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# ICAR-CIPHET NEWS

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भाकृअनुप–सीफेट
ICAR–CIPHET

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# From the Director's Desk

**Dear Stakeholder,**

It gives me immense pleasure to present the third quarterly Newsletter of ICAR–CIPHET for the year 2025. This edition highlights our continued commitment to advancing the agricultural processing sector through innovative research, technology development, and impactful capacity-building initiatives.

During this quarter, the institute has made notable progress in the development and dissemination of advanced technologies aimed at addressing critical challenges in post-harvest management and food processing. A strong emphasis has been placed on knowledge transfer through structured training programs, expert lectures, and skill development workshops. These initiatives have been thoughtfully designed to benefit a wide spectrum of stakeholders, including farmers, entrepreneurs, food technologists, food engineers, and emerging startups.

In parallel, ICAR–CIPHET has strengthened its focus on Intellectual Property Rights (IPR) by expanding its portfolio of patent filings. These efforts are crucial in safeguarding our innovations, enhancing their scalability, and facilitating their adoption in both rural and urban Agri-based enterprises.

As we move forward, the institute remains steadfast in its mission to foster technological innovation, promote sustainable practices, and build capacities across the Agri-food value chain. We are confident that our collective efforts will contribute significantly to strengthening India's agricultural resilience and ensuring national food security.

**(Nachiket Kotwaliwale)**
**Director, ICAR-CIPHET**

**Ludhiana, 2025**

## Research Highlights

### ICAR-CIPHET

### ❖ Solar-powered day-night universal insect trap

The invention comprises a solar-powered multi-mechanism insect trapping system designed for autonomous operation during both day and night. The system includes a solar panel and its box, sticky traps, light source, water basins for trapping insects, a height-adjustable support structure, and a light sensor circuit for automatic switching between operational modes. During the day, insects are attracted to trap colour enhanced with coloured sticky traps or drowned in yellow coloured water bowls. During the night, insects are attracted to light source powered by a solar-charged battery, in combination with sticky and water bowl traps. To enhance the efficiency the trap also houses provisions for pheromone slots and easy to modify arms for installations of desired smaller traps. This dual-mode functionality ensures 24-hour insect monitoring and control without the need for external electricity or manual intervention.

### ❖ Pasta using mechanically separated pea pod fibre-rich fractions

Pasta is a globally appreciated food product, valued for its ease of preparation and sensory appeal. However, traditional pasta made from refined wheat flour is low in dietary fiber, which limits its nutritional benefits. Dietary fiber plays a vital role in improving digestive health, lowering blood cholesterol, and reducing the risk of chronic diseases. In this context, enhancing pasta with natural fiber sources can offer both nutritional and functional benefits. The use of agro-industrial by-products like pea pods present an eco-friendly and cost-effective approach to fortify food while addressing sustainability. The present study aimed to develop fiber-enriched pasta by gradually replacing semolina (0-30%) with pea pod fiber, which was mechanically separated from pea pods. Pea pod fibre incorporation significantly influenced the cooking properties. The water absorption index as well as gruel solid loss increased with increasing pea pod fiber level reaching to 1.83 and 1.91% at 30% level, respectively. The cooking time was inversely proportional to pea pod fiber level, decreasing from 8.58 min in the control (0% pea pod fibre) to 6.54 min in pasta with 30% pea pod fibre, possibly due to fiber interfering with starch gelatinization and network formation. The increased volume expansion ratio (VER) with pea pod fibre level suggested better swelling behavior and structural expansion during cooking. Color analysis revealed a noticeable shift in visual attributes with increased fiber. Lightness (L*) decreased consistently from 79.34 (control) to 71.52 at 30%, indicating a darker product. The fat content remained relatively stable between 1.47% and 1.58%, suggesting minimal effect from fiber addition. Protein content showed a gradual decline from 15.47% in the control to 13.84% in pasta with 30%, likely due to the dilution effect as more fiber was incorporated into the formulation. Ash content, indicative of mineral content, increased with fiber level, from 1.83% in the control to 2.28% at 30%, supporting the nutritional enhancement of pasta through fiber fortification.

Moisture content generally declined from 6.35% (control) to 5.21–5.81% in enriched samples, potentially due to the water-binding nature of dietary fiber, thereby reducing the free moisture. The TDF content of pasta samples increased significantly with the incorporation of pea pod fiber and ranged between 7.26% (control) to 22.03% (30% pea pod fibre level). The organoleptic evaluation of pasta samples indicated that the pea pod fibre could be incorporated in the formulation up to 15% level having an overall acceptability score of 7.25. In conclusion, mechanically separated pea pod fiber fractions can be effectively incorporated up to 15% level to produce nutritionally enhanced pasta with acceptable cooking characteristics, offering a sustainable and functional alternative for health-conscious consumers.

**Control** **5%** **10%** **15%**

**20%** **25%** **30%**

**Mechanically separated pea pod fiber incorporated pasta**

## ❖ Mango washer cum scrubber machine

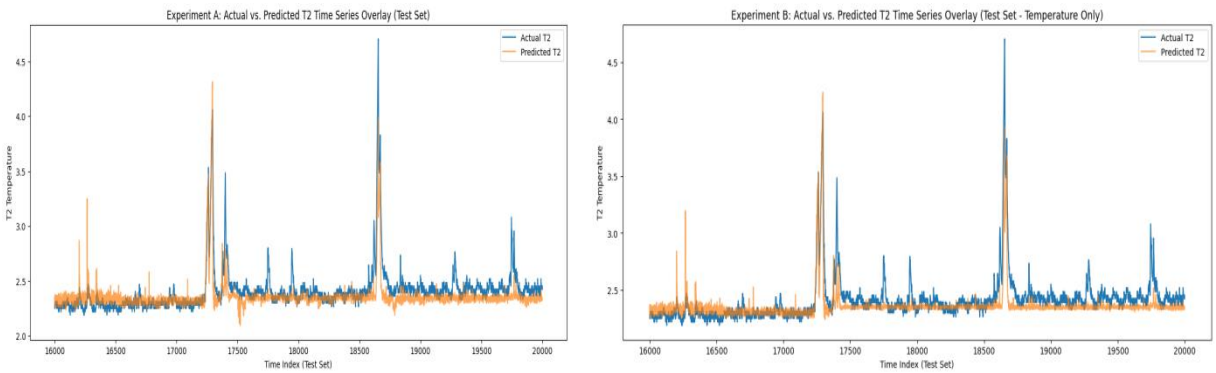
Popular mango varieties like *Chausa* and *Dassehri* from UP has problem of black spot on the skin which decreases the market potential of mangoes. These black spots are tough and cumbersome to wipe away manually and can also cause damage to the fruit. A mechanized system, equipped with 'CISH-Fruitwash' (an organic formulation) application, can wipe away theses spots from all sides of the mangoes without drudgery and can enhance the market potential of the commodity.

**Before the washing process** **After the washing process**

An equipment was designed and fabricated through a collaborative initiative between the ICAR-Central Institute of Post-Harvest Engineering & Technology, Regional Station, Abohar and the ICAR-Central Institute of Sub-Tropical Horticulture, Lucknow. The developed machine was successfully demonstrated and tested in front of the farmers and researchers at Horticulture Experiment and Training Centre, Saharanpur (UP). The efficiency of the developed machine during the testing was 75-80% and it may vary depending on the dipping time and concentration of the salt used. The main features of the developed machine are: (a) Throughput - 500-1000 kg per hour of graded fruits (b) The fruit contact surfaces are made from food grade stainless steel (SS-304) (c) Compact and adjustable for different varieties and sizes of fruits (d) Operates on a single-phase electric motor (e) Less drudgery, cost saving and improved hygiene.

## ❖ Real-time apple quality monitoring in cold storage

The study introduces a recurrent neural network (RNN)-based approach for predicting changes in the physical quality of apples during long-term, low-temperature storage. This work utlizes time series data of storage environment histories. The model is designed to operate, real-time environmental data and storage duration as inputs, improving its practical applicability. Apples were stored under controlled conditions, and quality-related data were collected through regular sampling and destructive testing. Data preprocessing was carried out to minimize environmental noise and address time resolution discrepancies. Total soluble solids (TSS) and texture were chosen as prediction targets due to their strong relationships with both environmental and quality parameters. For performance evaluation, four RNN-based architectures—stacked RNN, stacked long short-term memory (LSTM), residual LSTM, and baseline LSTM—were compared with a conventional multiple linear regression (MLR) model. Given the limited availability of validated models for predicting agricultural product quality, a grid search was used to identify optimal model structures and parameter settings. The optimized models were tested, revealed that the residual LSTM achieved the best performance, with a normalized test root mean-squared error (RMSE) of 0.0612, successfully predicting up to 336 hours ahead. The baseline LSTM extended the prediction window to 504 hours, with an RMSE of 0.0501. Conversely, the MLR model exhibited severe overfitting, producing a test RMSE of 0.2914 and confirming its ineffectiveness in using storage history for quality prediction. These findings highlight the promise of RNN-based methods for modelling quality changes in stored agricultural products and suggest the developed model as a valuable foundation for future post-harvest process optimization research. This work focuses on developing a real-time digital twin framework for monitoring apple quality during storage using sensor networks and machine learning. The experimental setup involved 60 kg of Red Delicious apples stored in a cold room at controlled temperature and humidity. Apples were distributed in three crates of 20 kg each. Ten temperature-humidity (TH) sensors were installed inside the cold room to continuously record ambient conditions. Each crate was instrumented with three probe-type temperature sensors (T1, T2, T3) for monitoring core temperature at different levels and three non-contact IR sensors (IR1, IR2, IR3) to measure apple surface temperature and localized ambient temperature. This resulted in a dataset of over 20,000 data points collected over a seven-month storage period. Data preprocessing included cleaning, outlier detection, visualization, and normalization to ensure robust model training.



