

ISO 9001-9015 Organization

ICAR-CIPHET NEWS



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FROM DIRECTOR'S DESK



I am delighted to join ICAR- Central Institute of Post-Harvest Engineering and Technology (CIPHET), which is one of the premiere institute that undertakes lead research in the area of the post-harvest engineering, value addition technologies and reduction in drudgery of farmers through adoption of appropriate design and technologies. The institute is also engaged in human resource and entrepreneurship development related to post-harvest operations performed on-farm as well as off-farm in order to minimize the post-harvest losses and empower the rural community.

This issue of the newsletter includes research and development of technologies such as makhana seed collector for collection of makhana seeds from the bottom of water body, hermetically sealed storage structure for pulses, performance evaluation of hot air maize cob dryer, optimized process for the extraction of mango seed kernel oil using Supercritical Fluid Extraction etc. During this quarter, two ICAR-CIPHET technologies namely 'Mechanized system for primary roasting of raw makhana seeds and process thereof' and 'Process for preparation of alcoholic beverage with nutraceutical properties from kinnow peels' were licensed. Custom hiring services of makhana processing plant is also provided to a Ludhiana based firm. Farmers training, entrepreneurship development programmes and skill development training under SCSP were conducted taking all precautionary measures of Covid-19. Virtual Business Meet on Post-harvest and value addition technologies developed by the Institute was held on 10 Dec, 2020 which was a great success in terms of number of attendees. Beside this, ICAR-CIPHET Ludhiana has organized three-day in-house HRD training programme for 10 staffs.

Dr. Nachiket Kotwaliwale



ICAR-Central Institute of Post-Harvest Engineering and Technology

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RESEARCH HIGHLIGHTS

Makhana seeds collector

Collection of makhana seeds from the lakes is the most labor intensive and tedious operation in makhana processing. Therefore, a model system to collect the seeds from the lakes was fabricated. It is a hand operated system in which a screen made from mild steel bars is placed in a specified shape. The front part of system is to guide the seeds towards a collection point from where the seeds can be taken out. A pair of handle is provided to push the system at the bottom of the lakes. The handle is placed at 750 mm from ground level. The collection system is at present undergoing field evaluation. The fabricated hand tool model was evaluated in the lakes in the initial test. The system was operating properly and could collect the 25-40 mm material present at the lake bottom. Based on the feedback and observations during trails, necessary modification would be incorporated in the system.



Fig 1: Conventional Makhana Seeds Collection

Development of hermetically sealed storage structure for 1 tonne pulses

A one-tonne storage structure was developed for carbon dioxide fumigation of pulses. The developed structure is IoT (Internet of Things) based smart structure that controls and monitors fumigation as per pre-developed protocol. The protocol was already developed and tested in lab scale model. The

parameters like carbon dioxide concentration and fumigation time can be easily set. The fumigation system was deployed for effective disinfection of green gram. It includes three sensor modules that are embedded in grain bin, control panel, control valves, carbon dioxide cylinder, and distribution system. Each sensor module has a carbon dioxide sensor, temperature & RH sensor, and a display unit, and one among the three modules has an oxygen sensor also. These sensor modules are placed at three depths of one-tonne storage bin for monitoring and measurement of different parameters. The supply of CO₂ is regulated by a control panel which consists of a controller card, SMPS, solid state relay, solenoid valve, and HMI LED display. The data logging is performed by a Wi-Fi-connected data-logger that transmits data to a Induscloud server that can be accessed and controlled from any remote location by using a computer or a smart phone device.

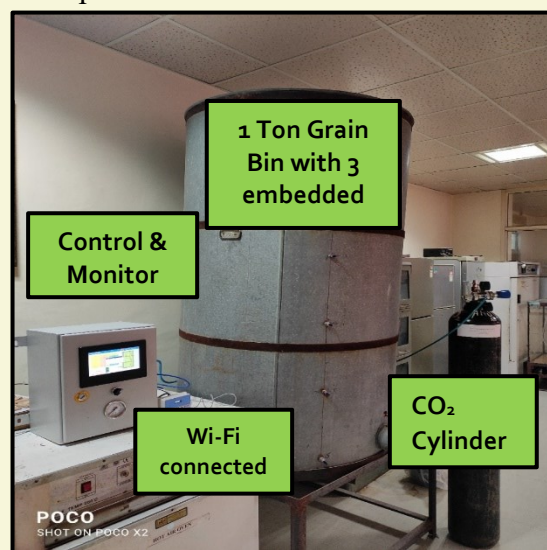


Fig 2: Hermetically sealed storage structure

Optimized process for extraction of mango seed kernel oil using supercritical fluid extraction

Response surface methodology (RSM-Box Behnken Design) was used to optimize the extraction process for mango seed kernel

oil with the factors A: Pressure (300-450 Bar), B: Temperature (50-70 °C), C: Time (30-60 min) with three central points. The model was found significant with probability <0.05. The linear terms pressure, time and interaction effect of pressure and time showed significant effect on mango seed kernel yield. The optimum conditions for maximum oil yield obtained as follows: pressure- 400 Bar; temperature- 63°C and time of 52 min. The predicted mango seed kernel oil yield was 7.52% and the results were validated.

