Storage Working Group	ICAR, New Delhi	21.08.24
Dr. Navnath Indore	Mid Term review meeting	AICRP on PHET	01.09.24
Dr. Shilpa S Selvan	Annual Mid-term review meeting	AICRP on PEASEM	09-10 September 2024

Personalia

Promotion and new joining

- Sh. Harender Dahiya joined as SMS/ T-6 (Agronomy) on 18.06.2024
- Sh. Rajesh Kumra joined as SAO on 15.07.2024
- Sh. Rahul Gupta joined as Assistant on 09.09.2024
- Sh. Jaswinder Singh promoted to Technical Officer (T-5)
- Sh. Jagtar Singh promoted to Technical Officer (T-5)
- Smt. Pragya Singh promoted to Sr Technical Assistant (T-4)
- Sh. Sukhwinder Singh promoted to Sr Technical Assistant (T-4)

IMPORTANT EVENTS

International Yoga Day

ICAR-CIPHET in collaboration with ICAR- IIMR, ICAR-ATARI, Yog Bharati, Ludhiana and NRC, Makhana, Bihar; organized International Day of Yoga on 21st June 2024 at children Park, CIPHET. Programme started with welcome address by Dr. Shrikrishna followed by yoga session by Yog Guru Dr. Shiv kumar Sharma. He introduces the importance and different dimensions of yoga in day-to-day life.



Programme culminated with vote of thanks by Dr Bidyalakshmi. The Directors, Scientist, Administrative staffs of different institutes, student trainees and residents of CIPHET campus benefitted from the yoga session.

ICAR-CIPHET inks MoU with M/s Renuka Bio-farms for creating awareness on post-harvest management

ICAR-CIPHET, Ludhiana inked an MoU with M/s Renuka Biofarms, Tirupati on the occasion of ICAR's 96th Foundation and Technology Day for establishing a professional relationship to promote and accelerate the programmes of training, exposure visits, and field research works in the area of post-harvest management of agriculture and allied commodities. Dr. Shyam Narayan Jha, Deputy Director General (Agricultural Engineering) chaired an

institute-industry interaction meeting for the Agricultural Engineering Division. The Memorandum of Understanding was signed by Dr. Nachiket Kotwaliwale, Director, ICAR-CIPHET, and Mr. Rajendra Nath Reddy, Director, M/s Renuka Biofarms, Tirupati. Dr. K. Narsaiah, Assistant Director General (PE), Dr. K. P. Singh, Assistant Director General (FM), and other dignitaries of ICAR and entrepreneurs from various start-ups & firms were present during the programme.



ICAR-CIPHET inks MoU with M/s Renuka Biofarms for creating awareness on post-harvest management

15th July 2024, Ludhiana

ICAR-Central Institute of Post-Harvest Engineering and Technology, Ludhiana inked an MoU with M/s Renuka Biofarms, Tirupati on the occasion of ICAR's 96th Foundation and Technology Day for establishing a professional relationship to promote and accelerate the programmes of training, exposure visits, and field research works in the area of post-harvest management of agriculture and allied commodities.



Dr. Shyam Narayan Jha, Deputy Director General (Agricultural Engineering) chaired an institute-industry interaction meeting for the Agricultural Engineering Division.

The Memorandum of Understanding was signed by Dr. Nachiket Kotwaliwale, Director, ICAR- CIPHET, and Mr. Rajendra Nath Reddy, Director, M/s Renuka Biofarms, Tirupati.

Celebration of ICAR Foundation Day

In a vibrant ceremony marking the ICAR Foundation Day, the Indian Council of Agricultural Research (ICAR) celebrated its significant contributions to agriculture and rural development. The event held at RS, ICAR-CIPHET, Abohar, showcased advancements in agricultural research, technology, and sustainable practices. Minister of Agriculture and Farmers' Welfare, highlighted ICAR's role in Virtual mode in enhancing food security and improving crop yields through innovative research. The day featured awards for outstanding researchers and institutions, as well as presentations on future goals and projects aimed at addressing global agricultural challenges.