The study primarily focused on predicting the core temperature (T2) using a Bidirectional Long Short-Term Memory (BiLSTM) network with an attention mechanism. Two experiments were conducted: (A) prediction of T2 using temperature and humidity inputs, and (B) prediction using only temperature inputs. The dataset was split into training (80%) and testing (20%) subsets without data leakage. The models were trained using the Adam optimizer with a learning rate of 0.001, batch size of 100, 50 epochs, and a dropout rate of 0.1 to prevent overfitting. Model performance was evaluated using Mean Squared Error (MSE) and Mean Absolute Error (MAE). For Experiment A, the model achieved an MSE of 1.343983 (training) and 1.201171 (validation), with corresponding MAE values of 0.797578 and 0.730524. Visualization included actual vs. predicted T2 plots, training and validation loss curves, scatter plots, residual error analysis, and time-series overlays. These results confirm that including humidity slightly improves prediction accuracy and supports the development of a robust digital twin for real-time shelf-life prediction of apples.

## ❖ Visual and X-Ray imaging based mango sorting & grading system

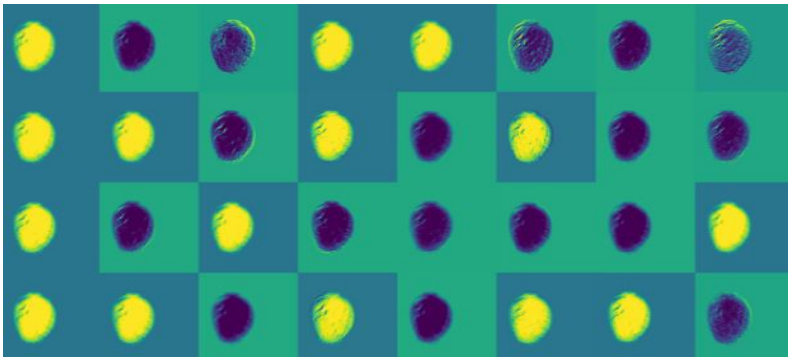
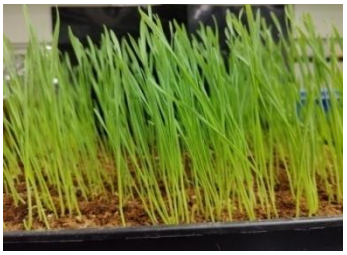


Image analysis was performed on mango samples to investigate the role of pre-processing techniques in improving tissue classification under NePAA project. The application of background conversion to black, followed by image normalization, was found to substantially enhance the quality of extracted features. These pre-processing steps reduced noise, improved contrast, and facilitated better edge preservation, which in turn led to stronger and more localized activation in the deeper convolutional layers of the network. Consequently, the classification performance for detecting spongy versus non-spongy tissue was markedly improved, as evidenced by the generated feature maps, wherein the yellow-highlighted regions distinctly correspond to non-spongy tissue. This indicates that optimized preprocessing contributes significantly to the robustness and reliability of non-destructive spongy tissue detection in mango.

## ❖ Physical attributes, proximate composition, phytochemicals and antioxidant potential of millet microgreens

In preliminary experiments, pearl millet microgreens were cultivated on different substrates to assess their growth and nutritional potential. Evaluation of physical attributes, phytochemical and proximate composition, antioxidant activity, and mineral profile indicated that a substrate comprising cocopeat, soil, and selected additives was optimal, as it markedly improved these parameters. Building on these observations, subsequent experiments were extended to the cultivation of microgreens from other millets including kodo, foxtail, barnyard, and little millet, with wheat employed as the control. On the appearance of first true leaves, microgreens were harvested (6-10 days after sowing) and evaluated for their physical characteristics, proximate and phytochemical composition. The germination vigor of kodo (58%), foxtail (54%), barnyard (57%) and little millet (53%) was comparatively lower than pearl millet (90%) and the control viz., wheat (100%). On the day of harvest, the height of pearl millet, kodo, foxtail, barnyard and little millet was in the range of 5.00-13.93 cm, which was comparatively lower than the control (19.83 cm). The resultant yield of pearl millet, kodo, foxtail, barnyard and little millet was observed as 798.32 g/m$^2$, 420.17 g/m$^2$, 682.77 g/m$^2$, 619.72 g/m$^2$ and 504.20 g/m$^2$, respectively. The moisture, ash, fat, crude fiber and protein content of millet microgreens ranged from 87.92-91.78% (fwb), 8-13% (dwb), 3.44-4.54% (dwb), 17-29% (dwb) and 24.60-28.36% (dwb), respectively.

The total chlorophyll and carotenoid content of millet microgreens was found in the range of 65.60-96.76 mg/100g and 3.28-5.59 mg/100 g, respectively. Further, the phytochemical analysis of millet microgreens showed that the total phenol content and total flavonoid content of millet microgreens ranged between 229.69 - 366.88 mg GAE/100g and 42.67 – 298.0 mg QE/100g, respectively. The antioxidant activity of microgreens, determined using ABTS, FRAP and DPPH assay, exhibited values ranging from 36.20-82.40%, 106.83-297.50 µg FeSO4/mL and 38.57-93.06%, respectively.



**Wheat**

**Pearl millet**

**Kodo millet**

**Little millet**

**Barnyard millet**

**Foxtail millet**

## ❖ Simulated grain silo

A facility has been developed to simulate grain silo conditions for pulses, with the objective of optimizing grain depth under DoCA project. Unlike monocot crops such as wheat and rice, pulses (dicot seeds) are more susceptible to structural damage under pressure. However, existing bulk storage practices for pulses are largely based on those used for wheat and paddy, which may not be optimal. The fabricated load cell sensor has been incorporated into the project to measure: Static Pressure or Weight – The pressure exerted by the mass of stored pulses at the bottom layer. Dynamic Loading – The additional pressure that occurs during the filling process in bulk storage. Customized Load Sensor for Simulated Silo. To accommodate these requirements, a customized load sensor has been developed and fabricated with the specifications: Size:

8 inches, bearing Capacity: 1 ton, Integration: Designed to fit within a 10-inch diameter pipe, representing a simulated silo with a height of 35 feet for storage experiments. This research will help in understanding the impact of grain depth on pulse storage and optimizing it for bulk storage to minimize structural damage to pulses.

## AICRP on PHET

### ❖ Development of a slaughter house waste collection system

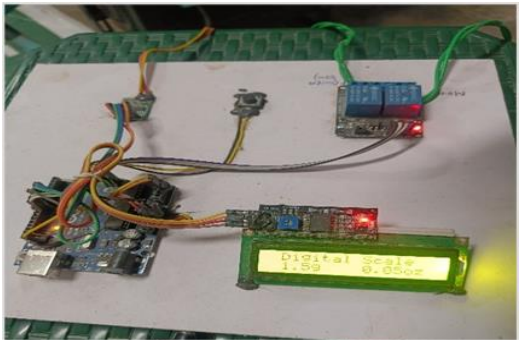
To address the challenges of unhygienic waste handling in the Indian meat industry, AAU, Khanapara developed both stationary and mobile slaughterhouse by-product collection units. These units are designed for hygienic segregation and storage of feathers, blood, viscera, and head & feet at chilling temperatures (4°C), helping reduce environmental and health risks. The stationary unit (80 kg capacity) uses an R134a-based refrigeration system, while the mobile unit (240 kg capacity) employs phase change material (PCM) for passive cooling. Both are made of corrosion-resistant stainless steel, with insulated chambers and removable containers for ease of use. The units are cost-effective (₹75,000 for stationary and ₹2,50,000 for mobile with e-loader) and aim to improve waste management in small slaughter units and butcher shops.

**Mobile by-product collection unit**

**Stationary by-product collection unit**

### ❖ Integration of load cell with IoT device for force measurement in mini rice huller

A load cell was integrated at the discharge outlet of a mini rice huller to monitor the force exerted by the end plate during the dehulling process of finger millet and little millet at OUAT, Bhubaneswar. This setup, connected through an IoT device, enabled real-time measurement and display of the applied force, ensuring optimal dehulling efficiency. The weighing load cell sensor YZC-131A is a compact and efficient sensor designed for a maximum load capacity of 5 kg. It features dimensions of 75 mm in length, 18 mm in width, and 13 mm in height, with an 18 cm long cable for easy connectivity. The sensor includes M4-sized fitting screw holes for mounting. It provides a rated output of 1.0 mV/V and exhibits excellent accuracy with a nonlinearity, hysteresis, and repeatability of ±0.05% of full scale.