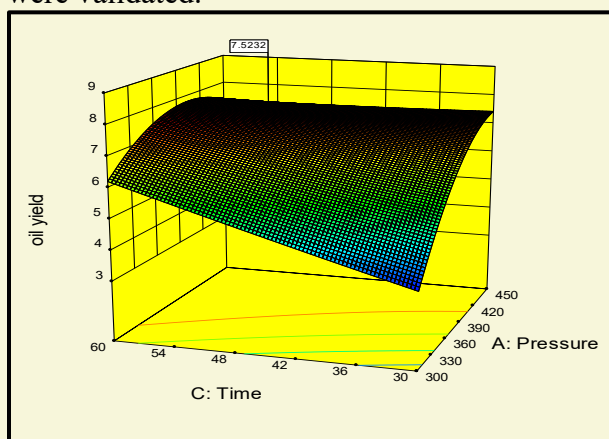


Fig 3: Interaction effect of pressure and time on mango seed kernel oil yield

Evaluation of antioxidant and antimicrobial activity of mango seed kernel extracts

The mango seed kernel extracts were prepared in different solvents such as methanol, acetone and water to evaluate the antioxidant activity using DPPH and ABTS methods. The maximum DPPH antioxidant activity was found in the methanolic extracts (88.37%) following acetonic extracts (85.03%) and water extracts (75.11%). The antioxidant activity via ABTS method showed 89.43%, 78.16% and 67.5% antioxidant activity in methanolic, acetonic and water extracts, respectively. It was found that the methanolic extract showed maximum antioxidant activity in both methods. Further, antimicrobial potential of the mango seed kernel methanolic extracts were evaluated

against bacteria (*Xanthomonas campestris* and *Escherichia coli*) using well diffusion method using different concentration of methanolic extract. Streptomycin was used as positive control whereas methanol was used as negative control. It was found that the antibacterial activity of mango seed kernel extract with concentration of 200 mg/ml showed maximum zone of inhibition.

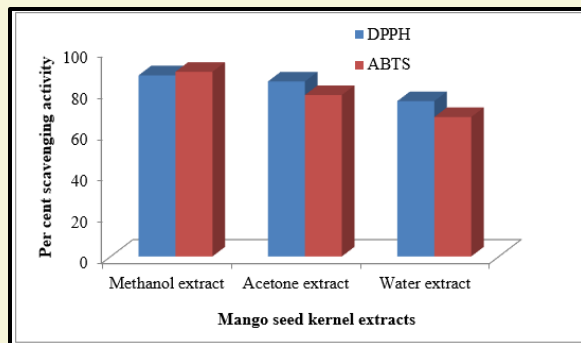


Fig 4: Antioxidant activity of mango seed kernel extracts

Maize cob dryer

Maize cobs are harvested at around 35% (wb) moisture content and shelling operation is performed at around 17% moisture content (wb). At the time of harvesting, the environmental conditions; high temperature and relative humidity favour the growth of some fungal species that produce toxic by-products called mycotoxins. The main factor that favours fungal growth is high moisture content during harvest, and high RH. Contamination by mycotoxin can be alleviated by drying the maize cobs soon after harvesting. Therefore, a maize cob dryer has been designed and developed. The performance evaluation of the hot air maize cob dryer with respect to drying efficiency, power consumption and Heat Utilization Factor (HUF) was done. The maize cob (with husk, batch size 150 kg), with initial moisture content $39.13 \pm 2.09\%$ wet basis were dried at 60°C up to final moisture content of $17.51 \pm 1.49\%$ wb. The dryer was run for 22-24h following three stages drying with 7-8h

intermittent cooling to achieve the desired moisture level of the dried cob. It took 7.75 ± 0.43 min for loading the dryer bin while 9.85 ± 0.85 min for unloading of the dryer. In the beginning, the HUF was high as 0.86 and afterwards reduced to 0.47. The thermal efficiency was found as $79.63 \pm 1.54\%$. The average power consumption of the dryer was found to be 1.07 ± 0.04 kWh with an operating cost of Rs 10/- per hour (approx.).



