ICAR-CIPHET NEWS

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भाकृअनुप-सीफेट
ICAR-CIPHET

ICAR-Central Institute of Post-Harvest Engineering and Technology

(An ISO 9001:2015 Certified Institute)

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ICAR-CIPHET

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From the Director's Desk

Dear Stakeholder,

It is with immense pleasure and a deep sense of responsibility that I present the second quarterly report of ICAR-CIPHET for the year 2025. This report encapsulates our sustained efforts towards the agricultural processing sector through cutting-edge research, technology development, and capacity-building initiatives. This quarter, ICAR-CIPHET has made significant progress in developing and deploying innovative technologies aimed at tackling various challenges in post-harvest management and food processing. Emphasis has also been placed on knowledge dissemination through well-structured training programs, expert lectures, and skill development workshops. These initiatives have been carefully designed to empower a diverse group of stakeholders- including farmers, food technologists, food engineers, and startups

In parallel with our outreach and innovation activities, the institute continues to give priority to Intellectual Property Rights (IPR) by advancing our portfolio of patent filings. These efforts ensure that our scientific innovations are protected, scalable, and capable of transforming rural and urban agri-based enterprises. Furthermore, our endeavors are strongly aligned with the vision of the Viksit Krishi Sankalp Abhiyaan, a flagship initiative of the Ministry of Agriculture and Farmers Welfare. This national campaign aims to transform Indian agriculture by promoting sustainable farming, boosting farmer incomes, and integrating technological advancements at the grassroots level. ICAR-CIPHET's contributions to this initiative reflect our shared commitment to building an empowered farming community.

As we move into the next quarter, ICAR-CIPHET remains committed to driving technological innovation, promoting sustainable practices, and strengthening the capacity of India's agri-food sector. We are confident that our collective efforts will continue to shape a resilient agricultural value chain and contribute to national food security.

Ludhiana, 2025

(Nachiket Kotwaliwale)
Director, ICAR-CIPHET

Research Highlights

ICAR-CIPHET

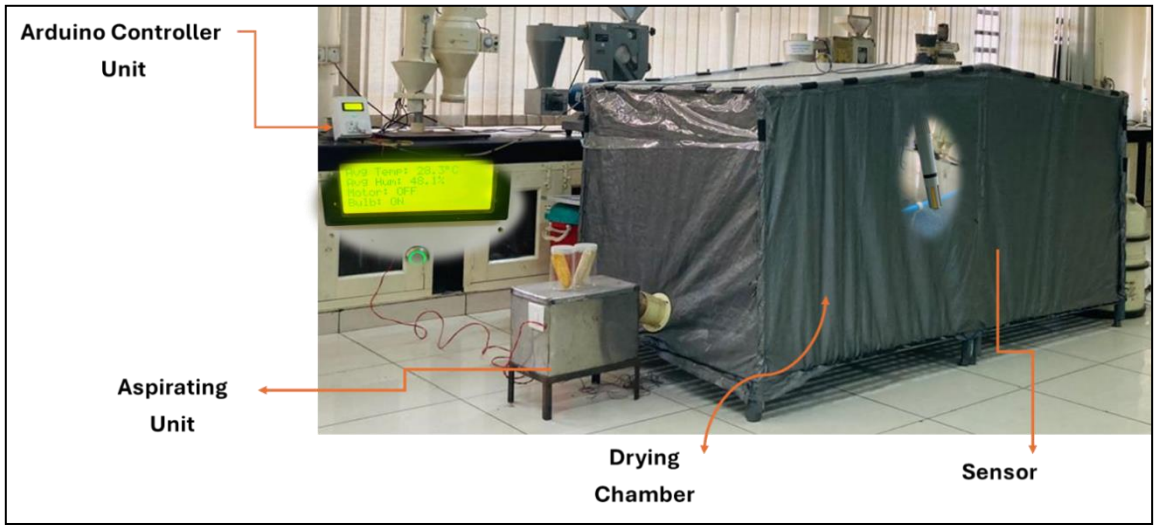
❖ A Process and Model for Constructing a Dairy Structure Suitable for Peri-Urban Areas

India ranks first globally in milk production, with an annual output of approximately 239.3 million metric tons (MT) in the 2023–24 year. The dairy sector contributes nearly 5% to the national GDP and around 26% to the agricultural GDP, employing almost eight crore individuals. Significantly, 70–80% of the milk production is contributed by the rural and semi-urban segments. However, with rapid urbanization, a growing population, and diminishing per capita land availability, it is imperative to increase milk production to meet the projected demand of 266.5 MT by 2030. Urban and peri-urban dairy farming offers several advantages, including proximity to processing plants, access to nearby markets, better infrastructure, and availability of veterinary and institutional support services.

Despite these benefits, urban and peri-urban dairy farming faces several challenges, including land scarcity, waste disposal and environmental concerns, animal comfort and ergonomic limitations in current structures, disease management issues, water scarcity, feed and fodder shortages, and labour constraints. To address these issues, a model dairy structure has been developed at ICAR-CIPHET, explicitly designed for urban and semi-urban implementation. This multi-story dairy structure utilizes space efficiently while maintaining adequate animal comforts, good sanitary practices, and high standards of hygiene. The innovation serves the current and future needs of peri-urban dairying by optimizing spatial use without compromising on animal welfare or operational efficiency. The structure consists of an integrated bio-gas production unit to meet the day-to-day energy requirements for raising the animals, thereby making it a sustainable solution.

❖ Arduino-Based Automated Integrated Control System in On-Farm Maize Cob Dryer

An integrated arduino-based automated control system was developed for an on-farm maize cob dryer under the project "Development of On-Farm Maize Cob Drying System for Effective Value Chain". The automation system comprises an Arduino microcontroller with a humidity sensor module and three humidity & temperature sensors strategically placed within the drying chamber. The system continuously monitors the relative humidity and internal temperature. Based on the average humidity values, the microcontroller makes real-time control decisions. The air aspiration unit was programmed to operate automatically based on the internal humidity levels. When the relative humidity exceeds a predefined threshold, the Arduino activates the exhaust fan. Once the humidity level falls below the threshold, the system automatically deactivates the fan. This dynamic and responsive control mechanism eliminates the need for manual intervention, ensuring the desired drying conditions. The system was tested for its functionality and found to perform as intended. Its implementation is expected to improve the precision of drying environment control, enhance the greenhouse effect within the chamber, and contribute to a significant reduction in both drying time and cumulative fan run-time, thereby improving overall energy efficiency. This advancement supports the development of a smart, energy-efficient, and farmer-friendly drying solution, aligned to strengthen the maize value chain through cost-effective post-harvest technologies.



Functional Testing of Arduino-Based Automated Maize Cob Drying Control System

❖ **Effect of pigmented wheat varieties on techno-functional, textural, and bioactive potential of pasta**

Pasta is a globally consumed food product valued for its diverse forms and shapes, culinary adaptability, and cultural relevance. Owing to its affordability and ease of preparation, pasta holds a central place in diverse diets worldwide. The quality of pasta is primarily influenced by the wheat variety used, particularly durum wheat (*Triticum turgidum*), known for its high protein content, strong gluten matrix, and hardness traits that are essential for an ideal pasta texture. Recent developments in pigmented wheat varieties have drawn the attention of the food processing industry to their potential utilization in functional food products. This study investigated and compared pasta samples prepared from four wheat varieties, procured from the ICAR-CIPHET Regional Station, Abohar, including two durum wheat varieties (DDW 47 and DDW 55), one green wheat variety, and one black wheat variety. The wheat samples were cleaned and pulverized, and the resulting flour used for the preparation of pasta samples. The pasta samples were evaluated for cooking quality, textural attributes, color, nutritional and biochemical attributes, and antioxidant activities. Cooking quality attributes of the samples, such as cooking time, water absorption index, gruel solid loss, and volume expansion ratio, ranged between 7.58–8.61 min, 1.00–1.24, 0.76–0.98%, and 0.57–1.16, respectively. The cooking time of pasta samples from pigmented wheat varieties was statistically similar ($p \leq 0.05$) to that of durum wheat varieties. The hardness of raw and cooked pasta samples ranged from 69.37 to 88.69 N and 2.81 to 4.33 N, respectively, while springiness, cohesiveness, gumminess, and chewiness also showed significant differences, reflecting the structural diversity. There was a significant difference in the lightness (L* values) of pasta samples ranging from 67.06 (black wheat pasta samples) to 80.46 (DDW 55). These values reflect the lighter colour typical of refined durum wheat semolina pasta. The proximate composition of pasta samples ranged as fat (1.34–1.83%), ash (1.46–1.77%), protein (12.97–14.47%), and moisture (6.07–6.75%). The sensory acceptability of the pigmented wheat pasta samples (7.41–7.66) was statistically similar to that prepared from durum wheat varieties. A study on bioactive compounds revealed the highest total phenol content and total flavonoid content in pasta samples prepared from DDW 47 (2.54 mg/g) and green wheat (1.76 mg/g), respectively. From the study, it can be concluded that pigmented wheat varieties have potential applications in pasta products, enhancing the bioactive potential and diversity of these products while maintaining good sensory acceptability.