**IoT device with load cell**

**Load cell attached to mini rice huller**

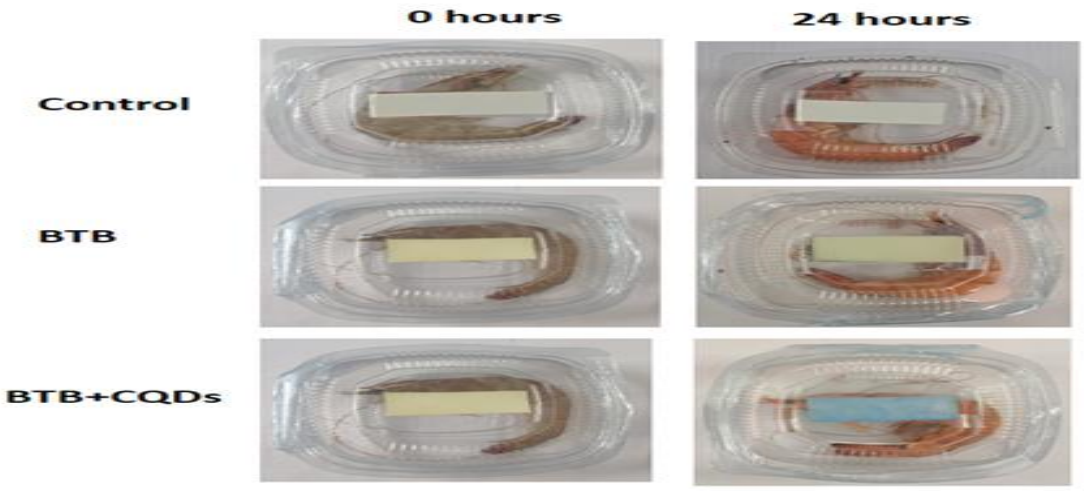
The sensor is priced at ₹157 (inclusive of GST) and is currently available in stock. Hulling experiments were conducted at different outlet force settings of the pressure plate against the discharge outlet to standardize the force requirement. The study revealed that the optimum outlet resistive force was 27 N for finger millet and 42.5 N for little millet, ensuring effective dehulling with minimal grain breakage.

### ❖ IoT based biogas flushed automated storage system to manage major insect pests of *Mung* bean and *Kabuli chana*

Pulses are a vital source of protein in India, especially for vegetarians, yet they are highly susceptible to insect damage during storage-experiencing up to 5% loss compared to 2-3.5% in cereals. Addressing the lack of proper monitoring systems, this study aimed to develop a non-chemical, IoT-based biogas-flushed automated storage system for managing key insect pests in mung bean and *Kabuli chana* at PAU, Ludhiana. A compact, technically advanced storage bin was successfully designed and developed with biogas fumigation, automated aeration, and real-time monitoring of environmental conditions. The IoT system, built around a Raspberry Pi controller, included a $CO_2$ sensor (SCD42), GSM communication module, night vision camera, and alert buzzer, enabling autonomous responses such as blower activation and data logging.

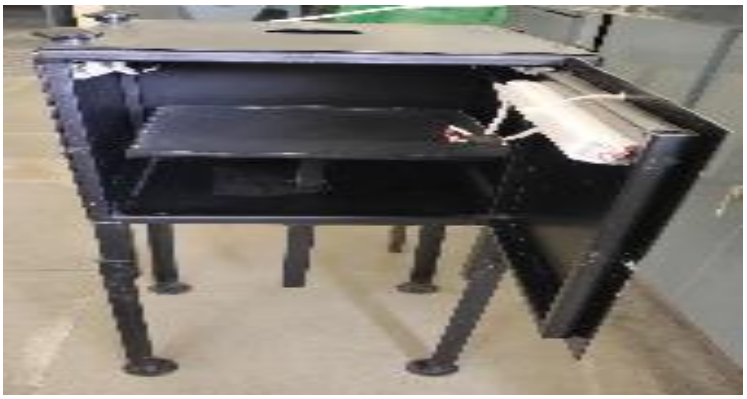
### ❖ Synthesis of carbon quantum dots

Carbon quantum dots (CQDs) were successfully synthesized from lactic acid via a green hydrothermal method at TNAU, Coimbatore. The obtained CQDs were characterized and subsequently incorporated into a paper indicator strip along with bromothymol blue (BTB), a pH-sensitive dye, to develop a visual sensor strip for monitoring the spoilage of prawns. For comparison, strips containing only BTB (0.1%) were also prepared. The sensor strips were tested by exposing them to prawn samples stored at room temperature.




The results showed that BTB-only strip initially appeared yellow-green but underwent a rapid and noticeable fading of color within 12 hours, showing a weak transition from yellow to bluish tones. However, the color intensity significantly diminished as spoilage increased, indicating limited stability and sensitivity over time. In contrast, the CQD+BTB strip exhibited enhanced colour stability and stronger color contrast throughout the 24-hour storage period. The strip maintained a clear visual transition from yellow-green (fresh) to green/blue (spoiled), aligning well with spoilage indicators such as increasing total volatile basic nitrogen (TVB-N).

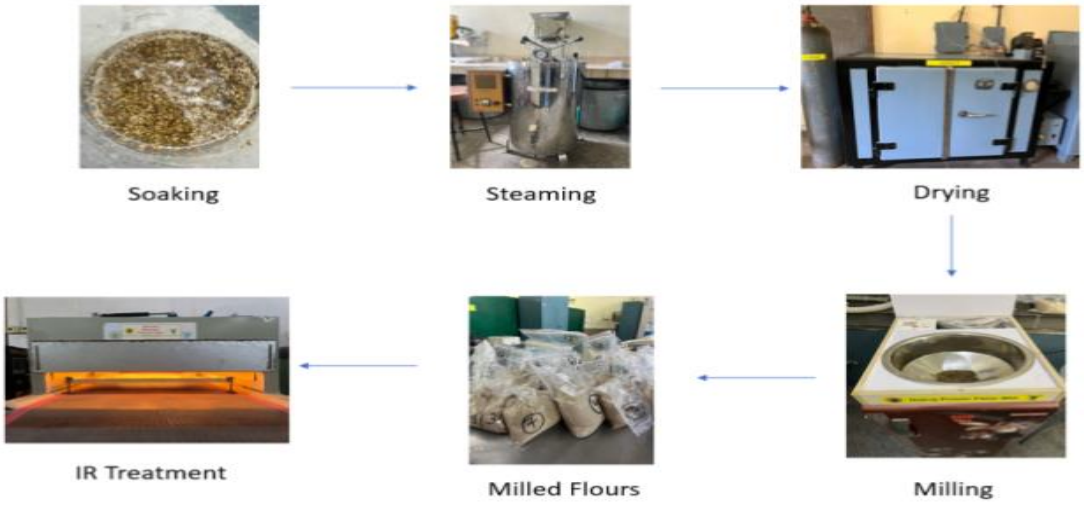
## ❖ An automated *Dal* sorting system using machine learning



*Dal*, a staple food in India, is traditionally sorted manually, which is labor-intensive, inconsistent, and unsustainable with rising labor costs. To address this, a custom image acquisition chamber was developed for ML-based automated sorting at PAU Ludhiana. Made of 3 mm mild steel with a 300 × 300 mm base and 770 mm height, the chamber features a hinged door for sample access, shadow-free uniform lighting from four 20 V lamps, an adjustable-height sample holder, and a top-mounted camera port (65 mm). Its enclosed design minimizes ambient light, enabling high-resolution, consistent imaging for accurate impurity detection and improved efficiency in dal processing.

## ❖ Shelf-life enhancement and quality management of selected millet flours

Millet flours are prone to rancidity due to high oil content, enzymatic activity, and anti-nutrients that reduce nutritional value. To address this, pre- and post-milling treatments were optimized for pearl millet and ragi, involving controlled soaking, steaming, and infrared (IR) exposure at PAU Ludhiana.




The infrared IR treatment significantly reduced the lipase activity up to 68% and 55%, phytic acid levels 42% and 38%, in pearl millet and ragi respectively), with pearl millet responding best to moderate IR conditions (110–115 °C, 4–6 min) and ragi requiring slightly higher intensity (115-120 °C, 6-8 min). These results highlight effective holistic protocols for enhancing shelf life and nutritional quality of millet flours.

## ❖ Nutraceutical potential of ripe pumpkin for the development of pumpkin seed butter

Pumpkin seed kernels were roasted at 120 °C for 49 minutes, ground, and blended with sunflower oil (2%), salt (0.5%), and maltodextrin (0.5%), followed by the addition of varying concentrations of soya lecithin (0.25, 0.5, 0.75%) and sugar (2.5, 5, 7.5%) to study their effect on the sensory properties of pumpkin seed butter at Solan center. The mixture was homogenized for 4-5 minutes to achieve a smooth consistency, cooled, packed in PET jars, and evaluated on a 9-point hedonic scale. Sensory results revealed that colour (7.71-8.60) remained unaffected, while texture, taste, and overall acceptability varied significantly with treatments. Texture was best in $T_5$ (8.43) and $T_6$ (8.41), whereas $T_0$ (5.28) scored the lowest. Aroma was highest in $T_0$ (8.67) but declined with higher sugar and lecithin levels, reaching 6.20 in $T_9$, with higher lecithin (0.75%) imparting a soy-like note. Taste preference peaked in $T_4$ (8.61) and $T_5$ (8.56), while $T_0$ (4.15) was least liked. Overall acceptability was highest in $T_5$ (8.35), followed by $T_4$ (8.10), whereas $T_0$ (6.68) and $T_9$ (6.71) scored the lowest. These findings indicate that moderate sugar and lecithin concentrations enhanced texture, taste, and acceptability, while excessive lecithin reduced aroma and the absence of additives adversely affected sensory quality of the developed product.