Fig 5: Demonstration of maize cob dryer

PUBLICATIONS

Research Paper

- Bala M, Handa S, Mridula D & Singh RK (2020) Physicochemical, functional and rheological properties of grass pea (*Lathyrus sativus* L.) flour as influenced by particle size. *Heliyon (Elsevier)* 6:e05471, 1-10. DOI: 10.1016/j.heliyon.2020.e05471
- Ghodki BM, Srihari G, Dukare AS, Kannaujia PK, Kalnar YB, & Vishwakarma RK (2020) Potential utilization of guar straw and wood wool in controlling relative humidity and temperature of storage environment. *Journal of Food Process Engineering*. DOI:10.1111/jfpe.13618
- Gupta K, Jaiswal P, Gupta H, Anurag RK, Nain L & Prasanna R (2020) Exploring the potential of Aloe vera as a carrier for developing a novel cyanobacterial formulation. *South African Journal of Botany*, 135 (12): 437-443
- Jeet P, Ghodki BM, Amat D, Anuja AR, Balodi R & Upadhyaya A (2020). Enhancement of land and water productivity through participatory rural appraisal. *Journal of AgriSearch*, 7(4): 234-240 <http://jsure.org.in/journal/index.php/jas/article/view/733>
- Kasana RC, Singh SK & Kumar P (2020) Antifungal activity of copper oxide nanoparticles against the fungal pathogens isolated from arid environment of Jodhpur. *International Journal of Current Microbiology and Applied Sciences*, 9(11) 901-909.
- Khrasi A, Nath KG, Bembem K & Sharmila K (2020) Physico-chemical properties of potato cultivars for their processing suitability. *Journal of AgriSearch*, 7(4): 228-233.
- Kumar Y (2020) Isothermal amplification-based methods for assessment of microbiological safety and authenticity of meat and meat products, *Food Control*, 121, 107679
- Kumar Y & Narsaiah K (2020) Rapid point-of-care testing methods/devices for meat species identification: A review" *Comprehensive Reviews in Food Science and Food Safety*, DOI:10.1111/1541-4337.12674
- Kumari K, Mridula D. Kishore A & Chitranayak (2020) Extrusion processing of agri-horti and dairy products: A review. *International Journal of Chemical Studies*, 8(1): 1424-1433.
- Mridula D, Saha D, Gupta RK, Bhadwal S, Arora S, Kumar P & Kumar SR (2020) Oil expelling from whole and dehulled sunflower seeds: Optimization of screw pressing parameters and physico-chemical quality. *International Journal of Chemical Studies*, 8(4): 4002-4009.

11. Narsaiah K, Sridhar K & Sharma M (2020) Development of functional bread with flaxseed oil and garlic oil hybrid microcapsules. *LWT Food Science and Technology*, DOI:10.1016/j.lwt.2020.110300
12. Saha D, Kumar ATV, Sethi S, & Indore Navnath (2020) Physical properties, pasting characteristics and rheological behavior of paddy varieties suitable for flaking. *Food Science and Engineering*, 1(2). DOI:10.37256/fse.122020617.
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14. Sethi S, Nanda SK & Bala M (2020) Quality assessment of pasta enriched with anthocyanin-rich black rice bran. *Journal of Food Processing and Preservation*, DOI:10.1111/jfpp.14952.
15. Sethi S, Yadav DN, Snigdha S & Gupta A (2020) Optimisation of process parameters for extraction of protein isolates from khesari dhal (*Lathyrus sativus* L.). *LWT- Food Science and Technology*, DOI:10.1016/j.lwt.2020.110368
16. Singh RK, Narsaiah K, Kalnar YB & Ghodki BM (2020). e-Leaflet on Pandemic and its impact: Post-harvest operation, pp. 1-5 (e-leaflet)
17. Th. Bidyalakshmi Devi, K. Bembem and Thongam Sunita (2020). Agricultural Engineering as career option. <https://www2.slideshare.net/LakshmiKhuman/agricultural-engineering-as-career-option-239313731>
18. Surya Tushir, S.K. Tyagi, V. Chandrasekar, A.K. Jaiswal (2020). Microbial protein using corn cob in creating wealth from agricultural

waste, Indian Council of Agricultural Research, New Delhi. p. 9.

19. Tushir S, Tyagi SK, Chandrasekar V, Jaiswal AK (2020). Utilization of corn cob powder for kulhad making in creating wealth from agricultural waste, Indian Council of Agricultural Research, New Delhi. p. 10.

Training Manual

- Sethi S, Mridula D & Singh R (2020) Training Manual for Skill Development Training on 'Processing and Value Addition of Cereals' under Schedule Caste Sub Plan (SCSP) scheme, pp 118.

Agri-Business Incubation (ABI)

- Custom hiring services of makhana processing plant at the rate of Rs 20/- (based on cleaned raw makhana seed) is being given to Sh. Bhawnik Singh from 'PVK Associates', Ludhiana engaged in makhana trading business.

TRAININGS

- ICAR-CIPHET organized three days online training program on "Post-Harvest Management of Agricultural Produce during Natural Calamities/Disaster" from 19-21 Oct, 2020 through video conferencing mode, in collaboration with the National Institute of Disaster Management (NIDM), New Delhi.



Fig 6: Online training program

- **Hands on Training**

Hands-on training on 'Preparation of soy milk and tofu' was conducted for two aspiring entrepreneurs from Jalandhar during 8-9 Oct, 2020.

- **Crop residue management (CRM) demonstration**

CRM was demonstrated by KVK, ICAR-CIPHET, Abohar using Happy seeder, mulcher and zero tillage Machine at Khuhikhera and Ghubaya (Jalalabad), Dhani Chirag, Awa and surrounding area of Abohar. Villagers were also trained on kitchen gardening and vegetable seed were also distributed.



Fig 7: Crop Residue Management (CRM) demonstration.