Durum wheat (DDW 47) pasta

Durum wheat (DDW 55) pasta

Green wheat pasta

Black wheat pasta

Pasta prepared from different varieties of pigmented wheat

AICRP on PHET

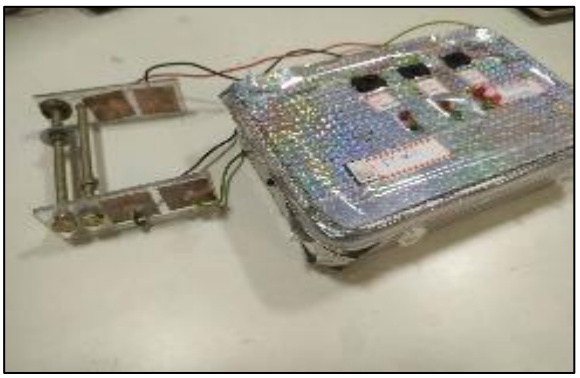
❖ Fabricated Lab-Scale Ultrasonic Homogenizer

A lab-scale ultrasonic homogenizer was fabricated by YSPUH&F, Solan. The equipment was designed for efficient mixing, emulsification, and particle size reduction in various research and development applications. This addition to the laboratory infrastructure is expected to enhance the processing capabilities for food, biochemical, and material science studies.

Fabricated lab scale ultrasonic homegenizer

- **Development and evaluation of a low-cost frequency-based sensor for non-destructive inspection of food adulterants**

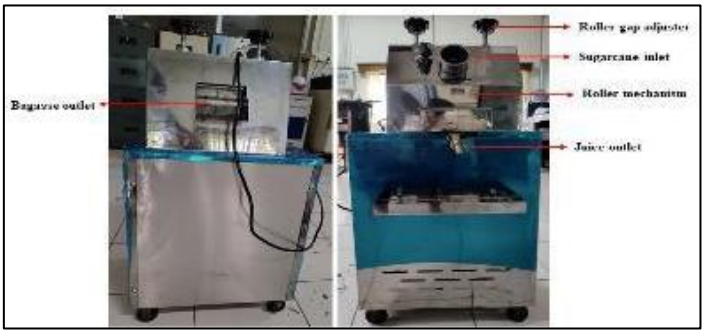
A low-cost frequency-based sensor for the non-destructive evaluation of food adulterants was developed by IIT, Kharagpur. The developed prototype is being improved to become more user-friendly, as suggested in the Proceedings of the 40th workshop regarding the upgrade to RPP IV. This new clipper arrangement is susceptible to detecting even the minute changes.



Non-destructive frequency-based sensor

- **Development of a rapid method for jaggery production**

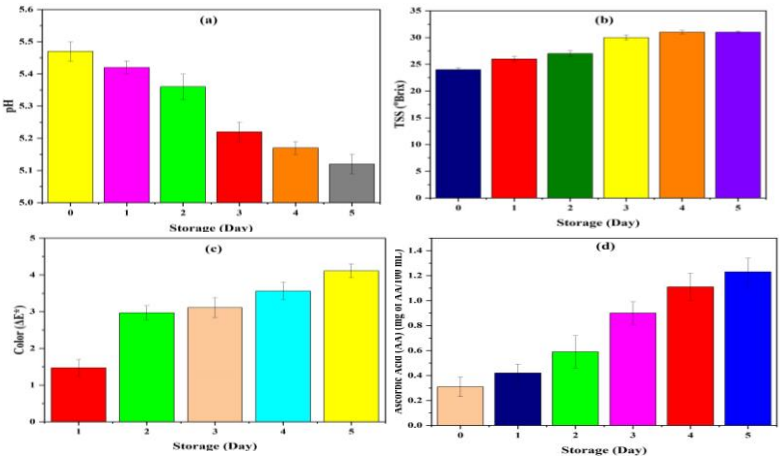
A sugarcane juice extractor was developed by IIT, Kharagpur, consisting of a 2 HP motor driving a three-corrugated roller mechanism, featuring adjustable screws for gap control and a built-in strainer for juice clarification. In preliminary trials, mucilage was extracted from okra and okra stalks by soaking in water (1:10) for 6 hours, filtering, mixing the extract with ethanol (1:1), and allowing floccules to form. These were then washed with acetone and filtered to obtain purified mucilage.



Sugarcane juice extractor

- **Development of a smart electrochemical sensor for monitoring the growth of selected pathogenic bacteria in packaged sweetened curd (mishti dahi)**

An electrochemical sensor with a beep alert for monitoring the growth of pathogenic bacteria in sweetened curd (mishti dahi) was developed by IIT Kharagpur. The physicochemical analysis of fresh sweetened curd revealed a whitish-yellow appearance, as indicated by the color values (L* 75.97 ± 0.89, a* 2.30 ± 0.05, and b* 20.54 ± 0.13). The pH, total soluble solids (TSS), titratable acidity (TA), and ascorbic acid content were 5.47 ± 0.07, 24 ± 0.30 °Brix, 0.69 ± 0.04%, and 0.31 ± 0.03 mg/100 mL, respectively. During storage at room temperature (30 °C), the pH decreased due to lactic acid production by lactic acid bacteria, while TSS increased as lactose was broken down into simpler sugars. Observable color changes during storage were attributed to microbial activity, lipid oxidation, and the Maillard reaction, which contribute to pigment formation and browning.



Changes in the physicochemical characteristics of sweetened curd stored at ambient conditions for 6 days.
(a) pH, (b) TSS, (c) Ascorbic acid, and (d) Color Physicochemical characterization of fresh sweetened curd

❖ Development of pumpkin spread from pumpkin pulp and pumpkin seed kernels

Process optimization for development of pumpkin spread was carried out by YSPU&F, Solan. Pumpkin spread has been prepared by cooking the pumpkin pulp with sugar in a pan. TSS and acidity concentrations varied from 45 to 60 °Brix and 1 to 1.5%, respectively. The prepared spread was packed in pre-sterilized glass jars, and one was selected based on sensory and spreadability characteristics. Similarly, a nutritionally enriched pumpkin spread was developed by incorporating roasted pumpkin seed kernels in varying proportions into a pre-optimized pumpkin spread formulation by YSPU&H, Solan. The kernels were added near the end of the cooking process, just before the desired total soluble solids (TSS) level was reached. The final product was preserved with 0.02% benzoic acid and hot-filled into pre-sterilized glass jars. Among all the tested formulations, the spread containing 6 g of roasted pumpkin seed kernels received the highest sensory scores for color, taste, texture, aroma, and spreadability. This formulation was further evaluated for storage quality over a period of 3 months, demonstrating good stability and acceptability.

Pumpkin spread prepared from pumpkin seed kernels

Pumpkin spread prepared from pumpkin pulp

❖ Development of Process protocol for dehydration of Himalayan garlic for powder

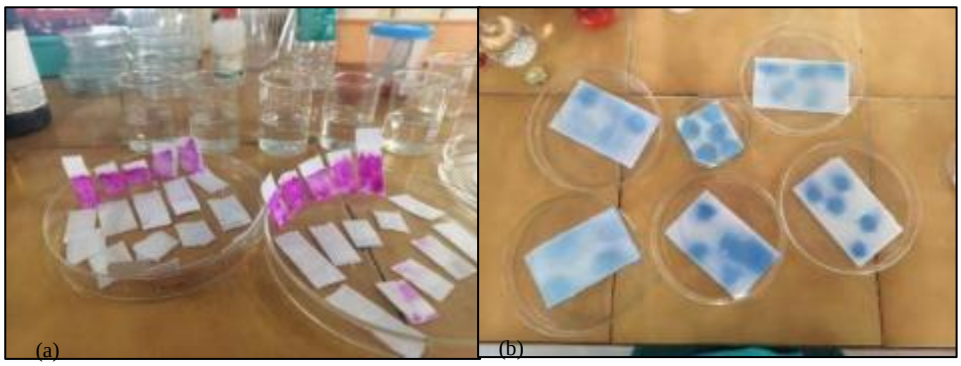
The study conducted at YSPUH&F aimed to evaluate the impact of various pre-treatments on enzymatic browning in garlic before drying. Fumigation before tray drying at 65°C resulted in the lowest residual activity of polyphenol oxidase and peroxidase, indicating minimal browning and a

high whiteness index. Fumigation also preserved phenolic compounds, confirmed through Fourier-transform infrared spectroscopy (FTIR). Garlic was then subjected to different drying methods, including tray, solar, microwave, and hybrid drying. Microwave drying at 180W yielded the best results in terms of retaining allicin, ascorbic acid, phenols, flavonoids, and antioxidant activity. All dried garlic powders exhibited significant antimicrobial properties. Tray-dried garlic at 55°C had the highest whiteness index and L* value, while FTIR confirmed the presence of various bioactive compounds in the powders. This research provides a scientific basis for producing high-quality dried garlic products on a larger scale.

Himalayan garlic powder

❖ Development of methods for Formalin detection in mushrooms

Formalin detection in mushrooms was carried out at OUAT, Bhubaneswar, using standard methods. Since formalin detection kits were unavailable, standard protocols using paper strips with various concentrations of formalin were followed. Four methods were tested, resulting in distinct color changes: pink with sodium sulphite and phenolphthalein, blue with sodium sulphite and bromothymol blue, pink with Schiff's reagent, and magnet red with pararosaniline. The results provided valuable insights into detecting formalin in mushrooms.