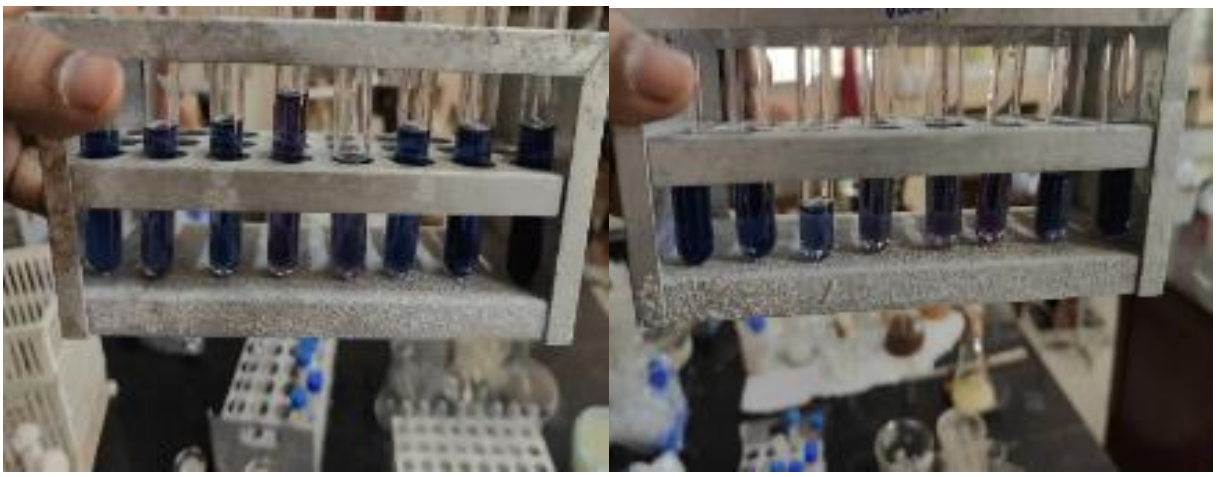
## ❖ Machinery and process protocol for value addition of *Palmyrah*

Tender *Palmyra* endosperm (*Nungu*) was canned in 20°Brix sugar syrup, retort-processed at 121 °C for 15 min, and stored for 120 days at TNAU Coimbtore. TSS increased until 45 days and then stabilized, PPO activity rose steadily (180.2 to 230.98 U $min^{-1}$), phenolic content showed a slight increase (65.2 to 67.53 µg GAE/100 mg), and lightness (L*) declined (45.89 to 39.58), indicating gradual darkening. In P*almyrah haustorium*, manganese peaked at the 13$^{th}$ week (214.11 µg/10 g), while in tubers it was highest at the 12th week (6.23 µg/10 g). Several treatments exceeded the grand means (170.01 µg/10 g in haustorium; 3.77 µg/10 g in tuber), under nutritional potential of *palmyrah* at specific growth stages.


## ❖ Antimicrobial resistance (AMR) in vegetables: Surveillance, prevalence and effective control using carbon dots derived from medicinal herbs

Thirty bacterial colonies isolated from different fruit samples using selective media (MacConkey, EMB, XLD, Bacillus cereus, and Baird Parker agar) were screened for amylase and β-haemolytic activity at TNAU Coimbatore.

All isolates showed blue coloration, confirming absence of α- amylase production, while β-hemolysis was detected by clear halo zones around colonies. PCR analysis of 10 selected isolates further showed no DNA bands for the targeted virulence genes, confirming their absence.

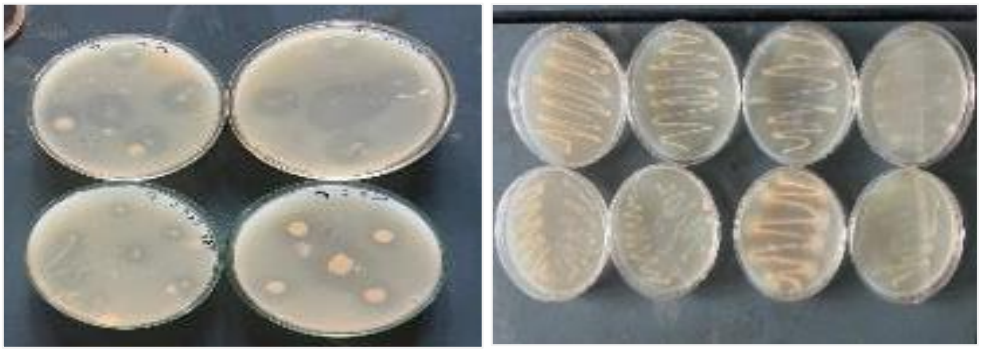


**Blue coloration indicates no production of α-amylase**

### ❖ Encapsulation of extract from paddy straw mushroom waste


The extract obtained from paddy straw mushroom waste by ultrasonic treatment was encapsulated taking maltodextrin (MD) and gum arabic (GA) as wall material in 100:0, 75:25, and 50:50 proportions using a spray dryer at OUAT, Bhubaneswar centre. The 75:25 (MD: GA) formulation showed the highest encapsulation efficiency for polyphenols (80.13± 0.54%) and flavonoids (84.79±0.73%), along with significant antioxidant activity (71.82±1.23%) and excellent flowability.

Further, 15 soil isolates were screened for phytase activity, with strain A9 showing the highest activity (27.67 U/mL) at PAU Ludhiana. Optimization studies identified glucose, urea, pH 6.0, and 45°C as favourable conditions for maximum enzyme production. The findings highlight the potential of microbial interventions to reduce anti-nutritional factors and improve the shelf life and quality of millet flours.



**Phytase producing microbial isolates**

### ❖ Pilot plant augmentation and process protocol for "instant mix" probiotic fruit and vegetable juice powders with enhanced storage stability

Under the project on instant-mix probiotic juice powders, mango juice was nutritionally profiled and spray-dried using maltodextrin/gum Arabic at 140-180 °C at PAU, Ludhiana Centre Results showed some loss of sugars and vitamin C, with maximum phenolic retention at 140 °C and higher flavonoid retention at 160 °C. These findings provide baseline data for optimizing spray-drying conditions to enhance nutrient retention and powder stability.

**Spray drying of mango fruit juice**

## AICRP ON PEASEM

### ❖ A self-buoyant FRP raft with Basil (*Ocimum basilicum*)

Planting of basil was done on 18 June 2025 at 8-10 leaf stage with minimal roots growth of the seedlings at ICAR-CIFA, Bhubaneshwar. Data recorded after 60 days culture period after planting shown the plant measures a height of 450 mm in maximum and 330 mm in minimum. The root growth varied from 125 to 230 mm and the number of leaves varied from 98 to 125 in numbers per plant. No significant differences in plant growth were seen among the raft aquaponics experimented in pond. The total weight of the plant along with the planting media ranged from 350 g to 435 g with average value of 392.5 g. The total weight of 72 plants with the planting media on the raft was 28.3 kg.

The buoyancy of the raft was recorded 133 kg, which is much higher than the planting materials with media on it. Hence, it is proved that the floating raft can easily withstand as many as 72 numbers of Italian Basil plants in their full growth stage along with the planting media.

### ❖ Bio-degradable film from rice husk cellulose for packaging of perishable fruits and vegetables

The cellulose extracted from rice husk was treated with acetic anhydride in the presence of a catalyst i.e, Sulphuric acid. Dimethyl-acetamide in the presence of Lithium Chloride was prepared and to this solution the cellulose acetate was added and this was done to dissolve the cellulose. The acetylated cellulose has to be blended with PBAT. The PBAT granules are dissolved in chloroform and heat mixed with the acetylated cellulose.

Following blends were prepared for optimizing the Cellulose-PBAT mixture percentage. This was done to get the bio-degradable plastic granules through the extruder.

| Treatment number | Details (Cellulose + PBAT) |
|---|---|
| B1 | 100 .00 + 0.00 |
| B2 | 90.00+10.00 |
| B3 | 80.00+20.00 |
| B4 | 70.00+30.00 |
| B5 | 60.00+40.00 |
| B6 | 50.00+50.00 |
| B7 | 40.00+60.00 |
| B8 | 30.00+70.00 |
| B9 | 20.00+80.00 |
| B10 | 10.00+90.00 |

### ❖ Raised FRP Slatted floor/Platform for Goat shelter in high altitude areas of West Kameng, Arunachal Pradesh

The raised floors/ platforms are preferred for providing clean and hygienic environment for maintaining the health and productivity of goat at ICAR-NRCY, Dirang. Therefore, the existing raised wooden floor (5.18*4.87*1.37m) of a goat shelter was modified with the FRP slatted floor (Mesh size: 87*17.5 mm, Thickness 25mm) to maintain dry and clean floor for proper hygienic environment. The mesh size was selected based on the hoof size of the goats for direct dropping of manure and urine from the raised platform on the ground, which further ease the cleaning and maintenance for shelter. The initial observations showed that goat preferred the slatted platform because of dry and clean surface and also more space for exercise on and under the raised platform.

**Raised FRP Slatted floor/Platform for Goat shelter**

### ❖ Plastic-based cascade aerators / vertical aeration towers for freshwater aquaculture ponds

One cascade aerator of height 3.0 m was designed and developed using 0.5 HP submersible water pump with 14 showers and installed in a 0.1 ha fish pond in ICAR-CIFA Farm for estimation of efficiency of oxygenation of pond water at ICAR-CIFA Centre, Bhubaneswar. It was operated 6 hrs regularly in the daytime in both directions along the length of the pond from the installation point of the aerator. The markings were done in every 10 ft inside the pond and a catwalk was erected for sampling purpose without disturbing the water column. From the preliminary data analysis, the increase of oxygen content in the water was found to be 25- 35% than the control. A single developed aerator is found sufficient for aeration of a 0.1 ha pond.

### ❖ Movable solar irrigation system for hilly region

The purpose of this work was to evaluate the performance of a solar-powered water pumping system under varying weather conditions in a hilly region at ICAR-VPKAS, Almora. For this, data on solar irradiation, panel temperature, and water discharge was recorded at 1-hour intervals during peak solar hours. In August, average solar irradiation was 439.93 W/m², panel temperature 39.46 °C, and discharge 1.49 L/s, with lower values attributed to monsoon cloud cover. In September, solar irradiation increased to 629.69 W/m², panel temperature to 45.27 °C, and discharge to 2.65 L/s, representing a 78% rise in water output compared to August due to clear skies. These results highlight the strong influence of solar irradiation on system performance and demonstrate its potential for water supply in hilly regions.