Skill development training under SCSP

A three days skill development training on processing and value-addition of cereals under Scheduled Caste Sub Plan (SCSP), was conducted from 25-27 Nov, 2020 at ICAR-CIPHET, Ludhiana. The programme was inaugurated on 25 Nov, in the presence of I/c

Director, ICAR-CIPHET, Dr. R.K. Singh and Sarpanch S. Brijender Singh of Malakpur village, Ludhiana. A total of 15 participants from weaker section of the society were provided hands-on training. A series of lectures on processing and value addition of cereals were taken by experts. Hands-on training was provided for milling of cereals, preparation of value-added products such as nutritious functional flour, value added products from wheat, barley, popped maize and sorghum and bakery products such as gluten free muffins. On the occasion the participants were given a kit comprising of processing hand tools. A training manual entitled 'Processing and Value-Addition of Cereal' was also released and distributed to the beneficiaries for knowledge sharing.



Fig 8: Skill development training participants.

- One day farmers training of Rabi crops Management was conducted by Krishi Vigyan Kendra, ICAR-CIPHET on 03 Dec, 2020. In this training program 40 farmers from surrounding villages Ramsra, Wahabwala, Bawalwasi, Jhurar Khera were trained on latest rabi crops management technique (Fertilizer, Diseases management techniques details were discussed).

Farmers training on world soil health day

One day farmers training of soil management was conducted by Krishi Vigyan Kendra, ICAR-CIPHET on 05 Dec, 2020. In this training program 21 farmers from

surrounding villages Raipura, Rajan wali, Jhurar khera were trained on soil health management technique. Soil sampling technique and soil management technique were discussed in detail.



Fig 9: Farmer training

Training on demonstration of fruit and vegetable processing machine

One day farmers training and demonstration of fruit and vegetable processing machine was conducted by Krishi Vigyan Kendra, ICAR-CIPHET on 11 Dec, 2020. In this training program 40 farmers from surrounding villages Bahawal Bassi, Gobindgarh, Dharampura, Jhurarkkhera, Pakki Tibbi were trained.



Fig 10: Farmer training

Farmer's training and awareness program on warehousing

One day farmers training and awareness program on warehousing (Development & Regulation Act 2007) was conducted by Krishi Vigyan Kendra, ICAR-CIPHET, Abohar in collaboration CWC Abohar on 15 Dec, 2020. In this program 50 farmers from surrounding villages Kera Khera, Bahawak Bassi, Jhurar Khera, RamSara, Jandwala Hanwanta, Katehra, Mehrana, Dharmapura, Kular, Ajingarh, Seedfarm, Sanghria, Amarpura Khat participated.

In-house HRD training programme conducted

The institute organized a three-day in-house HRD training programme for 10 participants on "Effective health management for enhancing work efficiency of ICAR employees" during 28-30 Dec, 2020. The objective was to acquaint the participants regarding managing their health effectively such that they are able to discharge their duties efficiently in these pandemic (COVID-19) times. The training comprised of sessions on physical health, mental health, stress management, etc. through both online and offline mode.



Fig 11: HRD training programme

Virtual business meet on post-harvest and value addition technologies

The ICAR-Central Institute of Post-Harvest Engineering & Technology, Ludhiana (Punjab) organized a Virtual Business Meet on post-harvest and value addition technologies developed by the institute on 10 Dec, 2020. The meeting aimed at showcasing some recently developed technologies to the prospective stakeholders, food processors, entrepreneurs, impending start-ups, machinery manufacturers, farmers and rural youths. A total of 450 national as well as international stakeholders attended the virtual meeting. Dr. K. Alagusundaram, Deputy Director General (Agricultural Engineering), ICAR. Dr. S.N. Jha, ADG (PE), ICAR, Dr. Nachiket Kotwaliwale, Director ICAR-CIPHET, Dr. R.T. Patil, former Director, ICAR-CIPHET were the eminent personalities who addressed the audience. Altogether 12 business viable technologies, including machines for makhana processing, wadi making, live fish carrier system, horticultural and speciality products processing machines, their related technologies and also processes for speciality

product were showcased during the meeting to encourage the firms/entrepreneurs/ agripreneurs for establishing the agribusiness enterprise. During the business meet, Dr. Ranjeet Singh, PI Agri-Business Incubation Centre, highlighted the available facilities for incubation and urged interested stakeholder to approach ICAR-CIPHET for availing the facility. Dr. D.N. Yadav, In-charge Head, ToT Division, briefed the technology transfer process of the institute and facilitated the event. The video of entire event is available on CIPHET YouTube page (<https://www.youtube.com/icarciphnet>).

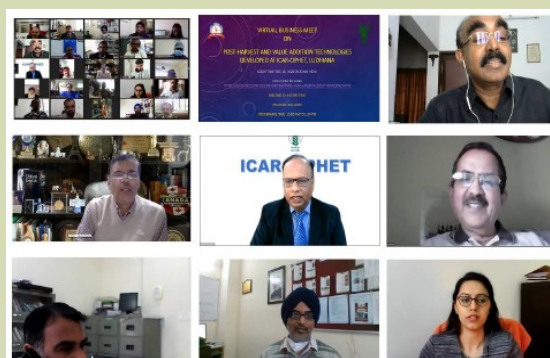


Fig 12: Virtual business meet

List of technologies presented in the Business Meet

S. No.	Technology name	Concerned Scientist
1	Makhana processing	Dr. R.K. Vishwakarma
2	Wadi making machine	Dr. Sandeep Mann
3	Live fish carrier system	Dr. Armaan U. Muzaddadi
	Cryogenic grinding of spices	Dr D N Yadav
5	Auto-clavable microencapsulation system	Dr. K. Narsaiah
6	Red-chilli destalking machine	Dr. Purna Nath
7	Novel process and indigenous pilot plant for production of protein isolates from de-oiled cakes/meals	Dr. D.N. Yadav
8	Mobile cart for fruits and vegetable storage & vending.	Dr. Sakharam Kale
9	Aonla processing plant	Dr. Ramesh Kumar
10	Gluten free muffins	Dr. Manju Bala
11	Multi grain flour	Dr. Mridula D
12	Groundnut based dairy analogues	Dr D N Yadav