Method for detection of formalin in mushrooms using (a) Na2SO3+ Phenolphthelin (b) Na2SO3 + Bromothymol blue

❖ Extraction of bioactive compounds from broken rice

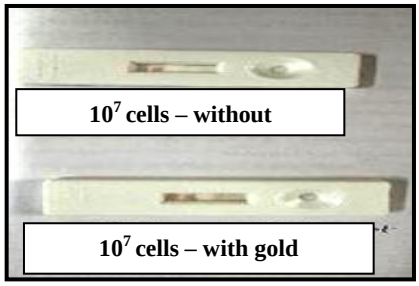
A study was conducted to extract bioactive compounds from broken rice by OUAT, Bhubaneswar. Broken rice samples from local mills were tested for germination percentage and bioactive compounds. The results showed that broken rice was more susceptible to contamination due to its higher rate of broken endosperm. Antioxidant activity and total phenolic content (TPC) were higher in both fine and coarse rice powders before soaking. After soaking, a reduction in bioactive compounds was observed, likely due to leaching into the water; however, coarse rice retained more bioactive compounds due to its lower surface area exposure.

Table: Bioactive compounds in broken rice

Sample	Antioxidant activity (%)	TPC(mg/g)
Fine powder	77.65	1.008
Fine powder after soaking	43.94	0.3758
Coarse powder	77.27	0.8954
Coarse powder after soaking	54.17	0.5152

❖ Lateral flow- assay-based rapid detection method for pathogens in foods of animal origin

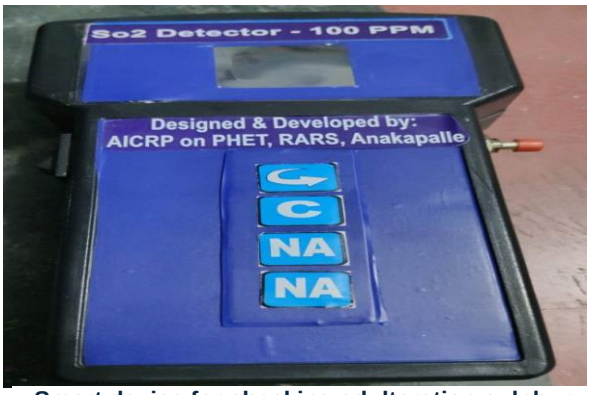
A lateral flow assay-based rapid detection method was developed by MAFSU, Mumbai, for detecting pathogens in animal-origin foods. Modifications were made to the test strip drying technique, resulting in a test line limit of 107 cells appearing within 20 minutes. Additionally, a gold enhancement procedure was applied to the strip, leading to a visible darkening of the observed signals within 5 minutes of enhancement.



Lateral flow assay-based for rapid detection of pathogens of animal-origin

❖ Development of a Smart Device to Check Adulteration in Solid Jaggery

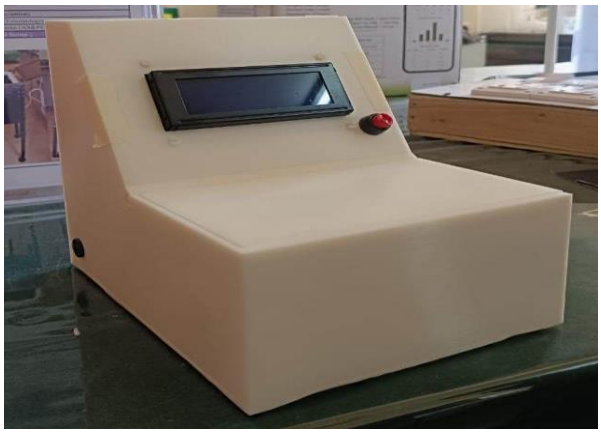
In the jaggery market, quality is often judged by color, a misleading indicator that overlooks critical safety parameters, such as sulphur dioxide (SO_2) content, as mandated by the FSSAI. Therefore, to address this problem, RARS, Anakapalle, has developed a smart device. The device, developed by miniaturizing complex laboratory protocols, enables rapid and reliable SO_2 detection at the field level. Designed for farmers, traders, and market workers, it ensures transparency in pricing, supports regulatory compliance, promotes genuine products, and empowers stakeholders with objective quality assessment, marking a significant step towards modernizing traditional jaggery trade. The major components are: SO_2 sensor plays a crucial role by detecting sulfur dioxide concentrations in the jaggery sample with high precision and outputs data in a readable format. The ESP32 microcontroller serves as the system's brain, handling sensor readings and overall communication. A SIM800L GSM module facilitates wireless communication, enabling remote monitoring and alerts for high SO_2 levels. An OLED display presents real-time SO_2 values in parts per million (PPM), ensuring user-friendly visualization. Performance is in progress; however, an initial test has been conducted in a simulated study. The device effectively detected sulfur dioxide (SO_2) when exposed to a mixture of sodium thiosulphite and acetic acid, which simulates adulteration scenarios commonly found in jaggery samples. It accurately measured SO_2 levels and displayed real-time data. It was observed that in real-time, the instrument can record levels as high as 115.47 PPM and as low as 15 PPM, suggesting an extended operational range.



Smart device for checking adulteration sulphur dioxide in jaggery

❖ **IoT-based Honey Adulteration Detection Analyzer using machine learning**

The benefits of honey are widely known, and its medicinal properties make it a necessary item to have in every household, especially during the pandemic. It is known for boosting immunity. The demand for raw honey is increasing compared to commercial or processed honey, which may lack certain health benefits. Various factors, including the use of chemicals and pesticides, pollution, hive hygiene, temperature, and the addition of artificial sweeteners, influence the quality of honey. Indirect adulteration occurs when bees are overfed during the main nectar period with honey, chemicals, and industrial sugars to extract more honey from hives. The direct adulteration of honey involves adding cheaper sweeteners to honey. Inexpensive sweeteners added into honey are corn syrups (CS), high fructose corn syrups (HFCS), invert syrups (IS), or high fructose insulin syrup (HFIS). Therefore, the study conducted by PAU, Ludhiana, aims to develop a system using sensors for detecting adulteration in honey in a shorter time. A sensor-based system was designed to rapidly and accurately detect adulteration in honey. With the rising demand for raw honey and concerns over quality issues, including pesticide use, hive hygiene, and the addition of cheap sweeteners such as corn syrup and HFCS, the need for rapid testing is critical. The system utilizes five sensors to measure key physicochemical parameters, which are calibrated using standard laboratory methods. It offers a reliable solution for identifying both direct and indirect adulteration, helping ensure honey purity and consumer safety.



IoT-based Honey Adulteration Detection Analyzer

❖ **Fabricated IR dryer-cum-treater under project holistic approach for shelf-life enhancement and quality management of selected millet flours**

Millet flours face limited consumer acceptance due to poor shelf life, dough properties, and digestibility, primarily caused by enzymatic rancidity from lipase activity, which leads to off-flavours and nutrient loss. To address these challenges, a study was conducted by PAU, Ludhiana, to develop a comprehensive treatment protocol utilizing physical, chemical, and biological methods. As part of this process, finger millet was subjected to soaking and steaming (pre-milling) and then treated with infrared (IR) radiation after milling. An advanced IR dryer-cum-treater (2000 x 1000 x 1500 mm) was developed, featuring adjustable temperature and belt speed, which enables both batch and continuous operation. This system aims to enhance the shelf life, functionality, and overall quality of millet flours. The machine is designed for a maximum temperature of 120 ºC. The installed IR emitters have a heat load of 9 kW. The total exposure area of IR for pre-treatment is a maximum of 550 mm (W) x 1500 mm (L). The IR chamber is double-walled and insulated with 50 mm of rockwool insulation. It is designed for a conveyor speed of 6-10 MPM variable with VFD.

IR dryer-cum-treater

❖ **Development and Optimization of a UV-C Treatment System**

Sugarcane juice is a popular and nutritious beverage. Still, it suffers from a short shelf life due to a high microbial load and enzymatic browning, which limits its commercialization and large-scale distribution. Traditional preservation methods often involve thermal treatment, which can degrade heat-sensitive nutrients and alter sensory properties. To address these limitations, a UV-C treatment system was developed at RARS, Anakapalle, offering a non-thermal, effective solution for microbial inactivation and quality retention in sugarcane juice.