## Publications

### Research Articles


- Bala M, Bhinder S, Shivani, Goswami D, Tushir S, Vishwakarma RK and Kotwaliwale N (2025) Advances in dry fractionation techniques for fiber enrichment. *Food and Bioprocess Technology*, https://doi.org/10.1007/s11947-025-04021-2.
- Bala M, Mridula D., Arora S, Kumar SR, Shivani and Vishwakarma RK (2025). Phytoconstituent analysis, secondary metabolite profiling, and antioxidant activities of immature dropped kinnow (*Citrus reticulata*) fruits: Unveiling Nature's Biochemical Treasures. *Indian Journal of Horticulture*. 82 (2): 231-239. DOI: 10.58993/ijh/2025.82.2.16
- Goswami D, Bala M, Mridula D, Vishwakarma RK and Guru PN (2025) Green solvent extraction of health boosting phenolics from pigeon pea husk. *Scientific Reports*, https://doi.org/10.1038/s41598-025-14197-4.

- Harisha R, Ahlawat AK, Balakrishnan AP, Bhavya B, Singhal S, Manjunath KK, Harshitha BS, Shekharapa N, Sonu, Singh V (2025). Exploring the intricate interplay between the physico-chemical and biochemical properties of grain, refined wheat flour, and whole wheat flour in determining chapati (Indian flatbread) quality of wheat (Triticum aestivum L.), *Applied Food Research*, *https*://doi.org/10.1016/j.afres.2025.100956
- Kaur N, Hamid, Shams R, Dash KK, Choudhary P, Mann S, Choudhary P (2025). Extraction of gum from fenugreek seeds: Structural composition and rheological characterization, *Food and Humanity*, 5, 100775. https://doi.org/10.1016/j.foohum.2025.100775.
- Mandge HM , Rehal J, Goswami D, Choudhary A and Kaur P (2025) Unraveling phytochemistry and bio-functionality of black garlic: a systematic review. *Food Science and Biotechnology*. https://doi.org/10.1007/s10068-025-01951-7.
- Misra S, Saha D, Debnath S, and Singh R (2025) Identification and classification of blended fibres using attenuated total reflectance-Fourier transform infrared (ATR-FTIR) spectroscopy coupled with chemometric analysis. *Microchemical Journal*, 114713.
- Rajna S, Vishwakarma A, Padala VK, Raghavendra KV and Chander S (2025) Development and validation of predictive regression model for Brown planthopper population in rice. *Journal of Environmental Biology*, 46, 694-700.
- Rathour K, Sidhu A, Kalia A, Sharma V, Kasana RC, Kaur R (2025) Fes-palygorskite nanocomposite mitigated early chlorosis in direct-seeded rice improving physiological and biochemical attributes. *Plant Physiology and Biochemistry*. 227, 110159
- Selvan SS, Nath A, Samota MK, and Ahlawat A (2025) Studies on volume based mass modelling and physicochemical properties of wild bitter apple fruits grown in the semi-arid region of Punjab. *Vegetos* (Accepted).
- Sethi, S., Mridula, D. and Kumar, P. (2025). Integration of sprouting and extrusion for development of legume-cereal-based pasta. *International Food Research Journal* 32(2): 591-606.
- Tushir S, Bala M, Yadav DN, Kapoor R, and Kataria K (2025) Effect of particle size fractionation and solvent-assisted de-oiling on the physico-chemical properties and protein solubility of rice bran. *Indian Journal of Agricultural Biochemistry*. 38(1): 92-100.


## Books


- Kotwaliwale N, Kalnar Y, Saha D. and Kaukab S (2025) Digital image processing in food and agriculture: Practical examples using MATLAB and Python. Published by Narendra publishing house. ISBN: 978-93-5651-769-1.
- Paschapur AU, Niranjan R, Tulasi B, Kaur S, Guru PN, Kumara KM (2025) Objective entomology - Preparatory guide with MCQs and memory bullets. Elite Publishing House (1st edition, 2025), India. ISBN: 9789371084376. pp - 210.


## Book Chapters


- Dubey A, Choudhary K and Urhe SB (2025) Equipment and machinery involved in pasta processing. In Advances in Pasta Technology (pp. 71-90). Cham: Springer Nature Switzerland.

- Kaukab S, Th. Sunita D, Patil RT, Kulkarni SD, Singh KK (2025). Novel technologies in agricultural processing, Chapter 52 in the Handbook of Agricultural Engineering. Published by ICAR, New Delhi, Second edition ISBN: 978-81-7164-286-1. pp 1200.
- Sethi S, Chaudhary P and Kumar P (2025) Jams, jellies, marmalades, preserves and candied products. In Fruits and Vegetables Technologies - Postharvest Processing and Packaging Eds. Chauhan OP, Springer Nature. pp 395-424.
- Rout RK, Kukde RB, Sivamma P, Kumar A, and Prakash R (2025) Methodology for extraction of essential oil using ultrasonic-microwave-assisted hydro-distillation. In *Essential oil extraction from food by-products*. New York, NY: Springer US. pp 183-217.

## Popular Articles

- अरविंद कुमार अहलावत, रुपिंदर कौर, किशन कुमार पटेल, प्रकाश चंद गुर्जर, रमेश चंद कांटवा, हरेंद्र सिंह दहिया एवं विमल भोभरिया (2025) केवीके आपका परिचय मार्गदर्शक. *प्रंसस्करण प्रगति,* 71-85.
- अरविंद कुमार अहलावत (2025) HD 3428: सिंचित, देर से बोई गयी दशाओ के लिए जलवायु-लचीला, बायो-फोर्टीफ़िएड गेहू किस्म *प्रंसस्करण प्रगति,* 68-70.
- किशन कुमार पटेल, अरविंद कुमार अहलावत, रुपिंदर कौर एवं विमल भोभरिया (2025) संरक्षित खेती में यांत्रिकीकरण एवं तकनिकी विकास. *प्रंसस्करण प्रगति,* 58-63.
- विमल भोभरिया एवं अरविंद कुमार अहलावत. सफलता की कहानी: श्री सुखचैन सिंह - फाजिल्का के फूलो के किसान-एक एकड़ से खिलते हुए उद्यम तक. *प्रंसस्करण प्रगति* 86-87.

## *e -articles*

- Thongam S, Thongam B, Bembem K, Kaukab S and Balakrishnan R (2025) Precooling and refrigerated storage. Slideshare, https://www.slideshare.net/slideshow/precooling-and-refrigerated-storage-pptx/280994340.

## Training manuals

- Guru PN and Urhe SB (2025) Final report of the contract research project entitled "Development of day-night solar insect trap" sponsored by Parashar Agrotech Bio Pvt. Ltd., Varanasi, UP (March-2024 - July-2025) pp-1-60.
- Mann S, Gorrepati K, Sharma N, Dubey A, Das R, and Singh J (2025) Training manual on Post-harvest protocol for Onion. ICAR-CIPHET, Ludhiana, pp 1-102.
- सेठी एस, बाला एम, उरहे एस बी, एवं गुरु पी एन (2025) एस.सी.एस.पी. योजना (भारत सरकार) केअंतर्गतआयोजित "खाद्यान्नों के प्रसंस्करण, भंडारण एवं मूल्य वर्धन पर प्रशिक्षणनियमावली "भा.कृ.अ.प. केंद्रीय कटाई उपरांतअभियांत्रिकी एवं प्रौद्योगिकी संस्थान, लुधियाना, पृष्ठ 1–100
- संदीप मान, कल्याणी गोरेपति, श्रीकृष्ण निशानी, अभिनव दुबे, रवि प्रकाश, राहुल दास, जीवन जोत सिंह (2025) प्याज के लिए कटाई उपरांत प्रबंधन के उपाय, भा.कृ.अ.प. केंद्रीय फसलोत्तर अभियांत्रिकी एवं प्रौद्योगिकी संस्थान लुधिआना।

# ICAR-CIPHET Intellectual Property Rights

## Patents

| S. No. | Title | Application no. | Inventors | Date of filing | Patent No. |
|---|---|---|---|---|---|
| 1. | Chemical-free process for producing dietary fibre enriched powder from P*isum sativum* pod shells | 202511062842 | Manju Bala, Deepika Goswami, Surya Tushir, RK Vishwakarma, N Kotwaliwale | 01.07. 2025 | Filed |
| 2. | On farm maize cob dryer | 202511062572 | Pankaj Kumar, Shagaf Kaukab Sumit Aggarwal, Swati Sethi, Ranjeet Singh, N Kotwaliwale | 01.07.2025 | Filed |
| 3. | Solar powered universal insect trap | 202511071594 | Guru PN Sumit Urhe, Shekar Pandey SS Sekhon N Kotwaliwale | 28.07. 2025 | Filed |
| 4 | Popped Makhana Grading Machine | 202511077426 | RK Vishwakarma Mridula Devi Guru PN SN Jha Ranjeet Singh | 14.08.2025 | Filed |

## Copyright

| S.No. | Title | Date of filing | Diary No | Date of registration | Registration No. | Authors |
|---|---|---|---|---|---|---|
| 1. | Continuous plant for protein production | 02.06.2025 | CF-22179/2025-CO | 28.08.2025 | CF-202506082 | Surya Tushir Manju Bala, Sandeep Mann, DN Yadav N Kotwaliwale |