EVENTS/EXTENSION ACTIVITIES

Vigilance Awareness Week, 2020 - Satark Bharat, Samridhd Bharat

ICAR-CIPHET observed Vigilance Awareness week during 27 Oct - 02 Nov, 2020 at both the campuses with great enthusiasm and dynamic involvement of all the staffs keeping all preventive measures of COVID-19 pandemic. In connection to this pledge was taken by the staffs on 27 Oct, 2020 to adopt integrity and focus on improvement of internal processes and activities during the year. Slogan and poster competition were also organized.



Fig 13: Vigilance Awareness Week

- **Rashtriya Ekta Diwas**

Staffs of ICAR-CIPHET celebrated Rashtriya Ekta Diwas on 31 Oct, 2020 (online) to mark the birth anniversary of Sardar Vallabhbhai Patel. On this occasion, staffs of the institute took pledge to maintain the nation's unity and to acknowledge Sardar Vallabhbhai Patel's efforts in uniting the nation.

- **Extension Activities**

Team of Farmer FIRST Project from ICAR-CIPHET visited the established Agro-processing center at Khalsa Farm, Balachour, Nawanshahr and Pabla brothers, Bharta Khurd, Rahon, Nawanshahr on 10 Nov, 2020 to monitor the progress on processing of

cereals, pulses, spices. Technical guidance for packaging, registration, licensing and marketing of their products were also given during this visit.



Fig 14: Visit at Agro processing centre at Balachour and Bharta Khurd

The team visited the established Jaggery production plant at Uppal Farm, Rahon, Nawanshahr on 10 Nov, 2020 and discussed about processing of sugarcane varieties, solid & granular jaggery production they also suggested technical aspects on packaging and marketing of jaggery products in the unit.



Fig 14: Visit at Jaggery processing plant visit at Rahon

- **Meeting of Scientific Advisory Committee (SAC) of KVK, Abohar**

Scientific Advisory Committee meeting was held on 31 Dec, 2020 by KVK, ICAR-CIPHET, Abohar under the chairmanship of Dr. Nachiket Kotwaliwale, Director, ICAR-CIPHET, Abohar. Dr. Manish Chetali Dean, College of Veterinary Sciences, GADVASU, Rampura Phool, Director KVK, Bathinda PAU, Project Director ATMA, DDM, NABARD, Deputy Horticulture, Distt. Agri. Officer, Dist. Veterinary Office, Dist. Fishery Officer, Progressive farmer and Farm women also participated in the SAC meeting. Dr. Ramesh Kumar I/c KVK, ICAR-CIPHET, Abohar and Member Secretary, SAC presented the achievements of KVK and action plan. About 30 officers and scientists from PAU and CIPHET participated in the meeting.



Fig 15: Scientific Advisory Committee meeting

- **Indian Constitution Day**

The institute celebrated the Indian Constitution Day on 26 Nov, 2020 to commemorate the adoption of the Constitution of India on 26 Nov, 1949. Dr. D.N. Yadav outlined the 6 fundamental rights recognized by the Indian Constitution. He apprised the staffs to be familiar with the constitutional rights and duties.

PARTICIPATION IN CONFERENCE/ SEMINAR/ MEETING

- **Live telecast on PM Kisan Money Transfer**

ICAR-CIPHET organized live telecast on PM Kisan money transfer on 25 Dec, 2020 staff and 40 farmers participated in the live telecast under Pardhan Mantari Kisan Samman Nidhi (PM-Kisan) via video conferencing.



Fig 16: PM-Kisan live telecast at ICAR-CIPHET

Programs Attended:

- Scientists of ICAR-CIPHET attended webinar on "How to publish open access and succeed with your publication" organized by Talor & Francis Group on 05th Oct 2020.
- Dr. Swati Sethi and Dr. Sandeep Dawange attended an International online Faculty Development Programme on 'Green perspectives in food processing sector'

jointly organized by NIFTEM, Sonapat during 05-21 Oct, 2020.