Methodology:

The UV-C treatment system was optimized using Response Surface Methodology (RSM) based on Box-Behnken Design (BBD). Three independent variables were considered:

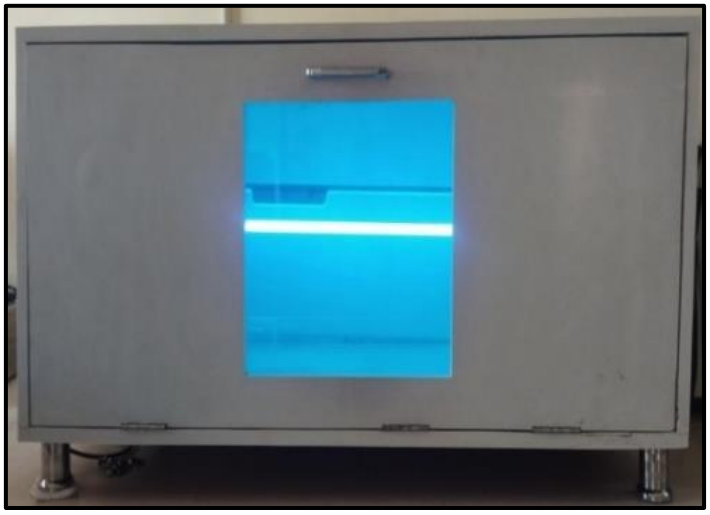
- **Exposure Time:** 10, 15, and 20 minutes
- **Distance from UV Source:** 8, 10, and 12 cm
- **Juice Depth in Sample Holder:** 1, 2, and 3 cm

Results:

- **Total Bacterial Count:** Reduced from 36×10^6 to 0.5×10^6 cfu/ml
- **Yeast and Mold Count:** Reduced from 3.9×10^5 to 0.1×10^5 cfu/ml
- **Total Phenolic Content:** Increased from 829.01 to 1300.4 mg GAE/L
- **Total Flavonoid Content:** Increased from 2236.36 to 2359.09 mg QE/L

These results indicate a substantial improvement in both microbial safety and antioxidant capacity of the juice without any thermal degradation. The developed UV-C system operates at a wavelength of 253.7 nm and is capable of processing 1.5 to 2.0 liters per minute, depending on the set exposure parameters and juice flow rate. It is particularly suitable for small- to medium-

scale enterprises. The UV-C treatment system developed at RARS, Anakapalle, is a cost-effective, scalable, and eco-friendly technology that enhances the shelf life and nutritional quality of sugarcane juice. It enables the safe commercialization of beverages without thermal processing, meeting consumer demand for minimally processed products. This innovation supports value addition, entrepreneurship, and reduction of post-harvest losses in the sugarcane sector.



UV-C Treatment System

❖ Value chain on harnessing the Nutraceutical potential of ripe pumpkin

A seasoned pumpkin spread was prepared by the Solan Centre using ripe pumpkin pulp, cooked at 70°C with continuous stirring and sequential addition of sugar, salt, spices, and acetic acid (final concentration of 1.5%), followed by filling into pre-sterilized jars and storage. Six treatments (T0–T5) were evaluated using varying concentrations of black pepper powder (BPP), ginger powder (GP), and salt. Among them, T5 (0.5% BPP + 0.5% GP + 1% salt) recorded the highest sensory scores for color (8.55), taste (8.76), aroma (8.42), and overall acceptability (8.38). The standardized spread (T5) exhibited desirable physicochemical properties, including 55.22°B TSS, 1.55% acidity, 10.83 mg/100 g ascorbic acid, 50.17% total sugars, and 5.02 mg/100 g carotenoids. The product showed good antioxidant activity (38.93% DPPH inhibition) and acceptable spreadability. The spread is being further assessed for storage stability under varying conditions.

Seasoned pumpkin spread from pumpkin pulp

AICRP ON PEASEM

❖ Renewable energy-based fodder dryer cum winter protection shelter for goats

Indigenous goat sheds generally fail to protect against suboptimal environmental conditions, necessitating the development of a sustainable, energy-efficient winter protection shelter that can be adopted at the farm level with low operational costs. The absence of windproof, insulated shelters exacerbates exposure to low ambient temperatures, leading to respiratory distress and increased risk of infection. Kids less than 3 months are especially vulnerable to cold-induced hypothermia, with surface body temperature often falling below 38.5°C in open housing. Thus, the study was carried out by ICAR-CIGR, Makhdoom, to investigate the physiological response and surface body temperature during the winter season. The institute selected forty kids of different breeds. All these animals were maintained in traditional sheds and winter protection shelters fabricated under the AICRP on PEASEM, following standard management practices at the animal farms. The maximum and minimum temperatures were recorded daily at 8 a.m. and 2:30 p.m. at all three locations) inside the kidding shed, solar dryer cum winter protection shelter, and weather station).

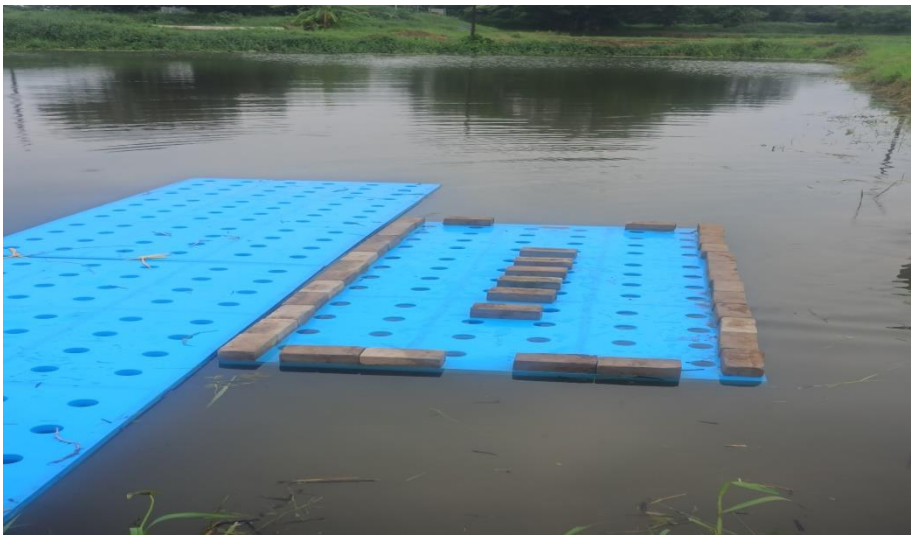
From April 2021, various trials were conducted periodically under this project. In the year 2024-25, two trials were conducted- 1. Use of fodder dryer in summer and 2. Growth trial of goat kids in winter, in which weight of the animals, temperature of shelter, and physiological responses of the animals were recorded. The results indicated that animals kept under the Winter Protection Shelter had slightly higher respiration rates (RR) and heart rates (HR) (17.55 and 59.75) compared to those in the Traditional Shelter (15.25 and 58.35). Rectal temperatures were almost similar (101.41°F in Winter Protection vs. 101.54°F in Traditional). Head, ear, shoulder, back, thigh, and testicle temperatures were generally higher in the Winter Protection Shelter. However, the neck temperature was slightly lower (90.91°F) compared to the Traditional Value (94.21°F). Soil temperature was also slightly higher under Winter Protection (95.65°F) than Traditional (94.63°F).

Renewable energy-based fodder dryer-cum-shelter

❖ Development of a self-buoyant FRP raft

ICAR-CIFA Centre, Bhubaneshwar, has developed a self-buoyant FRP raft measuring 3m x

1.5m and 5 cm thick, with 72 holes for holding cups of 7.6 cm diameter for plants. The raft weighs 82 kg and features a flat surface. It is constructed from Fiber-Reinforced Polymer (FRP) with Polyurethane sheets in the middle layer and is sealed from all sides with FRP. Designed for large-scale application in aquaponics within ponds, the raft's holes will support horticultural crops such as flowers, vegetables, or fruits, while the nutrients from the ponds serve as input for the plants. This technology is likely to be adopted predominantly in eutrophied village ponds, providing an additional income source for local communities, particularly marginal and small-scale farmers. The raft will undergo trial testing with plants in ICAR-CIFA ponds before being recommended for public use. Its expected lifespan is around 15 years. This technology eliminates the need for land and fertilisers, as plants directly absorb nutrients from the ponds (aquaculture).



Self-buoyant FRP raft

Publications

Research Articles

- Balakrishnan, A. P., Jain, A., Singh, S. K., Ahlawat, A. K., Jaiswal, J. P., Mahendru-Singh, A., & Bhardwaj, R. (2025). Development of a NIRS-based prediction model for measurement of whole wheat flour arabinoxylan content to aid rapid germplasm screening. *Journal of Cereal Science*, 104173. https://doi.org/10.1016/j.jcs.2025.104173.