Virtual Meeting by Honourable Prime Minister for releasing 109 new varieties of various crop

In a virtual meeting, Honorable Prime Minister Narendra Modi unveiled 109 new crop varieties, aimed at boosting agricultural productivity and sustainability. The online event brought together agricultural experts, researchers, and farmers from across the country. During his address, the Prime Minister emphasized the importance of innovation in agriculture to ensure food



security and enhance the livelihoods of farmers. He highlighted how these new varieties are designed to improve resistance to pests, increase yield, and adapt to changing climatic conditions.

Tree Planting Program

ICAR-CIPHET Ludhiana carried a plantation drive on August 15, 2024. This event took place at CIPHET campus in conjunction with the global campaign “Plant4Mother” which was launched on World Environment Day. Dr. Nachiket Kotwaliwale Director ICAR-CIPEHT, Ludhiana, and Scientists of the Institute, along with other staff members, led the plantation drive. Approximately 36 plants were planted. A tree planting program was organized at the institute on 29th of August wherein all the scientists and technical staffs participated with voluntary contributions of saplings.



हिंदी पखवाडा

भा कृ अनुप- सीफेट, लुधियाना एवं अबोहर में 14 से 28 सितम्बर 2024 तक राजभाषा हिंदी पखवाडा का आयोजन किया गया है। इस वर्ष हिंदी हीरक जयंती मनाई जा रही है। हिंदी पखवाडा के उद्घाटन समारोह का आयोजन 14 सितम्बर 2024 (हिंदी दिवस) को हाइब्रिड माध्यम (Offline एवं Online) में संस्थान के प्रभारी निदेशक



महोदय डॉ. राजेश कुमार विश्वकर्मा द्वारा किया गया। हिंदी को और लोकप्रिय बनाने के लिए पखवाडा के अंतर्गत 11 रोचक प्रतियोगिताओं का भी आयोजन किया जा रहा है एवं विजेताओं को 30 सितम्बर 2024 को होने वाले समापन समारोह में पुरस्कृत भी किया जायेगा। संस्थान के सभी कार्मिक इन प्रतियोगिताओं में बढ़ चढ़ कर हिस्सा ले रहे हैं।

MEDIA COVERAGE

महिलाओं ने सीखे अचार बनाने के तरीके



महिलाओं को जानकारी देते सीफेट अधिकारी।

सवेरा न्यूज/कथूरिया अबोहर : कृषि विज्ञान केंद्र सीफेट अबोहर द्वारा अचार बनाने की विधियों पर प्रशिक्षण कार्यक्रम का आयोजन रायपुर गांव में किया गया। इस कार्यक्रम का संचालन डा. रूपेंद्र कौर गृह विज्ञान विशेषज्ञ द्वारा किया गया जिसमें डा. कौर द्वारा विभिन्न तरह के अचार बनाने के तरीके जैसे आम का अचार, नींबू का अचार आदि बनाने की प्रायोगिक जानकारी दी गई तथा अचार को लंबे समय तक संरक्षित रखने के लिए विभिन्न सुझाव दिए गए। पृथ्वीराज द्वारा ग्रामीण महिलाओं को अचार पापड़ वगैरा बनाने के लघु प्रशिक्षण प्राप्त करने के लिए प्रेरित किया गया। ताकि वह आर्थिक रूप से स्वावलंबी बन सकें। महेंद्र कुमार द्वारा महिलाओं को ज्यादा से ज्यादा स्वयं सहायता समूह खोलना व आगे बढ़ाने के लिए प्रेरित किया गया। इस कार्यक्रम में कुल 43 महिलाओं ने भाग लेकर कार्यक्रम को सफल बनाया।