- Scientists of ICAR-CIPHET attended the online session of Vaibhav-2020 on 6 Oct, 2020.
- Er. Akhoun Asrar attended the online session 'Automation in Farming System' on 6 Oct, 2020.
- All the scientists of ICAR-CIPHET attended the Webinar on 'FAO 75 years and World Food Day celebration program on 16 Oct, 2020, organized by ICAR, New Delhi.
- Scientists and staffs of Transfer of Technology Division, ICAR-CIPHET represented the virtual stall of ICAR-CIPHET in 'CII Digital Conference and Exhibition' during 16-22 Oct, 2020.
- Dr. Th. Bidyalakshmi Devi attended one-week live online training on "Creativity & innovation management in research" for women scientists under Women Component DISHA from 26-30 Oct, 2020 organized by ESCI, Hyderabad.
- ICAR-CIPHET, Abohar organized a cleanliness campaign and tree plantation programme at ICAR-CIPHET, Abohar on 30 Oct, 2020 as a part of week-long program 29 Oct, 2020 - 02 Nov, 2020 organized to commemorate the 150th Birth Anniversary of Mahatma Gandhi. During the event scientists, employees and contractual staffs actively participated and various trees were transplanted in the fallow land.
- Dr. Sandeep Dawange attended Web Clinic meeting on 'Agriculture production and innovation & Post-harvest technology" through ISTI portal on 5 Nov, 2020.
- All the scientists of ICAR-CIPHET attended the online ICAR-Industry Meet on Maize

Value Chain, organized by ICAR-IIMR, Ludhiana on 12 Nov, 2020.

- The Institute Advisory Committee meeting of the Farmer FIRST Project, ICAR-CIPHET, Ludhiana was held on 24 Nov, 2020 through online mode.



Fig 17: Institute Advisory Committee meeting

- Dr. A.U. Muzaddadi attended 6 days online training on "Management of digital hygiene: Staying secure in Cyber-space", sponsored by DST, GoI under Nation Online Training Programme for scientists and technologists working in government sector during 21-26 Dec, 2020

PATENTS FILED/GRANTED:

Filed a patent entitled 'Mechanized system for primary roasting of raw makhana seeds and process thereof' (patent application no. 202011037651) Team: Kalyani Sharma, S. Patel, Vishwakarma Rajesh Kumar, Mridula D. & S. N. Jha

TRANSFER OF TECHNOLOGY

- Mechanized system for primary roasting of raw makhana seeds and process thereof (Patent application no. - 202011037651)' was licensed to M/s Unitech Technocrats, Vill. Meerpur Gurudwara, Kala Amb, Sirmour-173030, H.P. on Oct 03, 2020.

- Process for preparation of alcoholic beverage with nutraceutical properties from kinnow peels (Patent No. 337178)' was licensed to M/s Bio-Age Equipments & Services, Plot No. 468, Janata Land Industrial Park, Sector-82, Mohali-Chandigarh, Punjab-140306 on Oct 17, 2020.



Fig 18: Technology transfer M/s Bio-Age Equipments & Services

AWARDS AND ACHIEVEMENTS:

1. Dr. B. M. Ghodki, Er. Yogesh Kalnar, Ms. Surya Tushir, Dr. K. Narsaiah & Dr. R. K. Singh received the 'Best Technology Award' 2020 for "Portable Smart Ultraviolet-C Disinfection System (UViC)" on the occasion of 32nd Institute Foundation Day 2020.

PERSONALIA

- Dr. Nachiket Kotwaliwa joined ICAR-CIPHET as Director on 12 Oct, 2020.



- Sh. Kunwar Singh, Assistant got promoted to the post of Asstt. Admn. Officer w.e.f. 09 Nov, 2020.



- Sh. Gurdial Singh, UDC got promoted to the post of Assistant w.e.f 13 Nov, 2020.



- Dr. Bibwe Bhushan Ratnakar, Scientist has been transferred to ICAR-DOGR, Pune on 13 Nov, 2020.



- Dr Sandeep Mann has given charge as OIC PME w.e.f. 06 Oct, 2020.



- Dr. D.N. Yadav has taken charge as acting head of Transfer of Technology Division w.e.f 08 Oct, 2020.

TITBITS

To maintain the water content of the fruit, as important as lowering the temperature

In preserving fresh fruit and vegetables, there is consensus that the main factor for success is keeping the temperature as low as possible without damaging the product. However, there is another factor, already recognized since the pioneering works of the middle of the last century, frequently left behind in consideration. In order to achieve the maximum shelf life of fruits and vegetables, it is a question of avoiding dehydration, preserving their natural water content.

https://www.postharvest.biz/en/company/quercy-refrigeration/_id:63193,seccion:news,noticia:79498/

Reducing food wastage will help in lowering green-house emissions

Inefficient agricultural practices and its supply chain inadequacies hamper efforts of many in reducing the carbon footprint. Recognising the need to improve the situation can help reduce the greenhouse gas emissions, while directing us towards running sustainable supply chains.

<http://www.fnbnews.com/Food-Processing/reducing-food-wastage-will-help-in-lowering-greenhouse-emissions-61717>

India's first protein-rich water to help enrich a healthy lifestyle- Aquatein

Aquatein has launched India's first protein water. The protein-rich product is neither a powder nor a milk-based beverage.

<http://www.fnbnews.com/Beverage/indias-first-proteinrich-water-to-help-enrich-a-healthy-lifestyle-aquatein-61979>

SECTORAL NEWS

To approach latent post-harvest diseases as complex problems that require multiple interventions

Post-harvest diseases of pome fruit are typically caused by a wide diversity of fungal pathogens, and the list of confirmed causal agents is still growing. Well-known pathogens causing post-harvest losses after latent infections are *Neofabraea* spp. and *Colletotrichum* spp., but in many cases the causal agents that occur in a specific region remain unknown and their control relies on the routine use of fungicide applications. However, due to the growing concern over the use of synthetic fungicides, alternative control measures are highly desired.