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ICAR-CIPHET Intellectual Property Rights

Patents

S.No.	Title	Application no./Patent no.	Inventors	Date of filing	Patent No.
1.	Integrated mechanized system and method for producing hawaijar, a	202511041218	Dr. T. Bidyalakshmi Devi Dr. K. Bembem Dr. Surya	29.04.2025	-

	fermented soybean product		Tushir Dr. Ng. Joy Kumar Singh		
2.	Microbial method for production of protein isolate/concentrate from oilseed cakes/meals	17/258,088	Dr. D.N. Yadav Dr. Sangita Bnasal Dr. R.K. Singh Dr. S.N.Jha	29.4.2025	US 12,285,029

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S.No.	Title	Date of filing	Diary No	Date of registration	Registration No.	Authors
1.	Continuous plant for protein production	-	CF-22179/2025-CO	June 2, 2025	-	Dr. Surya Tushir, Dr. Manju Bala, Dr. Sandeep Mann, Dr. D.N. Yadav, Dr. Nachiket Kotwaliwale
2.	Near infrared spectral dataset for detection and Quantification of pea flour Adulteration in chickpea flour	March 8, 2025	8024/2025-CO/L	May 29, 2025	LD-20250165764	Dr. Manju Bala Dr. Swati Sethi Dr. Sanjula Sharma Dr. Mridula D. Dr. Gurpreet Kaur Dr. Dhritiman Saha Dr. Nachiket Kotwaliwale

Transfer of Technology

S. No.	Technology	Licensee/ Firm	Licensing fee	Date of license
1	Microbial method for production of protein isolate/concentrate from	M/s Central Biotech Private Limited, 81/3, At Po. –Heti Surla, Tah.- Saoner, District Nagpur-	3.0 Lakh	March 19, 2025

	oilseed cakes/meals (Indian Patent No. – 407257)	441112 (M.S.)		
2	Mechanized system for popping and decortications of makhana seeds (Patent No. - 434144)	M/s BlackNut AgriFood Machinery Pvt. Ltd., Regd. Office: First Floor, 1127, Shri Krishna Complex, Bengali Mohalla, Ambala Cantt -133001, Haryana	1.60 Lakh	April 15, 2025

Extension Activities

Technology Demonstrations/ FLDs/OFTs

S.No.	Technologies	Demonstrated at	Date	Occasion
1.	Extrusion processing of food grains- maize and millets	ICAR-CIPHET, Ludhiana	March 18, 2025	Five days ATMA, Nagpur (Maharashtra) sponsored Training on 'Post-harvest management of Agricultural Produce' held during 17-21 March 2025 at ICAR-CIPHET, Ludhiana.
2.	Extrusion processing of food grains-maize and millets	ICAR-CIPHET, Ludhiana	March 25, 2025	Five days ATMA, Jalgaon (Maharashtra) sponsored Training on "Post-harvest management of Agricultural Produce" held during 24-28 March 2025 at ICAR-CIPHET, Ludhiana.
3.	Microencapsulation technology	ICAR-CIPHET, Ludhiana	March 28, 2025	Five days ATMA, Jalgaon (Maharashtra) sponsored Training on "Post-Harvest Management of Agricultural produce" held during 24-28 March 2025 at ICAR-CIPHET, Ludhiana.
4.	Demonstration of micro-irrigation, sensors and Plasticulture technologies during Viksit Krishi Sankalp	ICAR-CIPHET Abohar	May 29, 2025-June 11, 2025	Viksit Krishi Sankalp Abhiyan

	Abhiyan			

Mela/ Exhibitions

S. No.	Programme title	Venue	Duration
1.	Exhibition under "National Campaign of Viksit Krishi Sankalp Abhiyan"	Krishi Vigyan Kendra, Patiala	June 5, 2025 (1 Day)

Awareness programmes

S. No.	Programme title	Venue	Duration	Number of beneficiaries
1.	Awareness camp on diet management for Anaemia Control	Khui Khera	March 18, 2025	10
2.	Awareness camp on diet management for Anaemia Control	Abohar	March 19, 2025	10
3.	Awareness program on fermented organic manure/ liquid fermented organic manure	Karni Khera	March 19, 2025	40
4.	One-Day Awareness cum Training Programme for school students from Govt Sr. Sec Smart School, PAU, Ludhiana on *"Combating Food Loss and Waste: A Step Towards Sustainability"* under the CSR initiative of Vardhman Textiles Limited, Ludhiana	ICAR-CIPHET, Ludhiana	March 24, 2025	Total: 100 (55 female)
5.	One-Day Awareness cum Training Programme for farmers from different villages on *"Combating Food Loss and Waste: A Step Towards Sustainability"* under the CSR initiative of Vardhman Textiles Limited, Ludhiana, by ICAR-CIPHET in collaboration with ICAR-ATARI	KVK Samrala	March 26, 2025	Total: 60 (28 female)
6.	Agribusiness and Entrepreneurship Development through Bakery	Mullanpurr Village Pamal	March 26, 2025	30 women FPO members
7.	Awareness Program on "Plasticulture in Vegetable Production"	Regional Station,	March 27, 2025	40

		CIPHET, Abohar		
8.	Awareness program on fermented organic manure/ liquid fermented organic manure	Kikkar Khera	April 04, 2025	50
9.	Awareness program on fermented organic manure/ liquid fermented organic manure	Nawasta	April 07, 2025	53
10.	Awareness program on fermented organic manure/ liquid fermented organic manure	Waryam Khera	April 08, 2025	41
11.	Awareness program on fermented organic manure/ liquid fermented organic manure	Khian Sarver	April 09, 2025	45
12.	Awareness program on fermented organic manure/ liquid fermented organic manure	Danger Khera	April 11, 2025	40
13.	Manju Bala, Surya Tushir and Chandan Solanki organized One-Day Awareness cum Training Programme on "Entrepreneurship Development through Vermicompost: Waste to Wealth" under the CSR initiative of Vardhman Textiles Limited, Ludhiana	Somal kheri, Payal Ludhiana	April 24, 2025	Total: 10 (03 female)
14.	Awarenees program on fermented organic manure and liquid fermented organic manure	Sito	April 25, 2025	40
15.	Awarenees program on fermented organic manure and liquid fermented organic manure	KVK, Fazilka	April 26, 2025	42
16.	Awarenees program on fermented organic manure and liquid fermented organic manure	Aliana	April 27, 2025	40
17.	Awarenees program on fermented organic manure and liquid fermented organic manure	Kala Tiba	April 29, 2025	40
18.	Awarenees program on fermented organic manure and liquid fermented organic manure	Bhanwal wasi	April 30, 2025	41
19.	Integrated weed management in Kharif crops	KVK, Fazilka	April 30, 2025	25
20.	Three-Day Awareness cum Training Programme on "Entrepreneurship Development through Vermi Compost: Waste to Wealth" under the CSR initiative of Vardhman Textiles Limited, Ludhiana	ICAR-CIPHET, Ludhiana and Abohar	May 26-28, 2025	75

21.	Awareness Cum Training program Entrepreneurship development through vermicompost waste to wealth	Narayanpura	May 26, 2025	30
22.	Awareness Cum Training program Entrepreneurship development through vermicompost waste to wealth	Bhavawala	May 27, 2025	30

Stakeholder/ officer/ farmer/ exposure visits

S. No.	Address of visitors	Number of visitors	Date
1.	ANDUAT, Kumarganj, Ayodhya, UP	2	April 2, 2025
2.	Kalasalingam University, Tamil Nadu	30 (Students) + 2 (Faculty)	April 21, 2025
3.	Exposure Visit of School Teachers at KVK	3	April 21, 2024
4.	Dr. Kamaljit Singh Sandhu, Head, Department of Food Science and Technology, MRSPTU, Bathinda	1 (Official)	April 22, 2025
5.	Village Gunopur, Tehsil, Distt. Gurdaspur	2 (Farmers)	May 06, 2025
6.	Visit at KVK by Dr. Rakesh Sarda, PC, AICRP on PEASEM	1	May 07, 2025
7.	College of Fisheries, GADVASU, Ludhiana	19 (Students) + 1 (Faculty)	May 13, 2025
8.	Chief Secretary Punjab, Mr. Manish Sisodia, and their team	-	May 18, 2025
9.	Ms. Charinjivi Sahu, ICICI Foundation	1	May 19, 2025
10.	Sh. A.K. Rathod, New Darpan Colony, Gwalior (M.P.)	1	May 26, 2025
11.	Students visit from Junagarh Agricultural University, Gujarat	27	June 2, 2025
12.	Visit by officials of Central Warehousing Corporation	32	June 10, 2025
13.	Sh. Amrinder Singh, Fatehgarh Sahib	4	June 16, 2025

Human Resource Development and Capacity Building

Human Resource Development

S. No.	Training title	Venue	Number of participants	Duration
1.	ICAR sponsored winter school on "Climate Smart Maize Agriculture for Food and Energy Security in India" ***Course Director:*** Dr. Nachiket Kotwaliwale, Coordinators: Dr. Manju Bala and Dr. Deepika Goswami (from ICAR-CIPHET, Ludhiana)	ICAR-CIPHET, Ludhiana (Jointly organized by ICAR-IIMR, Ludhiana and ICAR-CIPHET, Ludhiana)	23 (05 female)	March 5- March 25, 2025
2.	कृषि प्रौद्योगिकी प्रबंध अभिकरण, नागपुर (महाराष्ट्र) द्वारा प्रायोजित "कृषि उत्पादों का फसलोत्तर प्रबंधन"	ICAR-CIPHET, Ludhiana	26	March 17- March 21, 2025
3.	EDP training on "Hands-on training programme on hawaijar (fermented soybean) production using mechanized hawaijar maker"	CoFT, CAU Imphal	250	March 19– March 21, 2025
4.	Training on "Protected Cultivation of Summer Vegetables for SCSP farmers"	Regional Station, ICAR-CIPHET, Abohar	26 (01 female)	March 20- March 21, 2025
5.	Technical Training on "Hawaijar (fermented soybean) production using mechanized hawaijar maker"	CoFT, CAU Imphal	80	March 22, 2025
6.	SMART प्रकल्प, जलगाव, (महाराष्ट्र द्वारा प्रायोजित ("कृषि उत्पादों का फसलोत्तर प्रबंधन"	ICAR-CIPHET, Ludhiana	11	March 24- March 28, 2025
7.	Training Programme on Strategies to be adopted for	Sardarpura	25	March 25- March 27, 2025