## Transfer of Technology

| S. No. | Technology | Licensee/ Firm | Licensing fee (Lakh Rs) | Date of license |
|---|---|---|---|---|
| 1. | Pearl millet based composite extrudates | M/s Mahima Healthy Foods, A2/154, 155, Ground Floor and First Floor, New Kondli, Delhi - 110096 through its Proprietor Mr. Himanshu Aggarwal | 0.50 | 19.6.25 |
| 2. | Sorghum based extrudates | | | |
| 3. | Mechanized system for popping and decortications of makhana seeds | M/s dshell (opc) private limited, c-1/254, Sector-51, Noida, Gautam Buddha Nagar, Uttar Pradesh- 201301 | 14.0 | |
| 4. | Ready to constitute makhana kheer mix (Patent no. 287541) | | 0.50 | |
| 5. | Process for preparation of fat free flavoured makhana (420645) | | 0.50 | |
| 6. | Solar Powered Universal Insect Trap (Day/Night) | M/s Parashar Agrotech Bio Pvt. Ltd., Varanasi, UP | 1.0 + GST | 28.07.25 |

## Technology Demonstrations/ FLDs/OFTs

| S. No. | Technologies | Demonstrated at | Date |
|---|---|---|---|
| 1. | Method Demonstrations on making Green Mango products | Dhani Kamayia | 05.08. 2025 |
| 2. | PHET Technologies and Machine to Mr. Nabajyoti Acharya from Vagitus Biosciences | AICRP on PHET, AAU Jorhat | 26.08.2025 |
| 3. | Demonstration cum training of Vivek Millet-cum-pearler | Ran Man, Someshwar, Almora | 11.08.2025 |

## Awareness programs

| S. No. | Title | Venue | Duration | Number of beneficiaries |
|---|---|---|---|---|
| 1. | Awareness program on soil health card and better crop productivity | Alamgarh | 25.06.2025 | 33 |
| 2. | Integrated weed management in kharif crop | KVK-Fazilka | 03.07.2025 | 31 |
| 3. | Awareness program on preventing soil salinity to prevent soil degradation | KVK-Fazilka | 04.07.2025 | 32 |
| 4. | Awareness program on *Ek Ped Ma ke Naam* | Balwana | 05.07.2025 | 27 |
| 5. | Awareness program on importance of kitchen gardening | Dhandi Qadim | 11.07.2025 | 22 |
| 6. | Block level awareness program on crm | Nukeriya | 14.07.2025 | 78 |
| 7. | School level awareness program on CRM | Baluwana | 16.07.2025 | 97 |
| 8. | Village level awareness program on CRM | Burj Mohar | 17.07.2025 | 48 |
| 9. | Village level awareness program on CRM | Mojgarh | 18.07.2025 | 53 |
| 10. | Awareness program on package and practices of pulse crops | Rampur | 28.07.2025 | 40 |
| 11. | Awareness program on CRM | DAV College, Abohar | 10.08.2025 | 122 |
| 12. | District level awareness program on CRM | Kathgarh | 12.08.2025 | 138 |
| 13. | Awareness program on FOM/ LFOM | Kathgarh | 12.08.2025 | 138 |

## *Stakeholder/ officer/ farmer/ exposure visits*

| S. No. | Address of visitors | Number | Date |
|---|---|---|---|
| 1. | Students from Rajasthan Agriculture University, Jodhpur, visited RS, Abohar | 03 | 01.07.2025 |
| 2. | Members of Krishak Bharti Co-Operative Limited (A.O Bathinda) visited Abohar | 42 | 04.07.2025 |
| 3. | Entrepreneurs from Abohar visited for technology demonstrations | 02 | 14.07.2025 |
| 4. | Students visit, Sandip University, Madhubani, | 200 | 10.08.2025 |

## Human Resource Development and Capacity Building

### Human Resource Development

| S. No. | Training title | Venue | Number | Duration |
|---|---|---|---|---|
| 1. | Student training for B.Sc (Hons.) Nutrition and Dietetics student from Punjab Agricultural University, Ludhiana (Punjab) | ICAR-CIPHET, Ludhiana | 1 | 1-31 July 2025 |
| 2. | Student training for B.Tech (Agril. Engg.) students from College of Technology and Agriculture Engineering, Agriculture University, Jodhpur (Rajasthan) | ICAR-CIPHET, Ludhiana | 7 | 1-31 July 2025 |
| 3. | Student training for B.Tech (Agril. Engg.) students from College of Agricultural Engineering and Technology, CCS Haryana Agricultural University Hisar, (Haryana) | ICAR-CIPHET, Ludhiana | 7 | 1-31 July 2025 |
| 4. | CRM Training | KVK Fazilka | 25 | 21-25 July 2025 |
| 5. | Training Program on Micro irrigation, Fertigation and Weed Management in Orchard | KVK Fazilka | 20 | 29-31 July 2025 |
| 6. | Beekeeping Training | Fazilka | 37 | 21-23 July 2025 |
| 7. | Organized a SCSP Training program on 'Processing, storage and value-addition of food grains' under Scheduled Caste Sub Plan to Farmers | *Khanpur* Village of Ludhiana District | 50 | 05-07 August, 2025 |
| 8. | Student training for B.Tech (Agril. Engg.) students from Uttar Banga Krishi Vishwavidyalya, Coochbehar, West Bengal | ICAR-CIPHET, Ludhiana | 10 | 01-30 August 2025 |
| 9. | Student training for B.Tech (Agril. Engg.) students from College of Technology and Engineering, MPUAT Udaipur, Rajasthan | ICAR-CIPHET, Ludhiana | 03 | 01-30 August 2025 |
| 10. | Student training for B.Tech (Agril. Engg.) students from College of Technology Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut-250110 (Uttar Pradesh) | ICAR-CIPHET, Ludhiana | 10 | 04-30 August 2025 |
| 11. | Training on Vermi-compost & Nursery | ICAR-CIPHET, | 21 | 26-27 August |

| | | | | |
|---|---|---|---|---|
| | raising in plastic trays for sustainable agriculture | RS, Abohar | | 2025 |
| 12. | SCSP training for Woman on Designing Tech. of Fabric through Stitching and Tailoring | KVK Fazilka | 25 | 11 August -10 September 2025 |
| 13. | CRM Training | KVK Fazilka | 25 | 18-22 August 2025 |
| 14. | Techniques for to produces high quality cotton and crop seed for sustainable farming | Shergarh | 25 | 20-22 August 2025 |
| 15. | Scientific cultivation practice and Culter front line demonstration in oil seed crops | KVK- Fazilka | 30 | 25-27 August 2025 |
| 16. | SCSP Sponsored Training on Bakary and Biscuit making | ICAR–CIPHET, RS Abohar | 25 | 25-27 August2025 |
| 17. | SCSP Sponsored Training on Field Demonstration of Eco -Friendly Insect Pest Management in Fruits and Training on Value Addition | ICAR-CIPHET, RS Abohar | 50 | 28-29 August 2025 |
| 18. | Value addition of Spices | ICAR-CIPHET | 2 | 19-21 Aug 2025 |
| 19. | Student training for B.Tech (Agril. Engg.) students from ICAR-IARI, New Delhi | ICAR-CIPHET, Ludhiana | 10 | 01-30 September 2025 |
| 20. | Student training for B.Tech (Agril. Engg.) student from College of Animal Biotechnology, Guru Angad Dev Veterinary And Animal Sciences University, Ludhiana (Punjab) | ICAR-CIPHET, Ludhiana | 01 | 01-30 September 2025 |
| 21. | Student training for B.Tech (Agril. Engg.) students from College of Agricultural Engineering, JNKVV, Jabalpur | ICAR-CIPHET, Ludhiana | 3 | 01-30 September 2025 |
| 22. | Training to B. Tech (Agri. Engineering) students from different colleges at AS & EC division. Lab Demonstration on Non-Destructive Techniques. | AS & EC Division, ICAR-CIPHET | 14 | 02-08 September 2025 |
| 23. | Dr. S Nishani and Dr. Abhinav Dubey Imparted the training to the farmers on Improved Onion Storage Structures | Nashik and Pune | 180 | 09-10 September 2025 |

## Skill Development

| S. No. | Name | Title of the programme | Venue | Duration |
|---|---|---|---|---|
| **1.** | S Kaukab<br>Th. Sunit<br>Ritu Kukde | Workshop on Hands-on Workshop for Agri-Scientist "Cultivating Intelligence: MATLAB for Agri-Innovation | ICAR-NISA, Ranchi, Jharkhand | 3 days |
| 2. | Leena Kumari<br>Th. Sunita<br>Ritu Kukde<br>Navnath Kale<br>A Dubey<br>S Nishani | Online workshop on AI-enabled computer vision systems for advanced food quality evaluation | Organized by NIT Rourkela | 5 days |
| 3. | S Mohapatra | Tools and Techniques for Advanced Analytics in Social Science Research | ONLINE (IFPRI & IARI) | 12 days |
| 4. | S Mann<br>A Dubey | Attended RESETI: Dialogues to reduce food loss and waste in India | WRI Project, New Delhi | 2 days |
| 5. | S Mann,<br>R Prakash<br>A Dubey | Brainstorming on "Animal Structures and Food Systems: A Cross-Disciplinary Dialogue | ICAR-CIRG, Mathura | 2 days |