Over the past years the use of physical treatments, natural compounds, and biocontrol agents have been investigated as alternatives. However, no single method has emerged that can robustly and reliably control postharvest diseases of pome fruit in practice. It requires multiple interventions at different stages of the disease process in a systems intervention approach for their control.

https://www.postharvest.biz/en/news/80784/_id:80784/

Hot water dipping effectively reduced the weight loss and the disease index of wounded potato tubers

Hot water dipping promotes wound healing of potato tubers by activating phenylpropanoid metabolism, increasing H₂O₂ content and peroxidase activity, promoting the suberin and lignin accumulation at wound sites and decreasing the weight loss and the disease index of tubers during healing.

https://www.postharvest.biz/en/news/_p:8/

NIR for grapes, to detect a wide range of chemicals in an easy way

As NIR spectroscopy can detect a wide range of chemicals in grapes, a single, easy-to-use tool manages to replace an array of complicated laboratory procedures. Based on the results, which are obtained immediately, farmers, suppliers, and processors can make vital management decisions in real-time.

https://www.postharvest.biz/en/company/felixinstruments/_id:62863,seccion:news,noticia:79472/

FSSAI prescribes labelling requirements of pre-packaged foods and display

The Food Safety and Standards Authority of India (FSSAI) has notified Food Safety and Standards (Labelling and Display) Regulations, 2020, prescribing the labelling requirements of pre-packaged foods and display of essential information on premises where food is manufactured, processed, served and stored. According to the notification, the Food Business Operator (FBO) shall comply with all the provisions of these regulations after one year from the date of their publication in the Official Gazette except chapter-3 (display of information in food service establishments) of these regulations, to which Food Business Operator shall comply by January 1, 2022.

<http://www.fbnnews.com/Policy-Regulations/fssai-prescribes-labelling-requirements-of-prepackaged-foods-and-display-61822>

Processing industry related to value addition to agri products priority: PM

Prime Minister, Narendra Modi flagged off the 100th Kisan Rail from Sangola in Maharashtra to Shalimar in West Bengal via video conferencing. Union Ministers Narendra Singh Tomar and Piyush Goyal were also present on the occasion.

He expressed happiness that even during the Corona pandemic, 100 Kisan rails were launched in the last 4 months. He said this service will bring a major change in the economy related to farming and will also increase the strength of the country's cold supply chain. He added no minimum quantity has been fixed to transport through Kisan rail so that, even the smallest produce will be able to reach the big market properly at a low price.

<http://www.fbnnews.com/Policy-Regulations/processing-industry-related-to-value-addition-to-agri-products-priority-pm-61823>

Electronic nose

A team of scientists led by Nanyang Technological University; Singapore (NTU Singapore) has invented an artificial olfactory system that mimics the mammalian nose to assess the freshness of meat accurately. The 'electronic nose' (e-nose) comprises a 'barcode' that changes color over time in reaction to the gases produced by meat as it decays, and a barcode 'reader' in the form of a smartphone app powered by artificial intelligence (AI). The e-nose has been trained to recognize and predict meat freshness from a large library of barcode colors. Ref: *Advanced Materials* DOI: 10.1002/adma.202004805

Chemical compounds in some foods can be a help in controlling COVID-19

Chemical compounds in foods or beverages like green tea, muscadine grapes, and dark chocolate can bind to and block the function of a particular enzyme, or protease, in the SARS-CoV-2 virus, according to a new study by plant biologists at North Carolina State University. Ref: *Frontiers in Plant Science*.

DOI: 10.3389/fpls.2020.601316

NEWS COVERAGE

भंडारण विकास के लिए किसान जागरूकता कैंप का आयोजन

अबोहर, 15 दिसंबर (कथूरिया) : कृषि विज्ञान केंद्र-सीफेट अबोहर में सेंट्रल वेयर हाऊस अबोहर के सहयोग से संयुक्त तौर पर भंडारण विकास हेतु किसान जागरूकता कैंप का आयोजन किया गया जिसमें अबोहर क्षेत्र के करीब 50 किसानों ने हिस्सा लिया। इस मौके पर सीफेट प्रभारी डा. रमेश कुमार ने किसानों को फल सब्जी प्रसंस्करण व इसके भंडारण को वैज्ञानिक ढंग से करने की जानकारी दी। सेंट्रल वेयर हाऊस चंडीगढ़ के एजीएम रवेश मिश्रा ने किसानों से वेयरहाऊस में अनाज रखने तथा इस पर मिलने वाली सहायता के बारे में विस्तृत जानकारी दी। वहीं पंजाब नेशनल बैंक के अधिकारी चंद्रकांत ने बैंक से मिलने वाले ऋण व अन्य



कार्यक्रम में हिस्सा लेते हुए किसान।

सुविधाओं की जानकारी दी। सीफेट के वैज्ञानिक डा. सखाराम काले ने किसानों को वैज्ञानिक ढंग से भंडारण के बारे में जानकारी प्रदान की। सीटीओ डा. विनोद सहराण ने गेहूं संबंधी तथा इसका घर पर भंडारण करने के बारे में जानकारी प्रदान की। वहीं सेंट्रल वेयरहाऊस