	increasing production of Mustard in Oilseed Model Village under NAFSAM			
8.	Spices Processing	Agro-Processing Centre, ICAR-CIPHET, Ludhiana	1	March 28, 2025
9.	Student training on 'Effect of wheat varieties on quality of pasta' Guide: Dr. Deepika Goswami	ICAR-CIPHET, Ludhiana	1 female	April 01- May 15, 2025
10.	Student training for B.Sc (Hons.) Community Science student from Acharya Narendra Deva University of Agriculture and technology, Kumarganj, Ayodhya (U.P.)	ICAR-CIPHET, Ludhiana	1	Apr 1-May 15, 2025
11.	EDP to Murti Foods	Agro-Processing Centre, ICAR-CIPHET, Ludhiana	1	April 15, 2025 (1 Day)
12.	Entrepreneurship Development Programme (EDP) on millet-based bakery products Coordinators: Dr. Manju Bala & Dr. Deepika Goswami	ICAR-CIPHET, Ludhiana	1 female	April 15- April 17, 2025
13.	Student training for B.Tech (Agril. Engg.) students from of College of Agricultural Engineering and Technology, Dapoli– 415712. Dist: Ratnagiri (Maharashtra)	ICAR-CIPHET, Ludhiana	4	May 01- May 31, 2025
14.	Student training for B.Tech (Agril. Engg.) students from College of Agril. Engg and Technology, Vasantrao Naik Marathwada Krishi Vidhyapeeth, Prabhani-431402 (Maharashtra)	ICAR-CIPHET, Ludhiana	3	May 01- May 31, 2025
15.	Student training for B.Tech (Agril. Engg.) students from Mahatma Phule Krishi Vidhyapeeth, Rahuri, Krishi Visnyan Sankul, Kashti (Maharashtra)	ICAR-CIPHET, Ludhiana	5	May 01- May 31, 2025

16.	Student training for B.Tech (Agril. Engg.) students from Mahamaya College of Agricultural Engineering and Technology, Akbarpur Ambedkar Nagar (Uttar Pradesh)	ICAR-CIPHET, Ludhiana	7	June 1- June 30, 2025
17.	Student training for B.Tech (Agril. Engg.) students from College of Agricultural Engineering and technology, Godhra	ICAR-CIPHET, Ludhiana	7	June 1- June 30, 2025
18.	Student training for B.Tech (Agril. Engg.) students from College of Agricultural Engineering and Technology, Junagadh Agricultural University, Gujarat	ICAR-CIPHET, Ludhiana	5	June 1- June 30, 2025
19.	Student training for B.Tech (Agril. Engg.) students from ITM University, Gwalior	ICAR-CIPHET, Ludhiana	3	June 1- June 30, 2025
20.	Student training for B.Tech (Agril. Engg.) students from College of Agricultural Engineering and Technology Dediapada, NAU, Gujarat	ICAR-CIPHET, Ludhiana	7	June 1- June 30, 2025

Skill Development

S. No.	Staff name	Title of the programme	Venue	Duration
1.	Dr Ritu Kukde	21-day winter school on "Climate Smart Maize Agriculture for Food and Energy Security in India"	ICAR-CIPHET, Ludhiana	5th to 25th March 2025
2.	Renu Balakrishnan, Sandeep Mann, Soumya Mohapatra, Rajiv Sharma	12th National Seminar on "Futuristic Agriculture: Technology, Sustainability and Beyond"	Society for Community Mobilization for Sustainable Development at Umiam, Meghalaya	May 22- May 24, 2025

Awards/Recognition

- Dr. Renu Balakrishnan was awarded the Best Paper Award in the National Seminar on 'Futuristic Agriculture: Technology, Sustainability and beyond' organized by the Society for Community Mobilization for Sustainable Development at Umiam, Meghalaya.
- Dr Surya Tushir was nominated as DBT representative in the Institutional Biosafety Committee (IBSC) of E 20 Greenfuels Private Limited (E20GREENFPL-1426), Sirsa, Haryana-125104, dated 26.05.2025.

Lecture delivered

Name of the official	Title of the lecture	Programme	Venue	Date
Dr. Dhritiman Saha	Improved Harvesting, Drying, Sorting, and Grading Technologies	During AGC 3 Session for startups, by C-CAMP, Bangalore	online mode at ICAR-CIPHET, Ludhiana.	March 18, 2025
Dr. Surya Tushir	Exploring Fruit Waste for Bioactive Compound Production	Strengthening & Development of Higher Agricultural Education in India (Development Grant) ICAR-1 (PC-2001)" (Part-E) 9.2.1	PAU, Ludhiana	March 19, 2025
Dr. Surya Tushir	Fruit Processing and preservation for enhanced microbial safety	Strengthening & Development of Higher Agricultural Education in India (Development Grant) ICAR-1 (PC-2001)" (Part-E) 9.2.1	PAU, Ludhiana	March 19, 2025
Dr. Dhritiman Saha	Digital Technologies for Efficient Post-Harvest Management in Horticultural Crops	Under Scheme on Strengthening & Development of Higher Agricultural Education in India	PAU, Ludhiana	March 24, 2025
Dr. Shrikrishna Nishani	Cold chain management of horticulture commodities	Under Scheme on Strengthening & Development of Higher Agricultural Education in India	PAU, Ludhiana	March 24, 2025
Dr. Manju Bala	Invited talk	During AGC 3 Session	online	March 25,

	on 'Detection of Contamination and Adulteration in Perishables' through online mode	for startups, by C-CAMP, Bangalore	mode at ICAR-CIPHET, Ludhiana.	2025
Dr. Dhritiman Saha	Processing of Paddy and Milling of Pulses" to farmers from Maharashtra.	ATMA	ICAR-CIPHET Ludhiana	March 25, 2025
Dr. Poonam	Microencapsulation of turmeric/essential oils	Participants of 5-day ATMA, Jalgaon (Maharashtra) sponsored Training on "Post-Harvest Management of Agricultural produce" organized by ICAR-CIPHET, Ludhiana	ICAR-CIPHET, Ludhiana	March 28, 2025
Urhe Sumit Bhausaheb	Testing and evaluation of agricultural machineries	-	NRFMTTI, Hisar	May 19-May 23, 2025

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

S. No.	Name of the official	Conference/ symposia/ workshop/ meetings, etc	Venue	Date
1.	Dr. Ravi Prakash	4th meeting of Dairy Equipment Sectional Committee, FAD 33	BIS, Govt. of India, at IDMC, Anand, Gujarat (Hybrid Mode)	April 2, 2025
2.	Dr. Arvind Kumar Ahlawat	Mission Agri-Food Startup	Punjab State Food Commission	April 3, 2025
3.	Dr. Rupinder Kaur	ICAR ATARI reg. SAP Home Science	ICAR- ATARI Ludhiana	April 21, 2025
4.	Dr. Arvind Kumar Ahlawat, Dr. K K Patel, Dr. Rupinder Kaur and Vimal	Workshop to accelerate engagement on Foodscapes in Northwest India	PRANA	April 22, 2025
5.	Dr. Poonam	Biotechnology for Food and	BIS, Mank	April 23, 2025

		Agriculture (FAD 23)	Bhawan	
6.	Dr. Ranjeet Singh	Food Technology Repository Desk (FTDR) meeting	TN Apex, Chennai	April 25, 2025
7.	Dr. Manju Bala	1st meeting of Working Group on Spectroscopy in Agriculture and Food Systems"	Engg SMD, KAB II, New Delhi, India.	April 28, 2025
8.	Dr. Ramesh Chand Kasana & Dr. Poonam	Attended a meeting in virtual mode to finalize the projects to be included in SAEN Phase-II Project, proposal on Development of functional tea bags using microencapsulated natural sweeteners to be submitted to BIRAC	PBTI, Mohali	May 06, 2025
9.	Dr. Shrikrishna Nishani	3rd meeting of the FAD 34 Panel VI on Development of National Agricultural Code	BIS, Mank Bhawan	May 13, 2025
10.	All scientists of ICAR-CIPHET	IRC Meeting, ICAR-CIPHET, Ludhiana	ICAR-CIPHET	May 15 -May 16, 2025
11.	Dr. K Bembem	12th National Seminar on 'Futuristic Agriculture: Technology, Sustainability and beyond'	Society for Community Mobilization for Sustainable Development at Umiam, Meghalaya	May 22- May 24, 2025
12.	Dr. Renu Balakrishnan			
13.	Deepika Goswami	44th Plenary meeting of ISO/TC 34/Sc 4 'Cereals and Pulses'	China (Online)	June 10-June 12, 2025
		31st Meeting of Foodgrains, Allied Products & Other Agricultural Produce Sectional Committee, FAD 16	CWC, New Delhi (Online)	June 13, 2025

Personalia

- Sh. Pradip Kumar, Senior Technical Assistant at ICAR-CIPHET, Ludhiana, has been promoted to the post of Technical Officer.
- Dr. Maharishi Tomar joined the post of Senior Scientist on April 29, 2025.

- Sh. Sarup Singh retired from the post of Sr. Lab Technician on April 30, 2025.
- Sh. Jaswinder Singh retired from the post of Technical Officer on April 30, 2025.
- Dr. Sujata Sethi joined the post of Senior Scientist on June 5, 2025.
- Dr. Dhritiman Saha promoted to the post of Senior Scientist on June 9, 2025.