दूध और दूध उत्पादों के मूल्य संवर्धन पर प्रशिक्षण कार्यक्रम



कार्यक्रम में भाग लेती महिलाएं व जानकारी देते कर्मचारी।

सवेरा न्यूज/कथूरिया अबोहर : कृषि विज्ञान केंद्र फाजिल्का ने गांव धरंगवाला में दूध और दूध उत्पादों के मूल्य संवर्धन पर ऑफ कैम्प प्रशिक्षण कार्यक्रम आयोजित किया। कार्यक्रम का संचालन डा. रूपेंद्र कौर द्वारा किया गया। कार्यक्रम दौरान प्रतिभागियों को दूध और दूध उत्पादों के मूल्य संवर्धन के महत्व और लाभों के बारे में सिखाया गया। केवीके विशेषज्ञों ने दूध में मिलावट और उपभोक्ता पर इसके दुष्प्रभावों के बारे में जोर दिया। पोषण सुरक्षा के लिए मिठे पानी का उपयोग करके पनीर और पेय बनाने के बारे में व्यावहारिक ज्ञान दिया गया। इस कार्यक्रम के दौरान विशेषज्ञ डॉ. किशन पटेल ने कृषि विज्ञान केंद्र की गतिविधियों के बारे में बताया एवं डॉ. रमेश चौद कटवा ने जैविक दूध उत्पादन और दूध उत्पादों के बारे में जानकारी दी गई। प्रशिक्षण कार्यक्रम में राष्ट्रीय आजीविका मिशन की सक्रिय सदस्य मंजू देवी सहित कुल 38 महिलाओं ने भाग लेकर कार्यक्रम को सफल बनाया।

किसानों को बताएं विकसित किस्मों के गुण

सवेरा न्यूज/कथूरिया पर कृषि विज्ञान केंद्र के हेड डॉक्टर अबोहर, 11 अगस्त। कृषि विज्ञान केंद्र सीफेट अबोहर द्वारा किसानों को नई विकसित किस्म से अधिक लाभ लेने के लिए प्रेरित किया गया। डॉ. प्रकाश कुमार गुर्जर द्वारा मृदा स्वास्थ्य एवं उन्नत किस्म के संयोजन से अधिक आर्थिक लाभ प्राप्त करने के विभिन्न तरीके बताए गए। इस अवसर पर कृषि विज्ञान केंद्र के सभी अधिकारी एवं कर्मचारी गण सहित कुल 35 किसानों ने भाग लेकर कार्यक्रम को सफल बनाया।



किसानों को जानकारी देते हुए सीफेट के अधिकारी।

एक पौधा मां के नाम : केवीके-सीफेट ने पौधारोपण अभियान चलाया



पौधे लगाते अधिकारी।

सवेरा न्यूज/कथूरिया, अबोहर : पर्यावरण स्थिरता और संरक्षण को बढ़ावा देने के लिए कृषि विज्ञान केंद्र फाजिल्का और क्षेत्रीय स्टेशन सीफेट अबोहर ने संयुक्त रूप से परिसर में वृक्षारोपण अभियान का आयोजन किया। इस आयोजन का उद्घाटन डॉ. अमित नाथ प्रमुख, क्षेत्रीय केंद्र सीफेट अबोहर और डॉ. अरविंद अहलावत प्रमुख, केवीके फाजिल्का ने सभी स्टाफ सदस्यों की उपस्थिति में किया। टीम ने कई पौधे लगाए, जिससे एक हरित भविष्य की शुरुआत हुई। स्टाफ ने पौधों की देखभाल और पोषण के लिए शपथ ली जिससे उनकी वृद्धि और सेहत सुनिश्चित हो। डॉ. नाथ ने पर्यावरण संरक्षण में सामूहिक प्रयासों की आवश्यकता पर जोर दिया। जबकि डॉ. अहलावत ने जैव विविधता को बनाए रखने में पेड़ों की भूमिका पर प्रकाश डाला।