## Awards/Recognition

| S. No | Name of the awardee | Name of award | Awarded from |
|---|---|---|---|
| 1. | Manju Bala<br>Deepika Goswami<br>Mridula D<br>R K Vishwakarma<br>N Kotwaliwale | Technology award for 'Process technology for extraction of hesperidin from immature dropped *kinnow* fruits' | ICAR |
| 2. | RC Kasana | National Conference on Mushroom Biology and Products: Current Status and Future Trends | ICAR-DMR, Solan, |
| 3. | Karnail Singh, Farmer associated with KVK Fazilka | Progressive and Visionary Farmer Award | District Administration, Fazilka |
| 4. | Ravi Prakash | Best Early Career Researcher Poster Award –Special Mention; Sponsored by Future Food Journal, Elsevier. | Future Food Congress - 2025, Singapore |
| 5. | Ravi Prakash | Received Travel Grant from ANRF, Govt. of India for a paper presentation and participating in "Future Foods Congress 2025, Singapore (16 -18 June, 2025)" | *Anusandhan* National Research Foundation, Govt. of India |

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

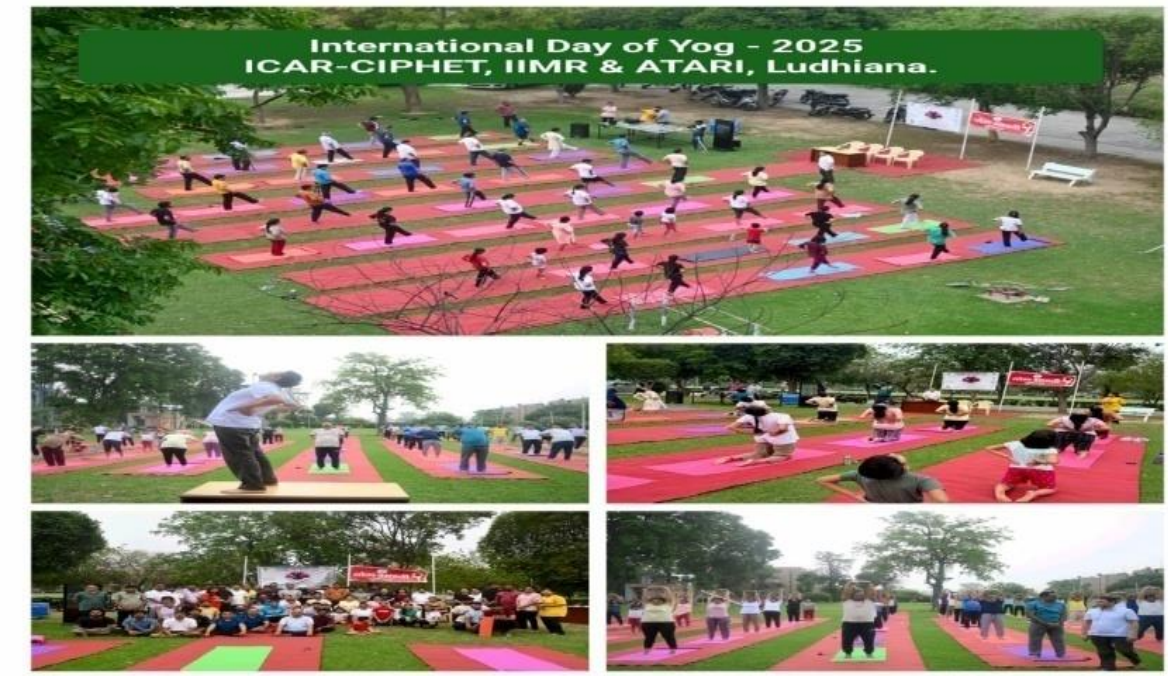
| S. No. | Name | Conference/ symposia/ workshop/ meetings, etc | Venue | Date |
|---|---|---|---|---|
| 1. | Guru PN | Attended the meeting of FAD3 (Apiary sectional committee) and organizing secretary of the National Seminar onApiculture | Organized by BIS New Delhi, at ICAR-CIPHET Ludhiana | 20.07.2025 |
| 2. | K Bembem | Official Language Department Golden Jubilee Celebration | Ministry of Home Affairs at Bharat Mandapam Convention Centre, New Delhi. | 26.07.2025 |
| 3. | R C Kasana, | National Conference on Mushroom Biology and Products: Current Status and Future Trends | ICAR-DMR, Solan, HP | 7.08.2025-8.08.2025 |
| 4. | Ravi Prakash | Pre-Bid Meeting for Grain Analyzer & Cleaning, Grading & Packaging Plant Tenders | Madhya Pradesh State Agricultural Marketing Board, Bhopal | 10.09.2025-11.09.2025 |
| 5. | Poonam R C Kasana | Biotech Interventions in Maize: Challenges and Opportunities | ICAR-Indian Institute of Maize Research, Ludhiana, and Biotech Consortium India Limited (BCIL), New Delhi | 1.09.2025 |
| 6. | MK Samota | Statistical Computing and Analysis of Survey data in agricultural research: methods and techniques | ICAR-IASRI | 9.09.2025-15.09.2025 |

## Personalia

| Name of the official | Date of joining/ transfer/ promotion/ retirement | Designation |
|---|---|---|
| Dr. Shubham Rohila | 07.07.2025 (Joining) | Scientist |
| Dr. Sawant Sanket Ramnath | 07.07.2025 (Joining) | Scientist |
| Dr. Mahangade Priyanka Sharad | 07.07.2025 (Joining) | Scientist |
| Mr. Vishal Kumar | 22.07.2024 (Promoted as STO) | Senior Technical Officer |
| Mr. Lakshay | 05.08.2025 (Resigned) | Assistant |

## Important Events

### ❖ ICAR- CIPHET, Ludhiana celebrated International Day of Yoga-2025




The ICAR-Central Institute of Post-Harvest Engineering and Technology, Ludhiana, celebrated the International Day of Yoga with great enthusiasm and participation on 21st June 2025. The event was organized to promote awareness about the importance of physical and mental well-being through yoga, aligning with this year's theme: *"Yoga for Self and Society."* The celebration began early in the morning at the institute premises with a brief inaugural session. A guided yoga session was conducted by a certified yoga instructor Dr. Shiv kumar from Yog Bharathi Sansthan, Ludhiana. The session included a series of asanas, pranayama suitable for all age groups. Scientists of CIPHET, IIMR, ATARI Zone I, technical staff, and students actively participated in the session, making it a vibrant and rich experience. Dr. Nachiket Kotwaliwale, Director of ICAR-CIPHET, addressed the gathering and emphasized the significance of incorporating yoga into daily life. He highlighted how yoga not only improves individual health but also contributes to productivity and harmony in the workplace. The event concluded with a vote of thanks by Er. Ritu Kukde and the collective recitation of a yoga pledge, reaffirming ICAR-CIPHET's commitment to promoting wellness and sustainable lifestyles among its community. The celebration was a success in encouraging participants to adopt yoga as a regular part of their lives and reflected the institute's continued efforts to support initiatives of national importance.

### ❖ Inauguration of new Vollyball sports facilities at ICAR-CIPHET

Director, ICAR-CIPHET Dr. Nachiket Kotwaliwale Inaugurated new Vollyball facility at the ICAR-CIPHET Ludhiana premises on 3rd July 2025. The newly inaugurated volleyball court at ICAR-CIPHET in Ludhiana was unveiled in a spirited ceremony marking the institution's ongoing commitment to holistic staff and student well-being. The state-of-the-art facility, complete layout and boundary fencing, offers a modern space for both casual play and organized tournaments. The event, emphasizes the role of sports in building teamwork and fostering a healthy workplace culture. With this addition, the institute reinforces its aim to balance rigorous research with recreational excellence.

### ❖ Live telecast for the disbursement of the 22nd installment of *Pradhan Mantri Kisan Samman Nidhi* (PM-kisan) scheme

On 2nd August 2025, Prime Minister Narendra Modi released the 20th installment of the Pradhan Mantri Kisan Samman Nidhi (PM-Kisan) scheme from Varanasi, Uttar Pradesh marking the day as PM-Kisan Day. Through this initiative, a total of ₹20,500 crore was directly transferred to the bank accounts of nearly 9.7 crore farmers across the country under the Direct Benefit Transfer (DBT) system. To expand the reach of this significant event, the government organized virtual broadcast functions at various institutions, including the ICAR-Central Institute of Post-Harvest Engineering and Technology (CIPHET) in Ludhiana, Punjab. The function at ICAR-CIPHET Ludhiana served as a vital link in ensuring transparency and inclusivity, enabling t farmers in Punjab and neighboring regions to be part of the national scheme. This satellite function allowed farmers, officials, and stakeholders in the region to witness the live proceedings from Varanasi and take part in the nationwide celebration.

### ❖ Independence day celebration

Independence Day celebrated at ICAR-CIPHET, Ludhiana and Regional Station, Abohar. A Special tree plantation drive was also organized under "*Ek Ped Maa Ke Naam*" campaign.



## ❖ Farmer-Scientist interaction meeting

KVK Fazilka, ICAR-CIPHET, Abohar successfully organized a Farmer-Scientist Interaction meeting and webcasting of the Hon'ble Prime Minister's address on the occasion of the release of the 20th instalment of PM-Kisan Samman Nidhi on 02nd August 2025 at 11:00 AM. A total of 257 farmers participated in the program. The event featured insightful interactions with agricultural scientists and enthusiastic participation by the farming community.

## Media Coverage

# Pest in peace: Solar trap zaps the chemical farming habit

Gurvinder.Singh
@timesofindia.com

**Ludhiana:** Scientists have unveiled a solar-powered insect trap designed to reduce pesticide use and protect farmer health, potentially reshaping pest control across the country's agricultural landscape.