Important Events

❖ Makhana Sector in Spotlight: Insights from Krishi Chaupal Program on DD Kisan

The Krishi Chaupal program, focusing on makhana farming, processing, and value addition, was recorded by DD Kisan on April 4, 2025, and broadcast on April 12, 2025. The program attracted over 125 makhana farmers and entrepreneurs, alongside experts specializing in makhana cultivation, post-harvest processing, value addition, marketing, and mechanization. A key highlight of the event was the presence of Dr. Nachiket Kotwaliwale, Director, ICAR-CIPHET, who served as an esteemed panelist and shared valuable insights on mechanization and technological advancements in makhana processing. This program served as an important platform to raise awareness and promote innovation in the makhana value chain, ultimately benefiting stakeholders across the sector.

❖ Launching of Hawaijar maker at Manipur under DSIR-hawaijar project

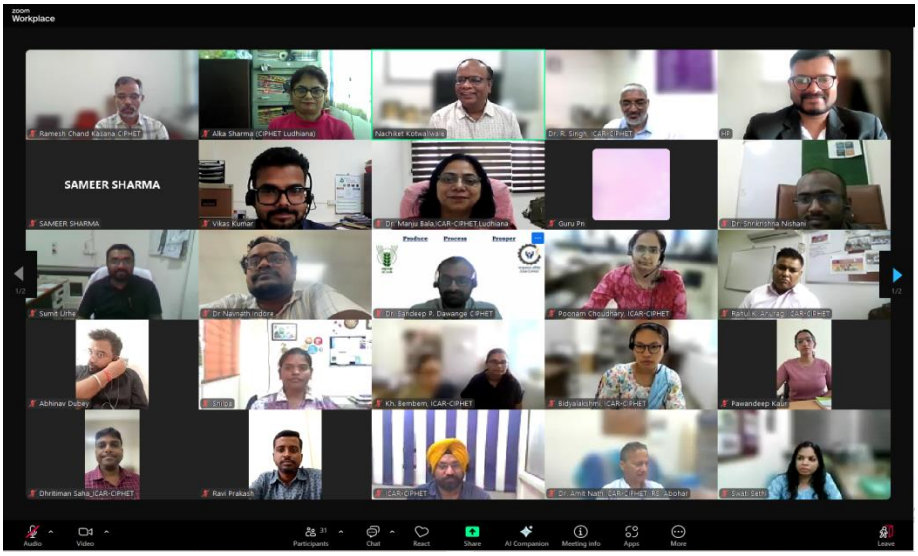
The Hawaijar Maker was launched by the Honorable Shri Ajay Kumar Bhalla, Governor of Manipur, along with Dr. Anupam Mishra, Vice Chancellor of CAU, during the Technology Demonstration Mela at NEC Central Model Farm, CAU, Imphal, on March 22, 2025. The machine was developed by ICAR-CIPHET, Ludhiana, in collaboration with the College of Food Technology (CoFT), CAU, Imphal. The system was developed under the project "Mechanized system for making hawaijar-a traditional fermented food of north-east India". The machine was developed with the aim of scientific modernization of the production of this traditional fermented food, promoting women's empowerment and the development of sustainable livelihoods through hawaijar production for women entrepreneurs in Manipur. The Governor, alongside the Vice Chancellor of CAU, Dr. Anupam Mishra, also released the training manual, leaflet, and SOP for the machine. The machine was then handed over to the beneficiaries, who can access the facility at CoFT. The project was funded under TDUPW A2K+ Scheme of DSIR, Ministry of Science and Technology, GoI.

❖ **Institute Research Council (IRC) meeting**

The Institute Research Council (IRC) meeting was organised at ICAR-CIPHET, Ludhiana, on 15-16 & 19 May 2025. All scientists from ICAR-CIPHET, Ludhiana, and the Regional Station, ICAR-CIPHET, Abohar, attended the meeting and presented the RPP-I, RPP-II, RPP-III, and RPP-IV.

❖ **Celebration of "World Intellectual Property Day" at ICAR-CIPHET Ludhiana**

The "World Intellectual Property Day" was celebrated at ICAR-CIPHET Ludhiana with the **theme of "IP and Music: Feel the Beat of IP" on May 2, 2025, in a** virtual mode. This event was organized by the Institute of Technology Management Unit (ITMU) and the Agri Business Incubation Centre (ABIC) through an awareness program on Intellectual Property Rights. The guest speaker, Advocate Swapnil Sanap, CEO and Founder of IP Shastra, Pune, delivered a lecture titled "Unlocking Innovation: Identifying the Right IPR for Your Ideas and Exploring Government Benefits." He provided an insightful overview of the different categories of intellectual property and their practical applications, along with various government schemes and incentives that support innovators, researchers, and entrepreneurs in protecting and commercialising their ideas. Dr. Nachiket Kotwaliwale, Director, ICAR-CIPHET, highlighted the growing relevance of IPR in research, innovation, and societal development. Dr. Ranjeet Singh, Head, ToT Division, delivered the vote of thanks, expressing gratitude to the speaker and participants for making the event meaningful and impactful. The event successfully reinforced the importance of IPR in protecting and promoting innovation and creativity.



Viksit Kridhi Sankalp Abhiyaan

The "Viksit Krishi Sankalp Abhiyan" was successfully conducted by ICAR-CIPHET from May 29 to June 12, 2025. Dedicated teams in various villages conducted this extensive outreach campaign. The campaign's strong community engagement and focus on agricultural development were clearly reflected in the active participation of key farmers. The initiative focused on increasing farmer awareness, disseminating improved *Kharif* crop production technologies, and promoting sustainable agricultural cultivation and practices. Special emphasis was placed on major *Kharif* crops of the region such as cotton, paddy, and maize, with expert guidance on seed treatment, integrated pest and nutrient management, water-use efficiency, and soil health. Farmers were also informed about the central government schemes like Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), Pradhan Mantri Fasal Bima Yojana (PMFBY), and the Soil Health Card (SHC) Scheme, as well as Punjab State Government schemes such as the Smart Village Campaign and free electricity for agricultural purposes. This program played a crucial role in empowering the farming community of Punjab by connecting them with advanced agricultural technologies and government support systems to enhance productivity and income.

Selection of Blocks and Districts:

In alignment with the objectives of the Viksit Krishi Sankalp Abhiyan (VKSA)-2025, launched by the Ministry of Agriculture and Farmers' Welfare, Government of India, the selection of districts and blocks for Punjab has been undertaken strategically to ensure maximum outreach and impact among the farming community. The focus is on enhancing the dissemination of technological interventions, government schemes, and location-specific advisories for the Kharif 2025 season.

District	Block
Ludhiana	Ludhiana - 1

Ludhiana	Jagaraon
Barnala	Mehal Kalan
Malerkotla	Malerkotla
Malerkotla	Ahmadgarh
Rupnagar	Morinda
Rupnagar	Chamkaur Sahib
SBS Nagar	Balachaur
SBS Nagar	Aur
Moga	Moga
Fatehgarh Sahib	Sirhind

- **VKSA team visits:**

The campaign was formally flagged off by Sh. Gurmeet Singh Khuddian, Hon'ble Agriculture Minister of Punjab, at Fatehgarh Sahib. Addressing the gathering, he urged farmers to take full advantage of this initiative and adopt water-smart and resource-efficient practices.

He emphasized the need for diversification and saving natural resources for future generations. The Minister also lauded the efforts of PAU, ICAR institutes, and state officials for their relentless work for the farming community.

Dr. Satbir Singh Gosal, Vice Chancellor of PAU, highlighted the importance of modern and integrated farming systems for achieving higher income in shrinking land holdings. Dr. Pervender Sheoran elaborated on the central-level monitoring of the campaign to ensure its nationwide impact.

The inaugural event witnessed the presence of Dr. Nachiket Kotwaliwale, Director, ICAR-CIPHET, and Dr. H.S. Jat, Director, ICAR-IIMR, along with their dedicated teams.

- **Activities undertaken by teams during VKSA 2025:**

- Information disseminated regarding Govt. schemes for farmers welfare.

- Comprehensive session on Kharif season crop planning including rice, maize, vegetables and fruits.
- Key discussions included the promotion of improved varieties of different Kharif crops.
- Adoption of Direct Seeded Rice (DSR) technology in paddy cultivation for water saving.
- Opportunities for value addition and agro-processing.
- Opportunities for seed production, entrepreneurship development.
- Information disseminated regarding food processing techniques and Training available.
- Importance of food grain storage and waste utilization for sustainability.
- Created awareness about drone Applications for agriculture.
- Created awareness about Crop Residue Management, Soil and Water Conservation.
- Created awareness about voluntary carbon markets in India.
- Discussion on judicious use of urea and other fertilizers.
- Awareness regarding soil health, pest control, and ICAR-led training programs.
- Awareness regarding co-operatives and custom hiring centers for small-holding farmers.
- Awareness regarding specialty corn cultivation (Sweet Corn, Baby Corn, Popcorn) for increasing farmers' income in peri-urban areas.
- Opportunities to enhance farmers' income through post-harvest management and agri-based entrepreneurship.
- Government schemes related to agriculture infrastructure, PM Kisan Samman Nidhi, RKVY, etc. were highlighted.
- Importance of silage and other fodders like hydroponics for sustainable growth of dairy sector.
- Sustainable practices for recycling of plastic and various alternatives to single-use plastic were discussed with the farmers.
- Awareness regarding utilization of horticultural avenues.
- Types of trees recommended for plantation in Punjab were discussed with farmers.
- Awareness about PAU mobile dryer and CIPHET's efforts in post-harvest mechanization.
- VKSA Information Booklet (Punjabi & English) distributed to selected farmers and field officers.