अबोहर की मैनेजर रजनी पोटलिया ने किसानों को सेंट्रल वेयरहाऊस का फायदा उठाने की अपील की और सभी का आभार व्यक्त किया। इस अवसर पर प्रशिक्षण प्रमाण पत्र व प्रति व्यक्ति 200 रुपए मानदेय के रूप में किसानों को वेयरहाऊस द्वारा वितरित किया गया।

Wed, 16 December 2020
epaper.dainiksaveratimes.org/c/57057309



नई पीढ़ियों को दें स्वच्छता का उपहार : डा. नचिकेत

वैज्ञानिक सलाहकार समिति बैठक व स्वच्छता पखवाड़ा संपन्न

अबोहर, 31 दिसंबर (कथूरिया) : मलोट-हनुमानगढ़ बाईपास पर स्थित सीफेट व केवीके परिसर में आयोजित सफाई पखवाड़ा व वैज्ञानिक सलाहकार समिति की बैठक वेंचर वेंचर को संपन्न हो गए। इस मौके पर सीफेट के डायरेक्टर डाक्टर नचिकेत कोतवाली वाले ने सभी से स्वच्छता अपनाने तथा हर साल 100 घंटे सफाई करने के लिए प्रेरित किया। इसके साथ ही कृषि विज्ञान केंद्र के वैज्ञानिक सलाहकार समिति की बैठक में सीफेट के डायरेक्टर डाक्टर नचिकेत कोतवाली वाले ने अध्यक्षता सभी विभागों द्वारा अपने विभाग के



वैज्ञानिक सलाहकार समिति की बैठक में मौजूद प्रमुख अतिथिगण।

केंद्र के प्रभारी डा. रमेश कुमार ने पिछले वर्ष केंद्र की ओर से किए गए कार्यों पर प्रकाश डाला और आगे के एक्सप्लान प्लान की जानकारी दी। इस मौके पर कृषि विज्ञान केंद्र की आगे के वर्ष की कार्य योजना पर प्रकाश डाला गया।

प्रशिक्षण को शामिल करने हेतु विचार प्रकट किए। सीफेट के निदेशक ने बच्चों को प्रशिक्षण कार्यक्रम में शामिल करने पर खुशी जाहिर की। सीफेट-केवीके में प्रदर्शनी हाल बनाने, सामान बेचने हेतु वालामार्ट के आधार पर छोटा स्टोर डिजाइन करने की जानकारी दी

कोविड-19 को देखते हुए ऑनलाइन व्यवस्था बनाने पर बत दिया। इस मौके पर केवीके के सीटीओ डा. विनोद सहराण ने आभार व स्वागत किया। बैठक से पूर्व फकरों से वातचीत करते हुए डा. नचिकेत कोतवाली वाले ने बताया कि स्वच्छता नहीं अपनाने और प्लास्टिक का उपयोग करने से पर्यावरण को भारी नुकसान हो रहा है। भोपाल स्थित इंडियन इंस्टीट्यूट ऑफ सॉल्वर साइंस ने अपनी रिपोर्ट में भी कहा कि यदि प्लास्टिक इसी प्रकार से जमीन में मिलाया जाता रहा तो अगले साठ सालों में मिट्टी अपनी प्रकृति खो देगी। पर्यावरण संरक्षण के लिए यदि काम होते हैं तो हम अपने नई पीढ़ी को एक मांने में निश्चित रूप से उपहार देकर जाएंगे।

Fri, 01 January 2021
epaper.dainiksaveratimes.org/c/57423632



सीफेट स्वच्छता पखवाड़ा मनाया



कार्यक्रम में मौजूद सीफेट के पदाधिकारी।

अबोहर(कथूरिया) : मलोट-हनुमानगढ़ रोड बाईपास पर स्थित सीफेट में 16 दिसंबर से लेकर 30 दिसंबर तक स्वच्छता पखवाड़े का आयोजन किया गया। बुधवार को पखवाड़े के समापन पर सीफेट के डायरेक्टर डा. नचिकेता कोतवाली वाले ने सभी को स्वच्छ रहने और अपना आस-पास स्वच्छ रखने का आह्वान किया। उन्होंने कहा कि खुद भी स्वस्थ रहेंगे और देश भी स्वस्थ होगा। इस पखवाड़े के दौरान स्वच्छता हेतु बैनर, 100 घंटे प्रति वर्ष स्वच्छता हेतु शपथ ली गई। 23 दिसंबर को किसान दिवस मनाया गया और उन्हें स्वच्छता के प्रति जागरूक किया गया। प्लास्टिक कचरे के निस्तारण हेतु नालियों की सफाई, सीवरेंज लाइन की सफाई, कंपोस्ट बनाने हेतु जागृति की गई। सामुदायिक केंद्रों व मंडियों में सफाई हेतु जागृति कार्यक्रम आयोजित किए गए। मोहल्लों व गांव में स्वच्छता जागृति अभियान चलाया।

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