Developed by researchers at the ICAR-Central Institute of Post-Harvest Engineering and Technology (ICAR-CIPHET), the Day-Night Solar Insect Trap offers round-the-clock pest control using blue light instead of ultraviolet (UV), which is known to harm human eyesight and health. "This trap is an improvement over existing technologies," said Guru P N, one of the lead developers. "The specific wavelength of blue light is safer for humans while effective in attracting insects."

The entire unit is solar-powered, eliminating dependence on batteries or electricity. Its adjustable height (ranging from 5 to 8 feet) makes it compatible with a wide range of crops and farming environments. Ranjeet Singh, head of the institute's technology transfer unit, said trials had demonstrated a significant reduction in pest populations, leading to lower pesticide use.

# किसान कृषि प्रसंस्करण को बढ़ावा देने को आगे आएं : डा. अमित नाथ

## केवीके में पीएम किसान सम्मान निधि के अवसर पर किसान जागरूकता कार्यक्रम

सवेरा न्यूज/धर्मवीर

अबोहर, 3 अगस्त : कृषि विज्ञान केंद्र अबोहर पर शनिवार को पीएम किसान सम्मान निधि की 20वीं किस्त जारी करने के सम्बंध में किसान जागरूकता कार्यक्रम का आयोजन किया गया। इस अवसर पर कृषि विज्ञान केंद्र के हैड डा. अरविंद कुमार अहलावत ने किसानों का अभिनंदन करते हुए कृषि विज्ञान केंद्र द्वारा किसानों के लिए करवाई जाने वाली विभिन्न गतिविधियों से अवगत करवाया। डा. अमित नाथ हैड क्षेत्रिय केंद्र सीफेट अबोहर द्वारा किसानों को कृषि प्रसंस्करण को बढ़ावा देने का आग्रह किया। डॉ जगदीश कुमार अरोड़ा जी द्वारा फसलों में होने वाले विभिन्न रोगों की रोकथाम के उपाय बताए गए।

मंच पर उपस्थित सीफेट व केवीके के अधिकारियों के अलावा अन्य विशेषज्ञ।

डा. मनप्रीत सिंह द्वारा कपास की फसल के संबंध में विभिन्न उपयोगी जानकारी साझा की, डॉ मनदीप सिंह द्वारा पशुपालकों को पशुओं में होने वाली मौसमी बीमारियों से रोकथाम के विभिन्न तरीके बताये तथा समय अनुसार पशुओं का टीकाकरण करवाने का सुझाव दिया। कृषि विज्ञान केंद्र मे पृथ्वीराज, डॉ रूपेंद्र कौर, हरेंद्र सिंह दहिया, डॉ रमेश चंद कांटवा, राजेश कुमार एवं विमल भोभरिया भी उपस्थित रहे। कार्यक्रम में कुल 200 से अधिक किसानों एवं महिलाओं ने भाग लेकर कार्यक्रम को सफल बनाया।




# उच्च गुणवत्ता वाले कपास बीज उत्पादन पर तीन दिवसीय प्रशिक्षण कार्यक्रम


किसानों को जानकारी प्रदान करते केवीके अधिकारी।

**सवेरा न्यूज/धर्मवीर, अबोहर, 20 अगस्त :** कृषि विज्ञान केन्द्र व सीफेट अबोहर द्वारा टिकाऊ खेती के लिए उच्च गुणवत्ता वाले कपास और फसल के बीज उत्पादन की तकनीकें पर तीन दिवसीय प्रशिक्षण कार्यक्रम बुधवार से शुरूआत की गई। इस कार्यक्रम का आयोजन डॉ अरविंद कुमार अहलावत के निर्देशन में किया गया और इस प्रशिक्षण कार्यक्रम का ट्रेनिंग कोऑर्डिनेटर हरेंद्र सिंह दहिया, को-कोऑर्डिनेटर डॉ प्रकाश चंद गुर्जर, डॉ रमेश चंद कांटवा व पृथ्वीराज ने किसानों को कपास की फसल में रोग एवं कीट प्रबंधन के बारे में जानकारी दी।

दैनिक सवेरा टाइम्स

# जिला स्तरीय फसल अवशेष प्रबंधन जागरूकता कार्यक्रम

सवेरा न्यूज/धर्मवीर

अबोहर, 12 सितंबर : कृषि विज्ञान केंद्र, सीफेट अबोहर ने गांव काठगढ़ में जिलास्तरीय फसल अवशेष प्रबंधन जागरूकता कार्यक्रम का आयोजन किया गया। कार्यक्रम का शुभारंभ डॉ. अरविंद अहलावत, प्रमुख वैज्ञानिक एवं प्रमुख, कृषि विज्ञान केंद्र, तथा अन्य वैज्ञानिकों एवं स्टाफ सदस्यों के गर्मजोशी से स्वागत के साथ हुआ। कार्यक्रम की तकनीकी सत्र की शुरूआत विशेषज्ञों के व्याख्यान से हुई, जिसमें पराली प्रबंधन, मिट्टी स्वास्थ्य प्रबंधन, रोग एवं कीट प्रबंधन आदि विषयों पर विस्तृत जानकारी दी गई। पृथ्वीराज ने किसानों को संबोधित करते हुए पराली प्रबंधन के महत्व पर प्रकाश डाला और किसानों से इसे अपनाने की अपील की। डॉ. रूपिंदर कौर ने विभिन्न कृषि उत्पादों के पश्चात कटाई प्रसंस्करण के बारे में बताते हुए ग्रामीण महिलाओं को द्वितीयक कृषि से अधिक से अधिक लाभ उठाने पर बल दिया। डा. प्रकाश चंद गुर्जर ने एकीकृत पोषक प्रबंधन और मिट्टी की सेहत पर फसल अवशेष जलाने के दुष्प्रभावों की चर्चा की। डॉ. जगदीश अरोड़ा ने कीट एवं रोग प्रबंधन तकनीकों की जानकारी देते हुए फसल उत्पादकता बढ़ाने के उपाय किसानों को बताए। कार्यक्रम के समापन सत्र में डॉ. किशन पटेल ने फसल अवशेष प्रबंधन परियोजना के अंतर्गत विभिन्न योजनाओं जैसे प्रशिक्षण कार्यक्रम, प्रदर्शनी एवं जागरूकता गतिविधियों के बारे में विस्तार से जानकारी दी।


कार्यक्रम के दौरान संबोधित करते हुए वक्ता।

उन्होंने किसानों को हैपी सीडर, सुपर सीडर, मल्चर आदि आधुनिक कृषि यंत्रों के उपयोग के लिए प्रेरित किया। काठगढ़ गांव में आयोजित यह जिला स्तरीय जागरूकता कार्यक्रम न केवल किसानों को नई तकनीकों और योजनाओं से अवगत कराने में सफल रहा बल्कि पराली प्रबंधन और सतत कृषि की दिशा में एक महत्वपूर्ण पहल साबित हुआ। अंत में डॉ. पटेल ने सभी विशेषज्ञों, सरपंच गुरदेश सिंह, कनैल सिंह, ग्राम पंचायत सदस्यों व किसानों का धन्यवाद करते हुए किसानों से कृषि विज्ञान केंद्र से जुड़कर अधिक से अधिक लाभ लेने की अपील की।

epaper.dainiksaveratimes.in

# फसल अवशेष प्रबंधन प्रशिक्षण सफलतापूर्वक संपन्न

सवेरा न्यूज/धर्मवीर

अबोहर, 23 अगस्त : कृषि विज्ञान केंद्र, क्षेत्रीय केंद्र सीफेट अबोहर द्वारा 18 से 22 अगस्त तक चली 5 दिवसीय फसल अवशेष प्रबंधन प्रशिक्षण कार्यक्रम सफलतापूर्वक सम्पन्न हुआ। इस प्रशिक्षण में क्षेत्र के किसानों, मशीनरी संचालकों एवं हितधारकों ने सक्रिय भागीदारी की। समापन अवसर पर मुख्यातिथि डा. अमित नाथ (प्रमुख, सीफेट अबोहर) ने कहा कि धान की पराली जलाना पर्यावरण व मानव स्वास्थ्य के लिए गंभीर समस्या है। उन्होंने किसानों से अपील की कि वे आधुनिक सीआरएम तकनीकों जैसे हैप्पी सीडर, सतह बीजरोपण, बायोचार निर्माण एवं पुआल से मूल्य संवर्धन की विधियों को अपनाकर न केवल पर्यावरण संरक्षण करें बल्कि मिट्टी की उर्वरता भी बढ़ाएं। केवीके हैड डॉ. अरविन्द अहलावत ने प्रशिक्षण की गतिविधियों की जानकारी दी और किसानों को वैज्ञानिक ढंग से पराली प्रबंधन अपनाने पर बल दिया। डॉ. किशन पटेल (विषय विशेषज्ञ, कृषि अभियांत्रिकी) ने मशीनों के संचालन व रख-रखाव की तकनीकी जानकारी साझा की। इसके अतिरिक्त डॉ. प्रकाश ने मृदा स्वास्थ्य एवं मृदा परिक्षण की जानकारी प्रदान की। कार्यक्रम में केवीके के हरेंदर दहिया, डॉ रमेश, डॉ रूपेंदर कौर एवं अन्य अधिकारी एवं कर्मचारी ने भी प्रशिक्षण के सफल आयोजन में सक्रिय भूमिका निभाई। कार्यक्रम के अंत में प्रतिभागियों ने पराली को आग न लगाकर खेती करने का संकल्प लिया। सभी प्रतिभागियों को प्रमाण पत्र वितरित किए गए।


प्रतिभागियों को किट बांटते अधिकारी।