Researchable Issues:

1. Crop Diversification and Climate-Resilient Agriculture

- Viability of alternative crops (millets, pulses, oilseeds) to replace paddy in water-scarce zones.
- On-farm testing of short-duration and climate-resilient crop varieties.
- Farmer adoption behavior towards climate-smart agricultural practices.

2. Post-Harvest Management & Value Addition

- Assessment of post-harvest losses in fruits, vegetables, and cereals.
- Feasibility studies for small-scale processing units (e.g., kinnow pulp, turmeric, groundnut milk).
- Farmers' awareness and use of modern storage solutions (e.g., cold chain, solar dryers).

3. Soil Health and Fertility Management

- Comparative study of soil health across districts using soil health card data.
- Research on balanced fertilizer use and integration of bio-fertilizers.
- Long-term impact of paddy-wheat monoculture on soil microbial activity.

4. Water Use Efficiency and Conservation

- Efficiency of micro-irrigation systems (drip/sprinkler) in vegetable and cotton cultivation.
- Impact analysis of direct seeded rice (DSR) on groundwater and yield.
- Farmer willingness to adopt water-saving technologies.

5. Integrated Pest and Disease Management (IPDM)

- Resistance development in pests (e.g., whitefly in cotton) and management strategies.
- Farmer field trials for biopesticides and eco-friendly plant protection.
- Surveillance studies on emerging pest and disease trends.

6. Livelihood Diversification and Agri-Entrepreneurship

- Opportunities for rural youth in beekeeping, mushroom, and dairy-based enterprises.
- Impact of Farmer Producer Organizations (FPOs) on income diversification.
- Effectiveness of skill-based agri-training and entrepreneurship models.

7. Adoption of Digital & Precision Agriculture

- Use of mobile apps, sensors, and GIS in farm decision-making.
- Constraints in the adoption of digital tools by marginal farmers.
- Digital literacy gap and policy interventions needed.

8. Organic and Natural Farming

- Comparative yield and economics of natural farming vs conventional farming.
- Research on effective desi cow-based formulations (e.g., jeevamrut).
- Market linkages and certification barriers for organic

Media Coverage

ICAR- CIPHET, Ludhiana organised One-Day Awareness cum Training Programme

ICAR- CIPHET, Ludhiana organized One-Day Awareness cum Training Programme on "Combating Food Loss and Waste: A Step Toward Sustainability

City Air News Mar 24, 2025 10:35

Ludhiana, March 24, 2025; The ICAR-Central Institute of Post-Harvest Engineering and Technology (ICAR-CIPHET) organized a One-Day Awareness and Training Programme on "Combating Food Loss and Waste: A Step Toward Sustainability" under CSR initiative of Vardhman Textiles Limited, Ludhiana for the students from Government Senior Secondary Smart School, P.A.U. Ludhiana. About 100 students participated in the programme and showcased their creativity through a Poster-Making Competition on "The Zero-Waste Lunchbox" to highlight ways of minimizing food waste.

Dr. Nachiket Kotwaliwale, Director of ICAR-CIPHET chaired the inaugural session and shared his valuable insights on the critical issue of food waste, discussing its implications on environment and discussed its potential solutions. He also highlighted the efforts and studies undertaken by ICAR-CIPHET, Ludhiana to estimate the harvest and post-harvest losses at National level during 2005-07 and 2012-15.

Amit Jain, Assistant Vice President at Vardhman Textiles Limited, Ludhiana graced the occasion as the special guest. He expressed concerns about huge food loss and waste (FLW) and emphasized the need to address it in order to mitigate climate impact, enhance food security, and ensure sustainable agrifood systems. The event featured expert talks and live demonstrations on food waste management and practical tips to reduce food waste at home. A talk on food loss and waste, prevention and future approach was delivered by Dr. Manju Bala, Principal Scientist, ICAR-CIPHET, Ludhiana. Jaspreet Singh, founder of Guntaas Vermicompost, Ludhiana delivered an expert talk on compost making, including a live demonstration on creating vermicompost from food waste, offering practical insights into sustainable waste management practices. Volunteers from Robin Hood Army (RHA), Ludhiana-a volunteer-based organization also gave an insightful talk on the importance of reducing food waste and promoting sustainable practices. Prizes were presented to the winners of the Poster-Making Competition in recognition of their creative efforts. The event proved to be an engaging and insightful experience for all attendees. The programme was convened by Dr. Surya Tushir and concluded with formal vote of thanks by Dr. Chandan Solanki.

मौजगढ़ में विकसित भारत संकल्प यात्रा के तहत जागरूकता कार्यक्रम करवाया

किसानों को खरीफ फसलों की नई तकनीकों के बारे में किया जागरूक

भास्कर न्यूज | अमोहर

गांव मौजगढ़ में विकसित भारत संकल्प यात्रा के तहत जागरूकता कार्यक्रम हुआ। यह कार्यक्रम विकसित कृषि संकल्प अभियान के अंतर्गत आयोजित किया। आयोजन कृषि विज्ञान केंद्र फाजिल्का, आईसीएआर-सीफेट लुधियाना, पंजाब कृषि विश्वविद्यालय और कृषि विभाग पंजाब ने मिलकर किया। कार्यक्रम का उद्देश्य किसानों को खरीफ फसलों की नई तकनीकों, प्राकृतिक और जैविक खेती के तरीकों की जानकारी देना था। कृषि आयुक्त डॉ. पीके सिंह ने कहा कि वैज्ञानिक तरीकों को अपनाकर ही खेती से आय दोगुनी की जा सकती है। उन्होंने किसानों से अपील की कि वे पारंपरिक तरीकों से आगे बढ़ें और नई तकनीकों को अपनाएं।

मौजगढ़ में आयोजित जागरूकता कार्यक्रम में उपस्थित अतिथि और अन्य।

तकनीक से फसल का मूल्य बढ़ेगा

कार्यक्रम में आईसीएआर-सीफेट लुधियाना के निदेशक डॉ. नचिकेत कोतवाली वाले ने कटाई के बाद की प्रक्रिया और प्रसंस्करण तकनीकों की जानकारी दी। उन्होंने बताया कि सही भंडारण और प्रसंस्करण से फसल का मूल्य कई गुना बढ़ सकता है। इससे बाजार में बेहतर दाम मिल सकते हैं। आईआईएमआर लुधियाना के प्रधान वैज्ञानिक डॉ. रमेश कुमार ने फाजिल्का जिले में मक्का की खेती की संभावनाओं पर बात की। उन्होंने कहा कि मक्का की व्यावसायिक खेती से अच्छा लाभ मिल सकता है। उन्होंने मक्का की उन्नत किस्मों और वैज्ञानिक खेती के तरीकों की जानकारी दी।

किसान बोले, कार्यक्रम से मिली नई दिशा

कार्यक्रम में बड़ी संख्या में किसान शामिल हुए। उन्होंने विशेषज्ञों से सीधे सवाल पूछे और खेती से जुड़ी अहम जानकारियां लीं। किसानों ने बताया कि यह कार्यक्रम उनके लिए लाभदायक रहा। उन्हें खेती के नए तरीकों को समझने का मौका मिला। कार्यक्रम के अंत में किसानों ने अधिकारियों से आग्रह किया कि ऐसे आयोजन समय-समय पर होते रहें। विधायक संदीप जाखड़ और पंजाब किसान आयोग के पूर्व चेयरमैन अजयवीर जाखड़ ने भी कार्यक्रम में भाग लिया। फाजिल्का के मुख्य कृषि अधिकारी डॉ. राजिंदर कम्बोज और पंजाब कृषि विश्वविद्यालय के डॉ. जगदीश अरोड़ा सहित कई वरिष्ठ अधिकारी भी मौजूद रहे।

टीम ने 135 से अधिक गांवों में अभियान के तहत 16,000 किसानों को किया जागरूक

15 दिवसीय विकसित कृषि संकल्प अभियान समाप्त, सरकारी योजनाओं और सब्सिडियों की जानकारी दी

दैनिक सवेरा

किसानों के खेतों तक पहुंचा वैज्ञानिकों का मार्गदर्शन

खेतों तक पहुंचा अनुभवी वैज्ञानिकों का मार्गदर्शन

ਫ਼ਾਜ਼ਿਲਕਾ 'ਚ ਕਿਸਾਨਾਂ ਦੇ ਖੇਤਾਂ ਤਕ ਵਿਗਿਆਨੀਆਂ ਦਾ ਮਾਰਗ ਦਰਸ਼ਨ 'ਵਿਕਸਿਤ ਕ੍ਰਿਸ਼ੀ ਸੰਕਲਪ ਅਭਿਆਨ' ਸਫ਼ਲਤਾਪੂਰਵਕ ਸਮਾਪਤ

ਜਲਾਲਾਬਾਦ